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AGRICULTURAL GROWTH PROGRAM - AGRIBUSINESS AND MARKET DEVELOPMENT (AGP-AGP-AMDE) PROJECT

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BASELINE REPORT

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AGRICULTURAL GROWTH PROGRAM- AGRIBUSINESS AND MARKET DEVELOPMENT (AGP-AGP-AMDE) PROJECT

BASELINE REPORT, HOUSEHOLD SURVEY

OCTOBER 31, 2012

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This baseline survey for the Ethiopia AGP-AMDe program is the result of a coordinated team effort by many different people and organizations. We would like to thank the USAID Mission in Ethiopia for their support, as well as the AGP-AMDe staff and field officers for their roles in reviewing the questionnaire, participating in training events and participating in the piloting events. They all worked tirelessly to get the necessary permissions for carrying out the survey enumeration. We would also like to give our appreciation to the many district coordinators and community leaders who helped introduce our survey teams to the communities and households we visited. In addition, we could not have completed this survey without the dedicated support of our supervisory team, logistics staff and enumerators.

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ACRONYMS

AGP	Agricultural Growth Program
AGP-AMDe	Agricultural Growth Program – Agribusiness and Market Development Project
CAADP	Comprehensive Africa Agriculture Development Program
CSA	Central Statistics Authority
EA	Enumeration areas
FGD	Focus Group Discussions
FHH	Female headed household
FTF	Feed the Future
GIS	Geographic Information System
GOE	Government of Ethiopia
HH	Household
IFPRI	International Food Policy Research Institute
LSMS	Living Standards Measurement Study
M&E	Monitoring and evaluation
MoA	Ministry of Agriculture
MERL	Monitoring, Evaluation, Results and Learning
MHH	Male-headed household
MSME	Micro, small and medium enterprises
NEPAD	African Union-sponsored New Partnership for Africa's Development
NGO	Non-Governmental Organization
PMP	Performance Management Plan
SMS	Short Messaging Service
SNNPR	Southern Nations, Nationalities, and People's Region
STD (DEV)	Standard Deviation
USAID	United States Agency for International Development
USD	United States Dollars
VAR	Variance
VC	Value Chain

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EXECUTIVE SUMMARY

The Government of Ethiopia, through the Ministry of Agriculture, and in collaboration with various donor agencies, including USAID, has initiated a broad-based program for supporting the agricultural sector, known as the Agricultural Growth Program (AGP). The AGP is active in four regions: Amhara; Tigray; SNNPR; and Oromia. One of the components of AGP is to strengthen the capacity of farmer organizations and their service providers by scaling up best practices and adopting improved technologies. The Agribusiness and Market Development Program (AGP-AMDe) is a sub-component of this activity.

AGP-AMDe focuses on commercializing the agricultural sector and, in particular, focuses on developing the competitiveness of six specific value chains: wheat, maize, honey, coffee, sesame and chickpea. These crops were selected because of the potential income opportunities they provide to households and their potential to reduce poverty and hunger. The AGP-AMDe program has four primary components:

1. Improving the competiveness of selected value chains
2. Improving access to finance
3. Improving the enabling environment of selected value chains
4. Stimulating increased innovation and investment

The AGP-AMDe project is part of USAID's Global food security initiative known as Feed the Future. The initiative "harmonizes regional hunger-and poverty-fighting efforts in countries with chronic food insecurity and insufficient production of staple crops".

Data from the baseline survey confirmed that the project assumptions and findings are largely correct and that the activities planned are in line with the major needs of the targeted areas. The full potential of the targeted value chains are far from being fully realized and the survey results corroborate this.

The demographic data shows that a large majority of households rely on farming as a major source of income. An analysis of consumption indicates that the majority of households in the targeted areas are predominantly poor. Gender inequalities have emerged throughout the analysis, revealing a context in which men are the main decision makers and generally have more knowledge of agriculture technologies than women. More men than women have access to credit; however, credit providers feel that women are more reliable in loan repayments.

With respect to productivity of value chains, the survey finds that the majority of farmers use animal power to prepare their land for cultivation especially for households that primarily cultivate sesame and maize. Of the total households surveyed, the use of tractors is low and no maize producers report using tractors. The majority of farmers do not use improved seed varieties; most households interviewed stated that they retain seed from current harvests to be planted the next season. The use of irrigation technology is very low across all value chains. The majority of all households harvest crops by hand, with very few using mechanized processes. Pesticides and other inputs also have limited use with cost being the main constraint. Fertilizer is limited to use in maize and wheat with most farmers reporting the use of DAP and Urea. The other value chains show a very low use of fertilizer used as an input. Land ownership is high across the entire survey, with borrowing and/or renting land uncommon. With respect to crop productivity, crop yields are generally low by international standards and highly variable among households. Honey, the only non-crop value chain

examined, also has variable annual production among households and households using modern hives produce only slightly more honey than those using traditional approaches.

In terms of competitiveness within the value chain, highest cost of production is for wheat, with all other crops substantially lower. Households in Tigray that are producing sesame are shown have the highest average expenditure per hectare since it requires greater expenditure than the other crops on labor. When looking at the proportion of crop sold, sesame is the highest, with wheat, maize and honey significantly lower. The gross margin per hectare for the cultivated value chains vary widely between regions, with the average margin for maize and wheat the highest followed by honey. The study finds negative gross margins for sesame and honey in Tigray, sesame in Amhara and coffee in Oromia. These can be attributed to the low yields reported, which may also reflect the poor cropping season and low farm-gate prices. Households may also under-report farm-gate prices.

Data on access to finance shows that borrowing among men is significantly higher than women. There are also differences among regions, with Amhara and Oromia having a significantly greater number of loans than households surveyed in Tigray and SNNPR. Microfinance institutions, neighbors and friends are the most common sources of loans, with loans reported from Savings and Credit Associations significantly lower. Interestingly, despite receiving far fewer loans than men, women are considered by lenders to be more reliable in terms of loan repayment. When looking at savings, the survey finds that slightly more men than women belong to savings groups; however, both are below 30 percent of the total number of households interviewed.

In assessing new technologies, the data indicate a small number of farmers making capital investments in technology. When traders and processors were asked about their investment activities, about 50 percent stated that they plan to invest in their business in 2012, with the most common investment cited being the purchase of new processing plants and/or property. When looking at the number of farmers investing in new farming technologies and management practices, investment in fertilizer is the most often cited followed by storage, education and land preparation. Of all regions, households in SNNPR have by far the lowest level of technology use. The data generally shows that farmers are not currently likely to invest in machinery to improve farm production and prefer to hire labor.

Extension services are an important means for the dissemination of information and new technologies and techniques to smallholder farmers, which in turn can improve production and profitability. In addition, they can serve as a vehicle for providing crucial information on other issues such as health and nutrition. A high percentage of male respondents and a much lower percentage of female respondents report receiving extension services in the past 12 months. The most frequently cited source of agriculture and farming information is friends and relations, followed closely by agriculture extension officers. Very few households interviewed stated that they receive information from media, such as radio and television.

The survey examined behavior change and gender, as behavior change among both men and women is an important component of the AGP-AMDe activity. The division of labor between men and women in crop production varies. However, women usually do the majority share of weeding, threshing, storing and processing. The men, on the other hand, are responsible for sowing and planting. Men are also associated more closely with cash crops (sesame and coffee), whereas women

tend to be more involved with subsistence farming (maize).1 The survey also examined decision-making. Survey respondents were asked who was primarily responsible for making decisions on certain issues – male only or female only or joint decisions. Overall the distribution is evenly split, despite a few exceptions. On average, men have more say regarding agricultural decisions, especially when deciding which and how much of each input should be used. On the other hand, women tend to have more of a decision on buying small food items, groceries, toiletries and expenses for family planning. In households that claimed they make joint decisions, the gender differences and value ascribed to the various kinds of household and production decisions were far more balanced.

When looking at knowledge levels between men and women, a lower percentage of women report being very knowledgeable on agricultural practices, and a higher percent report no knowledge on the subject. Both females and males indicate noticeably low levels of knowledge on irrigation and use of irrigation water for the wheat, chickpea, sesame and maize value chains. When men and women were asked reasons for their lack of knowledge, they all generally cited being unaware of the topic.

To better understand poverty and develop metrics to assess the impact of the project on household poverty, the survey collected data on consumption and assets in order to provide a proxy measure for poverty. The poverty measure developed is useful as an indicator but is limited to a subset of consumption items. This provides an inferential measure for categorizing households in terms of consumption. The data show that the least poor households consume about three times more in food per equivalent adult than the poorest households. The data show clear increasing trends from the poorest to the least poor households in terms of heads of livestock, possession of agricultural assets and general asset ownership. Poorer households have larger household sizes with an average of 6.28 persons and the least poor household size averages 4.6 persons per household.

When looking at poverty by value chain, the baseline finds that poorer households tend to be maize growers and less poor households tend to grow wheat. There is almost a proportional change in value chain activity between poor households and less poor. Maize is produced in almost 58 percent of poor households compared to only 16 percent of less poor households. Wheat is produced in 52.29 percent of less poor and only 21.4 percent of poorest households. Coffee appears to be relatively stable across all households; honey production is highest among the poorest households. Sesame growers are more prevalent in the least poor households.

1 Note: Cash crops are considered to be coffee and sesame. Sesame is primarily grown in Tigray and parts of Oromia and show specific gender division of labor based on the value chain production cycle. Maize is considered a subsistence crop.

BACKGROUND

PROGRAM DESCRIPTION

The Government of Ethiopia, through the Ministry of Agriculture, and in collaboration with various donor agencies, including USAID, has initiated a broad-based program for supporting the agricultural sector, known as the Agricultural Growth Program (AGP). The AGP is active in four regions: Amhara; Tigray; SNNPR; and Oromia. The objective of one of the core components of AGP is to strengthen the capacity of farmer organizations and their service providers by scaling up best practices and adopting improved technologies. The USAID/Ethiopia Agricultural Growth Program-Agribusiness and Market Development (AGP-AMDe) Project is a sub-component of this larger objective.

AGP-AMDe, implemented by ACDI/VOCA, focuses on commercializing the agricultural sector and, in particular, on developing the competitiveness of six target value chains: wheat, maize, honey, coffee, sesame and chickpea. These crops were selected because of the potential income opportunities they provide to households and their potential to reduce poverty and hunger. The AGP-AMDe program has four primary components:

1. Improving the competiveness of selected value chains
2. Improving access to finance
3. Improving the enabling environment of selected value chains
4. Stimulating increased innovation and investment

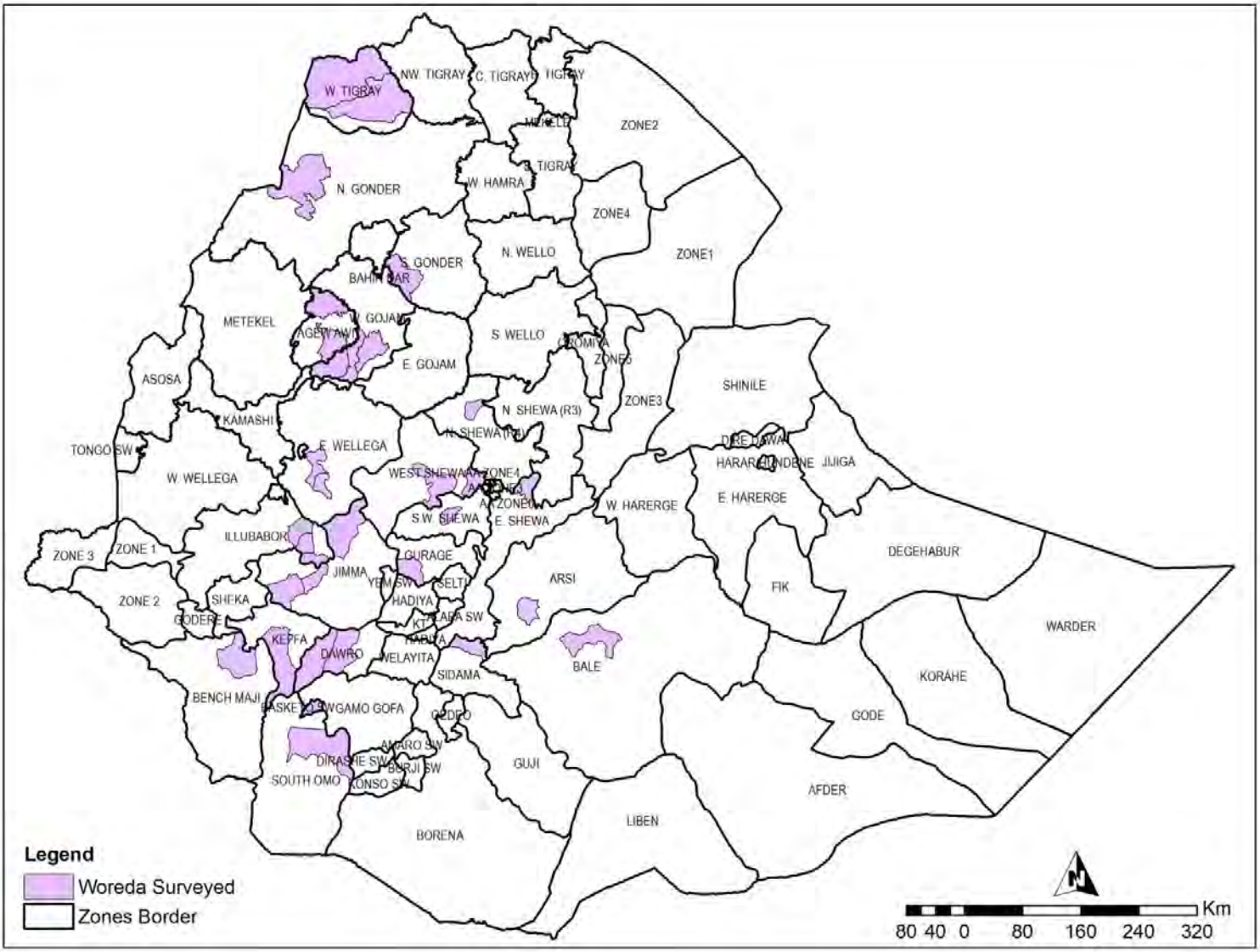
AGP-AMDe is part of USAID's global food security initiative known as Feed the Future (FTF). The initiative "harmonizes regional hunger-and poverty-fighting efforts in countries with chronic food insecurity and insufficient production of staple crops".[2]

In order to measure the impact of the AGP-AMDe program, a series of component level indicators were developed and formed the basis for measuring impact. These performance indicators are the basis of the results based framework and the projects monitoring and evaluation (M&E) system. For reference to the activities results framework, see Annex 1: AGP-AMDe PMP.

This baseline study was implemented in order to establish baseline results data that can be monitored through the project's M&E system and used to evaluate project impact through mid-term and endline evaluations.

[2] See ACDI VOCA web site for more information at http://www.acdivoca.org/site/ID/ethiopia-agricultural-growth-program-agribusiness-market-development-agp-AGP-AMDe

FIGURE 1: BASELINE SURVEY GEOGRAPHY: WOREDA



PURPOSE AND EXPECTED USE OF THE BASELINE SURVEY

USAID's FTF initiative places a strong emphasis on M&E and evidence-based program management. FTF's M&E approach is fully results-based, with a detailed logical framework and a comprehensive Indicators Handbook[3] available for implementing partners to ensure full alignment.

For the AGP-AMDe Project, ACDI/VOCA has designed a thorough system of real-time data capture, including trends and impact information, using a broad array of tools and methods. The project Monitoring, Evaluation, Results and Learning (MERL) system feeds into both FTF and the Comprehensive Africa Agriculture Development Program (CAADP [4]) and is designed to demonstrate, over the life of the project, the extent to which impacts are broad-based and systemic. The ultimate aim of the MERL system is to "understand the underlying reasons change is occurring or not occurring in the field and then use that information to both *learn* and *adapt* both the actions within the projects (program response) and the conceptual framework (program design)". The six areas the MERL system examines are: relevance, efficiency, effectiveness, impact, sustainability and external utility.

The baseline survey represents the first step of this process. The survey has the overall purpose of collecting comprehensive, reliable and comparable household-level data that will be used to track the progress of the AGP-AMDe Project and measure its impact in the final evaluation. Specifically, the baseline survey was designed to collect information in the project area on value chain productivity and competitiveness, access to finance, application of new technologies, behavior change, and household poverty characteristics.

[3] The FTF Indicator Handbook can be downloaded from the FTF web site at http://www.feedthefuture.gov/.

[4] Through the African Union-sponsored New Partnership for Africa's Development (NEPAD), CAADP aims to facilitate economic growth, eliminate hunger, and reduce poverty in Africa with agriculture-led development. To reach these aims, African governments have agreed to increase public investment in agriculture to a minimum of ten percent of their national budgets and to increase agricultural productivity to at least six percent. Completely African-led and owned, CAADP represents African leaders' collective vision for the continent's agricultural future. The program is based on four pillars: land and water management; market access; food supply and hunger; and agricultural research. (*Source: USAID website*)

SURVEY OBJECTIVES

The baseline survey was designed as a longitudinal impact evaluation exercise to provide project managers with critical results and impact data to inform project implementation and results findings. Longitudinal methods generally call for establishing a baseline before project implementation; a midline survey, which measures expected impacts and helps adjust program direction, and an endline survey, used for determining program impact. Baseline data is used to complete the following:

- Compute baseline indicators, which will be used to compare and measure significant impact of the project. These will be used to compare progress over the course of the survey and include a comparison to midline and endline surveys.
- Establish program targets.
- Initiate contact with AGP field agents.
- Form the basis for providing attribution of improvement of quality of life to U.S. Government assistance.
- Develop Woreda level profiles for understanding key implementing agents such as: producers; cooperatives; and other value chain actors.
- Record critical Geographic Information System (GIS) information for accurate location of key institutions
- Validate the value chain assumptions at the Woreda and kebele levels (i.e., validate the AGP assumptions of value chain productivity).
- Form the basis for developing the project M&E System.

Three primary instruments were designed in order to formalize the data acquisition process (field work). Understanding these instruments provides insight into the purpose of the survey.

Household Questionnaire

The purpose of the household questionnaire was to collect information on value chain issues that affect the household. The household survey collected information at the farmer level on the following[5]:

- Household composition and standard demographic data
- Occupation
- Plot and planting details
- Cultivation, harvest and threshing details
- Honey production (where applicable)
- Farm inputs
- Product marketing and sales
- Product storage
- Housing characteristics
- Credit and saving
- Access to finance
- Knowledge and Practice (social behavior)

[5]All questionnaires are available for downloading at: http://AGP-AMDe.ki-archive.com/index.php/catalog/1. They can also be found in Annex 2 of this document.

Institutional Questionnaire

This questionnaire was a comprehensive Woreda-based questionnaire designed to interview key Woreda level institutions and value chain actors that would serve as agents for project implementation. The institutional questionnaire was deigned to retrieve information from the following:

- Key Woreda level agents
- Location of key Woreda institutions and infrastructure
- Producer Cooperatives
- Credit and Savings Institutions
- Research Institutions
- Traders and Processors
- Private Input Suppliers
- Crop Market Prices (local)
- Other Institutions

These sections were designed to provide a rich source of data at the Woreda level, while also including contact and GIS location information.

Focus Group Discussions

Focus Group Discussions (FGD) were designed to be held in 35 Woredas to obtain information from farmers. All male and all female groups were interviewed separately. The data provided anecdotal and supporting evidence and qualitative experiential information to deepen the understanding of specific issues affecting communities and supplement the household level findings. Initially, the FGD were conducted with various groups such as cooperatives, traders etc. These were combined to form the institutional questionnaire. As the costs of undertaking the institutional questionnaire proved an additional burden, there was some discussion about omitting the FGD discussions since similar information was acquired through the institutional questionnaire. In the end, Farmers' Group focus group discussions were undertaken in 25 Woredas.

Note on Population Based Indicators

At the outset of the survey methodological development, there was discussion on the ability and adequacy of the survey to collect population based indicators (such as consumption proxy for income). It was felt that population based indicators would be outside of the scope for the current survey. While some basic consumption data were collected in the baseline, they are limited in their utility. A full blown Living Standards Measurement Study (LSMS)[6] type consumption module requires a different approach which was not part of the objective of the survey.

[6] For more information on LSMS, the World Bank has developed a comprehensive overview. This can be found at the World Bank website: http://econ.worldbank.org

SURVEY METHODOLOGY AND DATA COLLECTION TECHNIQUES

Design

One of the key issues discussed during the baseline preparatory phase was the need to focus on USAID attribution of impact. Various models were considered including the traditional control group impact evaluation. Strict impact attribution requires comparison of change over the project period between the control and treatment households. Treatment households are defined as those households benefiting from the project activities. However, over such a long period, there is a very strong chance of control group contamination. In other words, the treatment "leaks" from the treatment group to the non-treatment group, thus making it impossible to compare households that benefit and those that do not benefit from AGP-AMDe.

Sharing of information and technology between intervention and non-intervention areas is explicitly encouraged in the program design. Since the delivery model is through institutions and not via individual household registration, excluding households from coverage would be difficult and counterproductive to the overall goal of the project. Creating a control group by excluding entire Woredas over the project period would have proved politically unpopular and not in keeping with the expansion strategy.

In developing the survey methodology, three options were explored:

Option 1: Sample treatment and control cooperatives and focus investment on specific cooperatives

Cooperatives are a primary delivery mechanism, so one option considered was to sample randomly assigned cooperatives to the control and treatment groups and then sample households from within the catchment areas of each cooperative.

The challenges posed by Option 1 included:

- The program actively encourages learning between cooperatives, so control group contamination would occur.
- The method would encourage people to defect from control cooperatives to treatment ones.
- Some cooperatives would be excluded from the program for four years.
- There is no recent data on the cooperatives and their geographic location. There have been major changes in the cooperative regulations since 2006 (the most recent mapping exercise), so estimating the catchment areas would require a separate and expensive mapping exercise.
- This methodology would essentially become a three-stage sample selection and require the geographic grouping of enumeration areas (EAs) or kebeles around the selected cooperatives. Preliminary discussions with the Central Statistics Authority (CSA), who maintain the Master Sample from which we had drawn our EAs, indicated that the

methodology would be complex and time-consuming. It would essentially require "re-districting" the EAs around the treatment and control cooperatives.

Option 2: Randomly select control and treatment EAs

From an experimental design perspective, Option 2 would be the best approach. Control and treatment EAs would be selected and then the program would only be implemented in treatment EAs.

The challenges with the approach are all related to sample contamination. There is no way the program could prevent households from becoming involved in groups in neighboring treatment EAs. Contamination would occur from technology and knowledge diffusion.

Option 3: Use a diffusion model for comparison

This option entails randomly selecting households from randomly selected EAs. There is no explicit treatment and control group. Instead a measure of "proximity" is created which captures a household's degree of interaction with the program. This might include cooperative membership and attendance patterns, access to services and physical proximity to institutions that are supported by the program. The diffusion model requires that data on key interaction indicators be collected at mid-term and endline. When the data are analyzed, that analyst estimates how "proximity" to the program influences the key outcome and impact indicators using econometric methods. The null hypothesis is that there is no statistical relationship between interaction with the program and the key FTF outcome and impact indicators. The advantage of this approach is that it allows explicit measurement of diffusion effects. In effect, control group contamination becomes a virtue. The main problem with the approach is that results can be difficult to interpret, as they are somewhat more complex than the standard before and after comparisons of control and treatment groups.

Design Decision:

Given the high probability of control group contamination and the practical impossibility of secluding the control and treatment households, the survey was designed around Option 3, the diffusion model.

Diffusion Models

Diffusion models are commonly used to evaluate marketing impact. These are based on various theories of product or idea diffusion or "market penetration". Standard theories include the need for forward thinking leadership and agents that are willing to implement new products and ideas. In the case of Ethiopia, access to these agents through the Woreda implementation organization is also considered a key element. Over the course of the project, the idea and theory of diffusion modeling should be defined more clearly.

Sample Selection

A key limitation during initial discussions on sample size was based on budget. The survey budget allowed for a total sample size of 2,000 households. Furthermore, during the process of designing the sample, there was cognizance of the fact that the International Food Policy Research Institute (IFPRI) was leading a more general survey of the AGP impact. In defining the sample size, Kimetrica undertook a review of other national level surveys to compare their sample size with the AGP-AMDe survey sample.

Statistical Significance and Representation

It is critical to keep in mind that the AGP-AMDe survey is not designed to give national or even

regional statistically comparable results or statistics. The focus of the baseline survey is to provide baseline data for project implementation areas within the regions of activity and determine impact in these areas. Regional effects can be measured and hypothesized using national survey. A design that would account for full regional representation would require the possibility of stratifying the sample by intervention Woredas and non-intervention Woredas within the given four regions. Weights and regional results as provided in the baseline survey only reflect those populations living in the intervention areas.

Despite the budget limitation of a larger and more extensive survey, estimation of the adequacy of sample size was done. One general and initial rule of thumb used was to have a minimum of 30 clusters per domain of interest.7 The sample design for the AGP-AMDe survey initially used this rule of thumb and selected 35 clusters per Value Chain. Sub-national geographic domains were represented in so far as they included the value chains and not considered as important for representation. Sub-national regional domains are not to be considered representative of the entire region but only of the Woredas where the program is active. For this reason, the basis for selecting the clusters are restricted to the 71 Woredas in the zone of AGP-AMDe implementation and since the value chain was the most important domain, particularly for estimating yield, it was felt that the rule was sufficient for a first estimate. Because many of the indicators on the PMP are based on real number counts for measuring impact, we designed the sample broadly based on detection of an indicator at the 10 percent level present in one member of a household using an average household size of 5. It would be assumed that this was sufficient level of detection. The 10 percent figure was used as a gender selection since 10 percent of the population was expected to be female headed. This was done to assure that disaggregation for women headed households was not weak and that it was a relatively prevalent and agreed upon statistic. The formula below was used with the idea of having sufficient women headed households in the endline. In this case, applying the following assumption:

r= is the prevalence of the indicator
deff is the design effect (where 1.5 was used)[8]
n is the average household size
p is the proportion of the total population

The coefficients are used to account for non-response and a margin of error around the statistic.

$$n = \frac{4r(1-r)(deff)(1.1)}{(.12r)^2(p)(\bar{n})}$$

Another way to interpret this is that any individual statistic that is under 10 percent in any given household that is based on half the persons present might be considered weak. Using this rule, a sample size of 1833 would be considered sufficient and this was within the target for the endline.

A final check was done to see if sufficient power across the five value chains to assure that yield computations would be sufficient. In this case it was assumed that 420 households would be

[7] This is a standard used for household surveys such as the MICS survey. The techniques used to determine sample size are the same though the specific statistic used to compute the sample size may be different. See:

[8] The loss of effectiveness by the use of cluster sampling, instead of simple random sampling, is the **design effect**. The design effect is basically the ratio of the actual variance, under the sampling method actually used, to the variance computed under the assumption of simple random sampling

sufficient to compute yield in the value chain. Each household would be assumed to have two fields or two bee hives dedicated to the value chain. However since this is not exclusive, that is that a household does not uniquely produce one value chain or not all regions produce the value chain, then this would similarly be sufficient. Care should be taken when evaluating yield across the value chains and further disaggregation.

This would require validating the sample not based on a proportional estimate but on a continuous variable. In this case the relative error of the deviation from the sample mean would need to be validated. Using a normal distribution we assume that the sample size.

$$n = z(\sigma / \delta)$$

Attrition

A key problem in all longitudinal surveys is that the effective sample size for panel comparison reduces from the baseline to endline – in other words, people move. To measure change and thus project impact, it is mandatory that the mid-term and endline surveys return to the same households interviewed during the baseline. Each year after the baseline survey, some percentage of households become hard or impossible to find because they move locations or the household head passes away. Moreover, some households will switch crops and move out of the value chain that is of interest to the program. These factors contribute to the "attrition" rate. For a baseline sample of 2,100 households, the cumulative effect of an annual attrition rate of three percent (which is a plausible minimum rate for Ethiopia) leaves only 1,850 households that can be found for the endline survey round. This is the effective sample (the sample that can actually be used in the final impact analysis).

Assuming an annual attrition of seven percent, the number of observations of each value chain is approximately 250 households. For indicators with very high inter-household variability -- like gross margins per hectare -- this is a small sample, not least because all the sample value chains cover more than one region. This implies large population and sample variance. If we include a control group and a treatment group, the effective sample size for each cell is 125. Thus, it is important to be aware at the outset that given the sample size, the chances of finding statistically significant changes in all indicators and value chains are low.

Purposeful Selection of Value Chains

Another concern in the sample design was the potential for under representing certain value chains. In particular, this may be likely in value chains, like sesame, that are very limited in their geographical areas. Furthermore, honey was also seen as a potential for under reporting.

The final impact evaluation requires statistical representation of six value chains:

1. Coffee
2. Maize
3. Wheat
4. Honey
5. Sesame

6. Chickpea[9]

It was felt that Woredas should be selected based on the reported value chains for the Woreda. The AGP had provided a list of intervention Woredas that classified them according to value chain. This list was used to select the Woredas and select 7 Woredas for each value chain. Strictly speaking, these are not mutually exclusive crops and so cannot be considered as strata in terms of design. However, these were conceived as a kind of product stratification that would prevent underrepresentation of key value chains. Based on the information provided by MoA, the sample was designed to purposefully select seven Woredas from each declared value chain.

Geographic Spread

There are five (six for chickpeas) value chains covering 71 Woredas. Trying to survey all 71 was considered extremely inefficient because of travel times between Woredas and the need to mobilize Woreda officials and kebele administrators in each Woreda. However, for the crops that are present in a large number of Woredas over several regions (e.g., wheat), statistical representation required the sample to be drawn from across the area. Visiting approximately half the covered Woredas (35) was decided to be a compromise solution. The Woredas were selected randomly from the lists of Woredas, where each of the five crops are grown. This implies seven Woredas per value chain. In each Woreda, 60 households were sampled in the baseline round with five enumeration areas, 12 households per EA (with five replacement households).

This sample design allows for more EAs to be interviewed in any given Woreda (therefore providing greater precision and information for diffusion modeling); a higher number of households per cluster or EA, therefore assuring a sufficient number of households in the endline (accounting for attrition); and timely completion of the survey.

First Stage Selection (Selection of EAs)

The sample was designed by purposefully selecting the Woreda based on the identified value chain. This was done to assure representation of each value chain. The Woreda frame was based on a list provided by ACDI/VOCA of 71 intervention Woredas. Information at the cluster level (kebele) was not available. In order to ensure a high probability that the value chain was represented in the selected clusters, selection of the Woreda was done based on probability proportional to hectares under production (or, for example, number of traditional beehives) with exclusion. Once the 35 Woredas had been selected, this list (35 of 71) was provided to CSA. The CSA statistical staff then selected seven EAs using Probability Proportional to Size (PPS). The five primary EAs were then identified and two EAs were reserved as replacement EAs (in the event that either the value chain was not found in that EA or for security reasons). See Annex 4 for list of selected Woredas.

[9] Chickpeas were not an identified AGP-AMDe value chain considered in the original project design. Interest in monitoring chickpeas was stated as a general additional crop to monitor more broadly under the original "pulses" value chain, but chickpeas were not singled out as a new target value chain for AGP-AMDe until December 2011.

FIGURE 2: DISTRIBUTION OF VALUE CHAINS ACROSS KEBELES IN SELECTED REGIONS

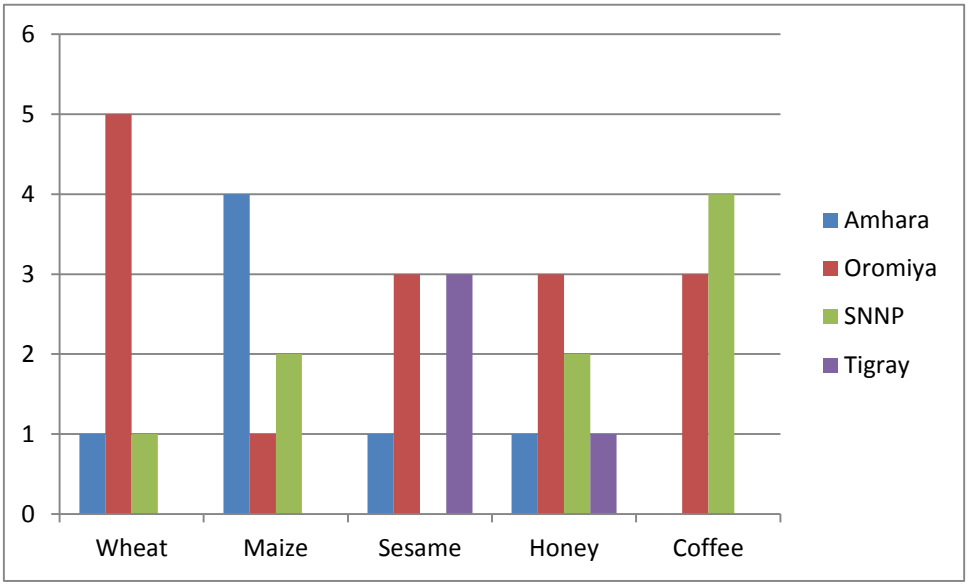


FIGURE 2 shows the number of EAs (kebeles) interviewed for each VC. Each bar represents a region with the number of EAs provided on the y-axis.

Second Stage Selection

A second stage (household) selection was undertaken and executed in the field during the listing operation. The second stage required the selection of households. The survey envisioned devoting a full day to undertaking a listing of the households in each EA. The listing operation was designed to identify those households within the EA that were producing the selected value chain. Sample households were then randomly selected from the list of producer households based on whether they produced the specified value chain. The criteria used for selection was based on self-declared production of the value chain and no selection criteria regarding the size of the area under cultivation were imposed.

Weighting

Weighting of the survey presented an opportunity to examine the households that actually produce the value chains as opposed to assuming that all households produce the value chain. Two weights can be computed based on the two probabilities:

1. The probability of the household producing the VC out of all households that reported growing that VC. This provides a weight representative of current VC growers.
2. A theoretic probability that would be based on selecting that household if all households listed produced the VC. This provides an estimate that might respond to the question: what if all households produced the VC in the EA? This would give a target estimate of potential market.

For the purpose of the analysis the former was used, as it provides an estimate of the households dedicated to that VC. The table below provides a weighted estimate applying both weights. One is the estimated current number of households that are producing the VC and the second is the number of households that could produce the VC based on survey results. This might help provide a target to measure effectiveness of the survey for the endline.

Note: For the purpose of this analysis, the weights are presented as expansion factors. They are not internal adjustments to the sample as with the DHS[10].

TABLE 1: EXAMINING RESULTS FROM THE WEIGHTING

Value chains	Weight 1		Weight 2	
	Estimated households involved in VC production	Percentage of estimated total households producing VC	Estimated potential	Expansion potential (% of potential households)
Wheat	659,771	54.7	898,453	73.43
Maize	825,455	68.4	1,122,882	73.51
Coffee	322,516	26.7	482,551	66.84
Sesame	100.526	8.3	143,981	69.82
Honey	131,315	10.9	356,531	36.83
Chickpeas	150,690	12.5	226,718	66.47

*AGP-AMDE household baseline survey, 2012

**These are not exclusive but are based on selection with exclusion

The total number of households involved in VC production in the region expected to be in the service area are estimated at 1.2 million households.

Field implementation

Annex 3 includes more information and discussion on how the survey was implemented at the field and data reduction level.

[10] See: http://www.measuredhs.com/data/Data-Quality-and-Use.cfm#CP_JUMP_5191

MAIN FINDINGS

The baseline study's main findings are organized according to the primary program objectives. Where possible, the baseline statistics are provided and used to report on specific PMP indicators. However, it is important to note that the survey provides greater content than simply reporting on indicator values, as the survey contains more information than the indicators defined in the project PMP. The main findings are organized into the following sections:

IR 1:	Increased productivity of value chain actors
IR 2:	Competitiveness of value chain actors
IR 3:	Access to finance
IR 4:	Improving the enabling policy environment for select value chains
IR 5:	Application of new technology
IR 6:	Behavioral change and gender

Please note that while IR 4 is included in the list above, it was not covered by the baseline because indicators related to his result are higher-level policy indicators that will be captured by the project M&E system. However, the impact of policy changes will be important to measure in the endline. This would include the potential impact of changing policy to allow private traders to deal in fertilizer. The M & E system will track the specific indicators related to IR4 but the endline will attempt to quantify the impact in terms of increased productivity. This will particularly be the case for the endline institutional surveyors that will seek to re-visit private input suppliers.

