Baseline Report

MCC Ghana Impact Evaluation Services Baseline Data Analysis of Agribusiness Centers

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NORC at the UNIVERSITY of CHICAGO

Table of Contents

List of Tables

List of Figures

Section 1: Executive Summary

The Millennium Development Authority (MiDA) financed the construction of 10 Agribusiness Centers (ABCs) to provide services for the initial processing, storage, and marketing of grain crops produced by farmer-based organizations (FBOs) within their respective intervention areas. MCC contracted NORC to assess the impact of this program using the most rigorous methods possible. This report describes the main findings from the baseline data collection.

The treatment group for each ABC is comprised of households interviewed in the baseline survey that belong to MIDA trained FBOs within approximately 20-kilometer radius around the ABC. The comparison group for each ABC is selected from those MiDA-trained FBOs that are located outside the approximately 20-kilometer radius around the ABC. Therefore, those FBOs forming the comparison group will be loosely located between two concentric circles centered on the ABC; the inner circle will have a radius of approximately 20 kilometers, and the outer circle will have a radius of approximately 30 kilometers.

We document some differences between households in the treatment and the comparison group. In particular, household heads in the treatment group are less likely to be female and have less education than in the comparison group. In agricultural practices too, we see some important differences. Households in the treatment group are more likely to grow kernel maize than households in the comparison group, which are more likely to cultivate fresh maize and rice. Treatment households cultivate a larger proportion of their land than do comparison households; conversely, comparison households irrigate a higher fraction of their land. While we see these and some other differences between the two study groups, they are similar in many other important characteristics such as number of household members, the fraction of children currently in school, and the likelihood of having experienced hunger. We also do not find major differences for agricultural or total income. This is important because it suggests that treatment and comparison groups are relatively comparable.

To estimate the causal impact of this program, NORC proposed to use a double-difference estimator with matching or covariate controls as appropriate, or a combined regression analysis/matching approach to assess changes in farmers income, production, crop revenue and post-harvest losses related to access to ABCs.

The report also presents summary statistics by agricultural zones. We find that households in the Northern zone are substantially more disadvantaged than households in the Afram and Southern zones, which may have important effects on treatment heterogeneity.

Finally, we analyze the determinants of a household's interaction with any ABC at baseline. We show that there is no clear correlation between distance to the nearest MiDA ABC and having interacted with an ABC. This may seem counterintuitive since we would logically expect that households located further away from the MiDA ABC would interact less with ABCs than those situated closer. However this finding is less surprising in light of two considerations: the question being asked of the household pertains to having interacted with *any* ABC, not necessarily a MiDA ABC; hence, distance to the MiDA ABC may be less important. More importantly, we are looking at baseline data collected before MiDA ABCs were constructed. Therefore, the percentage of households that interacted with an ABC is relatively low across all

households, whether treatment or control. For these two reasons, at this stage, it is probably not so surprising that the difference in the likelihood of having interacted with an ABC between the treatment and comparison groups is minimal.

Section 2: Introduction and Organization of Survey

2.1 Background

MCC contracted NORC to assess the impact of up to five activities under the MCC Program in Ghana using the most rigorous methods possible. These activities include:

1. Agriculture Project, Post-Harvest Activity and Community Services Project, Electrification Sub-Activity
2. Agriculture Project, Irrigation Activity
3. Agriculture Project, Credit Activity
4. Rural Development Project, Community Services Activity, Education Sub-Activity
5. Rural Development Project, Financial Services

This report focuses on the Agribusiness Centers (ABCs), which are part of the Agriculture Project, Post-Harvest Activity, for which NORC proposed a double difference estimator with matching and covariates controls to evaluate the impact of the ABC activities on small-holder farmers. More specifically, the purpose of this report is to present the Baseline Data Analysis of the ABCs. It aims to show important characteristics of the treatment and comparison samples, and explore the degree of similarity between experimental groups (using a variety of observable characteristics found in the survey).

The degree of similarity between treatment and comparison groups is a critical aspect of the evaluation design; if observable characteristics indicate that the treatment and comparison groups are very different from each other, it is more likely that there are also unobserved characteristics that may be correlated with the outcomes of interest as well as treatment status. If it is the case that there are unobserved characteristics that are correlated with both outcomes of interest and treatment status, then the causal impact estimates may be biased. For this reason, in this report we explore in detail how different / similar treatment and control groups are at baseline.

It is important to keep in mind that the ABC evaluation was designed ex-post and it is not experimental. The placement of the ABCs and selection of farmers to participate was not random but based on a number of factors that did not include impact evaluation considerations. Therefore, we do expect the treatment and control samples to be different at baseline. The collection of baseline data, however, allows us to implement methods that isolate observable and unobservable characteristics of the households that affect the outcomes of interest, as long as these characteristics are time invariant. In other words, the proposed design will result in unbiased (true) estimates of the impact of the intervention as long as unobserved characteristics that affect the outcome are time invariant or not correlated with treatment status.

In Section 1 we discuss the background to the ABC activity, evaluation hypotheses and impact indicators. We also describe the evaluation methodology and survey design and implementation.

In Section 2 we present the main results from the baseline survey by topic. We describe household characteristics, participation in agricultural organizations, interaction with agribusiness centers, training received, land use and ownership, and crop production.