IR 1: INCREASED PRODUCTIVITY OF VALUE CHAIN ACTORS

This section focuses on findings related to the productivity of the farm households surveyed: namely the farming practices, actual production and yields. Note that the data have been weighted to allow the analysis to estimate productivity factors for all households within the project area. In the tables and graphs that follow, note the columns indicated with the number sign (#). This (#) designation may vary depending on the unit of analysis. In some cases, as in the example below, the analysis is based on number of weighted plots. The table below provides a list of the possible weighted units of analysis. This is done to familiarize the reader with the denominators, which would be the basis for computing percentages and proportions. Table 2 provides percentages across the VC for each category.

TABLE 2: WEIGHTED DOMAINS OF ANALYSIS

Unit of analysis	Sampled VC				
	Wheat	Maize	Coffee	Sesame	Honey
Plots	2,100,631	2,068,046	845,406	216,174	363,295
Persons	2,833,197	2,303,312	998,871	314,229	328,886
Households	483,401	418,277	189,273	59,996	55,310
Percentages					
Plots	37.55%	36.97%	15.11%	3.86%	6.49%
Persons	41.80%	33.98%	14.74%	4.64%	4.85%
Households	40.07%	34.68%	15.69%	4.97%	4.59%

*AGP-AMDE household baseline survey, 2012

Farming practices

Land preparation methods

Understanding land preparation patterns is paramount to determining ways to improve on these methods, as they have a significant effect on farm yields. As shown in Table 3, the survey finds that the majority of farmers use animal power to prepare their land for cultivation, especially for households that primarily cultivate sesame and maize (86.0 percent and 88.3 percent, respectively). Of the total households surveyed, the use of tractors (machine) was low. No maize producers report using tractors and coffee growing plots prefer the use of hoes for land preparation rather than animals.

TABLE 3: LAND PREPARATION

	Wheat		Coffee		Maize		Sesame		Chickpeas	
	# plots	%	# plots	%	# plots	%	# plots	%	# plots	%
Hoe	70,366	9.6	220,278	74.7	88,317	10.0	5,302	5.0	3552	2.4
Hoe and Oxen	77,925	10.7	13,000	1.5	14,704	0.7	465	0.4	17891	12.0
Oxen and Machine	2,075	0.3	0	0.0	0	0.0	0	0.0	0	0.0
Using machine	3,714	0.5	860	0.3	1913	0.2	9,169	8.6	198	0.1
Using animal power	577,087	78.9	72,021	24.4	779,448	88.3	91,858	86.0	127,896	85.5

*AGP-AMDE household baseline survey, 2012

Seed Variety

Under the right growing conditions, the use of improved seed varieties can have a major impact on yields. The quality of seeds alone is known to account for an increase in productivity of at least 10–15 percent (IITA, 2009)[11]. As illustrated in Table 4, the use of improved seed varieties among surveyed households is very low, ranging from 1.6 percent to 9.2 percent (relative statistical power is considered low in cases less than 35,000 plots). The majority of household's seed their plots using local open pollinated varieties retained from the previous crop. Coffee has been excluded from an analysis of seed technology due to the relative small number reported and the fact that most farmers grow from the same plant across seasons. Seeding coffee plants is not commonly done by households.

TABLE 4: SEED TYPES

	Wheat		Maize		Sesame		Chickpeas	
	# plots	%	# plots	%	# plots	%	# plots	%
Local – from previous crop	569,641	78.7	460,245	52.5	88,769	83.1	139,970	94.6
Improved - from previous crop	66,618	9.2	49,421	5.6	2,806	2.6	2366	1.6
Improved seed-New	71,454	9.9	345,673	39.4	1397	1.3	3564	2.4

*AGP-AMDE household baseline survey, 2012

[11] IITA, 2009. *Legume and cereal see production for improved crop yields in Nigeria.*

Irrigation Methods

It is estimated that more than 90 percent of Ethiopian food production comes from low productivity rain-fed smallholder agriculture. Increasing the availability of irrigation water is crucial for achieving food security (Ayana, Eshetu & Tadele, 2006)[12]. The baseline survey found that the majority of sample plots are rain-fed, with 99.9 percent of chickpea farmers, 99.5 percent of wheat farmers, 99.2 percent of sesame farmers and 98.7 percent of maize farmers using rainfall as the main source of water (Table 5). There is very limited use of other irrigation and crop watering technologies, irrespective of the value chain. It is important to note that the baseline is reflective of irrigation patterns used by small landholding farmers. Many of the sample Woredas experience two rainy seasons, which are both unreliable. Yields are highly variable during the short rains harvest or "belg" and the long rains harvest or "meher". The finding is particularly alarming as climate change is expected to increase the variability of both seasons.

TABLE 5: IRRIGATION METHODS

	Wheat		Coffee		Maize		Sesame		Chickpeas	
	# plots	%	# plots	%	# plots	%	# plots	%	# plots	%
Rain water	728,427	99.5	301,845	95.7	869,792	98.7	106,040	99.2	150,187	99.9
Lake using canal	2,770	0.4	1,667	0.5	3,486	0.4	618	0.6	0	0.0
River using canal	0	0.0	8,460	2.7	6,108	0.7	0	0.0	178	0.1
River using pump	0	0.0	1,301	0.4	993	0.1	0	0.0	0	0.0
Pond water using canal	0	0.0	0	0.0	196	0.0	78	0.1	0	0.0
Hand dug well/Birka	0	0.0	2,088	0.7	0	0.0	0	0.0	0	0.0
Other	678	0.1	0	0.0	440	0.0	123	0.1	0	0.0

*AGP-AMDE household baseline survey, 2012

Harvesting methods

Harvesting is labor-intensive and occurs over a short time period because there is a high risk that late season rains will damage the standing crop or increase moisture content in grains. Manual harvesting methods are therefore susceptible to labor shortages, especially for wheat, which particularly labor-intensive and vulnerable to late season rains. Mechanization of harvesting, which can keep harvest timely and reduce the risk of losses to standing crops, is rarely used, with none of the maize producing households and extremely few of the other households utilizing machines for crop harvesting (

Table **6**). Nonetheless, although the benefits and virtues of mechanized harvesting may be evident, it is not feasible to expect small landholders to apply these more expensive methods of harvesting suitable for larger farms. In this case, manual harvesting will likely continue to be the only economic form of harvesting. This might indicate that some training in proper harvesting designed to minimize loss may be more effective than presuming mechanization. As would be expected, the survey found that harvesting chickpeas is exclusively done by hand. Mechanized harvesting of coffee, maize and sesame is extremely rare. Only 13% of wheat farmers use mechanized or a combination of both manual and mechanized harvesting. This is significantly lower compared to the percentages for wheat in Kenya and Tanzania.

[12] Ayana, M., Eshetu, F. and Tadele, K., (2006), Simple and low-cost drip irrigation system: An alternative approach to raise household farm productivity, Conference Papers, International Water Management Institute.

TABLE 6: HARVESTING METHODS

Method of harvesting	Wheat		Coffee		Maize		Sesame		Chickpeas	
	#	%	#	%	#	#	#	%	#	%
Human	630,980	86.2	312,938	99.1	872,529	98.7	106,279	98.4	150,364	100
Machine	98,080	12.0	NA	NA	NA	NA	NA	NA	NA	NA
Both	13,050	1.8	NA	NA	NA	NA	NA	NA	NA	NA

*AGP-AMDE household baseline survey, 2012

Pesticide and herbicide utilization (costs)

Losses due to pests, diseases, and weeds also play important roles in reducing crop yields and thereby contributing to food insecurity (Amera & Abate, 2008)[13]. Pesticides and herbicides mitigate this risk. The baseline survey assessed the costs of these inputs and found them to be high and possibly prohibitive in their attainment. Note that prices are highly variable within the sample.

TABLE 7: PESTICIDE, HERBICIDE AND FERTILIZER COST PER HECTARE IN BIRR

	Wheat		Coffee		Maize		Sesame		Chickpeas	
	Amt.	Std. Dev.	Amt.	Std. Dev.	Amt.	Std. Dev.	Amt.	Std. Dev.	Amt.	Std. Dev
Pesticide	215.86	166.47	-	-	160.48	178.8	-	-	276.44	266.52
Herbicide	137.79	218.65	241.05	198.00	185.70	471.47	225.00	230.00	136.62	141.03
Fertilizer	2,089.41	1633.02	1114.3	1182.26	1,942.01	1,585.08	583.30	503.29	1857.18	826.93

*AGP-AMDE household baseline survey, 2012

Expenditures

This survey analyzed the amount households spend on oxen, machinery and seeds. As shown in Table **8**, the highest amount spent by households is on seeds for wheat and chickpea production.

TABLE 8: EXPENDITURES PER HECTARE

Amount spent on	Wheat		Coffee		Maize		Sesame		Chickpeas	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev
Rental of oxen (Birr)	29.80	203.40	2.46	59.77	33.56	234.75	183.74	570.24	1.71	21.60
Rental of machinery (Birr)	39.13	393.58	3.29	62.49	8.00	239.42	210.69	686.71	0.64	7.03
Equipment use	153.11	526.25	0.76	21.06	9.52	141.06	7.64	103.07	-	-
Seed (Birr)	1713.64	1327.57	860.24	1637.20	376.99	603.91	354.10	838.52	1781.53	1474.19

*AGP-AMDE household baseline survey, 2012

[13] Amera, T., Abate, A., (2008), An assessment of the pesticide use, practice and hazards in the Ethiopian Rift Valley.

Type of Fertilizer Utilized

Fertilizer can increase yields by improving the quality and utilization of soil on farms. Most of the farmers interviewed report using DAP as the fertilizer of choice (Table 9). The majority of farmers report using DAP and urea for wheat cultivation. Organic fertilizer such as manure and compost has a low utilization, even for coffee. The table below provides a distribution of fertilizer for those that used it. As expected, inorganic fertilizer utilization on chickpea plots is low, as the crop is commonly planted in rotation for nitrogen fixation. Fertilizer use is most prevalent in households farming plots in sampled wheat growing areas.

TABLE 9: FERTILIZER UTILIZATION

	Wheat		Coffee		Maize		Sesame		Chickpeas	
	# plots	%	# plots	%	# plots	%	# plots	%	# plots	%
DAP	251,962	35.1	4,307	1.5	106,668	12.7	3,487	3.4	3,976	3.3
Urea	8,355	1.2	1,506	0.5	18,773	2.2	3,789	3.7	0	0.0
Manure	3,005	0.4	10,719	3.8	31,826	3.8	407	0.4	0	0.0
Compost	8,956	1.2	6,411	2.3	20,647	2.5	206	0.2	2,344	2.0
DAP + Urea	365,634	51.0	5,608	2.0	378,291	44.9	3,544	3.5	7,806	6.6
Manure + Compost	15,150	2.1	26,121	9.2	28,175	3.3	465	0.5	8,114	6.8
Other	848	0.1	0	0.0	0	0.0	0	0.0	0	0.0
Total	653,062	91	54,672	19	584,380	69	11,898	12	22,240	19
% and # of plots farmed where fertilizer is not used	63,055	8.8	229,315	80.7	257,296	30.6	89,534	88.0	96,639	81.0

*AGP-AMDE household baseline survey, 2012

Type of plot ownership

Lease agreements, sharecropping arrangements and unsecure land titles can lead farmers to under-invest in improving fertility and irrigation systems, or can serve to reduce their participation in land management practices, such as building terraces to stop soil erosion. The survey found that the majority of farmers own their land in the surveyed areas, ranging from 67.4 percent of sesame farmers (the sesame areas have a history of migrant labor influxes for harvesting) to 94.6 percent of coffee farmers (Table 10). Other forms of land tenure such as borrowing land and renting are low.

TABLE 10: PLOT OWNERSHIP

	Wheat		Coffee		Maize		Sesame		Chickpeas	
	# plots	%	# plots	%	# plots	%	# plots	%	# plots	%
Owned and cultivated land	632,608	86.4	297,009	94.6	778,919	88.3	72,106	67.4	137,504	91.4
Borrowed by household no payment	2,552	0.3	649	0.2	8,561	1.0	573	0.5	1,166	0.8
Lent out by household for no payment	5,613	0.8	6,521	2.1	10,608	1.2	790	0.7	828	0.6
Rented in for payment	51,664	7.1	71	0.0	23,648	2.7	15,741	14.7	7,740	5.1
Communal land	14,905	2.0	4,136	1.3	15,171	1.7	1,888	1.8	0	0.0
Rented out for a	1,108	0.2	0	0.0	2,034	0.2	1,283	1.2	91	0.1

payment										
Rented the plot out to a sharecropper	1,521	0.2	1,152	0.4	6,845	0.8	1,874	1.8	0	0.0
The household cultivates the plot as tenant	22,102	3.0	4,445	1.4	35,304	4.0	11,144	10.4	3,036	2.0
Other	27	0.0	12	0.0	1,253	0.1	1,658	1.5	0	0.0

*AGP-AMDE household baseline survey, 2012

Land size

An examination of land size was undertaken in order to validate the distribution of land size across the various landowner classes. This was done by developing land holding quintiles and grouping the various landholders by the size of their plots. The results are provided in Table 10B. The lowest 20 percent of landowners held land that averaged between 0.1 hectares and 0.15 hectares with an average of 0.08 hectares. The largest plots, on the other hand, ranged in size from 0.64 hectares to 5 hectares.

TABLE 11B: STANDARD PLOT SIZE BY % POPULATION

Standard Plot Size (hectare) of Value Chain Producing Plots			
Landholder class grouped from smallest to largest	**Mean**	**Minimum**	**Maximum**
Smallest 20%	0.08	0.01	0.15
2	0.22	0.16	0.25
3	0.38	0.26	0.49
4	0.51	0.50	0.63
Largest 20%	1.04	0.64	5.00
Total	0.45	0.01	5.00

*AGP-AMDE household baseline survey, 2012

Table 10C displays the density of the population by evaluating the mean per capita hectares held by the various households. The households with the highest density (per capita hectare) are in S.N.N.P. and these increase as the trend goes north to Tigray. Similarly, in terms of VC, coffee has the lowest per capita hectare with Sesame the highest and wheat, maize and chickpea being roughly the same.

TABLE 12C: MEAN PER CAPITA PLOT SIZE

Region ID	**Mean per capita hectare per household**
Tigray	0.22
Amhara	0.10
Oromiya	0.09
S.N.N.P	0.06
Total	0.09
Value chain	**Mean per capita hectare per household**
Wheat	0.09
Maize	0.09
Coffee	0.05
Sesame	0.23
Chickpea	0.08
Total	0.09

*AGP-AMDE household baseline survey, 2012

Finally, Table 10D below displays the land distribution across the different Value Chains and computes the estimated total hectares under production in the 71 intervention Woredas. As can be seen from the table, the value chain with the highest share of land use is Maize followed by wheat and sesame. It is interesting to note that the amount of land dedicated to growing crops outside of the value chain is substantially higher (almost three times as high).

TABLE 13D: LAND DISTRIBUTION THROUGH VALUE CHAINS

Value Chain	Estimated number of households	Estimated total number of plots per VC	Mean Number of plots per household dedicated to VC	Mean plot size per VC (hectares)	Total hectares under production
Wheat	659,711	732,111	1.11	0.47	344,092
Maize	825,455	883,956	1.07	0.44	388,941
Coffee	322,516	315,621	1.00	0.22	70,954
Sesame	100,526	107,973	1.07	1.00	107,973
Chickpea	150,690	150,364	1.00	0.46	69,167
Other	1,206,269	3,403,525	2.82	0.40	1,361,410

*AGP-AMDE household baseline survey, 2012

Productivity

This survey analyzed productivity of the value chains of interest. Table 14 shows that the total average household production from the previous harvest of the value chains ranges from 684 kilograms for coffee to 2,483 kilograms for maize per hectare. Crop yields are low by international and African standards and are highly variable between farms. The mean area planted per value chain range from 0.22 Ha to 1.0 Ha and the variability in the size of the area planted is not high, suggesting that the sample includes mainly smallholders. Land holding sizes are constrained, so production increases are likely to be achieved through more intensive production and higher yields.

TABLE 14: TOTAL PRODUCTION OF VALUE CHAINS

	Wheat	Coffee	Maize	Sesame	Chickpeas
	Mean	Mean	Mean	Mean	Mean
Area planted (Ha)	0.47	0.22	0.44	1.00	0.50
Yield per hectare	1,744	965	1,820	725	1,237
Lower range	1,535	794	1,599	567	911

Higher Range**	1,953	1137	2,045	883	1,563

*AGP-AMDE household baseline survey, 2012
**based on 95% confidence intervals

Honey productivity: Average production per farm (kg) by type of hive

Honey production was also analyzed and disaggregated by the type of hive. There are three types of hives that are commonly used in honey production in Ethiopia. Traditional hives are "made from local material such as hollowed out logs, bark formed into a cylinder, clay pots, woven grass or cane—whatever is suitable and available." Transitional hives are also known as Kenyan Top-bar hives. In transitional hives, the housing material used in traditional hives is retained with the addition of a series of bars placed so that the bees construct their hives on the bars. This facilitated the harvesting of honey. Modern hives are also known as moveable frame hives. These are manufactured box hives, usually made of wood that are stacked on each other.[14]

Table 15 provides information on the production and per hive statistics by the kind of hive used by producing households.

Table **16** indicates that Oromia has the most hives, yet S.N.N.P. appears to have the most hives per household producing.

TABLE 15: HONEY PRODUCTION STATISTICS BY KIND OF HIVE

Type of hive		Number of hives per household	Hours of labor per month per hive	Production per hive in KG	Estimated total number of hives intervention area
Traditional	Mean	7.86	3.31	5.30	131,769
Transitional	Mean	4.21	2.04	4.46	4,911
Box hive	Mean	3.11	11.95	8.49	21,318
Total	Mean	7.10	5.80	5.70	157,998

*AGP-AMDE household baseline survey, 2012

TABLE 16: HONEY PRODUCTION STATISTICS BY REGION

Region		Number of hives per household	Hours of labor per month per hive	Production per hive in KG	Estimated total number of hives intervention area
Tigray	Mean	2.19	2.96	4.0928	6,225
Amhara	Mean	4.49	3.58	7.1968	44,632
Oromia	Mean	8.03	3.63	5.3910	83,434
S.N.N.P	Mean	10.03	4.53	4.4423	23,707

[14] See Food and Agriculture Organization (FAO), http://www.fao.org/docrep/006/y5110e/y5110e0b.htm. Also refer to the work by Aidoo, 1999 and Sakho, 1999.

Total	Mean	7.10	3.80	5.7080	157,998

*AGP-AMDE household baseline survey, 2012

Honey production was also disaggregated by season – namely, dry and wet season. From the sampled households, Table 17 and Table 18 show that there is a significant decrease in honey production per hive during the wet season, which is explained by changes in forage availability.

TABLE 17: HONEY PRODUCTION BY SEASON AND TYPE OF HIVE

Hive type	Dry season production	Wet season production
Traditional	4.02	.87
Transitional	5.51	.22
Box hive	9.22	2.06
Total	4.76	1.01

*AGP-AMDE household baseline survey, 2012

TABLE 18: HONEY PRODUCTION BY SEASON AND REGION

Region	Dry season production	Wet season production
Tigray	2.38	1.03
Amhara	5.79	1.77
Oromia	5.10	.60
S.N.N.P	2.26	1.05
Total	4.76	1.01

*AGP-AMDE household baseline survey, 2012

Although the gender classification scheme provided (see gender section) was used on a limited basis, as this was not yet approved during the drafting of the report, the methodology was applied to honey production. Table 19 provides results of households with varying gender composition. There may be an inference that households with more women tend to produce more honey and the men may not have the same focus or interest in this value chain. This might be worth exploring in more depth.

TABLE 19: PRODUCTION PER HIVE BY GENDER COMPOSITION

Production per hive in KG	Kg per hive
More adult women than men	6.30
More adult men than women	5.16
Same number of adult men and women	5.83
Total	5.70

*AGP-AMDE household baseline survey, 2012

Main constraints to increasing honey production

As with all value chains, there should be two approaches to surveying services. They are: (1) who is already familiar with the production of the value chain and (2) which households don't produce and what possible incentives are there to produce. The survey asked constraints to introducing honey

production to those that do and don't produce. Out of about 1.23 million (weighted) estimated households in the implementation area, 1.1 million, or about 90 percent, don't produce. Increasing production in these households could be of interest to the program.

Table 20 provides the reasons these households do not produce. Nearly one-third of those that do not produce lack knowledge of production methods. Almost another third lack bee hives. Among those that lack bee hives, it is assumed that they could produce honey if they had access to hives.

TABLE 20: CONSTRAINTS TO PRODUCING HONEY BY THOSE THAT DO NOT PRODUCE

Reasons for not producing	N	%
Lack of knowledge of production methods	327,919	30.82
Lack of bee hives	311,376	29.26
Lack of beekeeping equipment / materials	95,298	8.96
Shortage of honeybees	77,879	7.32
Other (specify)	62,357	5.86
Absconding	49,057	4.61
Pests and predators	36,544	3.43
Low productivity of traditional hives	28,028	2.63
High temperature	20,119	1.89
Shortage of bee forage	19,593	1.84
Migration	12,152	1.14
Diseases	6,078	0.57
Shortage of water	3,950	0.37
Drought (lack of rainfall)	3,775	0.35
Pesticides and herbicides application	3,466	0.33
Inadequate marketing/ low prices	2,340	0.22
High wind	2,149	0.20
Death of colony	1,711	0.16
Lack of storage facilities	167	0.02
High rainfall	45	0.00
Swarming	44	0.00
Total	1,064,045	100.00

*AGP-AMDE household baseline survey, 2012

It is estimated that about 130,000 households produced honey during the year that the survey was undertaken. The questionnaire asked producing households about the main constraints of increasing honey production. The responses are provided in Table 21. Understanding these constraints can provide program implementers with insights into ways on reducing increasing production among those that produce. The low productivity of traditional bee hives (as attested to the production averages of each kind of hive) indicate that one way to increase honey production is to introduce or replace the traditional hive method.

TABLE 21: CONSTRAINTS TO INCREASING HONEY PRODUCTION BY THOSE THAT PRODUCE

Constraints to increasing production expressed by those producing honey	Number	%
Low productivity of traditional hives	25,911	19.92

Shortage of bee forage	15,028	11.55
Pesticides and herbicides application	14,696	11.30
Pests and predators	12,129	9.32
Shortage of honeybees	11,734	9.02
Lack of bee hives	9,600	7.38
Lack of beekeeping equipment / materials	6,629	5.10
Absconding	6,319	4.86
Lack of knowledge of production methods	6,173	4.74
Inadequate marketing/ low prices	4,132	3.18
Other (specify)	4,024	3.09
Drought (lack of rainfall)	3,443	2.65
High temperature	2,323	1.79
Migration	2,201	1.69
Shortage of water	2,040	1.57
Diseases	2,031	1.56
High rainfall	1,206	0.93
Death of colony	326	0.25
High wind	152	0.12
Total	130,099	100.00

*AGP-AMDE household baseline survey, 2012

Causes of loss of honey

The survey found several reasons for honey loss. As shown in Table 22, the majority of the respondents (27.5 percent) reported ants and rodents as the major cause.

As can be seen, of the estimated 130,200 honey producing households, about 8 percent experienced no loss. For the remaining 115,225, pests and predators comprise a large percentage of the losses. The category "other" remains to be evaluated and may not disaggregate into categories that are useful.

TABLE 22: CAUSES OF HONEY LOSS

Cause of loss	N	%
Other, (specify)	41,823	36.30
Ants/Rodents	31,703	27.51
Predators	21,391	18.56
Wax moth	11,536	10.01
Humidity	8,771	7.61
Total	115,225	100.00

*AGP-AMDE household baseline survey, 2012

Storage Techniques

The most common method for storing both harvests (41.2 percent) and seeds (60 percent) is by using polythene bags (Table 23). Almost 20 percent of farmers also reported storing their harvest in a granary after drying it. The use of warehouses and group storage facilities is very limited (4.6 percent for harvests and 1.1 percent for seeds).

TABLE 23: STORAGE TECHNIQUES

1. Type of Storage	Harvest		Seed	
	Number	%	Number	%
Dug pits covered with plant leaves	2,895	0.2	3,469	2.1
Dug pits covered with soil	22,090	1.9	5,628	3.3
Sacks	93,345	8.0	23,903	1.4
Polythene bags	481,054	41.2	100,250	59.5
Dried and stored in granary	278,555	23.9	19,747	11.7
Warehouse	3,479	0.3	245	.1
Group storage	53,343	4.6	1,846	1.1
Other	233,122	20.0	13,374	7.9

*AGP-AMDE household baseline survey, 2012

Some of these techniques must involve some storage on site (Table **24**), since 68 percent of farmers reported storing their harvests on site. This is not so common for seeds, which are stored on site by only 12.2 percent of farmers.

TABLE 24: STORAGE ON-SITE

	Harvest		Seeds	
	Number	%	Number	%
Storage on site	1,178,212	68.0	354	12.2

*AGP-AMDE household baseline survey, 2012

Type of storage of honey

The methods used for extracting, processing and storing honey can profoundly affect its quality (contamination, adulteration and foreign matter content) and hence its market value. At all points in the harvesting, extracting, transporting, consolidating, storage and packing of honey, care must be taken to avoid the risk of spoilage or contamination that will reduce honey quality and thus profitability. As Table **25**A shows, just over half of honey producers (63.0 percent) use buckets to store their honey; the remaining producers report using guards, clay pots, plastic bags, barrels and drums. The risk of quality loss is therefore high.

TABLE 25A: STORAGE OF HONEY

Storage medium declared by household	Number	%
Bucket	78,988	63.00
Plastic bag	21,164	16.88
Gourd	15,431	12.31
Clay pots	6,668	5.32
Hide (Silitcha)	2,016	1.61
Drum	601	0.48
Barrel	518	0.41
Total	125,387*	100.00

*AGP-AMDE household baseline survey, 2012: note that the drop of responses is due to non-response

Main Constraints to Marketing Wheat, Maize, Coffee, Honey, Sesame, Chickpeas

Marketing agricultural product is critical to increasing household revenues and is an important part of measuring impact. There were several questions in the baseline survey that sought to identify the

issue of marketing and the constraints as expressed by the households in undertaking the task of increasing access to markets. Table 22B shows that many households are not producing the specified crop. In the case of sesame and coffee, this is not surprising because the geographic location of the sesame value chain is restricted. However, it is interesting to note that some value chains such as chickpea and honey that cut across the regions are still reported as not produced. Not surprisingly, wheat and maize are the VCs that show the highest level of marketing activity.

TABLE 22B: HOUSEHOLDS THAT SELL TARGET CROPS

Value Chain	Yes (%)	No (%)	Not produced (%)
Maize	20.35	47.98	31.67
Wheat grain	18.92	36.09	44.99
Sesame	7.34	2.89	89.76
Dry Coffee	10.70	12.52	76.78
Wet coffee	3.65	15.21	81.14
Honey	5.67	3.86	90.47
Chickpeas	5.33	6.43	88.24

*AGP-AMDE household baseline survey, 2012

The questionnaire also sought to define two categories of constraints: 1) Those experienced by households that engage in marketing of the target crops, and 2) Constraints faced by those that do not engaged in marketing the target crops. Table 22C provides the reported constraints of households that do not market the crop and highlights impediments to increasing sales. Interestingly enough, the predominant impediment to increasing sales was the limitation of excess production. Considering the responses in which the household reported no surplus or that the crop was used only for household consumption, it is clear that production aimed at increasing sales does not factor into the household strategy for increasing revenue. The sesame value chain reports transport costs and low market prices as more important factors. This could be due to the fact that sesame is mostly grown as a cash crop.

TABLE 22C: CONSTRAINTS REPORTED TO INCREASING SALES (BASED ON THOSE NOT ALREADY MARKETING)

Value Chain	No surplus (no sales)	High transport costs to the market	Low market prices	Low production as a result of disease	Plant only for household consumption	Other
Maize	64.82	2.48	0.84	6.75	21.33	3.78
Wheat	50.65	5.64	4.59	10.10	25.84	3.19
Sesame	32.66	32.11	13.30	0.81	6.60	14.52
Dry Coffee	53.10	7.03	4.07	10.25	18.29	7.26

Wet coffee	51.86	10.77	0.84	12.34	13.37	10.81
Honey	43.37	4.30	2.35	4.10	29.44	16.43
Chickpeas	40.20	4.75	1.23	21.29	22.29	10.23

*AGP-AMDE household baseline survey, 2012

Table 22D reports on the problems experienced by households that are engaged in marketing the target crops. The households that reported the greatest level of problems were those households involved in the sesame value chain, where 69 percent of households declared experiencing some problem. Of these 69 percent, the primary problem experienced is related to the low market price of sesame. The VC with the lowest reported marketing problems is chickpeas, with only 16 percent of households surveyed reporting problems.

The table also shows that low market price and inaccessibility to the market are the predominant problems experienced by those who sell the target crops.

TABLE 22D: PROBLEMS EXPERIENCED BY THOSE WHO SELL

Value Chain	% of households that experienced problems	Primary Constraint to Increasing Product Sales			
		Inaccessibility to market	Low market price	Transport	Other
Maize	58.71	30.33	49.96	14.46	5.26
Wheat	29.79	13.67	74.27	10.32	1.74
Sesame	69.00	25.48	56.38	8.60	9.53
Dry Coffee	43.21	20.92	66.00	7.39	5.68
Wet coffee	33.11	27.93	56.09	4.39	11.59
Honey	36.42	22.25	70.23	3.66	3.86
Chickpeas	15.99	13.01	72.33	14.66	0.00

*AGP-AMDE household baseline survey, 2012

IR 2. COMPETITIVENESS OF VALUE CHAIN ACTORS

Production costs

Farmers were asked to report the amount they spent to purchase different types of production inputs such as hired labor, land rental, purchase of seeds, herbicides, pesticides and fertilizers and rent of equipment, animals and machineries, etc. for all phases of cultivation from land preparation to harvesting.

The cost of inputs per hectare is highest for wheat, with a total cost of 4,404 Birr. As shown in

TABLE 26, this is mainly due to the higher cost of fertilizers, seeds, herbicides and pesticides, as compared to the other crops. It is important to remember that these inputs reflect the average across all households (i.e. the denominator is based on all value chain producing farms).

TABLE 26: COST OF INPUTS PER HECTARE (IN BIRR)

Value Chain	Cost of seed per hectare	Cost of pesticide per hectare**	Cost of herbicide per hectare	Cost of fertilizer per hectare	Total labor cost per hectare	Equipment use per hectare***	Animal rental per hectare	Total cost per hectare
Wheat	395	0	375	1,661	161	115	23	2,730
Maize	389	0	11	1,287	110	14	40	1,851
Coffee	NA	0	0	146	108	10	0	264
Sesame	339	0	0	63	858	229	205	1,694
Chickpea	1,482	4	65	232	74	0	0	1.857

*AGP-AMDE household baseline survey, 2012
**pesticide use is negligible across all value chains and households interviewed
***As there are few households using mechanized farming this tends to be very low per household average

This is consistent with the data on use of these inputs per hectare (Table 27), which show that the amount of inputs such as fertilizers, seeds, herbicides and pesticides used is also higher for wheat that for the rest of crops.

TABLE 27: INPUT USE PER HECTARE

Crop	Seed use per hectare (kg)	Pesticide use per hectare (ml)	Herbicide use per hectare (ml)	Fertilizer use per hectare (kg)
Wheat	181	4.44	298	147
Maize	33	0	8.65	110
Coffee	NA	0	0	9.46
Sesame	13	0	0	4.96
Chickpea	126	13.75	51.63	22.46

*AGP-AMDE household baseline survey, 2012

While looking at Table 28, the cost of labor is examined and it is also worth noting how female wage rates, for all phases of land cultivation, are significantly lower than males'.

TABLE 28: COST OF LABOR

Crop	Daily wage rate (male: preparation)	Daily wage rate (female: preparation)	Daily wage rate (male: weeding)	Daily wage rate (female: weeding)	Daily wage rate (male: harvesting)	Daily wage rate (female: harvesting)
Wheat	30.30	24.90	41.52	5.00	27.66	23.37
Maize	46.46	28.49	36.55	10.00	30.40	26.16
Coffee	24.03	24.75	33.90	21.00	22.77	17.06
Sesame	52.28	29.50	58.59	-	49.54	39.23
Chickpea	42.14	30.00	33.13	-	35.59	20.00

*AGP-AMDE household baseline survey, 2012

Production and Gross Margin

The yields reported by farmers are presented in Table 29. Yields in the survey area are largely comparable with the FAO estimates as seen from Table 26 below.

TABLE 29: YIELD (HECTARE/KG) - COMPARISON FAO 2009 AND AGP 2012 DATA

Crop	2009 (FAO)	2012 (AGP-AMDe)
Wheat	1,781.90	1,743.97
Maize	2,482.70	1,820.67
Coffee	683.50	965.88
Sesame	994.20	725.10
Chickpea	1,454.10	1,237.01

2012 is based on AGP-AMDE household baseline survey, 2012

In order to calculate the production in Birr per hectare, we used the price per Kg received by farmers from their sales. These prices appear to be in line with the actual market prices for those crops. In fact, when compared to the producer prices collected by FAO (Table 30). We can see that the prices collected for coffee, sesame and chickpeas are all within a reasonable range of each other but still higher than the FAO prices for 2009, but since Ethiopia has had average annual inflations (CPI, source: Euro Stat) of around 8 percent, the figures appear consistent. The price of wheat has remained relatively constant, meaning that in real terms, it has lost around 24 percent of its value. No official FAO data is available for maize prices.

TABLE 30: PRODUCER PRICE (BIRR/KG) – COMPARISON FAO 2009 AND AGP 2012 DATA

Crop	2009 (FAO)	2012 (AGP-AMDe)	Market Price AGP Market
Wheat	6.89	6.84	8.18
Maize	N/A	4.56	4.58
Coffee	26.25	32.83	64.20*
Sesame	11.60	15.18	16.90
Chickpea	6.58	10.36	12.83

*Market price is based on the fully processed coffee whereas the 2012 AMDE price is used for the margins computation of the dried coffee (not wet).

Similarly, a comparison between the farmer price and the market price shows the margin of farm to market. It is interesting to note that these are slightly higher in all value chains, which is to be expected, except for maize. Maize is a prevailing crop and the effects are dampened by the various regional differences. Coffee is the highest, but this may be due to the pricing of different coffee beans in the production process.

From our analysis of production (Table 31), the crops with the lowest price per hectare in Birr are maize and wheat, whose prices/kg are 4.48 Birr and 6.65 Birr respectively.

The crop with the highest revenue per hectare is coffee (31,710 Birr per hectare).

TABLE 31A: PRODUCTION AND GROSS MARGIN PER HECTARE

Crop	Standard Plot Size (hectare)	Yield (Kg/hectare)	Price of crop to farmer (per kg)	Revenue per Hectare (Birr)	Total Cost per hectare (Birr)	Gross Margin per hectare (%)
Wheat	0.47	1,743.97	6.84	11,929	2,338	80%
Maize	0.44	1,820.67	4.56	8,302	1,462	82%
Coffee	0.22	965.88	32.83	31,710	263	99%
Sesame	1.00	725.10	15.18	11,007	1,354	88%
Chickpea	0.46	1,237.01	10.36	12,815	375	97%

*AGP-AMDE household baseline survey, 2012

This information, combined with the cost data we have analyzed in the previous section, allows us to estimate the gross margins for the crops, calculating the difference between the total production and the total cost per hectare. It is important to remember that the input side of the equation accounts for averages across all farmers. In the case of machine rental for example, most households do not use this input and so the average use fall dramatically. These figures account for all households. The labor costs in this case do not factor in imputed labor costs for household members working in the fields. Labor costs account only for additional expenditures and may not reflect the total labor input of a household.[15] This survey attempted to monetize the inputs in terms of real expenditures in Birr.