In Section 3 we present descriptive statistics by zone. The purpose of this chapter is to show how heterogeneous households are between the three surveyed zones, which is important to acknowledge in order to address possible heterogeneous treatment effects.

In Section 4 we use regression analysis to study which observable characteristics are correlated with being in the treatment group.

The last chapter presents a summary of the main findings.

2.2 Agribusiness Centers Background

The Millennium Development Authority (MiDA) financed the construction of ten Agribusiness Centers (ABCs) to provide services for the initial processing, storage, and marketing of grain crops produced by farmer-based organizations (FBOs) within their respective intervention areas. Each ABC is outfitted with specialized equipment for processing either rice or maize, although its complement of installed equipment can later be expanded for processing other grain crops, such as soybeans, as their operations expand. The initial crop selected for processing at each ABCs is based on the prevalent crop that is grown in the area. Each ABC is designed to store approximately 1,000 tons of grain and serves as a grain processing and marketing center for FBO members located in the vicinity of the center, within a radius of approximately 20 kilometers.

Initially, MiDA had planned to fund the construction of sixteen ABCs but budget constraints limited the number of facilities to only ten. At the time of the baseline collection, NORC was able to learn the exact geographical location of only 8 ABCs. Despite numerous efforts and communications with MiDA, we were unable to obtain the GIS coordinates of Savannah Farmers (in Tamale Metro) or CPDF (in Kwahu North) in time to select the samples; as a result, these two ABCs are not included in the analysis. We have recently obtained the locations of the two ABCs during an implementation assessment carried out by our agricultural experts.

The ABCs provide for-fee grain processing services including maize shelling or paddy rice de-husking and de-stoning; along with grain drying, cleaning, sorting, selecting, bagging, palletizing, and storing. If desired, the ABCs can market the grain inventory stored on behalf of its FBO clients; otherwise, the ABC can store the grain securely until it is sold directly by the client. In addition to grain processing, storage, and marketing services, the ABCs sell inputs to its FBO members, including improved seed, fertilizer, and farm chemicals. It also provides tractor services to small farmers who are members of its affiliated FBOs, to help them prepare their land for planting.[1]

[1] We are currently working on updating the information about ABCs services and how they differ between member and non-member farmers.

The ABCs are expected to be privately-owned, privately-operated, profit-making service organizations. Each facility is expected to be jointly owned by a private entrepreneur, known as a "lead investor", along with twenty farmer-based organizations, each of which has a membership of approximately 50 members.[2] Each ABC is supposed to be managed by its lead investor, who was selected by MiDA through a competitive bidding process, and is supposed to own 70 percent of the ABC.

The ABCs are generally located within those areas where there are heavy concentrations of grain production. The lead investors have been instrumental in deciding the specific location of the ABCs within the grain producing areas, and most are located along main roads with a nearby supply of electric power and water.

MiDA delegated the process of selecting the FBO partners for each ABC to its regional implementation consultants (RICs). Once the location of the ABC had been decided, the RIC drew an imaginary circle with a 20-kilometer radius around the location and all the FBOs within the defined area that had been registered and trained under the MiDA program became candidates for membership in the ABC. The RIC then invited these FBO leaders to an executive session to discuss the possibility of creating a FBO Union that would participate in the proposed ABC. Through this orientation process, the FBO leaders became sensitized to the potential benefits of cultivating the selected crops and marketing them through the ABCs. Additional meetings and follow-up resulted in the creation of an FBO Union composed of 20 FBOs with approximately 1000 members who would become co-owner of each ABC. After the initial FBO selection had taken place, there was a second round of fine-tuning the participants to reach the final composition of the FBO Union: Some FBO members decided not to participate in the venture, and in a few instances, FBOs with extremely poor credit repayment records were rejected. The rejection was based on a case-by-case, subjective assessment by the MiDA staff on the past credit payment performance of the FBO.

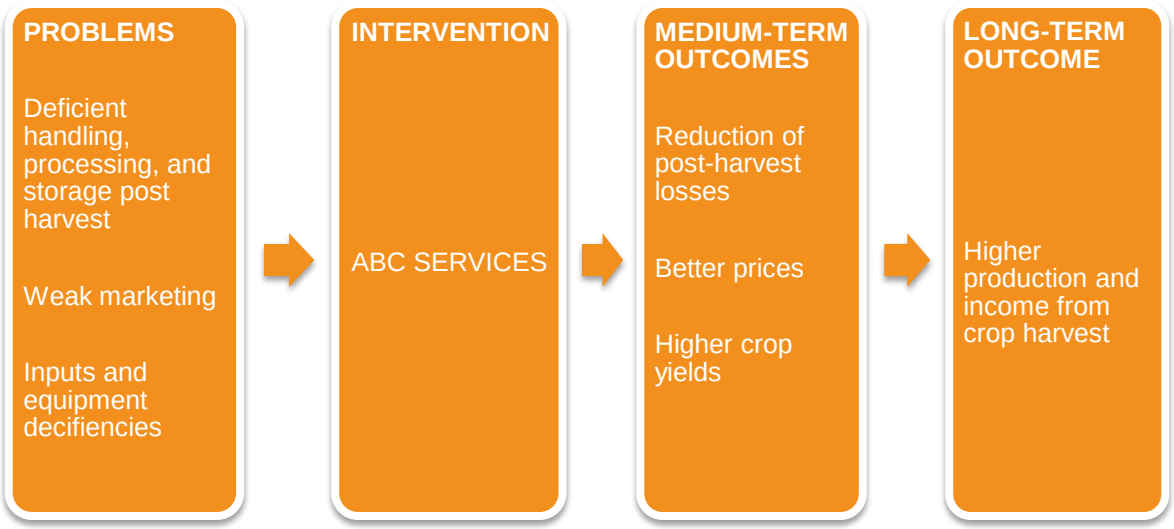
The nature of this selection process is likely to create certain bias in the treatment group. The process included both self-selection into participation from the part of FBOs and selection based on credit scores from the part of MIDA staff.