In factoring out the households where any input was not used, the table below provides the levels of expenditure of those households that spent any amount on that input. The denominator in this case would only be those households spending and not all households.

Table 25B: Input tables of average expenditure for those households using the specified input. (Expenditure in Birr)

Crop	Seed	Fertilizer	Pesticide	Herbicide	Labor	Animal	Equipment	Total
Wheat	395	1966	89	617	690	727	1302	5786
Maize	389	2390	32	224	534	960	977	5507
Coffee	0	4478	0	95	604	516	286	5979
Sesame	339	886	0	63	1935	1119	693	5036
Chickpea	1482	3278	60	470	357	117	0	5763

[15] It is estimated that imputed labor per household member would be about 900 Birr per month.

As can be seen the average expenditure clearly rises and begins to approximate the results in the ACDI VOCA Commodity based budget study (CBB). This study used a different methodology as it was based on focus group discussions and would therefore not represent the entire intervention population but likely reflect margins of those farmers that participated in the focus group discussions. Table 25C below provides the results from this study together with the results provided from the subgroup of farmers that report using the input (i.e. using the information from table 25B).

Table 25C: Comparison table between the AMDE baseline survey and the CBB focus group results (AMDE denominator based on those using the input)

Crop	CBB Input Cost	CBB Labor Cost*	CBB Equip Cost	AMDE Input Cost	AMDE Labor Cost**	AMDE Equip Cost
Wheat	5,301	4,385	2,509	3,794	690	1,302
Maize	3,875	3,750	1,120	3,996	534	977
Coffee	3,920	7,410	0	5,089	604	286
Sesame	1,031	4,385	1,660	2,408	1,935	693
Chickpea	6,201	4,135	0	5,406	357	0

*based on non-mechanized labor

**Household labor cost not imputed (monthly estimated per household member imputed labor costs are 900 Birr per month).

It is important to remember that any cost benefit analysis needs to be representative of the entire population regardless of their specified use. Data obtained from household survey then would dampen the costs as they are factored across all households.

In addition, as with the input side, the outputs were also evaluated in terms of mechanized or non-mechanized farming. As can be seen from Table 28D, yields increase substantially with mechanized farming (used during harvest). Only three value chains were considered for the effects of mechanized harvesting since coffee and chickpea do not use mechanized harvesting. All value chains show substantial increases with mechanized farming. Sesame however has very few observations. Again, for the endline or impact evaluation survey, effects of mechanization will likely be more apparent.

TABLE 32D: MECHANIZED FARMING AND YIELD

Crop	Type of Harvest	Average Yield	Labor Costs Birr	Equipment Costs Birr	N
Wheat	Non mechanized	1,637.63	690	0	630,980
	Mechanized	2,407.42	310	1,302	101,131
Maize	Non mechanized	1,812.80	534	0	872,517
	Mechanized	2,421.30	370	977	11,427
Sesame	Non mechanized	715.85	1,935	0	106,279
	Mechanized	1,305.00	1,330	693	1,694

IR 3. Increased Access to Finance

This component examines issues related to access to finance and the predisposition to investment of a household. It also examines both demand and supply side issues. In order to present relevant information regarding access to finance, several indicators have been calculated.

Number of value chain actors that accessed bank loans and/or private equity

Table 29A below provides the number of weighted persons in value chain producing households over 20 years of age that could be seen as eligible for loans. Access to credit is low with about an estimated 15 percent of eligible men able to access loans and even less for women at 5 percent. Overall approximately 10 percent of the eligible population has reported accessing loans.

Table 29A. Number of Persons 20 and over eligible to receive loan

Sex	Weighted persons 20 and over	Number accessing	Estimated % age of eligible population accessing loans
Male	1,382,142	202,570	15%
Female	1,331,922	75,805	6%
Total	2,714,065	284,001	10%

*AGP-AMDE household baseline survey, 2012

Table 33B presents information regarding the number of individual farmers who have accessed bank loans in the past 12 months (note that the results are weighted and represent numbers estimated in the 71 Woredas where the program is being implemented). This number includes all loans – both personal and formal. One may observe that borrowing is more characteristic for men: not only is the total number of male borrowers larger, but also there are more families in which there was more than one male who took a loan. Thus, overall, 72.8 percent of borrowers are men. The total estimated weighted number of value chain actors that accessed bank loans and/or private equity equals 202,570 males and 75,805 female borrowers.

Table 33B: Number of value chain actors accessing bank loans and or private equity (by gender)

	Male		Female	
	# persons	%	# persons	%
One person	197,592	72.4	75,430	27.6
Two people	4,708	92.6	375	7.4
Three people	271	100.0	-	0.0
Total	202,570	72.8	75,805	27.3

*AGP-AMDE household baseline survey, 2012

There are differences among the regions; the two largest regions, Amhara and Oromia, have registered the greatest numbers of loans (Table 34). A larger proportion of the population might have greater access to loans. As for numbers, the total estimated weighted figure of those who accessed borrowed capital in Amhara equals 109,908; 99,260 in Oromia, 47,955 in SNNPR and 21,252 in Tigray. It is interesting to note that the estimated share of female individuals who accessed loans is greatest in SNNPR and Amhara (correspondingly 32.9 percent and 32.1 percent).

Table 34: Number of value chain actors accessing bank loans and or private equity (by geographic area)

	Tigray		Amhara		Oromia		SNNPR	
	# persons	%	# persons	%	# persons	%	# persons	%
Male	18,414	86.6	74,670	67.9	77,313	77.9	32,173	67.1
Female	2,838	13.4	35,237	32.1	21,948	22.1	15,782	32.9
Total	21,252	100.0	109,908	100.0	99,260	100.0	47,955	100.0

*AGP-AMDE household baseline survey, 2012

The two most common sources of loans are microfinance institutions and neighbors/friends (Table 35). Microfinance has 60.2 percent of the share of the finance market for men and 67 percent for women. Commercial banks do not represent a common source of loans. Savings and credit associations have acquired a share of 11 percent of male borrowers and only 3.7 percent of female borrowers. This may be partially explained by the fact that micro-finance is often specifically targeted to women.

TABLE 35: SOURCE OF MONEY BORROWED (GENDER PERSPECTIVE[16])

	Male		Female	
	# persons	%	# persons	%
Microfinance institution	120,987	60.2	49,793	67.0
Neighbor/friends	39,234	19.5	14,946	20.1
Saving & Credit Association	22,149	11.0	2,742	3.7
Other	18,563	9.24	6,802	9.16
Total	200,934	100.0	74,284	100.0

*AGP-AMDE household baseline survey, 2012

It is interesting to observe that there are no significant differences between male and female borrowers in terms of the purpose of the loan (Table 36). Both men and women take loans primarily to purchase production inputs. Considering the fact that agriculture is the occupation for the majority of population, and, indirectly, production inputs represent an investment for the family, this is easy to explain. Consumption loans form a share of 15.3 percent of female borrowing and 14.5 percent of male borrowing.

TABLE 36: PURPOSE OF LOAN (GENDER PERSPECTIVE)

	Male		Female	
	# of men who borrowed	%	# of women who borrowed	%
Feed family	28,479	14.5	11,194	15.3
Production inputs (seed, fertilizer, etc)	135,644	68.8	41,211	56.4
Pay medical fees	4,765	2.4	3,395	4.6
Enterprise development	7,555	3.8	3,028	4.1
Pay school fees	5,433	2.8	-	0
Other, specify	15,174	7.7	14,214	19.5
Total	197,049	100	73,043	100

*AGP-AMDE household baseline survey, 2012

The average amount of money borrowed by men is larger than the amount borrowed by women: 3,006 Birr as compared to 1,984 Birr (Table 37). However, women receive a lower average interest rate than men: 14.94 percent as compared to 18.69 percent. This may be influenced by the source of the loan; the most accessible loan providers are

[16] This table does not reflect all of the options, which were included in the questionnaire, but since the other options were selected by few of the interviewees, they were not included into the table.

neighbors/friends (8.64 percent for men and 3.98 percent for women). It is worth keeping in mind that although the point estimate for average interest rates indicates favorable rates for women across the different categories of loans, the number of men borrowing is far higher and the average size of the loan is also larger. As more men are borrowing in general, the interest rate differences may be indicative of the market adjusting to higher exposure and higher risk. It is likely not necessarily a gender related finding but rather the market adjusting to this exposure through higher interest rates. In other words, it might be a better gauge for credit risk in general unrelated to gender issues. There may also be some selective pricing of interest rates specific to women as the women accessing loans may be perceived as better credit risks or accessing loans targeting women. Because there are less women accessing loans, the women that do have access are likely more conscientious borrowers. This would have to be validated in the endline.

TABLE 37: AVERAGE INTEREST ON CREDIT, DEPENDING ON SOURCE (GENDER PERSPECTIVE[17])

Credit Source	Male				Female			
	# men who borrowed	Amount Borrowed	Total Interest On Loan	%	# women who borrowed	Amount Borrowed	Total Interest On Loan	%
		Mean	Mean			Mean	Mean	
Commercial Bank	4,551	3,133	467	14.90	2,779	2,975	346	11.62
Microfinance institution	120,987	3,159	555	17.57	49,793	2,626	412	15.70
Neighbor/ friends	39,234	882	76	8.64	14,946	782	31	3.98
Saving & Credit Association	22,149	3,006	562	18.69	2,742	1,984	296	14.94

*AGP-AMDE household baseline survey, 2012

In order to present the same information from various points of view, an analysis of the number of loans offered by the credit organizations was conducted via the institutional questionnaire. The greatest average number of loans, per crediting institution, has been offered by organizations in Tigray[18] (64.6 percent) (Table 38).

TABLE 38: NUMBER OF LOANS OFFERED BY MICROFINANCE, CREDIT AND SAVINGS COOPERATIVES (GEOGRAPHIC PERSPECTIVE)

Region	# of inst.	# of male borrowers		#of female borrowers		# of borrowers with joint account		Total
		Total	Mean	Total	Mean	Total	Mean	Sum
Tigray	1	2,753	2,753	2,140	2,140	-	-	4,893
Amhara	10	5,091	727	9,855	1,408	4,290	536	19,236
Oromia	23	25,069	1,090	19,518	849	393	17	44,980
S.N.N.P	6	9,264	1,544	3,784	631	-	-	13,04

[17] This table does not reflect all of the options, which were included in the questionnaire, but since the other options were selected by few of the interviewees, they were not included into the table.

[18] It is worth mentioning that in case of Tigray state one crediting institution has been interviewed and this information may not be very representative on the level of the whole region.

								8
Total	**40**	**42,177**	**1,140**	**35,297**	**954**	**4,683**	**123**	**82,157**

*ACDI VOCA Woreda Institutional Questionnaire

The institutional questionnaire also asked the credit institutions to provide their view of gender reliability for re-payment of loans. Out of 38 interviews conducted with credit institutions, 68.4 percent responded that women were more reliable than men in loan repayment (Table 39).

TABLE 39: GENDER, WHICH TENDS TO BE MORE RELIABLE IN RE-PAYMENT IN THE OPINION OF THE CREDITING ORGANIZATIONS

	# institutions	%
Women	26	68.4
Men	6	15.8
No difference	6	15.8
Total	38	100.0

*ACDI VOCA Woreda Institutional Questionnaire

Some other findings apparent from the institutional questionnaire included:

- Among the interviewed traders and processors, 34.9 percent have taken at least one loan to expand their business.
- Out of 17 interviewed private input suppliers, 70.6 percent do not provide loans to smallholder farmers. Of those who do provide loans, most offer merchandise as in-kind advances, and they do not offer cash. It is interesting to note that these suppliers consider women to be more likely to pay back loans.

To better understand how a household would allocate capital, enumerators asked household respondents how they would spend an imaginary 10,000 Birr. The majority of households broke down their spending allocation of the 10,000 Birr as follows: livestock purchase (29.3 percent); home construction (29.8 percent); fertilizer purchase (26.4 percent); and agriculture equipment purchase (22.0 percent). When monetizing this, it breaks out as follows livestock (6,958 Birr), followed by home construction (6,411 Birr), and agriculture equipment (6,097 Birr) (Table 40).

TABLE 40: DIRECTIONS OF USE OF ADDITIONAL 10.000 BIRR

	# households	%	Mean amount
Home construction	357,666	29.8	6,411
Livestock (buy/resell)	351,208	29.3	6,958
Fertilizer	316,565	26.4	3,625
Ag equipment	264,285	22	6,097
Home appliances	140,060	11.7	2,882
Clothes	91,309	7.6	2,005
Food	59,661	5	3,568
Health	44,320	3.7	1,641
Education	35,452	3	2,971
Shoes	21,903	1.8	1,309
Fuel	14,166	1.2	1,656
Other (specify)	397,628	33.1	6,741
Total	1,200,159	100	5,401

*AGP-AMDE household baseline survey, 2012

Lack of collateral and lack of cash required for down payments are the two most important reasons for not purchasing inputs. The most important constraint to increasing input purchasing is escalating price of the input (from 26.3 percent in case of modern beehives to 70.1 percent in case of fertilizers. From the supply side, the top three constraints limiting private suppliers from selling inputs to smallholder farmers are the following: high prices of inputs, which smallholders cannot afford (82.4 percent) and lack of access to credit to purchase the inputs (64.7 percent) (Table 41).

TABLE 41: TOP THREE CONSTRAINTS TO SELLING INPUTS TO SMALLHOLDER FARMERS, PRIVATE INPUT SUPPLIERS' PERSPECTIVE

Constraints to selling inputs	# institutions	%
High price of inputs (smallholders cannot afford)	14	82.4
No access to credit (to purchase the inputs)	11	64.7
High cost of transportation	7	41.2
Lack of demand (no smallholders in market	6	35.3
Poor skills - lack of understanding on value/use of input	5	29.4
Poor transport networks	1	5.9
Other (specify)	1	5.9
Total	17	100.0

*ACDI VOCA Woreda Institutional Questionnaire

As the private suppliers consider the most efficient way of resolving the constraints of selling inputs to smallholder farmers, the development of credit facilities for smallholders might be a good option to consider. Another possibility would be developing public awareness campaigns on the use of inputs (Table 42).

TABLE 42: SOLUTIONS FOR THE CONSTRAINTS TO SELLING INPUTS TO SMALLHOLDER FARMERS BY PRIVATE INPUT SUPPLIERS

	# institutions	%
Develop credit facilities for small holders	12	70.6
Develop public awareness campaigns on use of inputs	5	29.4
Develop public transport	0	0.0
Total	17	100.0

*ACDI VOCA Woreda Institutional Questionnaire

Savings

When looking at savings, the survey data shows that out of the households surveyed, 29.9 percent of male-headed households and 24.3 percent of female-headed households belong to a savings group (

Table 43).

TABLE 43: MEMBER OF A SAVINGS GROUP. GENDER OF THE HEAD OF THE HOUSEHOLD PERSPECTIVE

	Male		Female	
	#	%	#	%
Yes	319,863	29.9	265,095	24.3
No	750,932	70.1	827,729	75.7
Total	1,070,795	100.0	1,092,824	100.0

*AGP-AMDE household baseline survey, 2012

The majority of those who belong to a savings group are members of Idir (Table 44). Idir is a traditional, long-term association established among neighbors or workers to raise funds to be used

during emergencies, such as death. Thus, Idir may be considered more of an insurance organization than a crediting facility. Ekub, which seems to more directly resemble a saving association, is less popular, which may indicate that most households' savings only are sufficient for emergencies. VSLA provides services for the needs of the rural population, emphasizes savings and offers credit only upon necessity. VSLA is slightly more popular than Ekub, and is essentially just a more structured alternative to it. Few men and women are members of microfinance organizations that are focused on saving[19].

TABLE 44: TYPE OF THE SAVINGS GROUP THAT RESPONDENTS BELONG TO: GENDER OF THE HEAD OF THE HOUSEHOLD PERSPECTIVE

	Male		Female	
	# men	%	# women	%
Idir	133,852	42.6	129,506	49.4
SACCO	103,839	33	54,078	20.6
VSLA	29,047	9.2	39,990	15.3
Ekub	27,303	8.7	25,988	9.9
Microfinance	19,406	6.2	9,561	3.7
Wonfel/Jiggi	840	0.3	2,790	1.1
Total	314,287	100	261,912	100

*AGP-AMDE household baseline survey, 2012

From the perspective of savings institutions, there are more joint accounts than loans (Table 45). There are also more male savers than female, although the difference between the average numbers of savers of a particular sex per organization is not that large.

TABLE 45: NUMBER OF SAVERS REGISTERED BY MICROFINANCE, CREDIT AND SAVINGS COOP. GEOGRAPHICAL PERSPECTIVE

	# of inst.	# of male savers		# of female savers		# of savers with joint account		Total
		Total	Mean	Total	Mean	Total	Mean	Sum
Tigray	1	2,843	2,843	3,405	3,405	198	198	6,446
Amhara	10	11,061	1,580	16,179	2,311	12,218	1,527	39,458
Oromia	23	26,182	1,138	20,046	872	1,110	48	47,338
S.N.N.P	6	10,711	1,785	3,478	580	618	103	14,807
Total	40	50,797	1,373	43,108	1,165	14,144	372	108,049

*ACDI VOCA Woreda Institutional Questionnaire

According to the amount of current savings declared by the crediting institutions (Table 46), the institutions from Amhara have the greatest average amount per institution while those from SNNPR have the smallest amount of savings per institution. Although the table above indicates Tigray, as there are no other reference points this is not considered for the analysis.

[19] This fact might be explained by the fact that it is not common to become a member of it as compared to other institutions the existence of which is based on membership of their borrowers.

TABLE 46: TOTAL AMOUNT OF CURRENT SAVINGS, BIRR

	# of inst.	Total amount of current savings	
		Sum	Mean
Tigray	1	34,635,305	34,635,305
Amhara	10	49,200,971	6,150,121
Oromia	23	97,584,388	4,242,799
S.N.N.P	6	21,036,353	3,506,059
Total	40	202,457,017	5,471,811

*ACDI VOCA Woreda Institutional Questionnaire

Despite the fact that there are more male than female savers, Table **47** shows that crediting institutions tend to consider women more consistent savers than men.

TABLE 47: GENDER: WHO SAVES MORE CONSISTENTLY IN THE OPINION OF THE CREDITING INSTITUTIONS

	# Institutions	%
Women	17	44.7
Men	14	36.8
No difference	7	18.4
Total	38	100.0

*ACDI VOCA Woreda Institutional Questionnaire

Value of loans to MSMEs

Besides conducting a household survey in each of the targeted regions, several institutions from different credit and savings organizations were interviewed. Data from these interviews indicates that the mean value of outstanding credit is higher among micro-finance institutions than credit and savings cooperatives (Table 48).

TABLE 48: TOTAL AMOUNT OF CURRENT LOANS OUTSTANDING, BIRR[20]

	# of inst.	Total amount of current loans outstanding	
		Sum	Mean/per inst.
Tigray	1	8,874,880	8,874,880
Amhara	10	65,659,696	8,207,462
Oromia	23	64,560,410	2,806,974
S.N.N.P	6	21,614,305	3,602,384
Total	40	160,709,291	4,464,147

*ACDI VOCA Woreda Institutional Questionnaire

Value of credit disbursed to value chain actors

When examining the data to determine the value of credit by purpose, it becomes apparent that agriculture needs are the most important aspect of loan portfolios. Although transport stands out as one of the largest credit line items, this too is related to the agriculture value chain (Table 49).

TABLE 49: VALUE OF CREDIT DEPENDING ON ITS PURPOSE, BIRR

Purpose	# of inst.	Total amount of current loans outstanding	
		Sum	Mean
Fertilizer	36	160,641,791	4,462,272

[20] The differences between the regions might be explained by the differences among the number of crediting institutions, which were contacted in each of the regions. Thus, in case of Oromia the number of interviewed organizations is larger and this implies that smaller organizations have been interviewed as well and this could have led to the smaller figures for the studied indictor.

Purpose	# of inst.	Total amount of current loans outstanding	
		Sum	Mean
Improved seeds	35	152,282,771	4,350,936
Livestock	34	142,856,505	4,201,662
Non-agricultural business	28	149,560,286	5,341,439
Agricultural processing	28	131,779,256	4,706,402
Personal loans	16	53,379,148	3,336,197
Home construction	13	87,526,437	6,732,803
Transport	7	71,075,988	10,153,713
Other (specify)	2	7,453,900	3,726,950
Petty trade	1	1,500,000	1,500,000

*ACDI VOCA Woreda Institutional Questionnaire

It is important to note that the average interest rate for farmers is higher than that for other categories of borrowers (Table 50).

TABLE 50: INTEREST RATE FOR LOANS, %

	# institutions	Mean
Interest rate – Farmers	40	14.05
Interest rate – Non-Farmers	40	12.75

*ACDI VOCA Woreda Institutional Questionnaire

Respondents mentioned three main constraints to developing credit business: (1) lack of vehicles; (2) shortage of financial resources for lending; and (3) shortage of financial resources for capacity building and lack of professional staff. It is unclear how a vehicle might provide a constraint; however, it is interesting to note that it was a common response (Table 51).

TABLE 51: THE MAIN CONSTRAINTS FOR DEVELOPING CREDITING BUSINESS

	#	%
Vehicles	12	31.6
Financial resources for lending	7	18.4
Financial resources for capacity building	5	13.2
More professional staff	4	10.5
Financial resources for operating	3	7.9
Computer issues	3	7.9
Office equipment	2	5.3
Better trained staff	0	0.0
Office space	0	0.0
Other	2	5.3
Total	38	100.0

*ACDI VOCA Woreda Institutional Questionnaire

From interviews with credit organizations, loan amounts offered ranged from 2,026 Birr to 185,855 Birr (Table 52).

TABLE 52: MAXIMUM AND MINIMUM AMOUNT OF LOANS, BIRR

	# inst	Mean
Maximum Loan Amount	40	185,855
Minimum Loan Amount	40	2,026

*ACDI VOCA Woreda Institutional Questionnaire

While 21.1 percent of the interviewed crediting institutions affirmed that they do not ask for collateral, others mentioned co-signature requirement (63.2 percent), group signature (44.7 percent), pledge of an asset (42.1 percent) and savings hold out (42.1 percent) (

Table **53**).

TABLE 53: TYPE OF COLLATERAL ACCEPTED

	# inst	%
Co-signature	24	63.2
Group guarantee	17	44.7
Pledge of an asset	16	42.1
Savings hold out	16	42.1
Guarantee by institution	12	31.6
No collateral	8	21.1
Standing crop	3	7.9
Post-dated check	0	0.0
Livestock	0	0.0
Other	6	15.8
Total	38	100.0

*ACDI VOCA Woreda Institutional Questionnaire

While there are institutions which oblige non-farmers to pay back their credit weekly, there were no institutions among the interviewees which have the same requirement for farmers (Table 54).

TABLE 54: PAYMENT MODE (CREDITING INSTITUTIONS)

	Farmers		Non-farmers	
	# inst	%	# inst	%
Daily	0	0.0	0	0.0
Weekly	0	0.0	2	5.3
Monthly	27	71.1	24	63.2
Quarterly	4	10.5	11	28.9
Half year	7	18.4	1	2.6
Total	38	100.0	38	100.0

*ACDI VOCA Woreda Institutional Questionnaire

The average loan processing time is 8.3 days per loan.

IR 4. IMPROVING THE ENABLING POLICY ENVIRONMENT FOR SELECTED VALUE CHAINS

IR 4 was not included in the baseline survey, as the indicators to inform this result are related to the number of policy reforms and regulations passed and the number of public private partnerships formed as a result of US Government assistance. These data will be captured through the project's M&E System.

IR 5. APPLICATION OF NEW TECHNOLOGY

The application of new technology is intended to support the increased sale and use of new and proven technologies and practices that foster market development, improve productivity and

increase rural household income. This section presents information on the attitude of the household toward technologies and examines productivity based on technology use.

Value of private sector capital investments

The analysis of the data from the household survey has pointed to extremely low numbers of private farmers doing capital investments. In order to present additional information on capital investments, the following analysis is derived from the institutional questionnaires. Traders and processors were asked to describe their plans to make capital investments this year and the answers are practically split (Table 55).

TABLE 55: PLANS OF CAPITAL INVESTING IN THE BUSINESS IN THE YEAR OF 2012

	# of traders	%
Yes	50	47.2
No	56	52.8
Total	106	100.0

*ACDI VOCA Woreda Institutional Questionnaire

According to Table 56, of those that intended to make a capital investment, purchasing new processing plant or property is the most common response for traders and processors (38 percent), followed by vehicles (24 percent) and new equipment (24 percent).

TABLE 56: TYPE OF CAPITAL USED FOR CAPITAL INVESTMENTS

	# traders	%
New plant or property	19	38.0
Vehicle	14	28.0
New equipment	12	24.0
Add or new storage place	2	4.0
Add market place	1	2.0
Other	2	4.0
Total	50	100.0

*ACDI VOCA Woreda Institutional Questionnaire

As shown in Table 57, the most common source of finances for new capital investments is own savings (68 percent) followed by private loan (14 percent).

TABLE 57: SOURCE OF FINANCING CAPITAL INVESTMENT ACQUISITIONS

	# traders	%
Own savings	34	68.0
Private loan	7	14.0
Partnership (share)	4	8.0
Family assistance	1	2.0
Other	4	8.0
Total	50	100.0

*ACDI VOCA Woreda Institutional Questionnaire

Technology Index

There are many areas in the questionnaire where technological issues can be defined and effects examined. Trying to quantify the compound effect of all these various factors necessitated the development of an index. This has the advantage that eventually, a dynamic analysis can be

undertaken sometime in the future in order to evaluate the validity of this index. It is beyond the scope of this report to evaluate the index and its components regressively. The index provided is largely meant to correlate the different components and develop a composite measure and as such only is indicative. This index represents a sum of individual indices calculated for different domains as provided in the questionnaire. Thus, the final index comprises different technologies and was computed considering the following:

(1) Water used in watering the crop (the maximum amount of points was granted to those farmers who use water pump; those who use a canal obtained less and those who only use rain water did not accumulate any score),
(2) Preparing the land (the maximum score is assigned to households using machines),
(3) Use of seeds (improved new seeds obtained the maximum score),
(4) Use of fertilizers (households which use any type of fertilizer were evaluated with a higher score than those which do not use it at all),
(5) Method of harvesting (machine harvesting was evaluated with the highest score),
(6) The use of pesticide or herbicide, and
(7) Knowledge (family knowledge indicator represents the sum of male knowledge and female knowledge of aspects related to crop cultivation).

Table 58 through Table 60 display the results from the computation of the technology index. In examining the scores, the following are immediately evident:

- There are very low water and machine technology scores. The low results indicate that most households rely on rainwater and manual harvesting. These have been kept in the index in the event that the endline indicates increase in access to these inputs.

Regional Observations:

- Amhara is the region with the highest score. Much of this is attributable to improved seed and fertilizer, which are highest in Amhara.
- The Tigray region has a relatively higher use of animals in land preparation than the others.
- Men scored higher in overall knowledge claim than women, though in Oromia, the gender difference is much less.

Value Chain:

- Maize producing households tend to score higher in technology use due to higher use of improved seeds and fertilizer.
- Sesame tends to be higher in terms of using animals for land preparation. This is also linked to the Tigray region.

Gender:

- A gender evaluation was done using the alternative FtF classification. In households where adult females outnumber adult males, the overall score tends to be lower. Land preparation is lower, implying that more manual labor is provided in households where women are more prevalent.

TABLE 58: TECHNOLOGY USE INDEX: MEAN INDEX BY REGION, VALUE CHAIN AND ALTERNATIVE GENDER CLASSIFICATION

Region	Standard score for household use of technology 1.00= high	Standard water score 2.00= high)	Standard land preparation score 2.00=high	Standard seed score 2.00= high	Standard fertilizer score 2.00= high	Standard herbicide and pesticide use score	Standard harvest technology score 2.00= high	Standard male score for knowledge 1.00= high	Standard female score for knowledge 1.00= high
Tigray	0.29	0.01	1.02	0.61	0.26	0.07	0.02	0.83	0.49
Amhara	0.52	0.03	0.90	1.28	1.29	0.13	0.01	0.76	0.53
Oromia	0.34	0.02	0.60	0.69	0.71	0.33	0.03	0.85	0.54
S.N.N.P	0.30	0.01	0.75	0.80	0.51	0.02	0.00	0.87	0.71
Total	0.39	0.02	0.74	0.89	0.84	0.21	0.02	0.82	0.56
Value chain	**Standard score for household use of technology**	**Standard water score**	**Standard land preparation score**	**Standard seed score**	**Standard fertilizer score**	**Standard herbicide and pesticide use score**	**Standard harvest technology score**	**Standard male score for knowledge**	**Standard female score for knowledge**
Wheat	0.37	0.01	0.62	0.79	0.84	0.29	0.03	0.87	0.61
Maize	0.46	0.03	0.84	1.22	1.05	0.08	0.01	0.73	0.47
Coffee	0.34	0.02	0.79	0.65	0.62	0.27	0.01	0.88	0.65
Sesame	0.30	0.02	0.87	0.69	0.36	0.14	0.03	0.80	0.47
Total	0.39	0.02	0.74	0.89	0.84	0.21	0.02	0.82	0.56
Gender score (modified)	**Standard score for household use of technology**	**Standard water score**	**Standard land preparation score**	**Standard seed score**	**Standard fertilizer score**	**Standard herbicide and pesticide use score**	**Standard harvest technology score**	**Standard male score for knowledge**	**Standard female score for knowledge**
More adult females than male	0.39	0.03	0.69	0.96	0.79	0.24	0.02	0.83	0.55
More adult males than females	0.41	0.02	0.76	0.92	0.94	0.22	0.03	0.83	0.57
Same number of	0.38	0.02	0.74	0.86	0.82	0.20	0.02	0.82	0.56
Total	0.39	0.02	0.74	0.89	0.84	0.21	0.02	0.82	0.56

*AGP-AMDE household baseline survey, 2012

A further examination of the technology index was applied to household crop yield by crops. This analysis grouped households by their relative value of computed overall technology index and formed quintiles (the lowest 20 percent were grouped together; the second 20 percent were grouped and so forth). The yield results are provided in Table 59. The data are most indicative of the value of the technology index in coffee, maize and wheat. The chickpea value chain and sesame likely do not reflect the value correctly as these may not rely as much on the use of improved seeds.

TABLE 59: AVERAGE YIELD BY OVERALL TECHNOLOGY USE QUINTILE

Categorized Overall Technology use (By quintile)	Wheat	Maize	Coffee	Sesame	Chickpea
Lowest 20% tech index	1,041.39	1,389.95	1,650.94	648.99	1,050.25
2nd 20% tech index	1,198.84	1,447.63	1,867.55	858.08	1,047.15
3rd 20% tech index	1,393.59	1,523.32	1,815.40	711.89	1,019.13
4th 20% tech index	1,415.36	1,971.97	2,507.45	565.56	950.25
Highest 20% tech index	1,967.35	2,227.67	2,144.65	711.31	1,443.74

*AGP-AMDE household baseline survey, 2012

Because of the bias in value chain for those households using improved seed or fertilizer, the same analysis was undertaken grouping households by the technological index. Table 60 provides the results of the knowledge component of the technology index. The questionnaire sought to quantify knowledge by asking the senior male and female respondent about knowledge and best practices as related to agricultural productivity. A series of questions were asked in which the respondent provided an ordinal response for their level of understanding. The level of household knowledge was aggregated and used as the basis of the knowledge component of the technological index. These self-reported scores show interesting patterns when tabulated with yield. The patterns clearly show improvement in productivity with higher knowledge scores. This indicates that those households reporting greater knowledge in areas of agricultural production consistently show higher yields. This association seems crucial to the implementation plan and validates the need to disseminate not only the actual technology but clearly train and disseminate knowledge.

TABLE 60: AVERAGE YIELD BY KNOWLEDGE PROFESSION QUINTILE

Categorized Knowledge Component of technology	Wheat	Maize	Coffee	Sesame	Chickpea
Lowest 20% tech index	1,191.83	1,417.93	1,938.43	698.65	1,014.41
2nd 20% tech index	1,315.45	1,661.86	1,690.70	663.94	950.85
3rd 20% tech index	1,561.70	1,827.12	1,438.00	939.77	999.74
4th 20% tech index	1,535.13	1,689.23	2,528.76	611.59	1,155.09
Highest 20% tech index	1,854.03	1,909.66	2,067.28	619.12	1,372.31

*AGP-AMDE household baseline survey, 2012

What is interesting to note, however, is that the knowledge component of the index shows that it is not particularly correlated in the sesame value chain. The knowledge score was lowest in the sesame value chain. It has been suggested that the sesame value chain does not have the same level of technological access in terms of improved seeds; pesticide use etc. These have only recently been introduced and it is felt that effects of introducing new technology in the sesame value chain might show the most measureable impact. In effect, sesame serves as a control crop and might be useful to

measure changes in the pattern during the endline survey. Therefore, it might be worth focusing some resources in the sesame value chain to extend training or sensitization on how to increase yields: whether through better farming practices, using herbicide, etc.

Number of value chain actors and MSMEs receiving business development services

Unfortunately, the institutional data captured was insufficient to estimate the total number of value chain actors and small- and medium-size enterprises receiving business development services. In order to present some information on this topic, the section regarding traders and processors from the institutional questionnaire has been analyzed. The analysis indicates that the majority of value chain actors do not have access to business development services (Table 61).

TABLE 61: ACCESSIBILITY OF BUSINESS DEVELOPMENT SERVICES

	Yes		No		Total	
	#	Row %	#	Row %	#	Row %
Tigray	7	70.0	3	30.0	10	100
Amhara	6	35.3	11	64.7	17	100
Oromia	20	34.5	38	65.5	58	100
S.N.N.P	5	23.8	16	76.2	21	100
Total	38	35.8	68	64.2	106	100

*ACDI VOCA Woreda Institutional Questionnaire

Number of individuals who have received short-term training and TA in agricultural sector production

The household questionnaire captured data on the number of individuals receiving short-term training and technical assistance in agriculture production. The respondents were asked to rate the level of their knowledge regarding several different crop cultivation issues and later they were asked to tell the primary source of the information they possess. Table 62 presents weighted figures which provide an estimate for the primary source of training and knowledge for the households in the project area. The data clearly shows that there are two main sources of information: (1) friends or relations and (2) agricultural extension officers. For men, the agricultural extension officer is the primary source of information (59.4 percent), while for women, friends and relations are slightly more important (51.8 percent), although extension officers are also a very important source (49.2 percent). Other sources of information include family members and traditional knowledge. It is worth noting that public sources of information, such as radio, TV, and newspapers provide very little knowledge with respect to agriculture. As our sample focused on rural settings, these media are likely not widely used. This is probably due to the lack of ownership of such assets; the use of the media by the government to diffuse information or lack of access. Radio and TV requires electricity and the financial means to acquire the asset. These may be media more readily adaptable to urban settings.

TABLE 62: PRIMARY SOURCE OF INFORMATION REGARDING CROP CULTIVATION

	Male		Female	
Source of knowledge	# persons	%	# persons	%
Friend or relation	570,512	53.8	567,130	51.8
Agric. Extension Officer	629,383	59.4	538,544	49.2
Family member	338,842	32.0	431,156	39.4

Tradition	376,567	35.5	382,736	35.0
Pioneer farmers	89,035	8.4	102,444	9.4
Farmer Group	49,993	4.7	44,749	4.1
Radio	37,861	3.6	31,646	2.9
Newspaper	11,533	1.1	11,632	1.1
Adult literacy classes	5,794	0.5	7,443	0.7
NGO	1,901	0.2	5,155	0.5
TV	1,099	0.1	1,099	0.1
SMS	1,198	0.1	12	0.0
Other, specify	12,140	1.1	16,364	1.5
Total	1,060,232	100	1,094,075	100

*AGP-AMDE household baseline survey, 2012

Respondents were asked to list the types of training they feel are most important for members of their cooperatives (Table 63). The most common answers were training in crop production and quality of produce.

TABLE 63: TRAININGS NEEDED BY THE MEMBERS OF THE COOPERATIVES

	# inst.	%
Crop production	5	33.3
Quality of produce	5	33.3
Soil conservation	2	13.3
Post-harvest handling	1	6.7
Marketing	1	6.7
Natural resource management	0	0.0
Other	1	6.7
Total	15	100.0

*ACDI VOCA Woreda Institutional Questionnaire

When asked how cooperatives could best improve the efficiency of their operations, respondents listed the top three areas as (1) financial resources for capacity building, (2) financial resources for operating expenses and (3) better trained staff (Table 64).

TABLE 64: NEEDS OF THE COOPERATIVES TO IMPROVE EFFICIENCY OF ITS OPERATION

	# inst.	%
Financial resources for capacity building	7	46.7
Financial resources for operating expenses	4	26.7
Better trained staff	3	20.0
Office equipment	1	6.7
More staff	0	0.0
Office space	0	0.0
Vehicles	0	0.0
Computer software	0	0.0
Computer hardware	0	0.0
Others	0	0.0
Total	15	100.0

*ACDI VOCA Woreda Institutional Questionnaire

When traders and processors were asked where they source their business information, the majority listed mobile telephones as the primary source of information followed by radio (Table 65).

TABLE 65: MAJOR SOURCE OF INFORMATION FOR BUSINESS PURPOSES: TRADERS' AND PROCESSORS' PERSPECTIVE

	# TRADERS	%
Mobile phone	45	42.5
Radio	24	22.6
Professional journal	12	11.3
Internet	7	6.6
Marketplace	5	4.7
Personal network	3	2.8
ECX	3	2.8
Cooperatives	0	0.0
Newspaper	0	0.0
Other	7	6.6
Total	106	100.0

*ACDI VOCA Woreda Institutional Questionnaire

Value of smallholder investment in services (improved production technology)

The analysis of the technology index has shown that households are not likely to invest in machinery for tillage and harvesting. Table 66 shows the value of investments in equipment rental. Overall, the weighted number of households hiring equipment for planting is quite low and not statistically significant, although it is interesting to note in general, machines are rented more often for harvesting than for planting except in the case of sesame. However since the number of households reporting mechanical harvesting for sesame is very low, it is likely not a significant statistic. The mean value of investments in equipment for planting is 1,641 Birr as opposed to 1,122 Birr for harvesting.

There are more households renting equipment for planting in Oromia and Tigray. While the data indicates that renting equipment for harvesting is most prevalent in Oromia, the number is relatively low and likely not indicative of real value. The regions of Oromia and Tigray registered substantially higher average costs for hired equipment than in Amhara and SNNRP.

The patterns of equipment usage by commodity vary substantially. Although sesame may be relatively higher in terms of hiring equipment for planting, it is important to note the relative value of wheat and maize use of hiring equipment during harvesting. This is also relevant to Amhara and Oromia where these value chains are found. This is also reflected in the composite technology index when adding both harvesting and planting, Amhara and Oromia are evidently higher. In addition, the technology index also accounts for improved seed in wheat (as another component of the composite index). So, relative to wheat and maize, sesame might hire more equipment at planting, but it will not necessarily weight the index accordingly.

TABLE 66: VALUE OF INVESTMENT IN EQUIPMENT RENT

Equipment		Hiring equipment for planting		Hiring equipment for harvesting	
		#	Mean, Birr	#	Mean, Birr
Region	Tigray	15,982	3,520	717	1,568
	Amhara	2,513	85	4,870	479
	Oromia	16,947	1,080	85,906	1,166

	S.N.N.P	11,115	148	956	71
	Total	46,557	1,641	92,449	1,122
Value Chain	Wheat	16,548	875	78,690	1,238
	Maize	26,269	1,097	62,653	1,105
	Coffee	8,852	1,177	4,149	214
	Sesame	17,717	3,384	6,127	814
	Honey	4,382	537	5,013	568
	Chickpeas	1,913	54	4,753	77
	Total	46,557	1,641	92,437	1,122

*AGP-AMDE household baseline survey, 2012

Table 67 displays the value of investment in hired labor. Hired labor is most often used during the harvest, followed by planting and weeding. However, in terms of investment, the average amount spent on weeding (838 Birr) exceeds that of both harvesting and planting, 655 Birr and 754 Birr respectively. The national pattern between wage rates paid during harvesting and planting do not hold regionally where the picture is much more mixed. Of interest are the substantially higher amounts spent on all labor in Tigray.

On average, households spend more on labor costs for planting and harvesting for the value chain crops of sesame, chickpeas, and honey. The labor costs of weeding remain fairly consistent across crops.

TABLE 67A: VALUE OF INVESTMENT IN LABOR FORCE HIRE

Hired labor		Planting		Weeding		Harvesting	
		#	Mean, Birr	#	Mean, Birr	#	Mean, Birr
Region	Tigray	17,337	1,471	33,222	3,223	31,782	2,126
	Amhara	86,304	803	107,210	1,032	114,854	723
	Oromia	109,564	649	141,532	365	164,688	653
	S.N.N.P	99,143	701	80,147	452	159,293	315
	Total	312,348	754	362,110	838	470,617	655
Value Chain	Wheat	189,399	815	205,365	555	281,356	610
	Maize	208,059	752	238,280	867	300,492	663
	Coffee	84,254	706	84,533	783	121,213	458
	Sesame	47,453	1,193	69,994	2,331	70,756	1,415
	Chickpeas	43,919	1,184	48,687	803	62,375	1,140
	Honey	41,184	1,061	42,366	899	49,303	1,189
	Total	312,348	754	362,098	838	470,593	655

*AGP-AMDE household baseline survey, 2012

Table 63B is provided to show that the method of harvesting is correlated with the average size of the plot. Machine use is more prevalent in larger plots. Expenditure on equipment is also evident from those households that declared the use of machine inputs.

TABLE 63B. LABOR AND CAPITAL EXPENDITURE OF HOUSEHOLD BASED ON THE DECLARED METHOD OF HARVEST

Method of harvesting	Standard Plot Size (average hectares)	Total household spent on hired labor Male (Birr)	Total household spent on Equip
Human	0.4	80.1	0.0
Machine	0.7	0.2	710.8
Both	0.7	68.9	288.9

*AGP-AMDE household baseline survey, 2012

IR 6. INCREASED FEMALE EMPOWERMENT AND IMPROVED BEHAVIOR CHANGE

Behavior change and gender are key components to improving the livelihood of rural households. This section provides an analysis of behavior change and gender indicators. The analysis provided helps to understand current gender related issues in terms of value chain production and marketing. Where the data allows, the analysis disaggregates responses by gender.

Head of Household

The household survey asked respondents to identify the gender of the head of household. In addition, the survey also computed the composition of the household as per FtF gender guidelines.[21]

For household (HH) level indicators, data should be disaggregated by "gendered household types" – that is: 1) HH with male and female adults, 2) HH with male adult, no female adult, and 3) HH with female adult, no male adult. This categorization is somewhat different that the standard "male-headed vs. female-headed" households, and the distinction and change is very meaningful. The concept of "head of household" is highly loaded, presumes certain characteristics that may or may not be present in household gender dynamics, and often reflects the bias of the researcher or respondent. In addition, the head of household concept may perpetuate existing social inequalities and prioritization of household responsibilities that may be detrimental to women.

Table 68 illustrates the breakdown as provided by the FtF and the traditional method of defining heads of household. For the purposes of this study, an adult is considered to be any person 16 years and over. This table is based on the survey results and sample size of 2100.

TABLE 68: COMPARISON OF TRADITIONAL HEAD OF HOUSEHOLD WITH FTF GUIDELINES

Traditional classification		Sex of the head of household		
		Male	Female	Total
FtF household gender classification	Household with male and female adults	1864	88	1952
	Household with only female adults, no male adults	1	100	101
	Household with only male adult, no female adults	45	0	45
Total		1910	188	2098

*AGP-AMDE household baseline survey, 2012

As can be seen from the table, the level of disaggregation or classification of those households with female adults is 101 (lower than self-declared female headed households with 188). This classification decreases the pool (denominator) and likely reduces the ability for statistical inference. Of 188 traditionally defined self-declared female-headed households, over half (100) are classified as households with only female adults. The FtF classification becomes in fact a subset of traditionally

[21] See: http://feedthefuture.gov/sites/default/files/resource/files/Volume%206%20FTF%20Guidance%20on%20Measuring%20Gender%20Impact%2011282011.pdf

female-headed households in the sample. Curiously, one case is apparent of a 14-year-old boy who has been classified as the head of household.

As an alternative, a different classification was used to define some household level gender sensitive classification that would not:

- decrease the statistical power
- be a subset of female headed households

The classification proposed looked at:

1=Total adult females are greater than total adult males
2=Total adult males are greater than adult females
3=Adult males and females are equal

As can be seen in

Table **69**, the grouping is far more robust with 396 households having more females than males. This is a larger pool than simple female-headed households or the FtF classification. Interestingly enough, 396 sampled households have more females than males and over 67 percent of these are male headed. Only 19 heads of household classified as females would be classified in households where more adult males are identified. These might be interesting to look at on a case-by-case basis and seek to acquire more information in the midline and endline.

TABLE 69: COMPARISON OF TRADITIONAL HEAD OF HOUSEHOLD WITH ALTERNATIVE CLASSIFICATION

Traditional classification		Sex of head of household		Total
		Male	Female	
Alternative domains of study for gender	More adult females than males	267	129	396
	More adult males than females	507	19	526
	Household composition is equal	1136	40	1176
Total		1910	188	2098

*AGP-AMDE household baseline survey, 2012

Division of labor

An analysis of the primary areas of economic activity was also undertaken as an initial step in understanding the gender composition of this area. Table 70 provides weighted percentages disaggregated by gender regarding the primary areas of economic activity. More men claimed to work in agriculture and were involved in trade, whereas women tended to report higher amounts of volunteer or family work as well as producing more goods for sale.

TABLE 70: PRIMARY MAJOR AREAS OF ECONOMIC ACTIVITY

Primary major areas of economic activity	Sex	
	Male (%)	Female (%)
Work in agriculture	77.42	66.84
Private or public sector formal employee	1.62	0.55

Work as a trader or merchant	3.86	2.59
Provide a private service	0.37	0.07
Produce goods for sale (food or otherwise)	0.49	2.13
Family production	6.34	2.91
Family or volunteer work	29.39	34.11
Other productive activity	0.89	0.86

*AGP-AMDE household baseline survey, 2012

The division of labor between men and women in crop production varies. However, women usually do the major share of weeding, threshing, storing and processing. The men, on the other hand, are responsible for sowing and planting. Men are also more associated with cash crops[22], whereas women tend to be more involved in subsistence farming.

The main respondent of the survey was asked the amount of time different household members (male adults, female adults, male children and female children) spent on certain agricultural tasks. The data collected shows that men, on average, spend more hours completing agricultural tasks across all value chains. There is a bigger difference between the amount of time women and men spend on preparing land and sowing, and a smaller gap between the average time spent weeding, which follows the trend described above. Women tend to spend more time on maize and less time on sesame relative to men. Maize is both a cash and subsistence crop and, therefore, could explain why women spend more time in maize production. Children, both male and female, spend very little time performing agricultural tasks. The average ranged between 0 and 0.2, with the female children contributing slightly less time. Table 71 displays the mean time spent on each task by commodity for females and males, adults and children.

TABLE 71: TIME ALLOCATION OF AGRICULTURAL TASKS

Commodity	Task	Male adults	Female adults	Male Child	Female Child	Total
Any	Land preparation	11.8	2.4	0.2	0.0	14.4
Wheat	Sowing	5.1	1.2	0.1	0.0	6.5
	Weeding	6.8	4.0	0.2	0.1	11.1
	Harvesting	6.7	2.0	0.1	0.1	8.9
	Threshing	4.1	1.4	0.2	0.1	5.7
Maize	Sowing	4.3	1.4	0.1	0.0	5.9
	Weeding	6.6	3.7	0.2	0.1	10.6
	Harvesting	4.6	2.1	0.0	0.0	6.8
	De-hulling	3.4	2.1	0.1	0.0	5.6
Chickpea	Sowing	4.6	0.9	0.0	0.1	5.6
	Weeding	6.1	3.1	0.1	0.1	9.3
	Harvesting	6.6	2.6	0.0	0.1	9.3
	Shelling	3.4	1.6	0.0	0.1	5.2
Sesame	Sowing	7.0	0.8	0.0	0.1	7.9
	Weeding	11.8	3.3	0.1	0.1	15.3

[22] Note: Cash crops are considered as coffee and sesame. Sesame is grown predominantly in Tigray and parts of Oromia and show specific gender division of labor based on the value chain production cycle. Maize is considered a subsistence crop.

	Harvesting	8.3	1.4	0.0	0.1	9.8
	Sorting/shelling	5.8	1.0	0.0	0.0	6.8
Honey	Bee keeping	2.5	0.4	0.0	0.0	2.9
	Extraction of honey	1.6	0.3	0.0	0.0	1.9
	More honey tasks	2.5	0.6	0.0	0.0	3.1
Coffee	Seedling (selection)	1.7	0.5	0.0	0.0	2.2
	Planting and maintenance	3.7	1.2	0.0	0.0	4.9
	Picking	6.3	4.0	0.1	0.0	10.4
	Cleaning and drying	2.3	1.8	0.0	0.0	4.1

*AGP-AMDE household baseline survey, 2012

When the data are disaggregated by household type (female-headed household (FHH) or male-headed (MHH)), the differences between the two are very small. Both reported similar amounts of time allocated by each member. It would be expected to see that a woman would spend more time on such tasks if she did not have a male counterpart to complete them. An explanation for the fact that this is not so could be that women in FHHs engage less in agricultural activities or other male adults in the household take over the responsibility (Table 72).

TABLE 72: ALLOCATION OF AGRICULTURAL TASKS BY HOUSEHOLD TYPE

		Male adults		Female adults		Male Child		Female Child	
Commodity	Task	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH
Any	Land preparation	11.9	10.6	2.4	2.5	0.2	0.3	0.1	0.0
Wheat	Sowing	5.0	6.0	1.3	1.1	0.1	0.1	0.0	0.0
	Weeding	6.8	7.0	3.9	4.5	0.1	0.3	0.1	0.1
	Harvesting	6.9	5.3	2.1	1.3	0.1	0.2	0.1	0.0
	Threshing	4.0	4.3	1.4	1.4	0.2	0.2	0.1	0.0
Maize	Sowing	4.4	3.8	1.4	1.4	0.1	0.0	0.0	0.0
	Weeding	6.7	6.3	3.7	3.7	0.2	0.0	0.1	0.0
	Harvesting	4.6	5.0	2.0	2.3	0.1	0.0	0.0	0.0
	De-hulling	3.4	3.7	2.1	2.2	0.1	0.0	0.0	0.0
Chickpea	Sowing	4.6	4.4	0.9	0.8	0.0	0.2	0.1	0.0
	Weeding	6.2	5.4	3.3	1.2	0.1	0.0	0.1	0.0
	Harvesting	6.6	6.3	2.6	2.3	0.0	0.1	0.1	0.0
	Shelling	3.3	4.4	1.7	1.4	0.0	0.3	0.1	0.0
Sesame	Sowing	6.9	8.0	0.9	0.5	0.0	0.1	0.0	0.1
	Weeding	12.1	9.3	3.5	1.9	0.0	0.2	0.1	0.1
	Harvesting	8.4	7.7	1.5	0.7	0.0	0.1	0.1	0.3
	Sorting/shelling	5.8	5.8	1.0	0.6	0.0	0.1	0.0	0.1
Honey	Bee keeping	2.6	1.7	0.4	0.4	0.0	0.1	0.0	0.1
	Extraction	1.6	1.5	0.3	0.3	0.0	0.1	0.0	0.1

	of honey								
	More honey tasks	1.7	8.9	0.6	0.5	0.0	0.0	0.0	0.0
Coffee	Seedling (selection)	1.7	1.2	0.5	0.5	0.0	0.0	0.0	0.0
	Planting and maintenance	2.7	11.6	1.2	1.2	0.0	0.0	0.0	0.0
	Picking	6.3	6.9	3.9	4.3	0.1	0.0	0.0	0.0
	Cleaning and drying	2.3	2.1	1.8	2.1	0.0	0.0	0.0	0.0

*AGP-AMDE household baseline survey, 2012

Decision making

Decision-making powers are vital for women's development, including participation and power in the agricultural sector. Survey respondents were asked who was primarily responsible for making decisions on certain issues – male only or female only or joint. Overall, the distribution was evenly split between men and women making the decisions. There were a few exceptions. On average, men had more say when it came to agricultural decisions, especially when deciding what and how much of each input should be used. The mean score was 6.6 for males only and 3.4 for females only. On the other hand, women tend to have more decision-making power when buying small food items, groceries and toiletries, buying or selling jewelry and expenses for family planning (Table 73).

When the data is broken down by the type of household head, the same pattern was seen for both female-headed and male-headed households, except that on average, female headed households felt more strongly that females were the ones to make the decision instead of males.

TABLE 73: DECISION MAKING BY HOUSEHOLD TYPE

Description	Male only Mean score out of 10			Female only Mean score out of 10		
	MHH	FHH	Both	MHH	FHH	Both
Buying small food items, groceries, toiletries	3.1	2.8	3.1	6.9	7.2	6.9
Buying clothing for yourself and your children	5.3	4.7	5.2	4.7	5.3	4.8
Spending money that you yourself have earned	5.2	4.5	5.1	4.8	5.5	4.9
Buying or selling major household assets (land, livestock, crops)	5.4	4.5	5.3	4.6	5.5	4.7
Buying or selling jewelry	4.5	4.2	4.5	5.5	5.8	5.5
Use of loans or savings	5.0	4.3	4.9	5.0	5.7	5.1
Expenses for your children's education	5.1	4.4	5.0	4.9	5.6	5.0
Expenses for your children's marriage	5.0	4.4	4.9	5.0	5.6	5.1
Decision over children's marriage	5.1	4.4	5.0	4.9	5.6	5.0
Medical expenses for yourself or your children	5.0	4.4	5.0	5.0	5.6	5.0
Expenses for family planning (contraceptives)	4.1	3.6	4.1	5.9	6.4	5.9
How to utilize the harvest between food and sales	5.4	4.9	5.4	4.6	5.1	4.6
Who to sell the produce to at what price	5.6	5.0	5.6	4.4	5.0	4.4
What crops and varieties to plant	6.4	5.6	6.3	3.6	4.4	3.7
How much of which farm inputs should be used	6.7	6.1	6.6	3.3	3.9	3.4

How sales revenues should be used	5.6	5.1	5.6	4.4	4.9	4.4
Which family members should do what labor on the farm	6.0	5.2	5.9	4.0	4.8	4.1
Decision on sale of produce (Wheat, Maize, Chickpea, Sesame, Coffee, Honey	5.7	4.9	5.6	4.3	5.1	4.4

*AGP-AMDE household baseline survey, 2012

Access to productive assets

Knowledge Levels

Information and the ability to obtain knowledge are vital to improving agricultural production and profits. The majority of males interviewed stated they are very knowledgeable on most agricultural topics. The data suggests knowledge levels among the female respondents are much lower than among the male respondents for all value chains, with the knowledge gap slightly less distinct for the coffee value chain. For all knowledge areas, a lower percentage of females reported being very knowledgeable on agricultural practices and a higher percent reported no knowledge on the subject when compared to males. Twenty to 57.1 percent of women reported high levels of knowledge compared to a range of 43.8 percent to 79.8 percent of men. Both men and women indicated noticeably low levels of knowledge on irrigation and use of irrigation water for the wheat, chickpea, sesame and maize value chains.

The knowledge gap between men and women puts women at a disadvantage in the agricultural sector. Women play an important role in agriculture in Ethiopia; however, without information flow, they will not realize their full potential in this sector. This will be detrimental to the whole country.

The following tables present data regarding respondent knowledge levels. While they provide a lot of data, they have been included because program managers will likely find them useful when implementing knowledge enhancing activities.

TABLE 74: KNOWLEDGE LEVELS FOR ANNUAL CROP CULTIVATION (WHEAT, CHICKPEA, SESAME AND MAIZE)

Knowledge area	Males			Females		
	Very (%)	Somewhat (%)	Not (%)	Very (%)	Somewhat (%)	Not (%)
Choice and properties of seed varieties	79.6	17.5	2.8	45.6	47.0	7.4
Soil conservation methods	79.8	17.8	2.4	46.5	46.9	6.5
Soil fertility management: use of **inorganic** fertilizer	76.4	20.3	3.2	42.6	49.9	7.5
Soil fertility management: use of **organic** fertilizer	76.8	20.4	2.8	43.2	51.2	5.6
Land preparation, planting times, depths and spacing	79.6	17.7	2.7	45.6	48.0	6.4
Irrigation and use of irrigation water	43.8	34.3	22.0	20.0	46.9	33.1
Weed management and use of herbicide	72.7	22.7	4.6	38.4	52.2	9.4
Green manure	69.4	26.0	4.6	37.5	51.9	10.6
Conservation agriculture (zero /minimal tillage, composting)	74.3	22.8	2.9	39.4	52.7	7.9
Pest management techniques	67.5	27.3	5.2	35.7	54.4	9.9

Best practice for post harvest storage	78.1	19.7	2.2	46.3	48.7	5.0
Traditional storage pest management techniques	74.4	22.1	3.6	43.1	50.3	6.7
Use of pesticides for storage pest management	73.0	23.1	4.0	43.6	49.7	6.7
Crop marketing	73.1	22.5	4.4	46.1	47.6	6.3
Current market prices for commodities	70.7	24.3	5.0	45.2	47.5	7.3

*AGP-AMDE household baseline survey, 2012

TABLE 75: KNOWLEDGE LEVELS FOR HONEY VALUE CHAIN

Knowledge area	Males			Females		
	Very (%)	Somewhat (%)	Not (%)	Very (%)	Somewhat (%)	Not (%)
Honey technique: removing impurities from honey	63.6	22.1	14.2	31.3	41.3	27.4
Honey technique: identifying appropriate position of hives	70.2	20.5	9.4	31.8	42.3	26.0
Honey technique: removing honey combs from hives	65.8	23.3	10.9	31.6	39.8	28.7
Honey technique: preparation of tedj	58.1	23.4	18.5	27.5	41.0	31.6

*AGP-AMDE household baseline survey, 2012

TABLE 76: KNOWLEDGE LEVELS FOR COFFEE VALUE CHAIN

Knowledge area	Senior Males			Senior Females		
	Very (%)	Somewhat (%)	Not (%)	Very (%)	Somewhat (%)	Not (%)
When and how to replace old tree stock	68.2	23.9	7.9	40.6	38.9	20.5
Methods for combating CBD	65.4	21.7	12.8	39.1	38.1	22.8
Selection of beans …	69.1	25.5	5.4	41.8	41.3	17.0
Planting	70.5	27.2	2.3	43.6	41.4	15.0
Pickling, drying, storage and marketing	75.0	22.4	2.5	51.7	38.8	9.5

*AGP-AMDE household baseline survey, 2012

When the data is disaggregated by household type (male-headed household and female-headed household) there is very little difference between the men's knowledge in male-headed households compared to female-headed households. There is also little difference in the female's knowledge in male-headed households and female-headed households for the annual value chains. Interestingly, a

smaller percentage of senior females in female-headed households report being very knowledgeable compared to females in male-headed households. In addition, a smaller percentage of females in female-headed households report having no knowledge on the subjects than females in male-headed households. This trend changes for the honey and coffee value chains; a larger percent of females in female-headed households are very knowledgeable compared to females in male-headed households. These observations are captured in the following three tables.

TABLE 77: KNOWLEDGE LEVELS FOR ANNUAL CROPS (WHEAT, CHICKPEA, SESAME, MAIZE) BY HOUSEHOLD TYPE

Knowledge area	Senior Males						Senior Females					
	MHH			FHH			MHH			FHH		
	Very (%)	Somewhat (%)	Not (%)	Very (%)	Somewhat (%)	Not (%)	Very (%)	Somewhat (%)	Not (%)	Very (%)	Somewhat (%)	Not (%)
Choice and properties of seed varieties	79.6	17.4	3.0	79.6	18.8	1.6	46.1	46.2	7.8	41.6	54.0	4.4
Soil conservation methods	79.4	18.1	2.5	83.6	14.5	1.9	46.8	46.6	6.7	44.6	49.9	5.5
Soil fertility management: use of **inorganic** fertilizer	76.1	20.7	3.3	79.9	17.2	3.0	42.8	49.8	7.5	41.3	51.2	7.6
Soil fertility management: use of **organic** fertilizer	76.9	20.3	2.8	76.6	21.0	2.4	43.6	50.9	5.4	39.9	53.2	6.9
Land preparation, planting times, depths and spacing	79.8	17.5	2.7	77.6	19.6	2.9	46.3	47.2	6.5	38.8	55.0	6.2
Irrigation and use of irrigation water	43.9	33.7	22.5	42.7	40.1	17.2	20.2	45.9	33.9	18.7	55.4	26.0
Weed management and use of herbicide	72.7	22.7	4.6	73.1	22.3	4.6	38.5	52.1	9.5	37.8	53.9	8.4
Green manure	69.0	26.4	4.6	73.1	22.4	4.5	37.7	51.3	11.1	36.5	57.4	6.1
Conservation agriculture (zero /minimal tillage, composting)	74.6	22.5	2.9	71.2	25.8	3.0	39.8	52.3	8.0	36.2	56.3	7.4
Pest management techniques	67.6	27.0	5.4	66.6	29.7	3.6	35.6	54.2	10.2	36.6	56.3	7.1
Best practice for post harvest storage	77.7	20.1	2.3	82.2	16.5	1.3	46.7	48.1	5.2	42.5	54.3	3.2
Traditional storage pest management techniques	74.1	22.2	3.7	76.6	21.4	2.0	43.6	49.6	6.8	38.1	56.1	5.9
Use of pesticides for storage pest management	72.9	23.0	4.1	73.8	23.4	2.8	44.1	49.0	6.9	39.9	55.5	4.6
Crop marketing	73.0	22.3	4.7	73.8	24.8	1.4	46.5	46.8	6.7	42.6	54.5	2.9
Current market prices for	70.4	24.3	5.3	73.1	24.2	2.7	46.0	46.4	7.7	39.1	56.7	4.2

Knowledge area	Senior Males						Senior Females					
	MHH			FHH			MHH			FHH		
	Very (%)	Somewhat (%)	Not (%)	Very (%)	Somewhat (%)	Not (%)	Very (%)	Somewhat (%)	Not (%)	Very (%)	Somewhat (%)	Not (%)
commodities												

*AGP-AMDE household baseline survey, 2012

TABLE 78: KNOWLEDGE LEVELS FOR HONEY VALUE CHAIN BY HOUSEHOLD TYPE

Knowledge area	Senior Males						Senior Females					
	MHH			FHH			MHH			FHH		
	Very (%)	Somewhat (%)	Not (%)	Very (%)	Somewhat (%)	Not (%)	Very (%)	Somewhat (%)	Not (%)	Very (%)	Somewhat (%)	Not (%)
Honey technique: removing impurities from honey	61.9	23.7	14.4	80.1	7.1	12.8	29.7	41.9	28.4	46.5	35.3	18.2
Honey technique: identifying appropriate position of hives	69.4	21.2	9.4	77.0	13.5	9.5	31.2	41.9	26.9	36.7	45.2	18.1
Honey technique: removing honey combs from hives	64.1	24.9	11.0	82.0	8.3	9.6	30.7	40.1	29.2	40.2	36.4	23.4
Honey technique: preparation of tedj	56.2	25.1	18.8	75.0	8.4	16.6	26.4	41.9	31.7	36.4	33.1	30.6

*AGP-AMDE household baseline survey, 2012

TABLE 79: KNOWLEDGE LEVELS FOR COFFEE VALUE CHAIN, BY HOUSEHOLD TYPE

Knowledge area	Senior Males						Senior Females					
	MHH			FHH			MHH			FHH		
	Very (%)	Somewhat (%)	Not (%)	Very (%)	Somewhat (%)	Not (%)	Very (%)	Somewhat (%)	Not (%)	Very (%)	Somewhat (%)	Not (%)
When and how to replace old tree stock	68.6	23.1	8.4	64.8	30.9	4.3	40.3	38.2	21.5	43.0	44.2	12.8
Methods for combating CBD	65.5	21.3	13.2	65.0	25.5	9.5	38.6	37.6	23.8	42.7	41.4	15.9
Selection of beans …	69.2	25.1	5.7	68.5	28.8	2.7	41.0	41.1	17.9	47.4	42.3	10.4
Planting	70.4	27.0	2.6	71.2	28.8	0.0	42.4	42.2	15.4	52.1	35.7	12.2
Pickling, drying, storage and marketing	74.4	22.8	2.8	80.9	19.1	0.0	50.7	39.3	10.1	59.7	35.1	5.3

*AGP-AMDE household baseline survey, 2012

When men and women are asked reasons for their lack of knowledge, they all generally cite being unaware of the topic.

Table **80**,

Table **81**, andTable 82 display the reasons for the lack of knowledge for the annual value chains, honey value chain and coffee value chain, respectively. Interestingly, a higher percentage of women said they were aware of the topic but their lack of knowledge was due to a lack of training for both the annual value chains and the honey value chain. A higher percentage of men said that the lack of knowledge was because they were uninterested. High percentages of both men and women said they were aware but lacked training for the coffee value chain. This suggests that knowledge levels among women would increase if they had access to information and training in the coffee value chain would benefit both men and women.

This is also reflected in the data obtained on where individuals receive their information. Although receiving information from agricultural extension workers was the most common response among both males and females, a higher percentage of men than women reported this source, whereas a higher percentage of women reported receiving information from family members. This highlights the lack of training available to women and can help to explain their lower levels of knowledge.

TABLE 80: REASON FOR LACK OF KNOWLEDGE FOR ANNUAL CROP CULTIVATION (WHEAT, CHICKPEA, SESAME AND MAIZE)

Knowledge area	Senior Males (%)					Senior Females (%)				
	Aware but no training	Not important	Not interested	Unaware	Other	Aware but no training	Not important	Not interested	Unaware	Other
Choice and properties of seed varieties	26.7	0.0	26.1	47.3	0.0	41.7	0.9	10.7	46.5	0.2
Soil conservation methods	15.4	0.0	35.6	49.1	0.0	35.4	1.9	12.4	50.2	0.2
Soil fertility management: use of **inorganic** fertilizer	23.5	0.0	27.7	48.9	0.0	33.0	4.4	11.2	51.3	0.2
Soil fertility management: use of **organic** fertilizer	26.0	3.3	29.9	40.8	0.0	26.9	5.0	14.1	54.0	0.1
Land preparation, planting times, depths and spacing	6.8	2.8	29.2	58.3	2.9	30.3	4.3	11.7	52.7	1.0
Irrigation and use of irrigation water	35.7	2.3	12.1	46.8	3.2	32.3	2.5	8.5	53.5	3.2
Weed management and use of herbicide	35.1	1.3	17.5	43.4	2.7	32.8	4.1	11.5	49.8	1.9
Green manure	35.9	0.8	14.3	49.0	0.0	39.1	2.6	9.1	47.6	1.7
Conservation agriculture (zero /minimal tillage, composting)	13.7	5.9	24.2	56.2	0.0	26.8	5.8	12.5	54.0	1.0
Pest management techniques	30.7	5.2	16.3	46.1	1.7	30.0	5.0	10.1	54.1	0.8

Knowledge area	Senior Males (%)					Senior Females (%)				
	Aware but no training	Not important	Not interested	Unaware	Other	Aware but no training	Not important	Not interested	Unaware	Other
Best practice for post harvest storage	12.2	4.9	37.7	45.2	0.0	19.0	8.4	22.1	50.4	0.1
Traditional storage pest management techniques	12.3	7.5	29.2	51.0	0.0	16.1	8.7	12.4	62.7	0.1
Use of pesticides for storage pest management	15.1	7.5	28.3	49.2	0.0	14.4	10.8	14.0	59.7	1.1
Crop marketing	30.6	4.4	23.5	41.5	0.0	31.0	5.8	14.1	47.9	1.3
Current market prices for commodities	38.4	2.3	12.7	46.5	0.0	28.9	3.8	13.9	52.4	1.1

*AGP-AMDE household baseline survey, 2012

TABLE 81: REASON FOR LACK OF KNOWLEDGE FOR HONEY VALUE CHAIN

Knowledge area	Senior Males (%)					Senior Females (%)				
	Aware but no training	Not important	Not interested	Unaware	Other	Aware but no training	Not important	Not interested	Unaware	Other
Honey technique: removing impurities from honey	36.9	0.0	21.2	41.9	0.0	47.7	0.6	13.0	38.8	0.0
Honey technique: identifying appropriate position of hives	29.7	0.0	30.1	40.3	0.0	50.7	0.3	16.2	32.8	0.0
Honey technique: removing honey combs from hives	32.7	0.0	33.1	34.2	0.0	54.5	2.3	11.7	31.5	0.0
Honey technique: preparation of tedj	48.5	0.0	15.2	36.4	0.0	50.8	0.0	11.3	37.9	0.0

*AGP-AMDE household baseline survey, 2012

TABLE 82: REASON FOR LACK OF KNOWLEDGE FOR COFFEE VALUE CHAIN

Knowledge area	Senior Males (%)					Senior Females (%)				
	Aware but no training	Not important	Not interested	Unaware	Other	Aware but no training	Not important	Not interested	Unaware	Other

When and how to replace old tree stock	44.7	3.1	5.5	46.7	0.0	46.5	2.7	1.9	48.8	0.1
Methods for combating CBD	58.6	5.5	3.3	32.7	0.0	43.9	2.6	3.1	50.3	0.1
Selection of beans …	72.9	0.0	7.3	19.8	0.0	42.0	2.2	3.0	52.7	0.1
Planting	52.8	0.0	18.7	28.5	0.0	37.7	0.9	2.6	58.7	0.1
Pickling, drying, storage and marketing	31.0	0.0	17.2	51.8	0.0	11.4	1.5	4.2	82.7	0.2

*AGP-AMDE household baseline survey, 2012

Table 83, Table 84 and Table 85 display the frequency with which males and females report using their knowledge. The data suggest that women who do have knowledge report using the respective technique less often than men. A smaller percentage of women than men said they always apply the knowledge, and a larger percent of women than men said they never use the knowledge.

Similarly, a smaller percent of women, on average, report that the knowledge is very useful for increasing farm productivity (see *AGP-AMDE household baseline survey, 2012

TABLE 86, Table 87, and

Table 88 for data on usefulness of knowledge for increasing farm productivity). The only exception to this was for the coffee value chain, where a similar percent of females and males reported the knowledge as being very useful. A very small percent of both males and females responded that the knowledge was not useful at all.