2.3 Evaluation Hypothesis and Impact Indicators

Like other MIDA post-harvest infrastructure investments, ABCs aim to improve the livelihood of small farmers. This intervention, in particular, was designed to resolve three major issues that affect commercial agricultural production by small farmers: 1) deficient handling, processing and storage of agricultural products after harvest; 2) weak marketing systems that results in below-market prices for commodities produced by small farmers; and 3) lack of reliable agricultural input supplies and farm equipment services commercially available to small farmers.

The evaluation hypothesis is that solving the aforementioned problems should translate into 1) a reduction of post-harvest losses; 2) better market prices; and 3) higher crop yields. This, in turn, increases total production, total profits and, therefore, farmers' income from crop harvest.

[2] Note that more than one member of a farmer household may belong to an FBO. This means that an FBO member does not necessarily represent a unique farm or rural household.



There are several indicators that can be used to measure the impact of the ABCs on the wellbeing and productivity of small farmers. They include the following:

1. Total annual household income
2. Total annual farmer revenue from maize and rice production
3. Annual sales volume (in kilograms) of the targeted crops per household
4. Percentage post-harvest losses for the targeted crops
5. Crop yield – net amount of grain produced per unit area (e.g., kilograms of maize or rice produced per hectare)

Additionally, other intermediate outcomes can be measured in order to understand intermediate impacts. These could be use of fertilizers, insecticide, fungicide, and other production inputs and unit prices for the crops.

Without additional assumptions, for which there is no data based evidence, there is no reason to think that this intervention would have differential effects by sex or age of the farmer.

2.4 Evaluation Methodology and Sample Selection

As stated in NORC's Evaluation Design Report, we proposed to use a double-difference estimator with matching or covariate controls as appropriate, or a combined regression analysis/matching approach to assess changes in farmers income, production, crop revenue and post-harvest losses related to access to ABCs. Alternative estimations will be provided. Under this approach, we will try to find units in the comparison group that are as similar as possible to the treated units by computing the probability that a unit will belong to the treatment based on its observable characteristics. The goal is to mimic a randomized assignment when it does not exist.

The treatment group for each ABC constructed by MiDA will be comprised of households interviewed in the baseline survey that belong to MIDA trained FBOs within approximately 20-kilometer radius around the ABC. These include FBOs that are co-owners of the respective ABC, as well as FBOs that are not co-owners. To differentiate these two types of treatment groups, we refer to the first group as the Treatment group, and to the second as the Intent to Treat group (ITT). However, with a few exceptions that are clearly stated, in this report we do not differentiate between these two groups; instead group characteristics are largely presented for the combined ITT and treatment groups.

The purpose of including all FBOs within the 20 km radius in the treatment group (as opposed to only the 20 co-owners of the respective ABC) is twofold: 1) we want to avoid selection into treatment bias (see details of selection process in Section 2.2 above); and, 2) we want to include all farmers that might benefit from the ABCs facilities even if they are not co-owners.

In this methodology it is also essential to identify an appropriate comparison group. Discussions with local experts, the MIDA team and other stakeholders, suggested that the comparison group for each ABC can be selected from those MiDA-trained FBOs that are located outside the approximately 20-kilometer radius around an ABC that contains the intervention group. In this regard, those FBOs forming the comparison group will be loosely located between two concentric circles, centered on the ABC; the inner circle will have a radius of approximately 20 kilometers from its center, corresponding to the ABC location, and the outer circle will have a radius of approximately 30 kilometers from the ABC. Farmers linked to the MiDA-trained FBOs that were included in the baseline survey and are located in the area between these two circles will be defined as the comparison group.

Our sample was drawn in two stages: first we selected FBOs to be part of the sample and then we selected a sample of farmers associated to such FBOs. We included up to 10 randomly selected FBOs that are co-owners of the 8 ABCs. Sometimes fewer than 10 FBOs are associated with an ABC, in those case we selected them all. We randomly selected the same number of the non-co-owner FBOs that are located within the 20-miles radius (ITT), as well as FBOs located in the contiguous 10 miles. In the case that there were fewer FBOs we selected them all. In turn, 10 farmers were randomly selected from each FBO's members list. In total we have 2,007 farmer households in our sample.