TABLE 83: FREQUENCY OF APPLYING KNOWLEDGE, ANNUAL CROP CULTIVATION (WHEAT, CHICKPEA, SESAME, MAIZE)

Knowledge area	Senior Males (%)			Senior Females (%)		
	Never	Sometimes	Always	Never	Sometimes	Always
Choice and properties of seed varieties	2.9	21.3	75.8	5.5	57.2	37.3
Soil conservation methods	2.7	21.2	76.1	7.1	55.0	37.9
Soil fertility management: use of **inorganic** fertilizer	4.2	25.5	70.4	6.8	58.9	34.3
Soil fertility management: use of **organic** fertilizer	3.3	25.7	71.0	5.4	59.8	34.9
Land preparation, planting times, depths and spacing	3.9	21.4	74.7	7.9	56.0	36.1
Irrigation and use of irrigation water	36.2	24.8	39.0	35.3	47.4	17.3
Weed management and use of herbicide	6.3	27.1	66.6	8.9	57.4	33.7
Green manure	6.9	28.9	64.2	7.1	60.4	32.5
Conservation agriculture (zero /minimal tillage, composting)	4.2	26.9	68.9	8.9	57.9	33.2
Pest management techniques	5.6	31.6	62.8	7.1	61.8	31.1
Best practice for post harvest storage	3.2	22.1	74.7	4.2	54.0	41.9
Traditional storage pest management techniques	4.3	24.8	71.0	4.6	55.9	39.5
Use of pesticides for storage pest management	4.4	25.6	69.9	4.7	57.9	37.4
Crop marketing	4.8	27.7	67.6	5.6	56.7	37.7

Knowledge area	Senior Males (%)			Senior Females (%)		
	Never	Sometimes	Always	Never	Sometimes	Always
Current market prices for commodities	5.1	28.4	66.5	5.7	56.8	37.6

*AGP-AMDE household baseline survey, 2012

TABLE 84: FREQUENCY OF APPLYING KNOWLEDGE, HONEY VALUE CHAIN

Knowledge area	Senior Males (%)			Senior Females (%)		
	Never	Sometimes	Always	Never	Sometimes	Always
Honey technique: removing impurities from honey	4.5	30.3	65.2	19.8	51.4	28.8
Honey technique: identifying appropriate position of hives	3.9	29.9	66.3	18.3	53.0	28.7
Honey technique: removing honey combs from hives	5.0	26.3	68.7	17.4	49.9	32.7
Honey technique: preparation of tedj	5.9	28.7	65.4	16.1	58.2	25.7

*AGP-AMDE household baseline survey, 2012

TABLE 85: FREQUENCY OF APPLYING KNOWLEDGE FOR COFFEE VALUE CHAIN

Knowledge area	Senior Males (%)			Senior Females (%)		
	Never	Sometimes	Always	Never	Sometimes	Always
When and how to replace old tree stock	6.5	27.5	65.9	9.9	46.0	44.1
Methods for combating CBD	4.1	26.1	69.9	10.5	44.5	45.0
Selection of beans …	8.2	25.6	66.3	12.1	45.9	42.0
Planting	6.1	28.5	65.4	10.9	45.5	43.6
Pickling, drying, storage and marketing	3.8	25.4	70.9	8.7	41.1	50.2

*AGP-AMDE household baseline survey, 2012

TABLE 86: USEFULNESS OF KNOWLEDGE, ANNUAL CROP CULTIVATION (WHEAT, CHICKPEA, SESAME AND MAIZE)

Knowledge area	Senior Males			Senior Females		
	Not useful (%)	Somewhat useful (%)	Very useful (%)	Not useful (%)	Somewhat useful (%)	Very useful (%)
Choice and properties of seed varieties	0.6	14.3	85.1	1.1	22.1	76.8
Soil conservation methods	0.5	14.2	85.3	1.0	22.6	76.4
Soil fertility management: use of **inorganic** fertilizer	0.7	16.3	83.0	1.2	24.4	74.4

Knowledge area	Senior Males			Senior Females		
	Not useful (%)	Somewhat useful (%)	Very useful (%)	Not useful (%)	Somewhat useful (%)	Very useful (%)
Soil fertility management: use of **organic** fertilizer	0.4	17.1	82.5	1.4	24.0	74.6
Land preparation, planting times, depths and spacing	0.5	17.3	82.2	1.0	24.7	74.4
Irrigation and use of irrigation water	1.5	22.0	76.5	1.5	29.9	68.6
Weed management and use of herbicide	0.7	19.6	79.7	1.5	26.5	72.0
Green manure	0.8	18.8	80.4	1.7	24.4	73.9
Conservation agriculture (zero /minimal tillage, composting)	0.9	19.2	79.9	1.1	25.2	73.7
Pest management techniques	0.6	20.4	79.0	1.2	25.4	73.4
Best practice for post harvest storage	0.5	18.2	81.3	0.9	24.9	74.2
Traditional storage pest management techniques	0.8	17.8	81.4	1.1	23.7	75.2
Use of pesticides for storage pest management	0.5	18.7	80.9	1.0	24.0	75.0
Crop marketing	0.6	18.6	80.9	1.0	24.7	74.3
Current market prices for commodities	0.4	18.4	81.2	1.1	22.7	76.2

*AGP-AMDE household baseline survey, 2012

TABLE 87: USEFULNESS OF KNOWLEDGE, HONEY VALUE CHAIN

Knowledge area	Senior Males			Senior Females		
	Not useful (%)	Somewhat useful (%)	Very useful (%)	Not useful (%)	Somewhat useful (%)	Very useful (%)
Honey technique: removing impurities from honey	0.3	26.1	73.6	0.2	32.7	67.1
Honey technique: identifying appropriate position of hives	1.5	22.9	75.6	0.8	32.2	67.0
Honey technique: removing honey combs from hives	0.7	22.6	76.8	0.3	32.9	66.8
Honey technique: preparation of tedj	1.6	22.6	75.9	0.2	33.8	66.0

*AGP-AMDE household baseline survey, 2012

TABLE 88: USEFULNESS OF KNOWLEDGE FOR INCREASING PRODUCTIVITY, COFFEE VALUE CHAIN

Knowledge area	Males			Females		
	Not useful (%)	Somewhat useful (%)	Very useful (%)	Not useful (%)	Somewhat useful (%)	Very useful (%)
When and how to replace old tree stock	1.0	25.1	73.9	1.2	23.3	75.5
Methods for combating CBD	1.0	24.2	74.8	1.0	25.4	73.6
Selection of beans …	1.2	23.6	75.3	1.4	24.7	73.9
Planting	1.1	23.5	75.5	1.1	22.8	76.1

Pickling, drying, storage and marketing	1.1	21.5	77.4	1.1	22.3	76.6

*AGP-AMDE household baseline survey, 2012

Extension services

Extension services are an important means for the dissemination of information and new technologies and techniques to smallholder farmers. In turn, these services can improve production and profitability, aid in the reduction of poverty, and serve as a vehicle for providing crucial information on other issues such as health and nutrition. A high percentage of male respondents reported receiving extension services in the past 12 months (Table 89). However, reflecting the previous data that revealed a smaller percentage of women receive information from agricultural extension workers, a smaller percentage of women (54.1 percent) reported contact with extension training in the past 12 months. More men in male-headed households had contact with extension services than in female-headed households. More females in male-headed households had contact than with females in female-headed households. Less than half of women in female-headed households had contact with extension services. In sum, all members in male-headed households are more likely to have contact with extension workers. Of those who had contact with extension training, women received, on average, fewer visits from both extension workers and pioneer farmers than men.

A very high percentage of both men and women felt that the visit contributed to production improvements, 97.4 percent and 98.4 percent, respectfully (Table 89). The average rating for the utility of the information was also high, with a mean rating of 4.0 for both men and women out of a scale of 1 to 5, 5 being very useful.

TABLE 89: EXTENSION SERVICES

Sex	Contact with extension training in past 12 months (%)	# of visits from extension workers (mean)	# of visits from pioneer farmer (mean)	Visit contributed to production improvements (%)	Rating of utility of information (1=useless, 5=useful)	Amount paid for advice in Birr (mean)
Senior Male	71.3	7.2	1.2	97.4	4.0	0.2
Senior Female	54.1	6.0	1.2	98.4	4.0	0.0
Total	62.7	6.7	1.2	97.9	4.0	0.1

*AGP-AMDE household baseline survey, 2012

TABLE 90: EXTENSION SERVICES BY HOUSEHOLD TYPE

Household type	Sex	Contact with extension training in past 12 months (%)	# of visits from extension workers (mean)	# of visits from pioneer farmer (mean)	Visit contributed to production improvements (%)	Rating of utility of information (1=useless, 5=useful)	Amount paid for advice in Birr (mean)
MHH	Senior Male	71.8	7.3	1.2	97.6	4.0	NA

	Senior Female	54.7	6.0	1.2	98.4	3.9	NA
FHH	Senior Male	66.7	6.6	1.6	95.9	4.0	0.0
	Senior Female	48.6	5.6	1.4	98.6	4.0	0.0

*AGP-AMDE household baseline survey, 2012

The most common form of service reported for both males and females was workshops/seminars (30 percent), followed closely by group visits by extension officers and household visits by extension officers.

TABLE 91: TYPE OF EXTENSION SERVICE RECEIVED

Service type	Senior Male (%)	Senior Female (%)	Total (%)
Pamphlets/brochures	0.9	0.6	0.8
Demonstration plots	10.8	11.2	11.0
Field day	11.7	6.7	9.5
Workshops/Seminars	31.1	31.2	31.1
Group visits by extension officer	21.6	23.3	22.3
Household visits by extension officer	16.8	20.0	18.2
Other	7.1	7.0	7.0

*AGP-AMDE household baseline survey, 2012

Social media

Social marketing has become a popular method for distributing important messages, including those that raise awareness of financial services. The data shows that those who were exposed to the respective media had high recall levels, indicating that social marketing could leave a lasting impression (Table 92). However, exposure to the medium needs to increase to have an impact. A surprisingly low percent of respondents listened to a radio program in the four weeks prior to the interview (26.2 percent of men and only 17.2 percent of women). However, of those who did listen to a program, a 79.4 percent of men and 78.4 percent of women recalled hearing a message on the benefits of savings. An even larger percent recalled hearing a message about nutrition, 82.3 percent and 79.9 percent of men and women, respectively. A slightly smaller number also heard a message about accessing financial services.

A larger percent of men than women reported attending a public event in the past 6 months, 35.4 percent of men and 25.8 percent of women. Of the people who attended such an event, a large percent reported receiving information about financial services and nutrition.

Even though exposure to radio and community events is low, those who are exposed are receiving messages (and retaining the information) about savings and nutrition.

TABLE 92: RADIO PROGRAM AND PUBLIC EVENTS MESSAGING

Type of exposure	Senior Male (%)	Senior Female (%)	Total (%)
Radio program			
Listened to radio program in last 4 weeks	26.2	17.2	21.7

Recall benefits of savings messages	79.4	78.4	79.0
Recall accessing financial services messages (%)	66.1	67.1	66.5
Recall nutrition messages	82.3	79.9	81.4
Public event			
Attended a public event in last 6 months	35.4	25.8	30.6
Recall information on financial services	77.0	75.1	76.2
Recall nutrition messages	81.0	78.5	80.0

*AGP-AMDE household baseline survey, 2012

A very small percent of respondents were exposed to SMS messages (Table 93), which may be expected due to low mobile phone ownership. However, of those who do have mobile phones, exposure to SMS messages was still low, especially among female respondents. SMS messages may be particularly ineffective for communicating nutrition, savings and financial services information to women due to their lower mobile ownership rate.

TABLE 93: SMS MESSAGES

Sex	Received an SMS promoting a community event (%)	Received an SMS with a financial services messages (%)	Received an SMS with a nutrition messages (%)	Received a message about the role of women in value chain (%)
Senior Male	10.6	9.75	7.75	16.29
Senior Female	4.48	2.79	3.71	12.44

*AGP-AMDE household baseline survey, 2012

Savings accounts

A small percentage of respondents, particularly women, have savings accounts (only 4.3 percent of women and 9.5 percent of men) (Table 94). However, the mean amount of money in savings for women was more than double the mean amount that men reported. Also, a greater percentage of men reported having a joint savings account.

TABLE 94: SAVINGS ACCOUNTS

Sex	Have a savings account (%)	Joint account (%)	Average amount in savings (Birr)	
			Mean	Std. Err.
Senior Male	9.5	60.8	91466.7	87130.6
Senior Female	4.3	44.0	201077.6	196468.2

*AGP-AMDE household baseline survey, 2012

Savings groups

Approximately 30 percent of men are part of a savings group compared to approximately 25 percent of women (Table 95). However, on average, women contribute more than twice as much as men do. The most common forms of savings groups among both male and female respondents were Idir, followed by SACCOs and VSLAs (Table 96). Idirs are traditional community groups or burial societies dedicated to helping families bury the dead. SACCO stands for Savings and Credit

Cooperative Organization. These are groups of people that save their money together and offer loans to each other at reasonable rates of interest. VSLA is an acronym for Village Savings and Loans Associations. Members mobilize and intermediate local pools of investment finance, which offers savings, insurance and credit services in markets outside the reach of formal institutions.

TABLE 95: SAVINGS GROUPS

3. Sex	Belong to a savings group (%)	Monthly contributions (Birr)	
		Mean	Std. Err.
Male	30.8	504.2	453.6
Female	25.6	1095.8	741.6

*AGP-AMDE household baseline survey, 2012

TABLE 96: TYPE OF SAVINGS GROUP

4. Type	Senior Male (%)	Senior Female (%)
VSLA	9.3	15.5
SACCO	33.9	20.6
Idir	43.8	51.2
Ekub	6.5	8.7
Wonfel/Jiggi	0.3	1.1
Microfinance	6.2	2.8

*AGP-AMDE household baseline survey, 2012

Producer Organizations

The development of producers' organizations enables the pooling of resources such as credit, information, transportation to markets and input supplies. Collective action can be a means to overcome constraints faced by small-scale farmers. The data suggests that membership in producer organizations is not very popular (Table 97). In addition, participation in producer organizations differed considerably for male and female respondents with only 5 percent of females reporting being members compared to 32 percent of males.

TABLE 97: PRODUCER ORGANIZATION PARTICIPATION

Sex	Member of producer group (%)	Mean registration fee (Birr)	Mean contribution fee (Birr)	Mean number of interactions	Mean distance in minutes	Rating of perception of utility (1=useless, 5=useful)
Senior Male	32.1	49.6	20.6	3.7	15.0	4.0
Senior Female	5.2	31.3	22.7	3.6	80.9	3.6
Total	18.7	47.0	20.9	3.7	24.2	3.9

*AGP-AMDE household baseline survey, 2012

When looking at the data broken down by household type, a smaller percentage of females in female-headed households belong to producer groups than women in male-headed households

(Table 98). However, a larger percentage of males living in female-headed households are members of producer groups than the percent of males in male-headed households.

TABLE 98: PRODUCER ORGANIZATION PARTICIPATING BY HOUSEHOLD TYPE

Household type	Sex	Member of producer group (%)	Mean registration fee (Birr)	Mean contribution fee (Birr)	Mean number of interactions	Mean distance in minutes	Rating of perception of utility (1=useless, 5=useful)
MHH	Senior Male	31.7	50.6	22.3	3.7	14.9	4.0
	Senior Female	5.4	31.8	19.8	3.7	87.8	3.6
FHH	Senior Male	36.0	40.3	4.6	3.5	16.1	3.7
	Senior Female	3.5	23.7	61.2	3.2	16.7	3.3

*AGP-AMDE household baseline survey, 2012

Reasons cited for not participating were similar for men and women, with the main reasons being first, unawareness of the advantages of membership and second, illiteracy (Table 99). Illiteracy was a slightly bigger issue for women (17 percent) compared to men (12 percent).

TABLE 99: REASONS FOR NOT BELONGING TO PRODUCER ORGANIZATIONS

Reasons	Senior Male (%)	Senior Female (%)	Total (%)
Lack of awareness on its advantage	61.4	56.5	58.6
Poor cooperative education and extension system	7.6	6.2	6.8
Illiteracy	11.8	16.8	14.7
Poor patronage allocation system	2.2	1.8	2.0
Poor service delivery system	1.0	0.2	0.5
Low capacity to deliver demanded service on time	3.5	1.7	2.5
Bad practice of leadership and resources mismanagement	0.8	0.6	0.7
Bad image from previous cooperative system	0.9	0.3	0.6
Unable to fit with the membership requirement	0.5	1.0	0.8
Do not believe that cooperatives can solve their problems	2.9	1.5	2.0
Other	7.4	13.5	10.9

*AGP-AMDE household baseline survey, 2012

For those who did report being members of a producer group, the reason men joined was to get fertilizer and input loans at cheaper prices, but for women, the reason was to produce farm inputs and other consumables (Table 100). For membership in such organizations, males pay more for registration fees, on average, but women pay slightly more for contribution fees. Notably, women have to travel much further to access producer organizations, over 80 minutes, compared to only 15 minutes it takes for men to reach producer organizations.

TABLE 100: REASONS FOR BELONGING TO PRODUCER ORGANIZATIONS

Reasons	Reason 1	Reason 2

	Senior Male (%)	Senior Female (%)	Total (%)	Senior Male (%)	Senior Female (%)	Total (%)
To produce farm inputs and other consumables	30.0	38.1	31.0	6.2	13.8	7.1
To market farm produce at reasonable prices	12.8	18.7	13.56	28.4	29.5	28.5
To get fertilizers and other inputs loans more cheaply	48.1	29.6	45.8	25.0	28.6	25.4
To get assistance from government	8.3	11.5	8.7	39.5	25.2	37.8
To get proper storage facility	0.6	1.2	0.7	0.5	2.7	0.8
Other	0.1	0.9	0.2	0.5	0.1	0.4

*AGP-AMDE household baseline survey, 2012

The most common type of producer organization by far is a multipurpose cooperative with the main function being to supply agricultural inputs (Table 101 and Table 102). Both men and women perceived the utility of membership in such an organization as useful, however, women's perception of the utility of producer organizations was slightly lower than men's.

TABLE 101: TYPE OF PRODUCER GROUPS RESPONDENTS BELONG TO

Type of producer group	Senior Male (%)	Senior Female (%)	Total (%)
Multipurpose cooperative	78.1	77.8	78.1
Saving and credit cooperative (SACCO)	14.2	15.8	14.4
Beekeeping and Honey Processing Cooperative	0.6	2.3	0.9
Coffee Producers and Processing Cooperative	2.4	0.5	2.1
Fruit and Vegetable Producer Cooperative	0.4	0.0	0.4
Consumer Cooperative	0.1	0.0	0.1
Grain Producer and Marketing Cooperative	2.8	2.9	2.8
Seed Producer and Trader Cooperative	1.1	0.4	1.0
Joint Cooperative	0.3	0.2	0.3
Fish Producers Cooperative	0.0	0.0	0.0

*AGP-AMDE household baseline survey, 2012

TABLE 102: FUNCTION OF THE PRODUCER ORGANIZATION

Functions	Senior Male (%)	Senior Female (%)	Total (%)
Supply of agricultural input	60.7	53.2	59.7
Marketing of agricultural output	29.5	14.6	27.5
Finance services delivery (saving, credit and insurance service)	4.3	12.0	5.4
Managing community based revolving funds	1.0	4.5	1.4
Training on proper agronomic practices	2.5	5.9	3.0
Training on agribusiness and market connection	1.1	5.3	1.6
Negotiation with customers, financiers, etc.	0.0	0.0	0.0
Others	1.0	4.5	1.4

*AGP-AMDE household baseline survey, 2012

Consumption (Income Proxy)

An analysis of household consumption is not an explicit objective of the baseline, however an understanding of consumption as a proxy for income and using this to rank households provides valuable analytic value for undertaking a limited examination of poverty.

The AGP-AMDE program focuses on agricultural production and the integration of smallholder farmers into the commodity value chain. The underlying reason for these activities is to help support livelihoods and increase the food security of program beneficiary households, aligning with the top goal of the Feed the Future program, to 'Reduce Poverty and Global Hunger.'

During the design phase of the questionnaire, program managers decided that a full-blown consumption module would not be cost effective; however, some primary consumption questions were asked in order to help quantify household consumption as a poverty metric. Information related to both food and non-food consumption was asked. Although a full-blown poverty analysis is out-of-scope for this survey, some analysis can provide useful information. The results are found in Table 103 and Table 104.

TABLE 103: MEAN ANNUAL HOUSEHOLD FOOD CONSUMPTION IN BIRR

Food group	Mean annual expenditure
Grain and cereals	1706
Pulses	1367
Cooking Oil/ Butter	1337
Vegetables	654
Meat	735
Milk products	45
Sugar	485
Beverages (Tea/coffee/tella)	1629
Cooked food (Injera, etc.)	173
Root and tubers	185

*AGP-AMDE household baseline survey, 2012

Table 99 provides a distribution of the main food expenditure items as reported in the questionnaire. In most cases, households will grow grains and cereals as the staple and purchase other items. Non-food consumption gathered information is captured in Table 100.

TABLE 104: MEAN ANNUAL HOUSEHOLD NON-FOOD CONSUMPTION IN BIRR

Non-food item	Birr per year
Soap (washing)	460.69
Kerosene	354.53
Telephone recharge	205.44
Batteries for torch	191.37

Bus fare or local transport	429.25
Shoes	425.45
Clothing	1,006.55
Domestic service	215.49
Health	318.68
Schooling	185.27

*AGP-AMDE household baseline survey, 2012

The combined food and non-food consumption data, reporting by the households surveyed, were used to develop expenditure quintiles. These quintiles rank households in terms of per equivalent adult expenditure (a modified per capita measure that accounts for age and sex attribution in consumption).[23]

The scales used to adjust the denominator (per capita) are captured in Table 105.

TABLE 105: SCALES USED TO ADJUST THE DENOMINATOR (PER CAPITA)

Age	Male	Female
0-1 years	0.27 adult	0.27 adult
1-3 years	0.45 adult	0.45 adult
4-6 years	0.61 adult	0.61 adult
7-9 years	0.73 adult	0.73 adult
10-12 years	0.86 adult	0.78 adult
13-15 years	0.96 adult	0.83 adult
16-19 years	1.02 adult	0.77 adult
20 and above	1 adult	0.73 adult

*AGP-AMDE household baseline survey, 2012

Each expenditure quintile contains 20 percent of the households ranked by per equivalent adult consumption. The households with the lowest per adult equivalent household consumption (considered the poorest) are assigned to the first quintile and the households with the highest per adult equivalent consumption are assigned into the 5th quintile (considered the least poor). These quintiles are then used to examine characteristics of households based on their quintile assignments.

Poverty and Household Characteristics

The data tends to dampen differences in consumption patterns since the sample is rural and differentiation of consumption patterns is not as evident as would be seen in an urban area. The data show that households in the fifth quintile (least poor) expend about three times more in food per equivalent adult than the poorest households. This can happen when less poor households vary their food budget and consume more expensive goods; for example, by replacing teff with rice, effectively substituting one product for another simply because they can afford it. So there are two components that might explain the higher apparent consumption: 1) A less poor household may consume more and2) A less poor household may consume a different, generally more expensive, basket of goods. Eventually, food expenditure will increase proportionately less to non-food

[23] The FAO has a recommended adjustment for computing equivalent adults and it is a standard adjustment in poverty evaluations.

expenditures, and less poor households will then begin to allocate more to and buy more non-food items relative to food. This phenomenon is commonly seen in poverty studies.

Table 106 shows that the differences in household characteristics between poor and non-poor are found in the presence of corrugated iron roofing increasing from 53.84 percent in poor households to 62.16 percent in non-poor. Thatch roofs are largely replaced with corrugated roofs when possible. Perhaps the most significant characteristic apparent in households of the least poor is the use of a water tap outside of the compound. Also indicative of the least poor households is the presence of a window to ventilate the home (15 percent more common in less poor households than poor households). Literacy also significantly increases in less poor households. However, in general, the housing characteristics tend to not differentiate themselves greatly. People tend to live in similar kinds of environments in rural areas and it may be that although differences exist, the differences are more subtle, as the magnitude of consumption power differences between poor and non-poor in rural areas are not sufficient to distinguish households in terms of building materials and amenities.

TABLE 106: SELECTED CHARACTERISTICS ACROSS CONSUMPTION QUINTILES

Item		Per equivalent adult consumption quintiles					Total
		1	2	3	4	5	
1.Wall material	Mud/Cow Dung	27.14%	20.71%	24.37%	21.74%	27.83%	24.37%
	Wood	70.29%	75.32%	73.74%	74.51%	66.12%	71.99%
	Other	2.57%	3.96%	1.88%	3.74%	6.04%	3.64%
2. Roofing material	Corrugated iron	53.84%	52.20%	44.17%	52.99%	62.16%	53.07%
	Thatch	29.39%	26.04%	33.19%	23.18%	18.97%	26.15%
	Reed/bamboo	15.60%	20.42%	22.33%	22.95%	18.08%	19.87%
	Other	1.17%	1.34%	0.30%	0.87%	0.79%	0.90%
3. Floor material	Earth/sand	84.53%	79.87%	85.50%	81.48%	84.75%	83.23%
	Dung	15.01%	18.40%	13.56%	15.50%	12.44%	14.98%
	Other (specify)	0.46%	1.73%	0.94%	3.02%	2.81%	1.79%
4. Toilet type	Pit toilet/latrine	84.21%	89.24%	82.58%	79.31%	86.57%	84.38%
	No facility/bush/field	10.27%	8.86%	15.37%	16.55%	12.42%	12.69%
	Other (specify)	5.52%	1.90%	2.05%	4.14%	1.01%	2.92%
5. Cooking fuel	Electricity	1.07%	1.56%	1.54%	0.05%	2.12%	1.27%
	Firewood, straw	96.56%	93.10%	93.18%	92.57%	88.75%	92.83%
	Other	2.37%	5.35%	5.28%	7.39%	9.13%	5.90%
6.Drinking water	River water	43.28%	29.56%	24.55%	24.61%	19.97%	28.41%
	Protected spring	25.80%	31.45%	24.58%	26.86%	24.81%	26.69%
	Unprotected spring	19.04%	18.15%	24.84%	14.98%	17.08%	18.82%
	Tap outside compound	7.63%	12.76%	12.80%	23.28%	26.64%	16.62%
	Other, specify	4.24%	8.08%	13.23%	10.26%	11.50%	9.46%
7.Windows present	Yes	47.38%	54.30%	52.73%	56.77%	62.51%	54.73%
	No	52.62%	45.70%	47.27%	43.23%	37.49%	45.27%

8.Sex of head of household	Male	89.62%	92.17%	90.54%	90.17%	84.63%	89.42%
	Female	10.38%	7.83%	9.46%	9.83%	15.37%	10.58%
9.Literate	Yes	23.29%	36.83%	33.86%	44.70%	43.53%	36.43%
	No	76.71%	63.17%	66.14%	55.30%	56.47%	63.57%

*AGP-AMDE household baseline survey, 2012

Poverty and Means

Although the differences in housing characteristics between poor and non-poor may be minor, there is more evidence in the data that possession of assets (personal and livestock) follows clear trends.

Table 107 shows a clear trend toward increasing heads of livestock from the poorest to the least poor households. The possession of agricultural assets and the response to asset ownership also increases across the quintiles. An interesting and expected characteristic is the evident decrease in household size from an average of 6.28 persons in poor households to 4.6 persons per household in least poor. This may indicate an increase in dependency ratios in poor households, as more dependents increase pressure on poorer households. The size of the home also increases from an average of 1.75 rooms in poor households to 2 rooms in less poor.

TABLE 107: MEAN VALUES ACROSS CONSUMPTION QUINTILES OF SELECTED VARIABLES

Quintile per equivalent adult	Livestock head	Agricultural equipment	House hold assets	Annual food consumption*	Annual non food consumption *	Hectares	Age of head of house hold	House hold size	Number of rooms
1st Quintile	5.70	.0884	2.52	4,591	1,594	4.50	46.71	6.28	1.72
2	6.75	.0956	3.09	8,807	2,521	4.48	44.71	6.26	1.94
3	7.29	.1019	3.28	12,034	3,175	4.86	45.02	5.75	1.82
4	7.62	.1103	3.53	14,360	4,082	4.51	43.97	5.21	1.87
5th Quintile	7.52	.1282	3.99	24,004	5,236	4.46	45.18	4.60	1.99
Total	6.98	.1049	3.28	12,756	3,321	4.56	45.12	5.62	1.87

*AGP-AMDE household baseline survey, 2012

**Based only on those products as provided in the questionnaire. This is not a full consumption measure.

Poverty and Value Chain

A final analysis was done using the consumption measure and classifying households as poor and non-poor based on their value chain. Table 108 provides two views into value chain productivity, depending upon the use of column or row percentage. The upper table shows the value chain

production by quintile. Poorer households tend to be maize growers where less poor households report growing wheat. There is almost a proportional change in value chain activity between poor households and less poor. Maize is produced in almost 58 percent of poor households, whereas only in 16 percent of least poor and wheat is produce in 52.29 percent of least poor and only 21.4 percent of poorest. Coffee appears to be relatively stable across the quintiles with honey being present in the bottom four quintiles. It is interesting to note that sesame growers are more prevalent in the least poor households. This is further evidenced in the lower half of Table 108, which looks at the row percentage or where the value chain is more prevalently grown. In the case of sesame, although 19.47 percent of households grow sesame in the 5th quintile, 38.92 percent of sesame growing households are in the 5th quintile. The same trends in terms of the other value chains are also shown in the lower chart, with maize growing households being assigned to lower consumption quintiles and wheat farmer being more prevalent in the higher quintiles.

TABLE 108: VALUE CHAIN PRODUCTION IN HOUSEHOLD BY PER EQUIVALENT ADULT CONSUMPTION QUINTILE (VC STRATA)

	Value Chain	1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile	Total
With quintile	Wheat	21.30%	36.75%	41.89%	48.18%	52.29%	40.07%
	Maize	57.98%	38.08%	30.97%	30.25%	16.04%	34.68%
	Coffee	15.12%	15.75%	16.78%	11.34%	19.47%	15.69%
	Sesame	1.28%	3.46%	4.80%	5.66%	9.69%	4.97%
	Honey	4.32%	5.96%	5.57%	4.57%	2.51%	4.59%
Within VC	Wheat	10.65%	18.32%	20.88%	24.06%	26.08%	100.00 %
	Maize	33.52%	21.94%	17.84%	17.46%	9.25%	100.00 %
	Coffee	19.31%	20.06%	21.36%	14.46%	24.81%	100.00 %
	Sesame	5.16%	13.89%	19.27%	22.76%	38.92%	100.00 %
	Honey	18.87%	25.95%	24.29%	19.97%	10.93%	100.00 %

*AGP-AMDE household baseline survey, 2012

LESSONS LEARNED

As with any survey, there are always specific issues that arise which are largely learned only through the survey conducting experience. Each country or survey presents its own challenges which are largely contextual and make up part of the fabric of the survey and impact results, whether positively or negatively. Handling these issues as they present themselves and annotating them can be invaluable. Not all lessons learned should focus on the negative. Rather, positive experiences are equally, if not more important, as these can be replicated in the future and perhaps formulate methods for replication. Table 109 highlights both positive and negative issues per major heading. These should be safeguarded and kept in mind for the design of the midline and endline surveys.

TABLE 109: LESSONS LEARNED

Heading	Pros	Cons	Comments
Design	The CSA proved of invaluable assistance in selecting EAs and providing EA level maps. They were also able to provide GIS information and map the EAs on a master map which was useful for planning.	The sample design was based on the selection of value chain assumptions at the Woreda level.	It would be beneficial to have a pre-survey interview and visit to the AGP officers at the given Woreda identifying all kebeles in the intervention zone and rank by VC.
Modeling	The current diffusion model was decided upon in the process of implementing the survey. This was identified with sufficient time and provided the background for refinement and development of a more focused GIS component in the survey. The survey retrieved a great deal of useful spatial information.	In general, impact evaluation surveys rely on the preservation of a control group. In the case of the AGP-AMDe survey, this was not possible.	The current impact evaluation will examine the impact based on standard diffusion (marketing) type analysis. This kind of modeling will require some training on the part of the M&E staff based in Ethiopia.
Institutional Questionnaire	The institutional questionnaire was developed during the design phase. It was done to replace the FGDs as a more formal questionnaire appeared more suitable (instead of FGD). Effectively the FGDs were merged and as much as possible individual interviews with VC agents were conducted at the Woreda level.	The institutional questionnaire was developed late in the process and is considered an extremely important instrument.	The institutional questionnaire should be retained and administered to other intervention Woredas. Other information from VC actors at the zone and capital level should be designed in forms and entered into the M&E system.
Focus Group	Focus Group Discussions		

Heading	Pros	Cons	Comments
Discussions	of farmer groups were undertaken.		
USAID requirements	The surveys addressed the USAID indicators listed in the PMP.	USAID FtF is a multi-component program with data demands that are of mutual interest. However some of the indicator requirements are out-of-scope of the survey.	
Value Chain Identification	The AGP list of value chains assisted in identifying most of the VC related Woredas. This list is extremely important, particularly for targeting recipients based on Value Chain production.		The survey requested the Woreda officials to provide the top value chain producing kebeles. These are provided in the report. For the M&E system, it would be advised to identify all kebeles in the 71 intervention areas and identify the Value Chain and rank their importance and contribution to production.
Land size	The current data on land and number of parcels at the household level has been captured.	Nonstandard units for land size need to be evaluated. There is an apparent tendency to lump land size as one hectare.	Mid-line survey may want to make an extra effort to walk the land parcels and examine the total land area.
Endline	Longitudinal panel type surveys are critical for understanding impact. This requires a revisit to the household and seeing if that household has been impacted.	If the program has an implementation bias in favor of those households that participated in the survey, results might be bias.	Two possible endline surveys could be undertaken: cross-sectional or longitudinal (same EA different selection) or same households.

CONCLUSION

The results of the AGP-AMDe baseline survey provide data and information necessary to better manage project implementation and results through the project monitoring and evaluation system. The baseline household survey provides those data as they relate to those household level indicators. Other indicators not covered specifically as a result of the baseline will be monitored through the M&E system and will require the development of separate report forms. These will form part of the regular monitoring activities of the project. Although major findings and conclusions in term of program impact will be better informed with ongoing project M&E reporting, we feel that certain recommendations can be provided based on the baseline findings and serve both to validate implementation assumptions and form the basis for targeting. The findings provided in this section should not be considered exhaustive. Planning and revision are part of the ongoing and evolving process that occurs during program implementation.

- We recommend using the target market potential for VC expansion as targets to measure against in the endline. Substantial changes in these numbers in an endline longitudinal study would be of great interest.
- Expansion should be measured in terms of:
    - Additional production attributed to more households growing
    - Additional production attributed to re-allocation of land to value chains
    - Additional production attributable to technology
- We recommend doing a more thorough analysis using the gender classification technique that looks at the number of male and female adult household members as opposed to looking at simply the presence or absence of male/female adults as the threshold. This might yield more interesting results given that the level of grouping is more robust.
- We also recommend that in the midline, particular priority is placed on measuring the plots that are reported. Other information can best be evaluated in the endline.
- During the midline, when there is a return to the households, it may be good to ask a series of questions to households where women outnumber men and the male is the head of household.
- We recommend developing a more accurate non-standard land measure file to assure that conversions are respectively done.
- As this is a longitudinal survey, the data should be evaluated for specific cases that might be of interest. This could include, for example, a special focus on the 19 households that are female headed yet have more adult males. These could be targeted in the midline for specific focus. These may yield some information for greater inference and deeper evaluation in future projects.
- The technology index should be evaluated for value chain specific applications.
- A review should be undertaken to use the midline as an opportunity to enhance the information that has been provided by the baseline. This should focus more on providing qualitative information and visiting the same households with this sensitivity in mind.
- We recommend using sesame as a strong control value chain to measure the effects of introducing new technology. During the baseline, sesame showed little patterns of yield as correlated to the technology index. It was felt that it is likely due to the general lack of availability of technology in the sesame value chain. As AGP-AMDe introduces new technology, the impact might be the most measurable in sesame and therefore most quantifiable in the endline.

- The survey shows that that modern media such as TV and radio are not effective in reaching farmers. The current strategy for using these media may need to be re-evaluated. Extension agents should be used as the agents for propagating new technology to household farmers.