In addition to the difference-in-difference methodology, we propose to also explore the option of using an Instrumental Variable two stage least square (IV-2SLS) approach. In this approach we will use a model where "treatment" is instrumented in a first stage by "distance from farmer to closest ABC". We will still select all sampled farmers within a radius of 30km but rather than considering everyone within 20km as “treated,” and the rest as "controls,", we will let the variable "distance to ABC" instrument participation into treatment. A second stage will estimate the effect of instrumented participation on outcomes of interest.

2.5 Survey Design and Implementation

The ABC survey was designed to gather information from households on a range of indicators that the project is expected to affect as well as factors that may influence the degree to which the project may or may not have an impact. The questionnaire, developed by NORC and approved by MCC, is included in Annex B.

The surveys were implemented by NORC's local partner, Panafields, from September 11 to December 15, 2012. Some plot measurements had to be postponed due to climate issues such as floods. All measurements were completed by early 2013. Each field team was composed of 1 supervisor and 3 interviewers supported by a data quality checker in each region. A total of 2,007 interviews were completed for the ABC survey (**Table 1**); response rates were over 98 percent.

Table 1. Number of households surveyed by FBO and treatment group

Zone	ABC	Group	Number of FBOs (clusters)	Number of HHs in sample by Group	Total number of HHs in sample	Final number of HHs
Southern	Gomoa Seed Shop	Treatment	8	80	240	233
		ITT	8	80		
		Control	8	80		
Afram/Southern	Manya Krobo Quality Ag.	Treatment	10	100	300	301
		ITT	10	100		
		Control	10	100		
Afram	Ejura Yaweh Shalom	Treatment	9	90	270	266
		ITT	9	90		
		Control	9	90		
Afram	Ejura Victory Feed	Treatment	8	80	210	204
		ITT	8	80		
		Control	5	50		
Northern	Karaga GAABIC	Treatment	8	80	230	230
		ITT	8	80		
		Control	7	70		
Northern	Mamprusi Pres.	Treatment	9	90	270	268
		ITT	9	90		
		Control	9	90		
Northern	Savalugu IPSL	Treatment	8	80	240	235
		ITT	8	80		
		Control	8	80		
Northern	Tolon AMSIG	Treatment	9	90	270	270
		ITT	9	90		
		Control	9	90		
Totals					**2,030**	**2,007**

Section 3: Household Characteristics

This section describes summary statistics for treatment and control groups. As explained above, households are defined as belonging to the treatment group (i.e. treatment and intention to treat) or to the comparison group according to the distance between the FBO each household is affiliated to and the closest ABC. A household affiliated to an FBO that falls in the 20 km perimeter of any MIDA ABC is classified as 'treatment', while households affiliated to FBOs outside that perimeter are in the comparison group.

Table 2 shows sociodemographic descriptive statistics for the two groups. In Panel A we focus on the demographic characteristics of the household head. We see that treatment households are less likely to be headed by a female than households in the comparison group; although the difference is not very large, it is statistically significant. This difference is important because female headed households are usually regarded as more vulnerable[3]. In both treatment and comparison groups household heads are 50 years old on average. With respect to their education level, household heads in the treatment group are more likely to have no education; in effect, 60 percent of households in the treatment group have no education, while for the comparison group this figure is 54 percent. Household heads in the comparison group are 3 percentage points more likely to have Primary education and 4 percentage points more likely to have Senior High school education, than their counterparts in the treatment group. In terms of years of education, household heads in the treatment group have 3.4 years of education on average, while household heads in the comparison group have 3.8. The difference is statistically significant at 10 percent level.

Table 2. Descriptive statistics by treatment group – Sociodemographics

	Comparison	Treatment	Diff.
A. Household head characteristics			
Female	0.13	0.10	0.04**
Age	50.0	49.8	0.10
Education level			
No Education	0.54	0.60	-0.06***
Primary	0.12	0.09	0.03*
Junior High School	0.07	0.08	0.00
Senior High School	0.18	0.14	0.04**
Tertiary Education	0.08	0.09	0.00
Years of education (mean)	3.82	3.41	0.40*

[3] See Annex 1 for a table with selected descriptive statistics by gender of the household head.

	Comparison	Treatment	Diff.
B. Household characteristics			
Number of household members			
Less than 5	0.17	0.15	0.01
Between 5 and 8	0.39	0.38	0.00
Between 9 and 11	0.18	0.16	0.02
More than 11	0.26	0.30	-0.03
Fraction of children 7-14 that is in school	0.89	0.90	-0.01
Hungry season	0.19	0.21	-0.02
Always lived in the same village	0.96	0.94	0.02**
Dwelling characteristics			
Formal	0.36	0.38	-0.02
Other	0.64	0.62	0.02
Number of household assets	6.52	6.84	-0.32
N	**643**	**1,364**	

* p<0.10 ** p<0.05 *** p<0.01

Notes: Six outliers with agricultural income greater than USD 1M are dropped.

In Panel B we show characteristics of the household. There are no important differences in the number of household members. Roughly 16 percent of the households have less than 5 members, 38 percent have between 5 and 8 members, 17 percent between 9 and 11 members, and approximately 28 percent have more than 11 members. Likewise, there are no significant differences in the fraction of children currently in school, which is close to 90 percent, nor in the likelihood of having experienced hunger (hungry season). The fraction of households in the treatment group reporting having always lived in the same village is 94 percent, while for the comparison group is 96 percent, although the difference is statistically significant, it is very small compared to the mean. Households in the treatment groups are slightly more likely to live in a formal dwelling and to have more assets than households in the comparison group; however, these differences are not statistically significant.

Characteristics related to agricultural production, training and annual income are displayed in Table 3. The majority of households own at least one of the plots they cultivate. In the treatment group 81 percent of the households own at least one plot, while in the case of the comparison group this fraction is 77 percent, the difference of 4 percentage points is significant but small. On the other hand, there are no differences in the total number of plots held by the households, which is roughly 2.4. This similarity seems to be present not only at the mean but over the distribution as well. As can be seen in Figure 1, in both treatment and comparison groups, most households hold between 1 and 2 plots, and very few hold 5 or more.

Table 3. Descriptive statistics by treatment group – Agriculture

	Comparison	Treatment	Diff.
A. Agricultural Production			
At least one plot owned	0.77	0.81	-0.04**
Number of plots hold	2.45	2.37	0.08
Fraction of area cultivated	0.91	0.94	-0.03**
Fraction of area irrigated	0.09	0.04	0.05***
Total area (Respondent)	3.82	3.61	0.21
Total area (GPS)	3.47	4.16	-0.69**
Crop production			
Grows kernel maize	0.68	0.75	-0.07***
Grows fresh maize	0.21	0.14	0.06***
Grows rice	0.24	0.18	0.06***
Yields for those that grow…			
Kernel maize	586	825	-239.26***
Fresh maize	705	769	-64
Rice	510	635	-124.34**
B. Agricultural Training			
Farming as a business			
Individuals over 17 receiving training	0.51	0.47	0.04*
For those that received training:			
MiDA provided training	0.95	0.98	-0.03**
Individual applied training	0.99	0.99	0.00
Individual thinks training was useful	0.95	0.94	0.01
Crop production			
Individuals over 17 receiving training	0.85	0.82	0.03*
MiDA provided training	0.93	0.93	-0.01
Individual applied training	0.99	0.99	0.00
Individual thinks training was useful	0.94	0.93	0.01

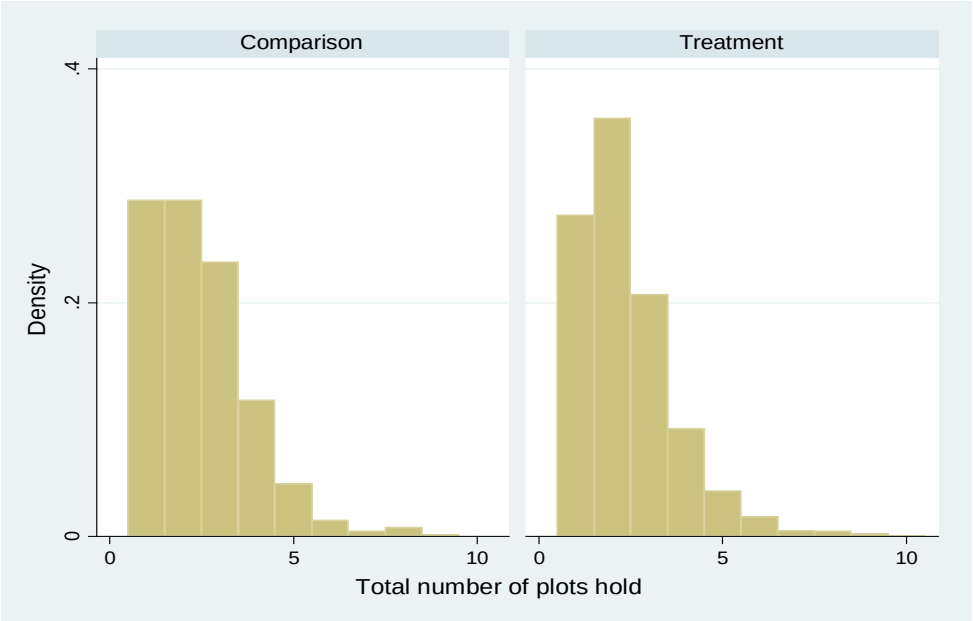
	Comparison	Treatment	Diff.
C. Annual Income			
Income from crops			
No Income	0.09	0.11	-0.01
Less than USD 1,000	0.61	0.61	0.00
More than USD 1,000	0.30	0.28	0.02
Other income			
No Income	0.65	0.54	0.11***
Less than USD 1,000	0.22	0.29	-0.06***
More than USD 1,000	0.12	0.17	-0.05***
Total income			
No Income	0.07	0.07	0.01
Less than USD 1,000	0.52	0.51	0.00
More than USD 1,000	0.41	0.42	-0.01
D. Agricultural Organizations			
FBO member	1.00	0.99	0.01***
Belong to FBO because:			
Access to inputs	0.47	0.46	0.01
Information about prices	0.11	0.16	-0.05***
Access to training	0.62	0.66	-0.04*
Sharing of farming techniques	0.27	0.30	-0.02
Sharing of equipment	0.13	0.11	0.02
Any member has mgmt position	0.21	0.21	0.00
Contact with ABC			
HH interacts with ABC	0.16	0.14	0.02
Of those that interact:			
MiDA ABC	0.19	0.25	-0.06
Other ABC	0.35	0.35	0.00
Undetermined ABC	0.46	0.40	0.06
HH is part of FBO that has invested in ABC	0.71	0.63	0.08
Distance to nearest MiDA ABC			
Less than 10 km	0.03	0.33	-0.29***
Between 10 and 20 km	0.02	0.34	-0.32***
Between 20 and 30 km	0.26	0.30	-0.04*
More than 30 km	0.69	0.03	0.66***
N	**643**	**1364**	