ANNEXES

This document contains the following Annexes:

Annex 1: AGP-AMDe PMP
Annex 2: Questionnaires
Annex 3: Field work process
Annex 4: Selected Woredas
Annex 5: Major value chain producers by kebele

ANNEX 1: AGP-AMDE PMP

TABLE 110: AGP-AMDE PMP

Indicator Reference	Description
IMP 1	Per capita income (as proxied by expenditures) of AGP/AGP-AMDe targeted beneficiaries
IMP 2	Agricultural GDP
IR 1.1	# of additional hectares under improved technologies or management practices as a result of AGP/AGP-AMDe assistance
IR 1.2	Number of farmers and others who have applied new technologies or management practices as a result of AGP/AGP-AMDe assistance
IR 1.3	% increase in Yield of selected VCs
IR 1.4	Gross value and volume increase of fertilizer, improved seeds and post-harvest technologies purchased by smallholder farmers
IR 1.5	# of smallholder farmers participating in AGP-AMDE-assisted value chains.
IR 1.6	Number of vulnerable households benefiting directly from AGP/AGP-AMDE assistance
IR 2.1	Gross margin per unit of land of selected crops
IR 2.2	Number of jobs attributed to FTF implementation
IR 2.3	Value of incremental sales (collected at aggregator-level) attributed to FtF implementation
IR 2.4	Value of incremental sales (collected at farm-level) attributed to FtF implementation
IR 2.5	Number of firms (excluding farms) or civil society organizations (CSOs) engaged in agricultural and food security related manufacturing and services now operating more profitably (at or above cost) because of USG assistance.
IR 2.6	Number of private enterprises, producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations that applied new technologies or management practices as a result of USG assistance
IR 2.7	Value and volume of processed products (e.g., maize and wheat milled, honey packed) as a result of USG assistance
IR 2.8	Volume and Value of exports of targeted agricultural commodities as a result of USG assistance (for bilateral missions)
IR 2.9	Specialty coffee exports as percentage of total exports
IR 2.10	Increase in warehousing capacity for fertilizer, seed and harvested commodities
IR 2.11	Prices of staple crops in deficit areas
IR 3.1	Number of value chain actors that accessed bank loans and / or private equity as a result of AGP/AGP-AMDE assistance
IR 3.2	Value of loans to MSMEs as a result of USG assistance
IR 3.3	Value of credit disbursed to value chain actors as a result of USG assistance
IR 3.4	Number of financial sector professionals trained in value chain finance with AGP-AMDe assistance
IR 3.5	Number of banks, MFIs, and SACCOs receiving capacity building from AGP-AMDe sources to provide value chain finance.
IR 4.1	Number of policy reforms / regulations / administrative procedures passed for which implementation has begun with USG assistance
IR 4.2	Number of functional public-private partnerships formed as a result of USG assistance
IR 5.1	Value of new private sector investment in the agriculture sector or food chain leveraged by FTF implementation (Note: Target corresponds to an average 55% cost

Indicator Reference	Description
	share across $14.2 million grant fund for innovation and demonstration. Cost share requirements will be lower for small grants (e.g. to farmers' groups, coops, SMEs) than for large agribusinesses and processors.)
IR 5.2	Number of farmers who have applied new technologies or management practices as a result of USG assistance
IR 5.3	Number of VC actors and MSMEs receiving business development services from USG assisted sources
IR 5.4	# of producer associations receiving services from private sector as a result of AGP-AMDe supports
IR 5.5	# of individuals who have received USG supported short-term training and TA in agricultural sector production
IR 5.6	Number of new private parties offering services (tillage, spraying, weeding) as a result of AGP-AMDe supports
IR 5.7	Value of smallholder investment in services (i.e., improved production technology like
IR 5.8	Number of new technologies or management practices made available for transfer as a result of USG assistance
IR 6.1	Changes in the gender roles and gender division of labor as a result of AGP/AGP-AMDe assistance
IR 6.2	% of men and women reporting ability of women to effectively access and control productive assets
IR 6.3	% of women reporting meaningful participation in HHs level decision making
IR 6.4	Number of women's organizations/associations receiving AGP/AGP-AMDE assistance
IR 6.5	No. of grants awarded through AGP/AGP-AMDe assistance having zero negative environmental impacts
IR 6.6	No. of training events organized and trainees participated on HIV/AIDS prevention and control through AGP/AGP-AMDe assistance
IR 6.7	No. of household members who received education, training or information related to health and nutrition through AGP/AGP-AMDe assistance

ANNEX 2: FIELD WORK

Seven mobile teams were formed to conduct the field work. Enumerators and Supervisors were carefully selected to account for a gender balance, language ability (i.e., Oromifa and Tigrayan) as well as previous experience. Most of the enumerators and the supervisors had worked with the CSA. These were then assigned to specific geographic areas and their itineraries carefully elaborated.

EA maps were provided to the teams and supplied by CSA. These maps proved to be critical in identifying the boundaries of the EAs.

The household questionnaire was piloted between February 6-10, 2012 and the institutional questionnaire was piloted on February 18, 2012.[24]

Each field team was provided with GPS units and was trained and instructed in the questionnaire in a formal training. A separate training was undertaken for the supervisors.

A key part of the instruction of the field teams was the process of moving from Woreda to Woreda. ACDI/VOCA had prepared the AGP Officers at the Woreda through a workshop and regional representation of the upcoming survey. A letter was provided to the team supervisors and this facilitated their movement into the kebeles. The team supervisors introduced themselves to the AGP Officer at the Woreda and solicited his/her assistance to conduct the survey. In most cases the AGP Officer was well prepared to receive the teams.

HOUSEHOLD SURVEY

Listing

Listing of households in any given cluster is necessary prior to undertaking a survey. The selection of households in any given area is critical in the sampling process, especially since the Woredas were selected based on declared value chains. This information provides us with the probability of selection necessary to adjust the findings and weight to a representative level.

In the AGP-AMDe survey, the listing operation was done at the same time as the actual survey. The operation in the field was a two-step process and included one day for household listing and one day for undertaking the survey.

The first step in confirming the sample integrity was to check with the primary selection of the Woreda, namely that the value chain was produced in the Woreda. This was done with the AGP officer prior to beginning the listing operation. The survey supervisor was then instructed to check all kebeles and replace if any of the primary five kebeles were reported as not producing the Value Chain. Table 111 indicates that in most cases the value chain that was selected was available as per the sample design.

TABLE 111: THEORETICAL VALUE CHAINS VERSUS ACTUAL BY CLUSTER

Value chain produced at the kebele				
		Yes	No	Total
6. Value Chain	7. Wheat	49	0	49

[24] Separate pilot and training reports were submitted to ACDI VOCA and can be found on the project web site at: http://AGP-AMDe.ki-archive.com/index.php/catalog/1

	Maize	47	2	49
	Coffee	38	11	49
	Sesame	37	12	49
	Honey	45	4	49

In cases where a kebele was identified as not producing a VC, it was replaced. Field personnel were given two replacements per Woreda.

Only in rare cases the value chain was not found in the interviewed kebeles, as reported by the AGP Officer. These were interviewed and the information captured regardless. These were the following Woredas:
Dedesa (Sesame)
Limu Seka (Coffee)
Debuari (Coffee)

In addition, for follow-up purposes, the AGP Officer was asked to provide the five major kebeles where the value chain was produced within any given Woreda. This information is considered important for program implementation and design. A list of the major value producers in the kebele is provided in Annex 5. This list may prove useful to AGP-AMDe as a cross reference for program implementation.

General Response Rates

Response rates of identified households were relatively high. This was due to the concurrent listing exercise and the collaboration of the local officials to mobilize the households for the interview. In general, the primary reason for not being able to undertake the survey was that the appointments made may have been delayed on the part of the enumerator and when the enumerator arrived at the household, the respondent had left.

TABLE 112: SURVEY RESPONSE RATES

Response rates			
		% of total	**% of no response**
Reason for not completing	Refused	1.1	12.9
	Person Not found	6.0	72.6
	Other	1.2	8.1
	Total	8.2	100.0
	Completed	91.8	
Total		**100.0**	

INSTITUTIONAL SURVEY DESIGN

The institutional survey was developed from the Focus Group Discussion questionnaires. During the review process, the nature of the FGD seemed to require a different kind of approach.

DATA ENTRY

Data entry was undertaken in Addis Ababa. Questionnaires were returned to Addis from the field on a regular basis and keyed into the data entry system. Data entry was done in CSPro, a software

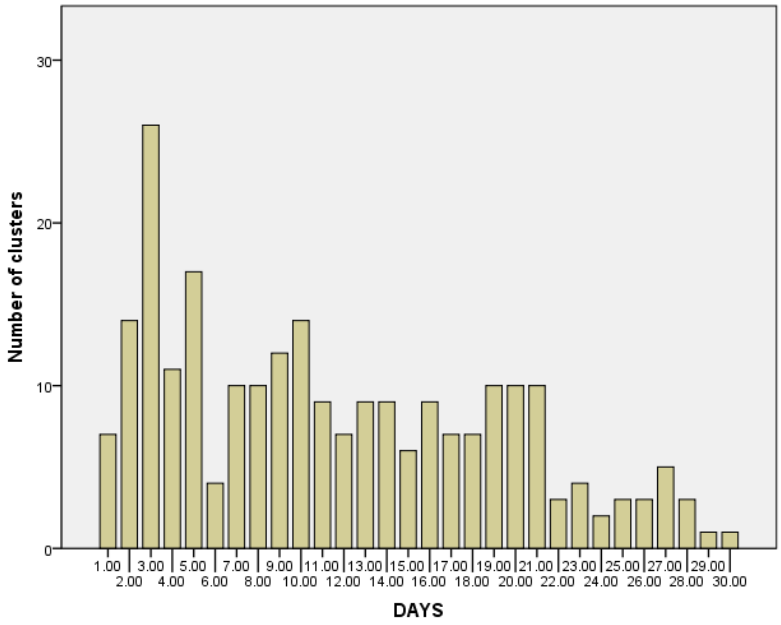
designed by the U.S. Census Bureau specifically for desktop data entry. The applications were designed as a heads-down system controlled operation with full double data entry and reconciliation.

Range checks were tightly controlled, as was the path of data entry, with skips and exit codes being programmed in the application.

Six computers were used to key in the questionnaires, and these were supervised by a data entry supervisor. The sample selection was strictly controlled in the system and a system of check-in and automated reconciliation with the selected sample was undertaken. Any geographic codes and other fundamental household identifiers were controlled during this process, assuring no duplicates or unidentified households entered into the system.

Data entry was undertaken in discrete clusters (i.e. 12 households per EA) and file management was done at the cluster level. These were managed in an environment similar to the Demographic and Health Survey (DHS) and the procedure for primary entry-double data entry and validation strictly adhered to as per DHS methodology.

FIGURE 3: DAYS TO PROCESS THE SURVEY BY CLUSTER



The average number of days to key a questionnaire (full double data entry) was 11.43 days with the minimum being 1 day and 30 days on the high side. Figure 3 illustrates the days taken to process the survey by cluster.

Data Quality

An examination of certain variables and also random checks done by an independent data quality team was undertaken. A review of the data files were periodically done during the data entry process. In addition, an independent data quality control team was hired to do spot checks and back checks and assure that the field work and the enumeration was being undertaken within specifications.

Standard Variables and Issues and Demographics

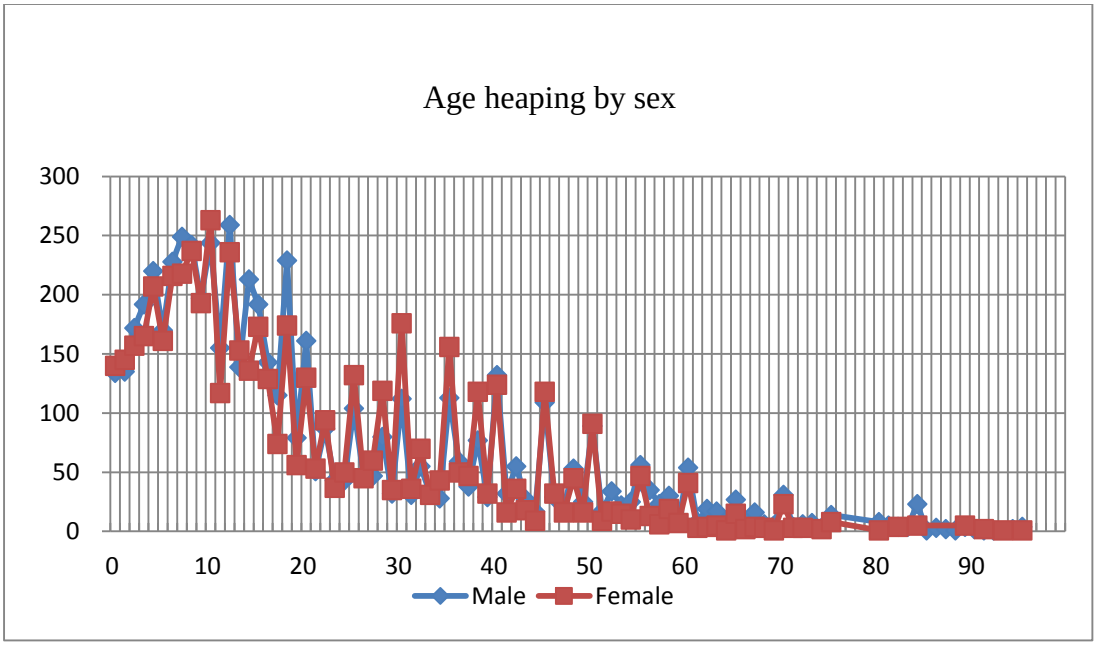
An examination of key variables was undertaken to make an initial assessment of data quality. These are standard tests and are provided below and are based on demographic characteristics. Some of the standard variables and issues examined during data quality control and data entry included the following:

Heads of Household: The head of household should always be in the first position and the number of declared household heads has to be equal to the number of households. In other words, each household can and must have only one declared head of household. There are no discrepancies in the data files.

The number of female headed households should also be close to national estimates. The expectation for female headed households was to be close to 10 percent. For the survey, the number of female heads of households was 10.6 percent. This is using traditional head of household declaration. The mean age of the head of household is 45. The youngest head of household is a 14 year old boy.

Heaping: Heaping is a phenomenon that occurs when members of a household do not precisely know their age and therefore estimate it based on the nearest 5 or 10 year increment. This is a common phenomenon in developing countries. Various tests can be used to determine the extent of the heaping phenomenon. Figure 4 below provides an age and sex distribution of the sample. This heaping phenomenon can affect age sensitive estimates. Of particular interest is a large relative drop in reported 11 year olds countered with a large group of 12 year olds. The problem also prevails in women's reported ages.

FIGURE 4: AGP-AMDE: AGE HEAPING BY SEX



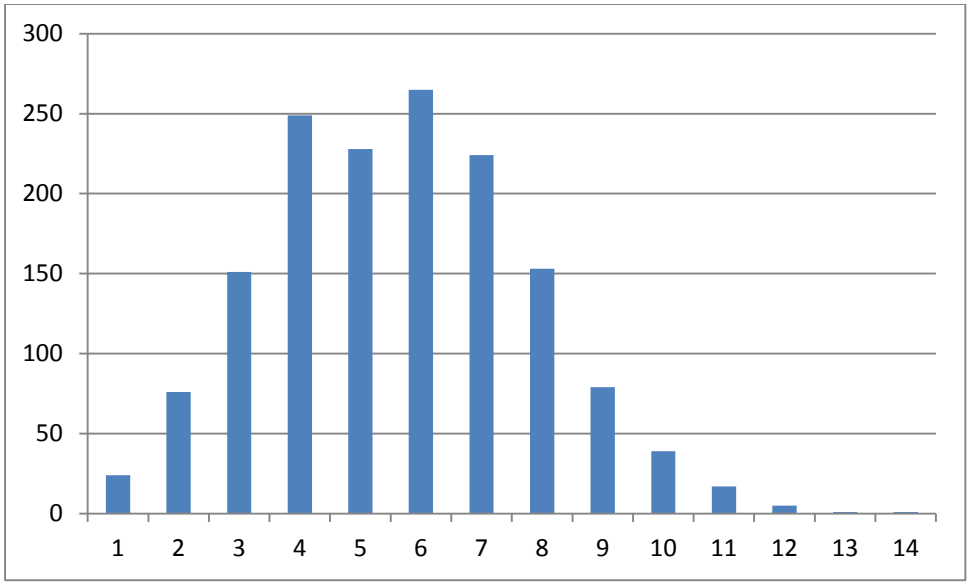
In order to quantify the nature of the problem of heaping, a demographic method used for computing the problem, known as the Whipple Index, was computed. The Whipple index examines the clustering effect of the age variable and provides a relative measure to quantify the problem. The survey has an index of 215 (203 for male and 227 for females). As per international standards, an index of 175 or more can be considered highly heaped. Age estimates can be skewed at cutoff points for age sensitive analysis since many non-qualifying persons can be included or excluded in the analysis. For example, an age heap at 5-years would indicate the likelihood of 4 year olds being included or at 15 year years may affect analysis on education employment as it is likely under 15-year olds would be included. The results (included averages) become very lumpy. This phenomenon has been validated by the CSA as a common data quality problem in Ethiopia.

As per the criteria used and published by the UN statistical agency (provided below), the Whipple Index indicates a serious problem with age heaping in the data. Age smoothing techniques can be used as per U.S. Census Bureau recommendations, however they were not applied in the analysis.[25]

Household Size: Another test for data quality is examining the average size of the household. This should compare with national estimates. The survey data show an average household size of 5.64 persons per household. Figure 5 illustrates the distribution of the household size.

[25] See the UNSD guidelines: See:http://unstats.un.org/unsd/demographic/products/dyb/DYBcensus/V1_Notes1c.pdf

FIGURE 5: HOUSEHOLD SIZE DISTRIBUTION



The Central Statistical Agency and findings from the 2006 census validate this finding. As the household size reflects rural based households (these are expected to be larger) the size appears to be within the expected statistic.

Summary of Person Characteristics

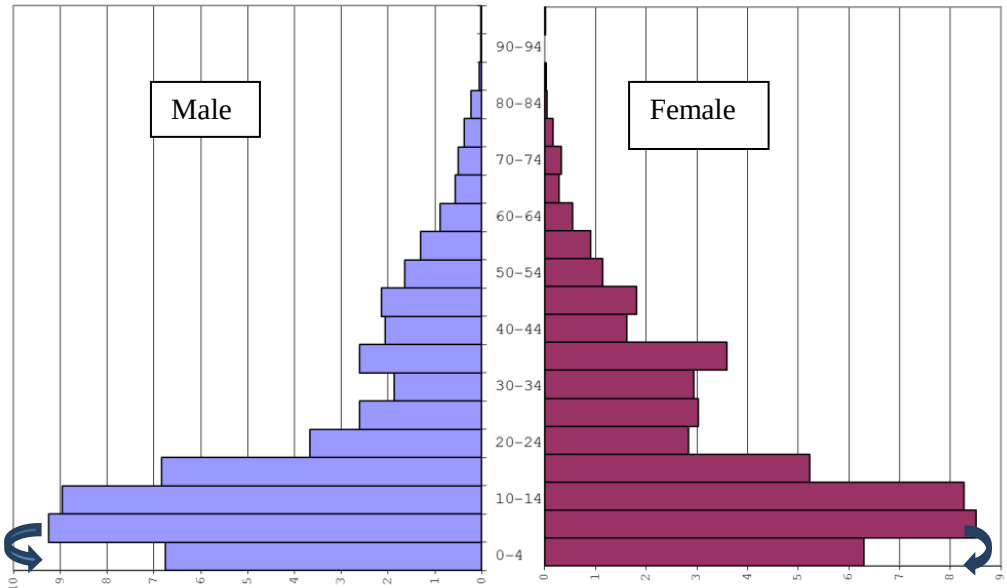
TABLE 113: SUMMARY OF PERSON CHARACTERISTICS IN HOUSEHOLDS

Person Characteristics in households			
Relationship to Head of Household	**Sex**		**Total**
	Male	**Female**	
Total estimated population in intervention area	51.8%	48.2%	100%
Head of Household	89.40%	10.60%	100%
Wife or husband or partner	1%	99%	100%
Son/daughter	53.70%	46.30%	100%
Grandchild	49.20%	50.8%	100%
Able to read or write	**Sex**		**Total**
	Male	**Female**	
Yes	49.72%	34.75%	42.51%
No	50.28%	65.25%	57.49%
	100.00%	100.00%	100.00%
5-year cohorts	**Sex**		**Total**
	Male	**Female**	
0-4 years	13.46%	13.71%	13.58%
5-9 years	17.81%	17.90%	17.85%
10-14 years	16.76%	16.67%	16.72%
15-19 years	12.59%	10.93%	11.79%

20-24 years	6.93%	6.07%	6.51%
25-29 years	4.54%	6.57%	5.51%
30-34 years	4.09%	6.43%	5.22%
35-39 years	4.83%	7.09%	5.92%
40-44 years	4.36%	3.31%	3.86%
45-49 years	4.05%	4.19%	4.12%
50-54 years	2.81%	2.42%	2.62%
55-59 years	2.58%	1.89%	2.24%
60-64 years	1.68%	1.09%	1.39%
65-69 years	1.16%	0.54%	0.86%
70-74 years	0.86%	0.58%	0.72%
75-79 years	0.64%	0.35%	0.50%
80-84 years	0.53%	0.09%	0.32%
85-89 years	0.19%	0.10%	0.14%
90-94 years	0.05%	0.05%	0.05%
95 and greater	0.08%	0.03%	0.05%
	100.00%	100.00%	100.00%

A review of the household characteristics shows that the general tendencies are also those common to rural households. In this particular case, the age heaping phenomenon is further noted in the "lumpiness" of the critical cohorts from 0-15 years. These form various boundaries for analysis and can distort results. An age pyramid in Figure 6 shows the level of distortion of underreported 0-4 year olds likely lumped into the 5-9 year old group. In this case, it is evident that there is a great deal of heaping of under 5-year olds being places into the 5-year group.

FIGURE 6: POPULATION PYRAMID



Lot and Quality Assessment (LQAS)

LQAS (Lot Quality Assurance Sampling) has been used by the industry for about 75 years for quality-control purposes. LQAS is now used all over the world in various programs to assess the quality of data/service in addition to its wide applicability in assessing coverage of key indicators, assessing of prevalence, etc.

LQAS is a sampling method that makes use of randomly selected variables for re-examination and comparison. Households are re-interviewed and selected questions re-asked in hopes of assuring a match in response. This sampling allows you to use the "few" to describe the "whole". For the current survey the LQAS was used to assess whether or not the field data collection was done in such a way that it satisfies a predefined quality benchmark of 85 percent.

In order to achieve this, a third party independent field team was trained and sent to do random checks on the field teams. They were instructed to undertake spot checks and random back checks on selected variables. In addition, the data quality team met with the team members in listening sessions. Often, hardships and unforeseen issues affect the morale of a team. We have found that it is useful to record the independent observations of team members in case there are morale issues that threaten the smooth execution of the field work.

According to the Lot Quality Assurance Sampling (LQAS) conducted to assess the quality of data collected in the baseline survey, the overall data quality was found to be 87.5 percent (see Table 114 for summary). In addition to checking the random questions for matching, the household re-visit was also validated by checking household composition during the back checks and validating the GPS information.

TABLE 114: SUMMARY OF DATA QUALITY ANALYSIS FOR THE BASELINE SURVEY

Consistency	LQAS			
	Oromia	SNNPR	Amhara	Tigray
# Matches	15	13	14	16
# Mismatches	4	6	5	3
LQAS Decision	90%	80%	85%	95%
Overall data quality status is 87.5%				

Apart from undertaking LQAS, the team also performed spot checking, backing, verification and validation activities, which gave us the opportunity to learn more about each data collector and supervisor and to identify the data quality gaps and challenges which were addressed promptly.

CONCLUSION OF SURVEY DATA QUALITY

Based on the overall analysis of survey data, including the quality control procedures put in place during the survey and during data reduction, we can conclude that the baseline survey data is of high quality, and we have high confidence in its use for the baseline evaluation.

A limited review was undertaken of the AGP-AMDE baseline survey results and the IFPRI results. The basis for comparison was the final report which was kindly provided in time to review. Some methodological issues prevent a more in depth analysis and drawing any conclusions. Some issues that may cause some distortion of results could be explained by difference in methodology.

- The AGP-AMDE baseline survey purposefully only selected households that declared they produced a given value chain. Results provided in this report only reflect on rural households growing value chain commodities from selected Woredas chosen because of value chain activity.
- The results are only comparable of the 71 AGP-AMDE intervention Woredas.
- There is no control group as the design calls for an endline diffusion analysis.
- AGP-AMDE results are not representative of the regions but only of value chain growers within the region.

Comparing individual record survey data between the IFPRI and AGP-AMDE data may be best undertaken in a workshop environment using the actual survey data and not summary tables.

DATA CLEANING AND BATCH EDITING

A first draft of this report was provided with highly preliminary results. As a result of this report, standard data cleaning was undertaken on the data and outliers and missing values treated. This technique used CS Bath which is a module in CSPro that treats the data in its entirety. The original data is left as it was collected and a separate output file provided with corrected values.

The main imputations in terms of range checks were conducted for the yield computation. For this, the use of the mean plus 3 standard deviations were used from the mean to identify and correct outliers. These were imputed with the mean values. The means were computed using SPSS. Table 115 shows the imputations that were undertaken.

TABLE 115: IMPUTATIONS

IMPUTE FREQUENCIES Page 1

Imputed Item S32_08: Actual Harvest - all occurrences

Categories	Frequency	Cum Freq	%	Cum %	Net %|cNet %
0 Amount produced (Kg)	1	1	0.3	0.3	0.3 0.3
12 Amount produced (Kg)	1	2	0.3	0.6	0.3 0.6
50 Amount produced (Kg)	1	3	0.3	0.9	0.3 0.9
75 Amount produced (Kg)	1	4	0.3	1.1	0.3 1.2
100 Amount produced (Kg)	1	5	0.3	1.4	0.3 1.4

250 Amount produced (Kg)	1	6	0.3	1.7	0.3	1.7
300 Amount produced (Kg)	2	8	0.6	2.3	0.6	2.3
400 Amount produced (Kg)	3	11	0.9	3.2	0.9	3.2
500 Amount produced (Kg)	1	12	0.3	3.4	0.3	3.5
600 Amount produced (Kg)	1	13	0.3	3.7	0.3	3.8
625 Amount produced (Kg)	1	14	0.3	4.0	0.3	4.1
797 Amount produced (Kg)	2	16	0.6	4.6	0.6	4.6
1000 Amount produced (Kg)	1	17	0.3	4.9	0.3	4.9
1500 Amount produced (Kg)	1	18	0.3	5.2	0.3	5.2
1594 Amount produced (Kg)	3	21	0.9	6.0	0.9	6.1
1834 Amount produced (Kg)	1	22	0.3	6.3	0.3	6.4
1873 Amount produced (Kg)	1	23	0.3	6.6	0.3	6.7
9100 Amount produced (Kg)	1	24	0.3	6.9	0.3	7.0
NotAppl	4	25	1.2	100.0		
TOTAL	28		100.0	100.0		

The table above, generated by CSPro, shows that out of over 3,000 value chain producers, 28 values were imputed. This is under 1% of respondents and is within the expected threshold for imputing outliers.

The cleaning also looked at consistency of responses and had a relatively complex yield edit that would examine both the production side and the land size edit and adjusted correspondingly.

ANNEX 3: SELECTED WOREDAS

TABLE 116: SELECTED SAMPLE WOREDAS WITH VALUE CHAIN

Region	Woreda	Value Chain
Oromia	Gera	Coffee
Oromia	Goma	Coffee
Oromia	Limusaqaa	Coffee
SNNPR	Debub Ari	Coffee
SNNPR	Enemornaener	Coffee
SNNPR	Esira	Coffee
SNNPR	Wondo genet	Coffee
Amhara	Jabi-tehnane	Honey
Oromia	Dendi	Honey
Oromia	Hadatohabote	Honey
Oromia	WayuTuqa	Honey
SNNPR	Besketo	Honey
SNNPR	Decha	Honey
Tigray	Ofla	Honey
Amhara	Anikasha	Maize
Amhara	Danegela	Maize
Amhara	Dera	Maize
Amhara	Wenebrema	Maize
Oromia	GutuGida	Maize
SNNPR	Konta	Maize
SNNPR	Sheye Bench	Maize
Amhara	Metma	Sesame
Oromia	Bedele	Sesame
Oromia	Dhedhesa	Sesame
Oromia	Gechi	Sesame
Tigray	Qftahumra	Sesame
Tigray	Tahtaye-adiyabo	Sesame
Tigray	Welqayt	Sesame
Amhara	Bure	Wheat
Oromia	Bacho (Tulu Bolo)	Wheat
Oromia	Gimbichu	Wheat
Oromia	Limu-Bilbilo	Wheat
Oromia	Sinana	Wheat
Oromia	Wolmera	Wheat
SNNPR	Endegeng	Wheat

ANNEX 4: MAJOR VALUE CHAIN PRODUCERS BY KEBELE

Reported Major Wheat Growing kebeles	Reported Major Maize Growing kebeles	Reported Major Coffee Growing kebeles	Reported Major Sesame Growing kebeles	Reported Major Honey Producing kebeles
ADI SELAM	ABADIRA	AGARE	ADI JAMUSE	ADEA NACHO
ADI SINBRA KOTU	ANBELA	AOMOBEKO	AMBELTA	AGARO BUSHA
ALEFA	BADANI	ATOYE	ASHEGAYE	AMIDO MARIRO
ALEME GENET	CHADA	BONTU	BAHERE	AWASH WAJETU
ANE	CHEKA BOCHA	BOREDNSERA	BEKELCHA	BITE EJERSAGIBE
AREDA	DEBALCA SHNGURI	BORTENA	BEREKET	BOBA MELEYO
AWASH BUNE	DEKUNADERB	CHEMICHEGO	BET MULU	BONEYA MOLO
BARFTA TOKOFA	DUBI	CHUKO	BILDIMA DERU	DABITSADALISKINISA
BASASO	EMA SHENKORA	CHURCHURA	BILDIMA GOBECHA	DALO KOMTA
BOKPJI	ENBERA	DEGGO	BUSI	DANISA TANKO
BUCHA	GADISA ODA	DELBA	BUSONO	DEBELA BANTU
DAWA BORSA	GEREGERA	DIRAMER	CHELO	DEKO AYEMA
DAWA LAFTO	GISA SAHRA	DOBA	CHILALO	DEKOCHERE DEKOS
DEDEBITE	GOYA SHEMA	DORA	CNHITU	DOCHAMIZIGAWA
DOBI	GUIT HABISHKAN	EDO	DANGE	DUMRI
ESIMAT	HERETI	GARA NASO	DAS MICHEL	GARE ARERA
FETAM SENTON	HORO ALELTU	GEJEB	DERA BERDA	GIDA
FEZEL	HULETU WOGEDAMYE	GENAMER	DINGE	GIDABO GORGISI
GADISA DERARA	KENTEFIN	GEREMBO	ENDABO	GUNDIRA GERA
GEBA ROBI	KOKI	GERJI CHALA	GUMBIRDA	HARO CHALCHASA

Reported Major Wheat Growing kebeles	Reported Major Maize Growing kebeles	Reported Major Coffee Growing kebeles	Reported Major Sesame Growing kebeles	Reported Major Honey Producing kebeles
GENET	KONTA KOSHA	GOGAKEMESE	HADEBYE	KABA BAREDA
GIRMT	KORATA	GONCHEBATE	HARO	KICHI
GOMERA	KUANCHI KULCRTA	GUDMU	HAROTATESA	KOBI GODETI
HORA BOKA	KUKA	JERKUZE	HAYLO	KUNI
KARA SADEK	KULA GOCHA	KADIMESA	HINTSET	KUTI
KARSA	KULALA	KALA KEMEBIBIT	KOLLO SIRE	MALAN
KOKA	KUPOR	KANJA KERSA	MENISA	MARIND GONJOBA
KOMA	LOKO	KETABERO	MENKOYE	MAXIGNT
KUNTUSULA	LUGO	KOLA SULAJA	MESHEHA	MIKCHA
LEMLEM	MADA JALALA	KOMA	METEMA YAHANNS	MINYA
LEMU	MARKUMA	KOSATI	MIE CADERA	MONDER
LEMU MERETI	MARWOLDE	MALATER	MOGE	MOTIKESA ARZEKA
LENCHA QESHEME	MAZE	MAMA	MUCHA	OBCA
MAY AGAM	METI	MIETER	RAWYAN	SHELO
MAY DILHE	OFASHATTERA	SADI LOYA	SELAM	SHETIYO
MAY WODISLIHA	QIRRARA	SEKA	SHASHIGEI	WADA BELANSA
MENDE TUFESA	SHUNGA DOSHA	SHEMAMER	SHINTEHA	WARRABABO MIGNA
NANO ROBE	SOSTUSENGORO	TUMA TESO	TSEBRI	WHODANSH
NONO SUBA	SOSTUSHMETA	WEDISHA	TUMET	YEHA CHECHA
QOBO	SOSTYJABALA	WEYRA	WAKELE	YUBDO LAGABATU
SANBITU	TANA MISLY	WOSHA SOYAMA	WENBERT	

Reported Major Wheat Growing kebeles	Reported Major Maize Growing kebeles	Reported Major Coffee Growing kebeles	Reported Major Sesame Growing kebeles	Reported Major Honey Producing kebeles
SELKA	UKE	YUMO	WOHEDET	
SEVTEKZE	WENBA	ZADI SHEMAYTA	YABELO	
SHALO	WESHI	ZADI WOYIDA	ZEBACHI BAWER	
SIRBO	WOGEDAD	ZEMER	ZETA	
SODO LEBEN	WONCHET			
SOYOMA	YIRGN			
TALACHO	YORA			
WATABICH MINJARO	ZIYAGEN			
WELTI BARISO				
WILO LERA				
Z/SHUNE				
ZELEMA				
ZIGEZ				
ZURIA DANSHA				

AGRICULTURAL GROWTH PROGRAM- AGRIBUSINESS AND MARKET DEVELOPMENT (AGP-AGP-AMDE) PROJECT

BASELINE REPORT, INSTITUTIONAL SURVEY

OCTOBER 31, 2012

CONTENTS

INTRODUCTION

The AGP-AMDe baseline survey was not only designed to establish a baseline of rural households for evaluating the production side of value chain expansion. It also gathered information from service points and institutions at the Woreda level through an institutional questionnaire designed to collect information from:

- Woreda officials (Woreda profile)
- Value Chain operators such as:
  - ✓ Traders and processors
  - ✓ Markets
  - ✓ Cooperatives
  - ✓ Financial institutions (credit and microfinance)
  - ✓ Research Institutions
  - ✓ Private Input Suppliers
  - ✓ Other Social Organizations

This report summarizes the findings of the survey on a regional level. Woreda level information will be available in the M&E system for querying, appending and extraction.

Over 350 contacts (interviews) were recorded in the database (on average, 10 institutional interviews were held in each Woreda). This database is an important source of information for extending services and contacts in the Woredas.

It is important to note that the institutional survey was not a census but rather a purposeful selection of specific institutions that might be useful for value chain expansion. Furthermore, not every type of institution is present in each Woreda.

The institutional survey, as it was administered in the field, was not in the original work plan for the baseline survey. Rather, a limited number of topical focus groups were envisioned. During the development and testing of the focus group questionnaire, it became apparent that a more exhaustive view of Woreda level service points was required and that specific interviews with key agents of these institutions was necessary. The institutional survey was designed to replace and expand on the focus group discussions. The institutional survey gathered information from key Woreda officials and owners and managers of primary institutions. Enumerators set up individual interview times with all individuals. The results of these interviews are provided in this report.

WOREDA PROFILES

A clear picture at the Woreda level is critical in order to understand the impact of AGP-AMDe. The state of the Woreda service infrastructure will have a large bearing on both program implementation and outcomes. In fact, the current baseline survey design (both household questionnaire and Woreda institutional questionnaire) will measure program impact by attempting to correlate diffusion of services. This diffusion will largely be based on specific Woreda qualities and infrastructure. The Woreda profiles were formalized in the institutional survey and were designed to retrieve and store information regarding:

- Key government officials in the Woreda
- Key service institutions in the Woreda, capable of delivering assistance for value chain expansion

- Key infrastructure availability in the Woreda
- Climate considerations affecting value chain expansion
- Value chain association of kebeles in the Woreda
- Physical location (GPS coordinates) of the service points
- Listing of primary contact names and positions in the Woreda governing and economic structure

Note: The impact evaluation will depend greatly on evaluating the provision of services as they are correlated with infrastructure and service availability at the Woreda level. This evaluation not only includes the presence of institutions but also relative remoteness of the Woreda and/or kebele. For this reason, GPS points were taken of most key infrastructures and service points. These service points will be used to conduct spatial analysis during the endline survey, which will be a critical component of the impact evaluation.