* p<0.1 ** p<0.05 *** p<0.01

Notes: Six outliers with agricultural income greater than USD 1 million are dropped.

Most of the land area is cultivated in both the treatment and comparison groups. Households in the treatment group cultivate on average 94 percent of their land, while for the comparison group the figure is 91 percent. On the other hand, the fraction of land that is irrigated is only 4 percent for the treatment and 9 percent for the comparison group. For both area cultivated and irrigated land, the differences are statistically significant.

Figure 1. Number of plots held by treatment group



Two sources of data are available to measure the size of the plots that each household holds. We asked the survey respondents to estimate the size of their plots and we also calculated plot areas using the GPS measurements registered in visits to the plots. An interesting pattern arises when we look at the differences between these two sources of data. For households in the treatment group, the total area is greater using GPS data than the respondent estimates, while the opposite is true for the comparison group.

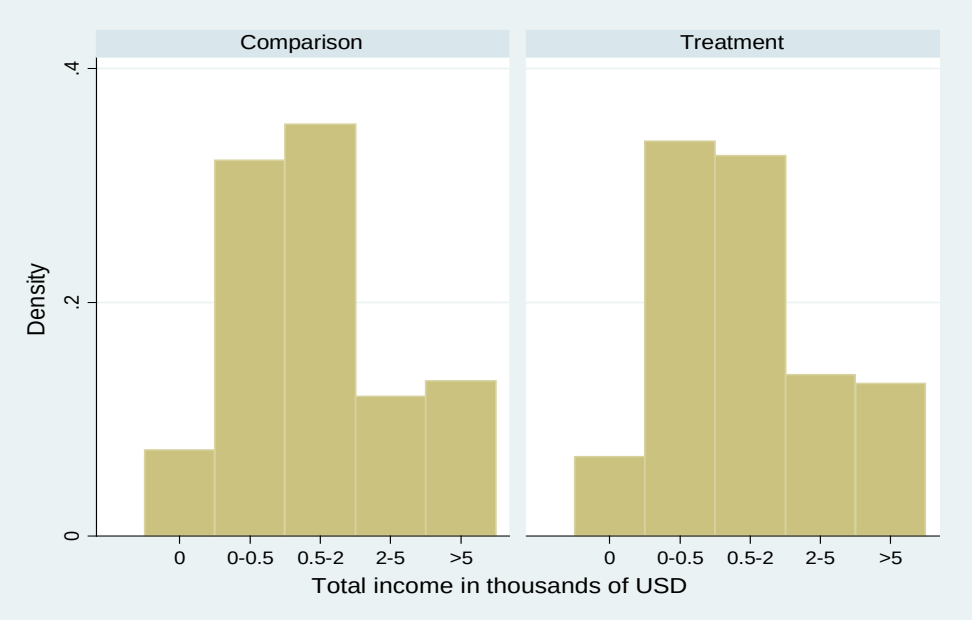
With respect to crop production, households in the treatment group are more likely to cultivate maize kernel than households in the comparison group. The data indicate that the percentage of households that cultivate maize kernel is 75 percent in the treatment group and 68 percent in the comparison group. On the other hand, households in the treatment group are less likely to cultivate fresh maize and rice than households in the comparison group. In addition, these two crops are much less prevalent in general. The fraction of households cultivating rice and fresh maize in the comparison group are, respectively, 24 and 21 percent, while for households in the treatment group these figures are 18 and 14 percent.

In Panel B we show descriptive statistics related to training. The fraction of households with a member trained in ‘Farming as business’ is 51 percent for the comparison group, and 47 percent for the treatment group. The difference between the two groups is statistically significant. Most

of these households received their training from MiDA, applied what they learned in the previous season, and found that the training was useful. With respect to crop production, the fraction of households receiving this type of training is 85 percent for the comparison group and 82 percent for the treatment group. Again, the difference is small but significant. Similarly to what was observed for training in "farming as a business", most of the households received training on crop production from MiDA, and report that they apply the techniques learned and that the training was useful.

In Panel C we show descriptive statistics for annual income. The main source of income is agricultural production and we can see that there are no significant differences between households in the treatment and the comparison groups. Roughly 10 percent of households do not report any income from this source, 61 percent report less than USD 1,000 and 29 percent more than USD 1,000. Looking at other sources of income (this includes off-farm labor income as well as non-labor income), households in the treatment group are more likely to report any income of this type than households in the comparison group. Finally, when considering total income, 7 percent of households report no income, roughly half report less than USD 1,000, and the rest more than that. A closer analysis of the income distribution still shows that there are no major differences between treatment and comparison groups. As can be seen in **Figure 2**, the income distributions are relatively similar between the two study groups, roughly a third report positive income of less than USD 500, another third between USD 500 and USD 2,000, one eighth between USD 2,000 and USD 5,000 and another eighth more than USD 5,000.