VALUE CHAIN ACTORS & SERVICES

The Monitoring &Evaluation (M&E) system will include individual profiles at the Woreda level. This section provides an overview of the various Woredas that were interviewed. In particular, the profile was intended to undertake a survey of local services and infrastructure which may have an effect on service delivery to local producers. The institutional survey identified various classifications of value chain actors whose information would be useful in this regard. A list of names and GPS coordinates for all institutions were taken during the survey.

Table 1.1 provides a summary of the specified institutions at the Woreda level which were subject to verification and possible interview. Microfinance institutions are prevalent and found in 34 of the 35 surveyed Woredas. Cooperatives are also common; they are present in 83 percent of the Woredas. Only 20 percent of the Woredas report the presence of research institutions, and 37 percent of the Woredas report the presence of private input suppliers. This institutional composition suggests that microfinance institutions might serve as access points.

Table 1.1: Summary of service institutions at the Woreda

Region	Institution present	Yes, in Woreda center	Yes, outside of Woreda center	Number of institution of this type	Total
Tigray	Crop (VC)/Honey Cooperatives	2	0	1	3
	Microfinance, Credit & Savings	3	0	0	3
	Other VC related institutions	0	0	3	3
	Private Input Suppliers	2	0	1	3
	Research Institution	1	0	2	3
	VC Traders & Processors	2	0	1	3
	Woreda Market	1	0	2	3
Amhara	Crop (VC)/Honey Cooperatives	5	1	1	7
	Microfinance, Credit & Savings	7	0	0	7
	Other VC related institutions	1	0	6	7
	Private Input Suppliers	2	0	5	7

	Research Institution	0	0	7	7
	VC Traders & Processors	7	0	0	7
	Woreda Market	6	1	0	7
Oromia	Crop (VC)/Honey Cooperatives	15	1	0	16
	Microfinance, Credit & Savings	14	1	1	16
	Other VC related institutions	5	4	7	16
	Private Input Suppliers	6	2	8	16
	Research Institution	4	4	8	16
	VC Traders & Processors	15	1	0	16
	Woreda Market	14	2	0	16
SNNPR	Crop (VC)/Honey Cooperatives	7	1	1	9
	Microfinance, Credit & Savings	9	0	0	9
	Other VC related institutions	0	3	6	9
	Private Input Suppliers	3	3	3	9
	Research Institution	2	3	4	9
	VC Traders & Processors	6	3	0	9
	Woreda Market	9	0	0	9

INFRASTRUCTURE

Table 1.2 provides the median number of the specific institution found per Woreda in the region. Most Woredas appear to have access to the same number of "good" public institutions (telecommunication offices, public transport, health care centers, main roads, public markets, primary and secondary schools, sports fields, health care centers and hospitals). However, the private infrastructure in Amhara and, though to a lesser extent, in Tigray is much higher in terms of registered wholesalers, retailers, restaurants and hotels. SNNPR's notable lack of infrastructure is likely related to its remote location.

Table 1.2: Infrastructure in region (median number as reported in the Woreda profile)

Main infrastructure	Tigray	Amhara	Oromia	SNNPR	Total
Registered Retailers	211	747	59	34	74
Registered Wholesaler	24	60	30	34	34
Restaurants	15	16	3.5	4	5
Hotels	5	16	3	2	4
Fuel Stations	4	3.5	3	1	3.5
Churches	5	3	5	2	3
Pharmacy	3	4	3	3	3
Primary School	4	4	3	2	3
Mosques	2	1	3.5	1	2
College/University		1	1	-	1
Health Care Centers	1	1	1	1	1
Hospital	1	1	1	-	1
Main Asphalt Roads	1	1	1.5	2	1
Main Public Market	1	1	1	1	1
Public transport station	1	1	1	1	1

Secondary School	2	2	1	1	1
Sport field/stadium	1	1	1	1	1
Telecommunications Office	1	1	1	1	1
Vet Clinics	1	1	1	1	1
Vocational Training (TVT)	1	1	1	-	1

Table 1.3 below summarizes several questions asked regarding accessibility to infrastructure. Most Woredas appear to be between 2 or 3 hours from an airport. Woredas in SNNPR and Tigray are the most dispersed, which can be long distances to both their regional capitals and Addis Ababa.

Table 1.3: Distance to various key points of transit (minutes)					
Distance (time measure)	**Tigray**	**Amhara**	**Oromia**	**SNNPR**	**Total**
Average minutes to the nearest airport	142	154	162	183	164
Average drive in minutes to the zone center	68	139	85	58	87
Average drive in minutes to the regional center	627	170	339	511	374
Average drive in minutes to Addis	616	649	381	562	501

CLIMATE & GEO-CLIMATIC ZONES

Climate and geo-climatic zone was also considered important to value chain evaluation and production. Each institutional enumerator was required to collect information on rainfall and identify the percentage of ground areas classified in terms of geo-climatic zones. Table 1.4 below provides summaries of reported rainfall in the specific Woredas. Woredas in SNNPR and Tigray reported higher average rainfall.

Table 1.4: Climate information					
Item	**Region**				
	Tigray	**Amhara**	**Oromia**	**SNNPR**	**Total**
Average number of kebeles per Woreda	24	26	22	37	27
Peak wettest month	11	11	8	7	9
Peak driest month	8	6	3	3	4

Ethiopia is divided into various geo-climatic zones which are elevation dependent.[26] Table 1.5 provides an overview of the four classification schemes used in the AGP-AMDE baseline survey. As can be seen from the table, value chains such as coffee are more prevalent in the highland areas and sesame in the lowland semi-arid with maize tending to lower altitude and wheat to the higher. The table below highlights the commodities with relation to where they are found.

Table 1.5: Climatic zone classification							
Zone	Description	Elevation	Wheat	Maize	Coffee	Sesame	Chickpea
Wurch	Cold Highlands	3,000-3,700 m					

[26] See: http://www.pecad.fas.usda.gov/highlights/2007/12/Ethiopia_BF-Niger/documents/crop_thermal_zones.pdf for more information and a graphic illustration on the various zones.

Dega	Cool humid highlands	2,300-3,000 m					
Weina Dega	Temperate sub-humid highland	1,500-2,300 m					
Kola	Warm and semi-arid	500-1,500 m					

*High wurch and low land Bereha were not in the survey area

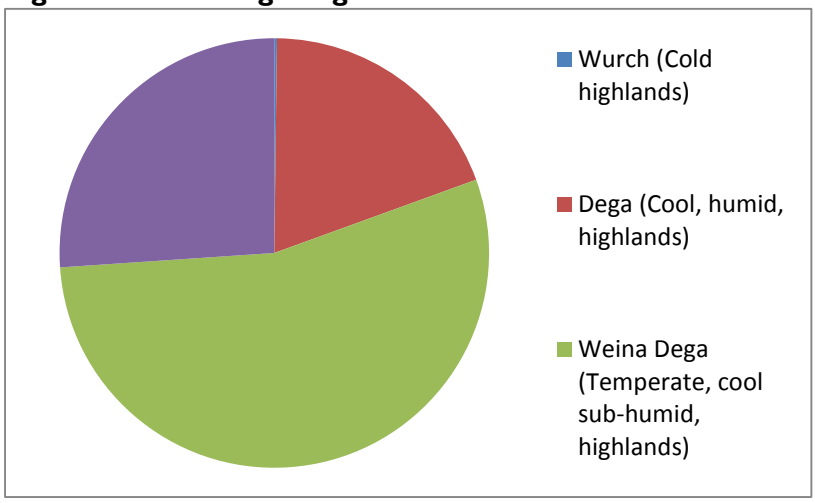
Table 1.6 provides the reported percent of Woreda cover reporting a percentage of that specific geo-climatic zone as being part of their area. Amhara, Oromia and SNNPR are mostly found in Weina Dega (54.8 percent) or temperate and cool sub humid zones. Tigray is mostly semi-arid, lowlands Kola (64 percent), with only 21.3 percent Weina Dega.

Table 1.6: Geo-climatic zones (% of land attributable to each)

Geo-climatic zone	Tigray	Amhara	Oromia	SNNPR	Total
Dega (Cool, humid, highlands)	14.67	3.71	27.25	18.67	**19.26**
Kolla (Warm, semi-arid lowlands)	64	25.14	21.75	21.78	**26.2**
Weina Dega (Temperate, cool sub-humid)	21.33	71.14	50.69	59.33	**54.77**
Wurch (Cold highlands)	0	0	0.31	0.22	**0.2**

Figure 1 below shows the percentage of Woredas in each geo-climatic zone for all 35 Woredas surveyed.

Figure 1: Percentage of geo-climatic zone



VALUE CHAIN PRODUCTION

The AGP-AMDe baseline institutional survey was designed in part to extract information on value chain production in identified Woredas and kebeles. Woredas were initially purposefully selected based on reported value chain production by the AGP. During enumeration, team supervisors were instructed to confirm with Woreda officials that the value chain was associated with the kebele before proceeding with the survey. About 86 percent of the selected kebeles for the survey were in fact associated with the value chain. The remaining 15 percent were replaced per instructions provided to the baseline supervisors.

The Woreda officials were required to report the 5 kebeles associated with the given value chain, specifically which kebeles are the top producers of the specified value chain (see Appendix A). This

information is very important to maintain for the M&E system, as it reinforces and provides specific, validated kebele level information on value chain production.

INSTITUTIONAL ASSESSMENT

The institutional questionnaire was designed to retrieve information from main value chain actors at the Woreda level. Various questionnaires were designed to target different groups. Table 2.1 summarizes the number of interviews undertaken in the 35 survey Woredas. Over 238 interviews with value chain actors were conducted.

Table 2.1: Summary of value chain institutions interviewed

	Coops	Traders & Processors	Credit Institutions	Markets	Private Input Suppliers	Research Institutions	Other	Totals
Tigray	3	10	1	3	2	1	0	20
Amhara	6	17	10	7	3		2	45
Oromia	10	58	23	16	7	4	6	124
SNNPR	7	21	6	8	5	2	0	49
Total	26	106	40	34	17	7	8	238

COOPERATIVES

Cooperatives are key value chain actors at the Woreda level, as they provide multiple services to farmers. They provide input services by providing the service of purchase of agricultural inputs which can improve productivity and provide output services by acting as purchasing points for value chain marketing.

The institutional questionnaire sought to identify the value chains of interest for each cooperative, which often reflect the patterns of farmer production. On average, the cooperatives interviewed support farmers in two value chains. Table 2.2 illustrates the number of cooperatives that support activity in each value chain. Most of the cooperatives interviewed support the production of maize. Honey and wheat are also strongly supported. Eleven of the interviewed cooperatives do participate in value chain exchanges (input and output services).

Table 2.2: Value chain activity of the cooperatives interviewed

	Tigray	Amhara	Oromia	SNNPR	Total coops
Wheat	0	1	7	3	11
Maize	1	4	6	6	17
Coffee	0	0	3	5	8
Sesame	3	1	0	0	4
Honey	1	3	3	5	12
Chickpea	0	0	2	3	5

The cooperatives interviewed average 774 members, although membership varies greatly. Table 2.3 disaggregates the reported membership by gender. Male membership exceeds female membership by a ratio of three to one. SNNPR shows the highest gender membership by far.

Table 2.3: Membership in coop by gender

Region	Men	Women
Tigray	400	276

Amhara	1138	271
Oromia	608	190
SNNPR	213	24
Total	600	174

When asked about cooperative governance and management, 20 of the 26 respondents stated that their governing board could be considered active and only 15 responded that they had a business plan. Table 2.4 provides the responses to the management questions by region. Surprisingly, only 9 out of 26 cooperatives provide credit to their members.

Table 2.4: Responses to management questions and credit by region					
	Tigray Out of 3	Amhara Out of 6	Oromia Out of 10	SNNPR Out of7	Total out of 26
Active governing board	3	5	6	6	20
Written business plan	2	1	6	6	15
Provides credit to members	3	2	3	1	9
Belongs to a union	3	5	9	7	24

Of those cooperatives that provide credit to their members, eligibility for credit was most frequently done through an evaluation of assets held by the cooperative member (15 percent). Education, training and production history also factored into the eligibility. 24 of 26 cooperatives interviewed were part of a union of coops.

Table 2.5 provides the reported amount of credit provided by the nine institutions providing credit to their membership. The fact that the amount rises each year is reflective of the over 40 percent inflation.[27]

Table 2.5: Highest and average credit extended to members by year (9 institutions responding)		
	Highest	**Mean**
Credit in 2011	565,000	153,603
Credit in 2012	425,000	101,905
Credit in 2013	425,000	63,333

The reported amounts produced by cooperative members are provided in Table 2.6. The highest productivity on a per member basis is for maize. In general, it seems that members' sales through the cooperatives are relatively low.

Table 2.6: Reported production by value chain				
	N	**Maximum**	**Mean**	**Per reported**

[27] See CPI published by CSA.

				member
Wheat	7	300,000	65,700	74
Maize	6	600,000	208,383	2,047
Coffee	4	68,000	49,215	346
Sesame	1	20,500	20,500	36
Honey	4	70,000	35,000	97
Chickpea	1	5,000	5,000	2
Valid N (listwise)	14			

When asked what percentage of the value chain is channeled through the cooperative, 14 of 26 did not know or could not respond. The remaining 12 coops estimated an average of about 40 percent, indicating that the majority of produce is sold through other channels (either directly at the market or through a state purchasing agent, private trader or processor).

Non-members were allowed to sell to the cooperative in 8 of 15 institutions.

When asked about storage, 2 out of 15 did not have storage facilities and of those that did have storage facilities averaged a storage capacity of 3,000 kg. 13 of 15 indicated that they needed more storage capacity, on average, 8,000 kg of additional storage each. Seven out of 15 cooperatives store the agricultural product together with fertilizer.

For the endline survey, it is recommended to re-visit the same cooperatives and see if per member production has increased in each value chain. If the effects of intervention are diffused throughout the Woreda then production data as reported by the cooperative should similarly show an increase. The cooperative questionnaire also sought to extract information regarding inputs. Inputs were defined not only as consumables, such as improved seed or fertilizer, but also as knowledge and estimated land used for value chain production. 14 out of 15 cooperatives responded that most farmers are informed of farmgate prices. The farmers receive this information equally through the cooperative, radio and cell phone. Table 2.7 shows estimates for current year demand for consumable inputs supplied by the cooperative.

Table 2.7 Estimated inputs for current year production

	Mean
Improved seed (kg)	9,271
Fertilizer (kg)	46,683
Pesticide (liters)	560
Herbicide (liters)	56

All cooperatives report that they keep records of their members' input purchases and supplies shown in Table 2.8 below.

Table 2.8: Input supply and demand									
Input	**% members buying input**	**Avg. purchased in 2003 (kg or liters)**	**Avg. purchased in 2002 (kg or liters)**	**Avg. purchased in 2001 (kg or liters)**	**More demand than supply (% age responding yes)**	**% age of members acquiring inputs from other sources**	**Avg. amount of input in stock (kg or liters)**	**Avg. amount required to keep up with demand (kg or liters)**	**Avg. financial input required to meet input needs easily**
Seed	56	11,602	9,136	6,175	47	47	9,331	12,047	1,031,250
Fertilizer	72	151,535	151,398	142,686	0	7	51,486		768,571
Herbicides	34	3,439	4,712	306	27	67	0	863	165,000
Pesticide	33	473	500	50	40	40	14	10,000	20,000

By far, the major supplier of seeds and fertilizer is the government (Table 2.9). This is not surprising, as a centralized mechanism has been developed over time to service the rural areas. Herbicides and pesticides are relatively less important and primarily provided by private input suppliers (see section on private input suppliers).

Table 2.9: Major supplier (percentage of input)						
Input	**Government**	**International Organization**	**Private sector**	**Other**	**Union**	**Don't know**
Seed	53.3	6.7	0	13.3	13.3	13.3
Fertilizer	60.0	0	6.7	20.0	13.3	0
Herbicides	33.3	0	0	46.7	13.3	6.7
Pesticide	33.3	0	13.3	33.3	6.7	13.3

Table 2.10: Major constraint reported by supplier of input				
	Seed	**Fertilizer**	**Herbicide**	**Pesticide**
Input not used	8.3	22.2	0	0
Not economical	41.7	44.4	0	0
Short supply	50	44.4	25	50
Escalating price	41.7	44.4	25	25
Packaging not efficient (bulk)	16.7	0	0	25
Lack of transport	41.7	11.1	25	0
Not available	50	0	0	25
No credit	25	11.1	50	25
No cash	33.3	44.4	75	25
Lack of knowledge	16.7	11.1	0	0
Other	0	11.1	0	0

The table above (Table 2.10) suggests that the major constraint reported by cooperatives is short supply of inputs. In this case, fertilizer may not be available when required. However cost and economic considerations also factor into the lack of supplying the input. This would suggest both supply and demand constraints. On the one hand, those demanding the input encounter shortages of supply and yet many farmers still refrain from using the input. Removing the cost constraint alone would not be sufficient to increase the use of the input as the supply limitation would likely be exacerbated. Increasing the supply in sufficient amounts would likely also bring down cost constraints and increase demand at the same time.

While 11 out of 15 coops responded that non-members were allowed to receive inputs from the cooperative, other benefits are often provided to members only (Table 2.11). Most cooperatives provide their members with discounted staples for consumption. The second most prevalent benefit is access to financial services.

Table 2.11: Benefits provided to members		
Benefit provided to member	N=15	percentage offering benefit
Discounted staples (sugar etc)	10	77
Transportation benefits	1	8
Health benefits	2	15
Financial services	6	46
Other	5	38

Five out of 15 respondents suggested that training on production of quality produce and production techniques in general would benefit their members most.

TRADERS & PROCESSORS

Traders and processors comprise an important group in the value chain, as they provide the staging points for upstream demand. Traders are defined as a person or company that purchases products in the value chain in order to move the product upstream. Processors add value to the product by

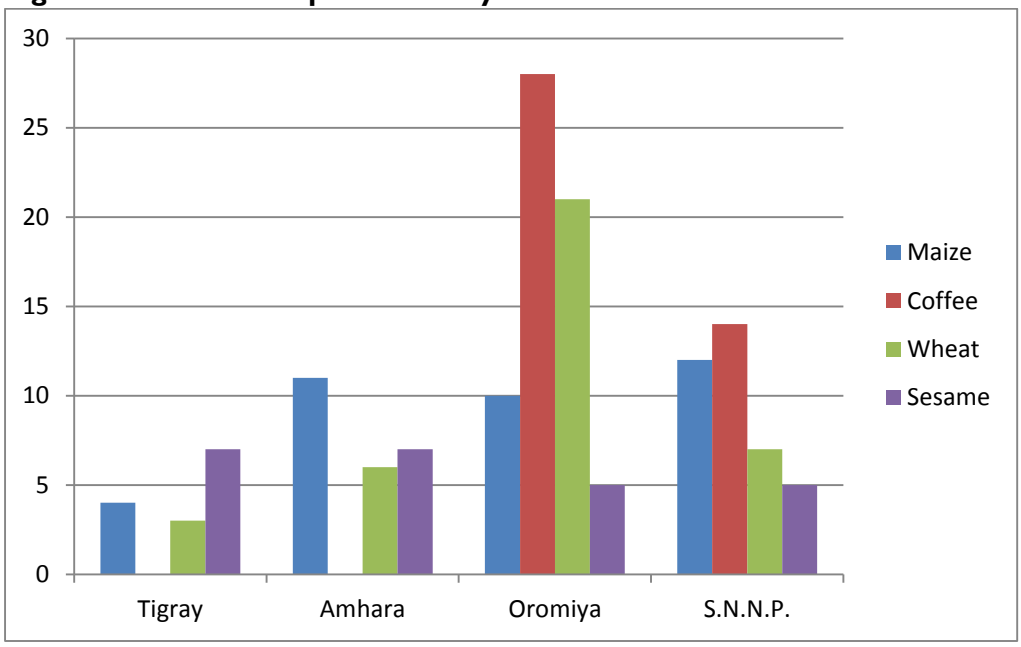
altering it or adding value in some in some form. In most cases, processors are far scarcer at the Woreda level than traders. This is not surprising, as it is likely that traders purchase the product from small farmers in order to move it to processing industry upstream at the zone or regional level.

Table 3.1 classifies each interviewee into a category of trader, processor, or both. It also shows the average number of years that the interviewee has worked in this capacity.

Table 3.1: Trading & Processing Interviews				
	Trading	**Processing**	**Both**	**Average years in operation**
Tigray	7	3	0	5.5
Amhara	14	2	1	9.9
Oromia	36	14	8	7.8
SNNPR	16	5	0	3.8
Totals	73	24	9	7.1

Coffee is the value chain in which there is the highest processing and/or trading demand (Figure 2). Forty-two interviews were conducted with traders and processors in the coffee value chain, 37 in each maize and wheat, and 24 in sesame.

Figure 2: Traders and processors by value chain



SMALL FARM HOLDER SUPPLIERS

The AGP-AMDe survey also asked the traders and processors the source of their product as it relates to value chain commodities (Table 3.2). Any given trader or processor could have more than one supplier. Nonetheless, the primary suppliers are small holder farmers (83 out of 106). Another 42 traders and processors responded that a village or small trader down the value chain supplies them with the commodity. Very few responded that they are supplied by larger institutions. This provides a clear indication that the commodity source for value chain support begins with the small farmer, and that it is then traded or processed up the value chain.

Table 3.2: Main supplier to traders and processors (multiple response)						
	Main suppliers					
	Small farm holder	Village or small trader	Coop	Farmer group	Large trader	Other supplier
Wheat	25	24	0	8	7	2
Maize	28	23	0	9	3	0
Coffee	38	16	2	9	3	0
Sesame	19	5	0	4	5	0
Honey	6	4	0	2	0	0
Chickpea	9	6	0	4	1	0
Totals	83	42	2	14	15	2

The institutional questionnaire also tried to ascertain if the supply chain was reliable or uninterrupted. This was evaluated by both value chain and supplier. These data might provide insight into a specific commodity supply problem. The results are provided in Tables 3.3A and 3.3B. While these responses are not necessarily representative of structural problems but rather only indicative, the commodity with the highest reported reliability problem was coffee. Coffee is also the commodity with the highest cash crop value. This reliability problem may reflect on rural farm hold incomes.

Table 3.3A: Reliability of supply by value chain			
Value Chain	**Supply of VC reliable**		
	Yes	**No**	**Total Count**
Wheat	86.49%	13.51%	37
Maize	78.38%	21.62%	37
Coffee	50.00%	50.00%	42
Sesame	83.33%	16.67%	24
Honey	83.33%	16.67%	6
Chickpea	100.00%	0.00%	9
Total	70.75%	29.25%	106

Small farm holders were reported to be relatively unreliable in terms of supply, though they did fare better than larger traders. This might be due to larger traders trading in surplus supply and therefore only selling periodically, in times of surplus. Support to small holder coffee growers appears to be a priority for value chain development.

Table 3.3B: Reliability of supply by supplier (multiple response)			
Provider of value chain	**Supply by supplier reliable**		
	Yes	**No**	**Total Count**
Small farm holder	66.27%	33.73%	83
Village or small	80.95%	19.05%	42

trader			
Cooperative	100.00%	0.00%	2
Farmer group	92.86%	7.14%	14
Large trader	93.33%	6.67%	15
Other supplier	50.00%	0.00%	4
	70.75%	29.25%	106

When asked about the constraints to increasing purchases from the small farm holder, there appeared to be some regional variance (Table 3.4). Traders in Tigray (and likely involved in sesame trading) reported quality of produce to be a primary constraint. Those in Amhara reported transportation problems as being the primary constraint facing the buyer. It is not clear if the reported transportation problem is a constraint that affects reliability of supply or volume (that is not sufficient capacity of transport vehicles to carry the product). As Table 3.5 indicates that most small farm holders rely on animal transport to carry the commodity to the purchasing center, which limits the amount that might be available to transport at any given moment. Transportation from the village to the buying centers may be an area worth developing under the AGP-AMDe program.

Table 3.4 Constraints to buying from small farm holder (percentage of responses), by region				
	Tigray	**Amhara**	**Oromia**	**SNNPR**
Inaccessibility to markets	5.56	3.70	9.84	9.09
Low market price and holding out	0.00	22.22	16.39	9.09
Transportation problems	11.11	29.63	9.02	25.45
Reliability of supply	11.11	14.81	18.85	0.00
Quality of produce	33.33	11.11	23.77	36.36
Deterioration after harvest	11.11	3.70	15.57	20.00
Lack of long term storage facility	16.67	7.41	2.46	0.00
Other	11.11	7.41	4.10	0.00
	100.00	100.00	100.00	100.00

Table 3.5 Smallholder transport of product					
	Tigray	**Amhara**	**Oromia**	**SNNPR**	**Total**
Personal	0.00%	20.00%	13.33%	19.05%	14.46%
Animal	85.71%	50.00%	73.33%	66.67%	69.88%
Animal & Cart	14.29%	30.00%	13.33%	4.76%	13.25%
Cart	0.00%	0.00%	0.00%	9.52%	2.41%

Traders and processors were asked if they provide any other services to small farm holders. Most do not provide credit to their suppliers, nor do they provide outgrower schemes. Tigray appears to be the region that might have the highest probability of providing credit and outgrower schemes.

Table 3.6: Other services provided to small farm holders				
	Tigray	**Amhara**	**Oromia**	**SNNPR**
Provides credit to smallholder farmer	57.14%	30.00%	40.00%	19.05%

Provides outgrower schemes	71.43%	30.00%	6.67%	42.86%

TRADER AND PROCESSOR PROFILES

The primary legal holder of the company in 90 out of 106 cases is male (Table 3.7A). Only 12 traders or processors are registered under a woman, mostly in Oromia.

Table 3.7A: Company registration by gender and region

	Male	Female	Both
Tigray	10	0	0
Amhara	16	1	0
Oromia	44	10	4
SNNPR	20	1	0
Total	90	12	4

A series of questions, ranging in topic, were asked to traders and processors regarding their business practices. Table 3.7B provides a view into the responses by region. The following observations are derived from table:

- In most cases, suppliers consider that their buyers are satisfied with the product.
- The region with the lowest collaboration is Oromia where only 52 percent of traders and processors report collaborating with competitors.
- Tigray and Amhara tend to report formal contracts with buyers.
- Oromia has the lowest reported storage facility.
- Business services are not evident in most cases. In all regions except Tigray, only about one third of traders and processors declared having access to or using business development services.
- In general, traders do not maintain advance purchase agreements with their suppliers.
- In less than half of the cases, traders and processors maintain accounting systems and do not have exclusive contracts with buyers.
- Less than one third of traders and processors own their own vehicles.
- Most do not package their product (as traders, they may not need to).
- None reported receiving assistance from NGOs, although a few receive governmental assistance.
- In most cases, with some regional divergences (Tigray), few have taken loans to expand their business.

Table 3.7B: Summary of business practices (percentage responding "Yes")

	Tigray	Amhara	Oromia	SNNPR
Reported customers as satisfied with product	100.00	100.00	63.79	71.43
Collaborates with competitor	90.00	70.59	51.72	85.71
Formal contract with buyer	40.00	41.18	25.86	9.52
Has a storage facility	90.00	100.00	62.07	95.24
Has access to business development services	70.00	35.29	34.48	23.81
Has advance purchase agreement with supplier	80.00	52.94	29.31	23.81

Has an accounting system	40.00	41.18	46.55	80.95
Has an exclusive contract with buyer	40.00	35.29	34.48	4.76
Plans to invest in the business this year	40.00	64.71	44.83	42.86
Owns vehicle	40.00	23.53	27.59	28.57
Packages own product	30.00	17.65	46.55	14.29
Receives assistance from NGO	0.00	0.00	0.00	0.00
Receives assistance from the government	30.00	0.00	20.69	4.76
Has taken out a loan to expand business	90.00	35.29	31.03	19.05
Number responded	10	17	58	21

Transportation features not only the provision of the commodity to the trader or processor but it also features the movement of the commodity upstream. Traders and processors need access to markets up the chain, which are likely in greater urban administrative centers. As they collect the commodities from various sources, they gradually increase the volume. Both storage and transportation are therefore extremely important.

Only 83 out of 106 traders and processors interviewed have their own storage facilities (Table 3.8A). Of those, only 35 (or 42 percent) have modern storage facilities. Given the value of economies of scale, increasing volume of the commodity availability and the ability to store and move higher volumes of the commodity at this lower "node" might be an important consideration.

Table 3.8A Kind of storage facility (those with storage facility)

	Tigray	Amhara	Oromia	SNNPR	Total
Modern storage or warehouse	3	7	20	5	35
Traditional storage	6	10	16	15	47
	9	17	36	21	83

Most traders and processors who resell up the value chain lease vehicles to do so (Table 3.8B). Fuel costs, which are managed by the independent transportation agent, can also affect the trader. It is important to keep in mind that revenue streams flow up the value chain and expenditures, in general, flow down the value chain. For post-harvest issues, storage and transport are critical areas that require support.

Table 3.8B: Upstream means of transport of value chain products

	Tigray	Amhara	Oromia	SNNPR
Personal	0.00	11.76	24.14	0.00
Cart	0.00	0.00	3.45	0.00
Own vehicle	0.00	5.88	10.34	4.76
Leased vehicle (rentals)	100.00	76.47	55.17	95.24
Other	0.00	5.88	6.90	0.00

Outside of drought or pest infestations (which also indicate the need to improve storage facilities among the traders), increasing factor costs (fuel) was cited as the biggest risk confronting the trader and processor (Table 3.8C). Interestingly enough, market structures are also considered risks. These include the risk of larger companies taking over the market (effectively monopolizing the supply) as

well as increasing competitors (presuming smaller traders are entering the market). In both cases, this would likely decrease revenue, as both monopolistic practices and competitive markets would likely reduce the price of the commodity.

Table 3.8C Biggest risk to the business					
	Tigray	**Amhara**	**Oromia**	**SNNPR**	**Total**
Drought or pest infestation	1	2	14	3	20
Increase factor costs (fuel)	1	1	7	10	19
Large companies taking market	2	1	9	5	17
Increasing competition in general	2	2	4	2	10
Breakdown of equipment	0	0	3	0	3
Fire	0	3	0	0	3
Other	0	2	0	0	2
	10	17	58	21	106

The value of controlling the transportation component of the value chain is again evidenced by the 19 out of 50 investing traders and processors who are planning to acquire a vehicle (Tables 3.8D and 3.8E). Most of these vehicles will be financed from the traders' and processors' own savings.

Table 3.8 D & E Planned investment (# responding to planning new investment, N=50)					
Type of capital investment planned					
	Tigray	**Amhara**	**Oromia**	**SNNPR**	**Total**
Vehicle	0	0	16	3	19
New equipment	0	7	5	2	14
New plant or property	4	1	3	4	12
Add or new storage place	0	2	0	0	2
Add market place	0	1	0	0	1
Source of financing for capital investment above					
	Tigray	**Amhara**	**Oromia**	**SNNPR**	**Total**
Own savings	1	9	16	8	34
Private loan	3	0	4	0	7
Partnership (share)	0	0	3	1	4
Family assistance	0	0	1	0	1
Other (specify)	0	2	2	0	4
Totals D&E	4	11	26	9	50

When asked about the constraints they face in terms of growing their business, 57 out of 94 traders and processors cited a lack of financial resources for operating expenses (Table 3.9). This indicates a cash flow type of problem which is likely due to the need to have the resources to purchase at specific times (i.e. harvest time). The burden on small traders to maintain the capital to acquire sufficient commodities may be an important limitation. Extending credit during harvest time may increase the available liquidity and provide further incentive to small hold farmers to increase their production. This would increase the demand and likely the small farm holder might respond and supply more since the supply side did not feature as a dominant problem reported by traders. As

expected, the need to finance investment in storage and vehicles also features as a primary constraint.

Table 3.9: Constraints to growing					
	Tigray	**Amhara**	**Oromia**	**SNNPR**	**Total**
Financial resources for operating expenses	3	9	26	19	57
Financial resources for capacity building	0	0	10	1	11
Storage space	2	5	2	1	10
Vehicles	1	1	7	0	9
Office space	0	1	2	0	3
Better trained staff	1	0	1	0	2
More staff	0	0	1	0	1
Network	0	1	0	0	1

Over half of the traders and processors mentioned professional trade journals and radio as the primary source of information informing their business activities (Table 3.10). Surprisingly, the internet featured as the third most important form of accessing information (12 out of 106). This data likely comes from Woredas which have better access to online services.

Table 3.10 Source of information for business					
	Tigray	**Amhara**	**Oromia**	**SNNPR**	**Total**
Professional journal[28]	4	11	22	8	45
Radio	3	0	11	10	24
Internet	3	1	8	0	12
Personal network	0	2	5	0	7
Marketplace	0	0	7	0	7
Mobile phone	0	0	2	3	5
Other (specify)	0	0	3	0	3
ECX	0	3	0	0	3
	10	17	58	21	106

Most processing is related to the coffee value chain (Oromia and SNNPR), with some cleaning reported for sesame (Amhara and Tigray) (Table 3.11). In general, processing does not take place at the Woreda level as a value chain activity (outside of processors that may provide for local needs, such as a local wheat grinder). Processing likely takes place at zone and regional centers with some small scale coffee processing.

Table 3.11 Primary processed products (processors) (multiple response)				
	Tigray	**Amhara**	**Oromia**	**SNNPR**
Flour (wheat)	0	0	5	0
Bread (wheat)	0	0	1	0

[28] Professional journal is any publication related to their research profession and should not be understood as necessarily an academic journal.

Hay feed (wheat)	0	0	3	0
Wet and dry pulping (coffee)	0	0	18	5
Grinding (coffee)	0	0	0	5
Packaging (coffee)	0	0	5	2
Cleaning (sesame)	3	3	0	1

Summary & Conclusion

In general, the profile of the trader and processor at the Woreda level is a small to medium size business which employs 10 persons. Woreda level traders and processors are typically in need for liquidity during harvest season and likely employ seasonal workers. The area where they might be able to increase value chain commodity trade seems limited to increasing storage capacity and self-determination in terms of transport. They are concerned with pressures both from increasing competitors and large companies, which, due to economies of scale, may affect the price structure and availability of the product, as smallholder farmers (their main supplier) prefer to sell to the monopoly. Woreda level traders are not highly sophisticated in business practices and rely on similar information to understand their market. Processing takes place largely up the value chain stream and Woreda level activity strictly consists of purchasing product from local farmers and transporting it by animal to the purchasing points.

Table 3.11 gives the prevailing price and average volume (in kg) of value chain volume purchased by traders and processors.

Table 3.11: Average purchase and price paid for commodity

	Volume	**Price**	**N**
Maize	63,453	3.15	37
Coffee	40,445	36.05	42
Wheat	122,023	5.60	37
Sesame	258,138	14.81	24
Honey	51,665	40.33	6
Chickpeas	68,331	8.05	9

MARKETS & PRICING

Table 4.1: Pricing from various points

	From household survey	From Traders & Processors	Current Market Interview	Price a year ago	Inflation	Margin on commodity
Wheat	6.84	5.60	8.18	7.23	1.13	1.46
Maize	4.56	3.15	4.58	4.11	1.11	1.45
Coffee	32.83	36.05	64.21	75.5	0.85	1.78
Sesame	15.18	14.81	16.92	15.5	1.09	1.14

Chickpea	10.36	8.05	12.84	11.06	1.16	1.59
Honey		40.33	51.14	44.86	1.14	1.27
				Average	1.08	

The table above provides the average price of specific value chain commodities across the different outlets. The tendency between the prices seems reasonable as farm-gate prices are likely more reflected by the trader and processor. Market prices will be somewhat higher. In addition, the table provides a very simple average index of the inflation of these commodities shows that, on average, price increases rose 8 percent. This accounts for the apparent loss in price support for coffee.