Figure 2. Total annual income distribution



Finally, Panel D shows descriptive statistics related to household interactions with agricultural organizations. Not surprisingly given the sample design, almost all households, in both treatment and comparison groups, are members of an FBO. Access to inputs constitutes an important reason for membership to an FBO, 46 percent of households report this as one of the reasons to belong to an FBO. Access to training is reported roughly by 64 percent of the households as a reason for FBO membership and this seems more important for households in the treatment group than for households in the comparison group. Less important reasons for membership are sharing of farming techniques (approximately 28 percent) and sharing of equipment (12 percent). For these two last reasons the differences between treatment and comparison groups are not statistically significant. Regarding the role that households play in their FBOs, approximately a fifth of the households hold a managerial position in their FBO, in both treatment and comparison groups.

With respect to their relationship with ABCs, 16 percent of households in the comparison group and 14 percent in the treatment group report interactions with an ABC. The fact that some households in the comparison group report interactions with ABCs is potentially problematic from an evaluation design perspective. For the planned empirical design to identify the causal effects of MiDA ABCs, it is necessary that the share of households actually served by MiDA ABCs in the follow-up is larger (and ideally, substantially larger) for the treatment than for the comparison group, otherwise comparing the outcomes between these two groups will not identify the effect of MiDA ABCs.

Furthermore, even if in the follow-up we find that the share of households served by MiDA's ABCs is larger for treatment than for comparison households, if the latter are receiving from other ABCs the same services as those provided by MiDA ABCs, then the effect of the program cannot be estimated accurately, since both treatment and comparison households are receiving similar treatments. In this context, it is important to understand to what extent 'alternative' ABCs are providing services similar to MiDA ABCs, in order to properly control for this substitution problem.

The fact that households in both study groups report interactions with ABCs, might be a consequence of how we define 'treatment' in this study. As explained before, treatment households are those affiliated to an FBO that is no further than 20 km away from a MiDA ABC. Therefore, although its FBO is 20 km or less from a MiDA' ABC, a 'treatment' household itself could be located further than 20 km from the corresponding MiDA ABC. Similarly, households in the comparison group can be located within a 20 km radius of the MiDA ABC, while the FBO with which it is affiliated to could be more than 20 km from the FBO.

The last set of summary statistics in Panel D shows the extent to which the situation described above is observed. Using the location of the household we computed its distance to the closest MiDA ABC. Only 5 percent of comparison households are located within a 20 km radius from a MiDA ABC. This indicates that households in the comparison group are relatively further away from a MiDA ABC; therefore, proximity does not explain the interaction with ABCs. Among treatment households, while the majority are located relatively close to a MiDA ABC, a third are more than 20 km away.

Section 4: Heterogeneity

The baseline data include information from three agricultural zones in Ghana: Afram, Southern and Northern. To the extent that these three zones might have different sociodemographic conditions, it is important that we analyze these differences in order to better understand possible heterogeneous effects of the MiDA ABC.

Table 4 shows sociodemographic characteristics by zone. A series of differences between the Northern and the other two zones are worth highlighting. For example, as much as 89 percent of households in the Northern Region are headed by an individual with no education, while that fraction in the other regions is much lower, from 22 percent in Southern to 31 percent in Afram.

Table 4. Descriptive statistics by zone – Sociodemographics

	Afram	Southern	Northern
A. Household head characteristics			
Female	0.22	0.13	0.03
Age	50	49	50
Education level			
No Education	0.31	0.22	0.89
Primary	0.16	0.16	0.04
Junior High School	0.13	0.16	0.01
Senior High School	0.27	0.33	0.02
Tertiary Education	0.13	0.13	0.04
Years of education (mean)	5.87	6.74	0.87
B. Household characteristics			
Number of household members			
Less than 5	0.26	0.34	0.03
Between 5 and 8	0.53	0.52	0.25
Between 9 and 11	0.14	0.10	0.22
More than 11	0.07	0.05	0.51
Fraction of children 7-14 that is in school	0.97	0.97	0.82
Hungry season	0.10	0.18	0.28
Always lived in the same village	0.93	0.88	0.98
Dwelling characteristics			
Formal	0.54	0.58	0.19
Other	0.46	0.42	0.81
Number of household assets	4.79	4.78	8.69
N	**638**	**365**	**1004**

Notes: Six outliers with agricultural income greater than USD 1M are dropped.

Also, Northern households have substantially more members than households in the other zones. In effect, more than half the households in the Northern Region have more than 11 members, while this fraction is only 7 percent for Afram and 5 percent for Southern. The Northern zone also has the lowest fraction of children 7-14 years old in school, the largest fraction of households that suffered hunger, and are the least likely to live in a formal dwelling. These results suggest that the Northern zone is inhabited by more disadvantaged households than the other two zones.