It is interesting to note that the price information available in other parts of the questionnaire show pricing that is within range provided here. Households report lower prices than markets, as they are likely quoting farm gate prices. The most reliable price information and the area where local margins can best be computed is likely in the price spread between the amount quoted from the trader and the current market price at the Woreda.

In most cases, margins exceed inflation rates, though they are very close in the sesame value chain. Coffee margins need to be verified, as it is likely that the data is distorted due to different varieties.

When market sellers were asked what factor most contributes to price fluctuations, the most prevalent reason across the value chains is that different varieties of value chain fetch different prices (Table 4.2). Transport related costs were a cause for price fluctuations in all value chains except for sesame. Access to up-to-date price information featured in cash crops like coffee and sesame. For honey, the lack of competition appeared to determine the nature of the market price.

Table 4.2: Reason for price fluctuations (380 cases)

Value Chain	Form in which the commodity is sold or packaged	Variety fluctuations cause price changes	Transportation costs due to distance	Access to up-to-date market information	Access to multiple sellers and competitive pricing	Cost of transport (fuel costs)	Other
Wheat	8.05	26.44	11.49	12.64	11.49	29.89	0.00
Maize	11.40	15.79	18.42	14.91	19.30	20.18	0.00
Coffee	9.52	20.24	10.71	28.57	10.71	19.05	1.19
Sesame	11.76	35.29	0.00	35.29	5.88	5.88	5.88
Honey	0.00	29.41	14.71	11.76	32.35	11.76	0.00
Chickpeas	6.67	26.67	6.67	6.67	8.89	44.44	0.00

Agents in the market were asked about the supply of the particular product (Table 4.3). In many markets, the product was simply not available, largely due to regional differences. This provides some evidence that there is little commodity arbitrage between regions and that regions generally do not seek products that are not available within their own markets. Sesame is largely unavailable in markets outside of areas in which it is grown. It is also not commonly consumed but rather sold to the government for export markets. Wheat and maize are largely available throughout the surveyed Woredas. However, in areas where they are available, they are reported as having the highest incidence of problems with constant supply. This is likely due to a more constant demand.

Table 4.3 Constant supply of product (%age responding) N=120			
Value Chain	**Not available**	**Yes**	**No**
Wheat	29.41	39.22	31.37
Maize	9.80	50.98	39.22
Coffee	53.92	29.41	16.67
Sesame	65.69	17.65	16.67
Honey	58.82	14.71	26.47
Chickpeas	50.00	23.53	26.47
Total	44.61	29.25	26.14

Sellers in the market primarily suggest that climate and seasonality play an important role in product availability (Table 4.4). High transport cost (a theme throughout this report) is also cited as one of the top 3 reasons that there may be commodity availability problems in the local markets. It is interesting to note that seasonality affects the supply of honey far more than other commodities due to the availability of nectar yielding flowers.

Once again, local markets do not necessarily provide a measure of the export demand but can give an idea as to product price and availability and the interest in the particular commodity.

Table 4.4 Availability problems by value chain						
Reason for supply problems	**Wheat**	**Maize**	**Coffee**	**Sesame**	**Honey**	**Chickpeas**
High transport cost	25.4	18.3	29.8	45.9	15.4	26.8
Low market price	1.5	8.6	6.4	2.7	5.8	5.4
Low production as a result of disease	3.0	3.2	4.3	0.0	7.7	0.0
Low production for climatic reasons	31.3	21.5	17.0	24.3	21.2	37.5
Low production due to economic reasons (i.e. low price)	0.0	10.8	8.5	2.7	3.8	0.0
Lack of demand for the product	11.9	9.7	6.4	8.1	5.8	0.0
Lack of storage facility	0.0	1.1	4.3	0.0	0.0	0.0
High spoilage rate	0.0	1.1	2.1	0.0	0.0	0.0
Seasonality	26.9	25.8	21.3	10.8	40.4	30.4
Other	0.0	0.0	0.0	5.4	0.0	0.0
N	67	93	47	37	52	56

CREDIT & MICROFINANCE

Section IR3: Increase Access to Finance in the household baseline report integrates institutional activities of credit suppliers into the main report. However, in order to provide a stand-alone report on the institutional questionnaire, this section covers the topic in a more general review of the results.

A total of 40 institutions were surveyed. These were both credit cooperatives and microfinance institutions. Table 5.1 provides a distribution of the specific credit institutions by region. The most credit institutions were interviewed in Oromia (note that the number of Woredas interviewed was highest in Oromia).

Table 5.1 Presence of financial (credit) institutions by region					
	Tigray	**Amhara**	**Oromia**	**SNNPR**	**Total**
Credit and savings cooperative	0	6	8	3	17
Microfinance institution	1	4	15	3	23
Total	1	10	23	6	40

When asked if the institutions provide credit for value chain expansion, 26 out of 40 specified that they do support this activity. Table 5.2 provides the results of the credit institutions' support, most of which is in the wheat value chain and, as expected, in Oromia.

Table 5.2 Credit institutions providing services for value chain expansion					
	Tigray	**Amhara**	**Oromia**	**SNNPR**	**Total N=26**
Wheat	1	5	11	3	20
Maize	1	5	8	3	17
Coffee	1	4	9	3	17
Sesame	1	6	6	0	13
Honey	1	5	7	2	15
Chickpea	1	4	8	0	13
Totals	1	7	14	4	26

Of the 26 institutions providing support to value chain expansion, 24 provide direct support to farmers. It is also important to note that there is a willingness to assist farmers: of the 14 institutions that did not report direct support to value chain expansion, 12 stated they would consider supporting the activity, contingent on the availability of capital.

PROFILE OF THE LENDER

A profile was undertaken of the 40 institutions which provide credit services. Table 5.3 highlights the primary findings regarding the structure and governance of the credit institutions interviewed.

Most credit institutions are branch offices that serve the Woreda and have their main office either in the regional capital or in Addis (more in Addis). This means that it will be more efficient to work with the main offices and representatives at the regional level or Addis Ababa. Very few branch offices use email for communication. This could be due to lack of access or simply inability to use the internet. The average number of years in service is 13. Most have mission statements but were not willing to share them. Twenty-three out of 40 have boards of directors and average 5 members (of which an average of one is female). The average number of male staff is 15, out numbering female staff by a ratio of 5 to 1. Ten out of 40 report receiving assistance from international organizations. Many (23) report having business plans but were unwilling to share and almost all had operational manuals and policies for determining loan eligibility. Thirty out of 40 advertise their services.

Most do not operate through committees and only 2 out of 40 report having committees dedicated to value chain expansion. Many expressed a willingness to establish value chain specific committees. As many have their main offices in regional centers or Addis, providing incentives to set up value chain expansion through committees managed by the credit institutions might prove effective (particularly for M&E). Contact with the organization could be done through these committee heads.

Table 5.3: Profile of credit institutions		
Item	**N=40**	
Is a branch office (dependent entity)	33	
Branch office serves only the surveyed Woreda	21	
Main office in the regional capital	14	
Main office in Addis Ababa	18	
Use email for communication	3	
Average number of years in service	13	
Have mission statements	34	
Have Board of Directors	23	
Average number of board members	5	
Average number of women board members	1	
Number of institutions with female board members	9	
Board has committees	14	
Has committees devoted to value chain expansion	2	
Consider establishing committee dedicated to value chain expansion	5 (out of 14)	
Work with international organizations	12	
Reported receiving capital from an international organization	10	
Received capital from an NGO	5	
Average number of male staff	15	
Average number of female staff	3	
Has a business development plan	23	
Would share plan with enumerator	2	
Operationally self-sufficient	28	
Has procedural manuals for applying loans	37	
Advertises services	30	

Of the thirty institutions that report advertising, 43 percent produce published material, 8 use the radio and 6 go door to door (Table 5.4).

Table 5.4 Advertising methods		
		N=30
Published material (leaflets, bile board)	13	43.3
Radio	8	26.7
Door to door	6	20.0
Call on phone	3	10.0

Services Offered

The institutional questionnaire also sought to identify the kinds of services that are provided by the credit institutions. Out of the 40 institutions 37 replied and the results are provided in the following three tables. As expected, 36 out of 37 provide loans (Table 5.5). About 60 percent offer passbook savings. Insurance and training are also important services offered to the community. Nineteen out

of 37 institutions provide insurance, primarily life insurance (13 out of 19). The remainder of the institutions provide nominal insurance in health and asset protection.

Table 5.5: Services offered		
	N=37	%age
Loans	36	97.3
Passbook savings	22	59.5
Insurance	19	51.4
Training and capacity building	32	86.5
Other service	4	10.8

Credit institutions also provide services in training and capacity building, most in financial literacy (29 of 32) (Table 5.6). This is not surprising as these programs are likely linked to the provision of loans. Many institutions, however, report providing additional training services in business development, gender and social development and environmental issues. This indicates that the financial institutions are generally active in the communities they serve, providing a wide range of training services.

Table 5.6: Training offered		
	N=32	% age
Financial literacy	29	90.6
Business development	23	71.9
Gender and social development	18	56.3
Environmental issues	12	37.5
Others	5	15.6

Table 5.7 gives an idea of the average portfolio of credit institutions in the Woreda. The average number of loan accounts is about 3,300. Of these accounts, 39 percent are reportedly held by men, 33 percent by women and 29 percent are joint accounts. Savings statistics are similar: 39 percent of saving accounts are held by men, 34 percent by women and 27 percent are jointly held. The average amount of loans outstanding is 4.5 million Birr. About 5.5 million Birr are held in savings. This indicates that there is a net asset value of about 1 million Birr which could be available for additional credit capacity.

Table 5.7: Saving and Loan statistics				
	N	**Minimum**	**Maximum**	**Mean**
Male borrowers (# of borrowers)	33	50	4,446	1,278
Female borrowers (# of borrowers)	33	5	3,447	1,070
Joint borrowers (# of borrowers)	5	30	4,290	937
Male saving accounts (# of savers)	35	12	4,950	1,451
Female saving accounts (# of savers)	34	5	8,131	1,268
Joint saving accounts (# of savers)	14	10	12,139	1,010
Loans outstanding (Birr)	36	9,995	15,290,859	4,464,147
Current savings (Birr)	37	1,700	56,653,363	5,471,811

On the average, the largest individual loan is about 190,000 Birr and the lowest average loan is for 2,100 Birr. Interest charged to farmers tends to be higher than to non-farmers (farmers, on average, pay 14.05 percent and non-farmers 12.75 percent).

Sixty-eight percent of credit institutions stated that women are more reliable in terms of credit risk. Behavior was not as gender specific in terms of saving: men and women tend to save at the same rate. Forty-five percent of institutions report women as bigger savers and 36.8 percent claim men are bigger savers. The remaining institutions report no difference in saving habits in terms of gender.

Loans, in general, require some kind of guarantee, or collateral, which differs from institution to institution. The kind of guarantee required can largely influence the ability of a small holder farmer to access the service. Table 5.8 provides the guarantees that are accepted by the different institutions. Many institutions are willing to accept co-signature or institutional guarantees.

Table 5.8: Collateral accepted by institutions

	N=38	% age
No collateral required	8	21.0
Co-signature	24	63.2
Asset pledge	16	42.1
Guarantee by institution	12	31.6
Standing crop	3	7.9
Savings hold out	16	42.1
Group guarantee	17	44.8
Other	6	15.8

Conclusion

Credit and microfinance institutions are prevalent at the Woreda level and appear to be good service points. Although many institutions do not *per se* structure their loan portfolio around value chains, many have committee structures that might be developed to serve and expand loans into value chain activity. Setting up specific value chain committees designed to promote value chain expansion and to monitor loans targeting increase in value chain production may be a good strategy for increasing credit flows into the Woreda. Data by these institutions is likely to be well-managed, making tracking funds through them easier and more efficient.

Many institutions seem to show net asset values (difference between average loans outstanding and average savings) that indicate conservative risk. Advocacy to release more existing capital to value chain agents (in particular to traders and farmers) may also be a strategy to increase capital availability. Guaranteeing loans or co-signature on selected loans with selected agents may also be a strategy for increasing the financial flow (credit) to rural areas. Preference might be given to co-signing loans with women since credit institutions in general tend to agree that women borrowers are more reliable in terms of loan repayment and therefore more credit worthy.

PRIVATE INPUT SUPPLIERS, RESEARCH ORGANIZATIONS & OTHER ORGANIZATIONS

The institutional questionnaire also sought to identify the presence of auxiliary institutions. These include private input suppliers, research institutions and any other identifiable institutions that can affect value chain productivity. The presence of these institutions at the Woreda level is relatively rare, with 17 input suppliers, 5 research organizations and 8 other organizations. Table 6.1 below shows the number per region interviewed. The contact information is stored in the final database. Although there are not many, these value chain agents represent important contacts and possible networking points for project implementation and technological diffusion.

Oromia registers as having more auxiliary contacts than other regions, which is likely due to the diversity and importance of Oromia as an agricultural producer. Oromia and SNNPR also likely report more activity due to the importance of coffee as a cash crop.

Table 6.1 Location of auxiliary institutions

	Tigray	Amhara	Oromia	SNNPR	Total
Private input supplier	2	3	7	5	17
Other Organizations	1	2	8	2	13
Totals	3	5	15	7	30

Private Input Suppliers

Cooperatives are the most common supply point for providing agricultural inputs. However, some private suppliers can be found at the Woreda level. Private input suppliers are relatively rare, with only 17 suppliers identified. Most of the suppliers are small businesses that employ only one person. Sixty-five percent of those employed are men and 47 percent are women. All of the companies are registered by a male owner and only 4 out of 17 report that management of day-to-day activities is undertaken by a woman.

Table 6.2 reports the distribution of clients to which the private input suppliers provide services. All 17 private input suppliers report primarily supplying small farmers, although they do provide services to other clients. Community based groups and farmer groups are also served.

Table 6.2: Distribution of clients

Client	N=17	% age
Small holder farms	17	100.0
Local traders	6	35.3
Farmer groups	9	52.9
Cooperatives	4	23.5
Community based groups	8	47.1
Private Investors	2	11.8
Other	1	5.9

The suppliers were also asked about the specific product class they supply to their clients (Table 6.3) Most supply herbicides and pesticides. Fertilizer and seed inputs are mostly provided by cooperatives.

Table 6.3: Product class supplied

Product	N=17	% age
Pesticides	15	88.2
Herbicides	16	94.1
Improved seed	6	35.3
Fertilizer	4	23.5
Organic fertilizer	1	5.9
Animal feed	2	11.8
Bee hives	2	11.8
Bee's wax	2	11.8
Bee colony	2	11.8
Storage or packing	1	5.9
Other	3	17.6

The institutional enumerators were instructed to identify the specific homogenous product available and, if possible, take an inventory, record the current market price and the price a year earlier. Most private input suppliers deal in herbicides, pesticides and fungicides. Many of them also had watering and spraying cans in stock (Table 6.4).

Table 6.4: Stocks and pricing of product by class

Input	Current Cost (per unit measurement)	Cost A Year Ago (per unit measurement)	Kg or liters in stock	N
UREA (white)	994	NA	NA	1
DAP (black)	754.5	NA	NA	2
Pesticide	151.5	137.0	23.8	23
Herbicides	126.8	130.3	123.5	23
Fungicides	210.8	175.7	9.6	8
Watering can	67.5	57.5	2	4
Sprinkler/Sprayer	564.7	475.9	5	17
Bee hives	800	800	10	1
Seed	14	14	30970	1

Table 6.5 lists some of the primary name brands identified with online links to more information. These product brands should be kept in a database to monitor their demand. Costs for these inputs should be maintained by name brand in the M&E system. The most common brands found among private input suppliers were Round-up brand, 2-4 D and Twinax. The Matabi super agro sprayer was also found in various locations.

Table 6.5 Name brand of identified inputs

Name brand	**N**	**Web links for further information**
Melatin (Herbicide)	3	NA
Round up (Herbicide)	4	http://greenhouse.ucdavis.edu/pest/pmsds/Roundup.PDF

Twinax (Herbicide)	4	http://www.syngenta.co.nz/label/syngentanz/TWINAX_24106367.pdf
Dical	2	NA
2-4 D	5	http://www.24d.org/
Helo set	2	http://www.wdag.com.au/images/products/23_MSDS.pdf
Matabi super agro	5	http://www.agratech.co.uk/sprayers-and-nozzles/Matabi-Super-Agro-16---20-Sprayer-Spare-Parts-Diagram-Free-PDF-Download.html
Mancozeb	1	http://www.titanag.com.au/Label/titan/Mancozeb_750DF_label.pdf

The private input suppliers were also asked about why they believe there were constraints to demand for private input supplies (Table 6.6). Fourteen out of the 17 interviewed suggested that the price of the input was too high. The value of the input may not be apparent to the small farmer in terms of increasing output and may not be perceived as a priority.

Table 6.6: Identifying constraints to purchasing inputs

Constraint	N=17	% age
Lack of demand for input	6	35.3
High price of input	14	82.4
No access to credit	11	64.7
Lack of knowledge of input	5	29.4
Poor transport network	1	5.9
High cost of transportation	7	41.2
Other	1	5.9

When further asked what could be done to remove the constraint, 70 percent of the suppliers recommended facilitating access to credit and a further 30 percent suggested raising awareness through well designed public awareness campaigns.

Finally, the private input suppliers were asked about their own facility to provide credit to the small holder farms. Only 5 out of 17 provide credit (30 percent) and all of them provide it only as in-kind advance of the product. They do not advance cash credit. It is likely that the advance is paid back in the commodity, as the same number of respondents suggested they trade in the commodity as well. 80 percent of those supplying credit to farmers consider women as more reliable in terms of repayment risk of these credits.

Research Institutions

Research institutions were identified and filtered by their interest and research in specific value chain issues (Table 6.7). The table contains a summary of responses to questions by research institutions. The number provided is out of 5 institutions interviewed during the survey. Most of the research institutions interviewed engage in wheat and maize research. Three out of 5 have their own experimental land to conduct research. All of them declared an interest in researching increase of value chain productivity. All of them receive government support and 4 out of 5 maintain contact with international organizations.

Table 6.7 Responses by Research Institutions	
Value Chain	N=5
Wheat	3
Maize	3
Coffee	2
Sesame	1
Honey	2
Chickpea	1
Have experimental land	3
Research topic or interest	
Value chain productivity (yield)	5
Climate research	1
Fertilizer research	2
Livestock	3
Primary Funding and support	
Government	5
International	2
External research institute	2
Connections with International organizations	4

While all of them report having published results, they all refused to give out any of their findings (Table 6.8). This could be due to restrictions in providing information. Results were in most cases available if provided by the management body of the institution by formal request (letter). All of them are interested in marketing the specific value chain commodity.

In terms of accounting for gender balance in their research, four out of five reports that it is a consideration. Three out of 5 report that they provide benefits to the community in terms of nutritional benefits. All of them report hiring local labor to work on their projects and having kebele level agents that assist with their research.

When asked about constraints, as expected, vehicle (transport) limitations were identified as a key constraint, as was capacity building of local resources.

Table 6.8: Research and community benefits	
Research Institution benefits	**N**
Published results related to VC productivity	5
Unwilling to give out research	5
Account for gender in research	4
Focus on marketing VC	5
Provide nutritional benefits to community	3

Employ farm labor	5
Contact with Kebele agents	5
Primary Constraints	
Operating expenses	2
Capacity building resources	3
Lack of staff	1
Vehicles	3
Computer issues	1

Other Organizations

Finally, any other organizations, such as youth groups or community groups, involved in value chain activity were identified and interviewed (Table 6.9). Only eight were identified in the Woredas. Three out of eight interviewed were concerned with gender issues, although these also frequently cited having an interest in youth issues as well. All of them were membership organizations. Five out of eight report having an interest in improving agricultural production. Three out of eight provide credit to members and half of those interviewed provide some kind of training support to their members. All of them hold regular meetings and most of them (five out of eight) rely on private donations for their operating expenses.

Table 6.9 Summary of the Other Institutions section in the institutional questionnaire	
Classification	N=8
Youth group	4
Women's group	5
Community Development	4
Note: an organization can classify itself into more than one category	
Have members	8
Improve production	5
Improve technical skills	2
Improve Marketing of VC	1
Provide credit	3
Provide training programs	4
Rely on private donations	4
Receive international support	3
Charge membership fees	1
Hold regular meetings	8

Conclusion

Working with private input suppliers and other institutions may be effective on a selective basis. Most private input suppliers deal in the marketing of herbicide, pesticide, fungicide and related products such as sprayers. It may be useful to monitor changes in demand through certain products through the life of the project. Increasing access to other inputs is more likely to be effective through the existing cooperative structure.

Similarly, certain social organizations could be selected on a pilot basis to see the indirect effects of supporting women and youth groups in terms of training.

Certain research institutions are already in place and undertaking research and development in value chain productivity. They have published the results of their research and this information can be accessed through contacting their head offices. Those research institutions interviewed appear to have reasonably developed logistical support and do not appear as if they require operational support. Some offer training and credit access. Most interviewed have networks into the kebele and can be used as agents to disseminate information, provide services and conduct further research in value chain productivity.

APPENDIXES

APPENDIX A: MAIN VC PRODUCING KEBELES BY WOREDA OFFICIALS

Table 7.1 identifies main value chain producing kebeles. Although the sample was based on identified Woredas for their value chain, at times the main selected kebele (random selection) was not necessarily the largest producer. For this reason, the survey sought to enumerate the 5 largest producers identified by Woreda officials as producing the value chain in the survey Woreda. The list below provides 234 of those kebeles by region and value chain for each of the identified value chains. Chickpea is not included, as the sample was not selected based on chickpea.

Table 7.1 : Value chain producing kebeles

No	Region	Woreda	VC	Main Kebeles
1	Oromia	Gomma	Coffee	Aomobeko
2	Oromia	Limu Seka	Coffee	Bontu
3	Oromia	Gomma	Coffee	Borednsera
4	Oromia	Gomma	Coffee	Chemichego
5	Oromia	Limu Seka	Coffee	Deggo
6	Oromia	Limu Seka	Coffee	Dora
7	Oromia	Gera	Coffee	Gara Naso
8	Oromia	Limu Seka	Coffee	Gejeb
9	Oromia	Gera	Coffee	Gerji Chala
10	Oromia	Gomma	Coffee	Gogakemese
11	Oromia	Limu Seka	Coffee	Jerkuze
12	Oromia	Gomma	Coffee	Kadimesa
13	Oromia	Gera	Coffee	Kala Kemebibit
14	Oromia	Gera	Coffee	Kanja Kersa
15	Oromia	Gomma	Coffee	Ketabero
16	Oromia	Gera	Coffee	Kola Sulaja
17	Oromia	Limu Seka	Coffee	Koma
18	Oromia	Gomma	Coffee	Kosati
19	Oromia	Gera	Coffee	Sadi Loya
20	Oromia	Limu Seka	Coffee	Seka
21	Oromia	Gera	Coffee	Tuma Teso
22	SNNPR	Enemorna Ener	Coffee	Agare
23	SNNPR	Wendo Genet	Coffee	Atoye
24	SNNPR	Enemorna Ener	Coffee	Bortena
25	SNNPR	Wendo Genet	Coffee	Chuko
26	SNNPR	Isara	Coffee	Churchura
27	SNNPR	Isara	Coffee	Delba
28	SNNPR	Debub Ari	Coffee	Diramer
29	SNNPR	Enemorna Ener	Coffee	Doba
30	SNNPR	Wendo Genet	Coffee	Edo
31	SNNPR	Debub Ari	Coffee	Genamer

32	SNNPR	Enemorna Ener	Coffee	Gerembo
33	SNNPR	Enemorna Ener	Coffee	Gonchebate
34	SNNPR	Isara	Coffee	Gudmu
35	SNNPR	Debub Ari	Coffee	Malater
36	SNNPR	Debub Ari	Coffee	Mama
37	SNNPR	Debub Ari	Coffee	Mieter
38	SNNPR	Debub Ari	Coffee	Shemamer
39	SNNPR	Enemorna Ener	Coffee	Wedisha
40	SNNPR	Enemorna Ener	Coffee	Weyra
41	SNNPR	Wendo Genet	Coffee	Wosha Soyama
42	SNNPR	Wendo Genet	Coffee	Yumo
43	SNNPR	Isara	Coffee	Zadi Shemayta
44	SNNPR	Isara	Coffee	Zadi Woyida
45	SNNPR	Debub Ari	Coffee	Zemer
46	Amhara	Jabi Tehinan	Honey	Dumri
47	Amhara	Jabi Tehinan	Honey	Kuni
48	Amhara	Jabi Tehinan	Honey	Malan
49	Amhara	Jabi Tehinan	Honey	Maxignt
50	Amhara	Jabi Tehinan	Honey	Mikcha
51	Amhara	Jabi Tehinan	Honey	Monder
52	Amhara	Jabi Tehinan	Honey	Whodansh
53	Oromia	Hidabu Abote	Honey	Adea Nacho
54	Oromia	Hidabu Abote	Honey	Amido Mariro
55	Oromia	Dendi	Honey	Awash Wajetu
56	Oromia	Dendi	Honey	Bite Ejersagibe
57	Oromia	Limuna Bilbilo	Honey	Bokpji
58	Oromia	Wayu Tuqa	Honey	Boneya Molo
59	Oromia	Wayu Tuqa	Honey	Dalo Komta
60	Oromia	Dendi	Honey	Danisa Tanko
61	Oromia	Limuna Bilbilo	Honey	Dawa Borsa
62	Oromia	Hidabu Abote	Honey	Debela Bantu
63	Oromia	Limuna Bilbilo	Honey	Gadisa Derara
64	Oromia	Dendi	Honey	Gare Arera
65	Oromia	Wayu Tuqa	Honey	Gida
66	Oromia	Hidabu Abote	Honey	Gidabo Gorgisi
67	Oromia	Wayu Tuqa	Honey	Haro Chalchasa
68	Oromia	Dendi	Honey	Kaba Bareda
69	Oromia	Wayu Tuqa	Honey	Kichi
70	Oromia	Hidabu Abote	Honey	Kobi Godeti
71	Oromia	Limuna Bilbilo	Honey	Koma
72	Oromia	Limuna Bilbilo	Honey	Lemu
73	Oromia	Limuna Bilbilo	Honey	Lemu Mereti
74	Oromia	Dendi	Honey	Marind Gonjoba
75	Oromia	Wayu Tuqa	Honey	Minya

76	Oromia	Limuna Bilbilo	Honey	Sirbo
77	Oromia	Wayu Tuqa	Honey	Warrababo Migna
78	Oromia	Dendi	Honey	Yubdo Lagabatu
79	SNNPR	Decha	Honey	Agaro Busha
80	SNNPR	Decha	Honey	Boba Meleyo
81	SNNPR	Basketo Special	Honey	Dabitsadaliskinisa
82	SNNPR	Basketo Special	Honey	Deko Ayema
83	SNNPR	Basketo Special	Honey	Dekochere Dekos
84	SNNPR	Basketo Special	Honey	Dochamizigawa
85	SNNPR	Decha	Honey	Gundira Gera
86	SNNPR	Decha	Honey	Kuti
87	SNNPR	Basketo Special	Honey	Motikesa Arzeka
88	SNNPR	Basketo Special	Honey	Obca
89	SNNPR	Decha	Honey	Shelo
90	SNNPR	Decha	Honey	Shetiyo
91	SNNPR	Basketo Special	Honey	Wada Belansa
92	SNNPR	Decha	Honey	Yeha Checha
93	Amhara	Dangila	Maize	Abadira
94	Amhara	Ankasha Guagusa	Maize	Anbela
95	Amhara	Dangila	Maize	Badani
96	Amhara	Dangila	Maize	Debalca Shnguri
97	Amhara	Ankasha Guagusa	Maize	Dekunaderb
98	Amhara	Dangila	Maize	Dubi
99	Amhara	Dera	Maize	Ema Shenkora
100	Amhara	Ankasha Guagusa	Maize	Enbera
101	Amhara	Dera	Maize	Geregera
102	Amhara	Dangila	Maize	Gisa Sahra
103	Amhara	Dangila	Maize	Guit Habishkan
104	Amhara	Wenberma	Maize	Hereti
105	Amhara	Dera	Maize	Huletu Wogedamye
106	Amhara	Wenberma	Maize	Kentefin
107	Amhara	Wenberma	Maize	Koki
108	Amhara	Dera	Maize	Korata
109	Amhara	Dangila	Maize	Kuanchi Kulcrta
110	Amhara	Dera	Maize	Kulala
111	Amhara	Ankasha Guagusa	Maize	Kupor
112	Amhara	Wenberma	Maize	Markuma
113	Amhara	Wenberma	Maize	Marwolde
114	Amhara	Ankasha Guagusa	Maize	Sostusengoro
115	Amhara	Ankasha Guagusa	Maize	Sostushmeta
116	Amhara	Ankasha Guagusa	Maize	Sostyjabala
117	Amhara	Dera	Maize	Tana Misly
118	Amhara	Wenberma	Maize	Wogedad
119	Amhara	Dera	Maize	Wonchet

120	Amhara	Wenberma	Maize	Yirgn
121	Oromia	Guto Gida	Maize	Gadisa Oda
122	Oromia	Guto Gida	Maize	Horo Aleltu
123	Oromia	Guto Gida	Maize	Loko
124	Oromia	Guto Gida	Maize	Lugo
125	Oromia	Guto Gida	Maize	Mada Jalala
126	Oromia	Guto Gida	Maize	Meti
127	Oromia	Guto Gida	Maize	Uke
128	SNNPR	Shay Bench	Maize	Chada
129	SNNPR	Konta Special	Maize	Cheka Bocha
130	SNNPR	Shay Bench	Maize	Goya Shema
131	SNNPR	Konta Special	Maize	Konta Kosha
132	SNNPR	Shay Bench	Maize	Kuka
133	SNNPR	Shay Bench	Maize	Kula Gocha
134	SNNPR	Shay Bench	Maize	Maze
135	SNNPR	Konta Special	Maize	Ofashattera
136	SNNPR	Konta Special	Maize	Qirrara
137	SNNPR	Shay Bench	Maize	Shunga Dosha
138	SNNPR	Konta Special	Maize	Wenba
139	SNNPR	Konta Special	Maize	Weshi
140	SNNPR	Konta Special	Maize	Yora
141	SNNPR	Shay Bench	Maize	Ziyagen
142	Amhara	Metema	Sesame	Das Michel
143	Amhara	Metema	Sesame	Mesheha
144	Amhara	Metema	Sesame	Metema Yahanns
145	Amhara	Metema	Sesame	Shashigei
146	Amhara	Metema	Sesame	Shinteha
147	Amhara	Metema	Sesame	Tumet
148	Amhara	Metema	Sesame	Zebachi Bawer
149	Oromia	Bedele Zuria	Sesame	Ambelta
150	Oromia	Bedele Zuria	Sesame	Bekelcha
151	Oromia	Bedele Zuria	Sesame	Bildima Deru
152	Oromia	Bedele Zuria	Sesame	Bildima Gobecha
153	Oromia	Dedesa	Sesame	Busi
154	Oromia	Gechi	Sesame	Busono
155	Oromia	Dedesa	Sesame	Chelo
156	Oromia	Bedele Zuria	Sesame	Chilalo
157	Oromia	Gechi	Sesame	Cnhitu
158	Oromia	Dedesa	Sesame	Dange
159	Oromia	Dedesa	Sesame	Dinge
160	Oromia	Gechi	Sesame	Haro
161	Oromia	Bedele Zuria	Sesame	Harotatesa
162	Oromia	Bedele Zuria	Sesame	Kollo Sire
163	Oromia	Gechi	Sesame	Menisa

164	Oromia	Gechi	Sesame	Mucha
165	Oromia	Gechi	Sesame	Wakele
166	Oromia	Gechi	Sesame	Yabelo
167	Tigray	Welkayit	Sesame	Adi Jamuse
168	Tigray	Kafta Humera	Sesame	Ashegaye
169	Tigray	Kafta Humera	Sesame	Bahere
170	Tigray	Kafta Humera	Sesame	Bereket
171	Tigray	Welkayit	Sesame	Bet Mulu
172	Tigray	Kafta Humera	Sesame	Dera Berda
173	Tigray	Welkayit	Sesame	Endabo
174	Tigray	Kafta Humera	Sesame	Gumbirda
175	Tigray	Kafta Humera	Sesame	Hadebye
176	Tigray	Kafta Humera	Sesame	Haylo
177	Tigray	Kafta Humera	Sesame	Hintset
178	Tigray	Kafta Humera	Sesame	Menkoye
179	Tigray	Kafta Humera	Sesame	Mie Cadera
180	Tigray	Welkayit	Sesame	Moge
181	Tigray	Kafta Humera	Sesame	Rawyan
182	Tigray	Welkayit	Sesame	Selam
183	Tigray	Welkayit	Sesame	Tsebri
184	Tigray	Kafta Humera	Sesame	Wenbert
185	Tigray	Kafta Humera	Sesame	Wohedet
186	Tigray	Kafta Humera	Sesame	Zeta
187	Amhara	Bure	Wheat	Alefa
188	Amhara	Bure	Wheat	Fetam Senton
189	Amhara	Bure	Wheat	Fezel
190	Amhara	Bure	Wheat	Sevtekze
191	Amhara	Bure	Wheat	Z/Shune
192	Amhara	Bure	Wheat	Zelema
193	Oromia	Limuna Bilbilo	Wheat	Adi Selam
194	Oromia	Welmera	Wheat	Adi Sinbra Kotu
195	Oromia	Limuna Bilbilo	Wheat	Aleme Genet
196	Oromia	Gimbichu	Wheat	Areda
197	Oromia	Becho	Wheat	Awash Bune
198	Oromia	Welmera	Wheat	Barfta Tokofa
199	Oromia	Sinana	Wheat	Basaso
200	Oromia	Welmera	Wheat	Dawa Lafto
201	Oromia	Limuna Bilbilo	Wheat	Dedebite
202	Oromia	Gimbichu	Wheat	Dobi
203	Oromia	Welmera	Wheat	Geba Robi
204	Oromia	Gimbichu	Wheat	Girmt
205	Oromia	Sinana	Wheat	Hora Boka
206	Oromia	Becho	Wheat	Kara Sadek
207	Oromia	Gimbichu	Wheat	Karsa

208	Oromia	Gimbichu	Wheat	Koka
209	Oromia	Gimbichu	Wheat	Kuntusula
210	Oromia	Gimbichu	Wheat	Lemlem
211	Oromia	Becho	Wheat	Lencha Qesheme
212	Oromia	Limuna Bilbilo	Wheat	May Agam
213	Oromia	Limuna Bilbilo	Wheat	May Dilhe
214	Oromia	Limuna Bilbilo	Wheat	May Wodisliha
215	Oromia	Becho	Wheat	Mende Tufesa
216	Oromia	Sinana	Wheat	Nano Robe
217	Oromia	Welmera	Wheat	Nono Suba
218	Oromia	Becho	Wheat	Qobo
219	Oromia	Sinana	Wheat	Sanbitu
220	Oromia	Sinana	Wheat	Selka
221	Oromia	Sinana	Wheat	Shalo
222	Oromia	Becho	Wheat	Sodo Leben
223	Oromia	Becho	Wheat	Soyoma
224	Oromia	Welmera	Wheat	Talacho
225	Oromia	Welmera	Wheat	Watabich Minjaro
226	Oromia	Sinana	Wheat	Welti Bariso
227	Oromia	Limuna Bilbilo	Wheat	Zuria Dansha
228	SNNPR	Endegagn	Wheat	Ane
229	SNNPR	Endegagn	Wheat	Bucha
230	SNNPR	Endegagn	Wheat	Esimat
231	SNNPR	Endegagn	Wheat	Genet
232	SNNPR	Endegagn	Wheat	Gomera
233	SNNPR	Endegagn	Wheat	Wilo Lera
234	SNNPR	Endegagn	Wheat	Zigez