With respect to agricultural production, there are some inter-zonal differences that are worth mentioning (Table 5). Households in the Northern zone are substantially more likely to grow rice and kernel maize than any of the other two zones. In fact hardly any household grows rice outside the Northern zone. Considering that, at least at the beginning, MiDA ABC services will predominantly be associated with growing rice and maize, it will probably be the case that households in the Northern zone will benefit more from these services than other regions, holding everything else constant. With respect to agricultural training, the three zones look relatively similar.

Income reports confirm that households in the Northern zone are poorer than households in the other zones. Only 21 percent of households in the Northern zone report income from crops higher than USD 1,000 a year, while that figure is higher for the other two zones. A similar story can be observed for income from other sources and, consequently, for total household income.

Table 5. Descriptive statistics by zone – Agriculture

	Afram	Southern	Northern
A. Agricultural Production			
At least one plot owned	0.67	0.56	0.96
Number of plots hold	1.87	1.85	2.93
Fraction of area cultivated	0.93	0.93	0.93
Fraction of area irrigated	0.08	0.13	0.01
Total area (Respondent)	2.88	2.25	4.71
Total area (GPS)	4.18	2.81	4.19
Crop production			
Tertiary Education	0.48	0.62	0.92
Grows fresh maize	0.35	0.22	0.02
Grows rice	0.04	0.01	0.37
Yields for those that grow…			
Kernel maize	1149	1300	498
Fresh maize	852	595	215
Rice	519	3192^	577
B. Agricultural Training			
Farming as a business			
Individuals over 17 receiving training	0.43	0.48	0.51
For those that received training:			
MiDA provided training	0.95	0.97	0.98
Individual applied training	0.99	0.99	0.99
Individual thinks training was useful	0.96	0.94	0.93
Crop production			

	Afram	Southern	Northern
Individuals over 17 receiving training	0.87	0.90	0.78
MiDA provided training	0.91	0.96	0.93
Individual applied training	0.99	1.00	0.99
Individual thinks training was useful	0.94	0.92	0.93
C. Annual Income			
Income from crops			
No Income	0.11	0.06	0.11
Less than USD 1,000	0.51	0.59	0.68
More than USD 1,000	0.38	0.35	0.21
Other income			
No Income	0.57	0.44	0.64
Less than USD 1,000	0.20	0.29	0.30
More than USD 1,000	0.23	0.27	0.06
Total income			
No Income	0.08	0.04	0.07
Less than USD 1,000	0.37	0.41	0.64
More than USD 1,000	0.55	0.55	0.28
D. Agricultural Organizations			
FBO member	0.99	1.00	0.99
Belong to FBO because:			
Access to inputs	0.36	0.47	0.53
Information about prices	0.16	0.07	0.17
Access to training	0.74	0.66	0.58
Sharing of farming techniques	0.31	0.31	0.27
Sharing of equipment	0.04	0.05	0.18
Any member has mgmt position	0.17	0.22	0.22
Contact with ABC			
HH interacts with ABC	0.13	0.05	0.19
Of those that interact:			
MiDA ABC	0.37	0.18	0.16
Other ABC	0.08	0.35	0.47
Undetermined ABC	0.54	0.47	0.37
HH is part of FBO that has invested in ABC	0.88	0.29	0.59
Distance to nearest MiDA ABC			
Less than 10 km	0.25	0.12	0.26
Between 10 and 20 km	0.19	0.35	0.23
Between 20 and 30 km	0.20	0.34	0.33
More than 30 km	0.36	0.18	0.18
N	**638**	**365**	**1004**

Notes: Six outliers with agricultural income greater than USD 1M are dropped.
^ only 2 households produce rice

Finally, with respect to households' relationship with agricultural organizations, we can see that households in the Afram and Northern zones are more likely to report having interacted with an ABC. The reason for this might be that surveyed households in these two regions are closer to the nearest MiDA ABC than households in the Southern zone, as can be seen in the last part of Table 5.

Section 5: Modeling Participation

To analyze in a more systematic way how different household characteristics are correlated with treatment status, Table 6 shows marginal effects for logit regressions for two different constructs associated to participation in the context of this project. In the first two columns, the dependent variable is whether or not the household is in the treatment group, that is, if it is affiliated to an FBO that is 20 km or less away from a MiDA ABC. Therefore, this includes households affiliated to 'treatment' and 'intent-to-treat' FBOs. Given the documented heterogeneity between the four regions, we show results without controlling for region fixed effects in the first column and controlling for it in the second column. Most of the variables described in the summary statistics are included in the regressions[4].

A number of findings from this exercise are worth highlighting. First, households headed by females are negatively correlated with the dependent variable, but this correlation is not significant at standard levels of confidence. With respect to household head's education, there is a negative correlation between the different levels of education and being in the treatment group; in other words, having no education (the excluded category) is positively correlated with being in the treatment group. This result is more apparent when zone fixed effects are included.

Regarding household characteristics, there seem to be no strong correlations between these and being in the treatment group, regardless of whether or not zone fixed effects are included.

With respect to agricultural production, there is a negative correlation between being in the treatment group and the fraction of land that is irrigated; however, it is important to acknowledge that the fraction of land irrigated is very low (5.2 percent). Also, households growing kernel maize are more likely to be in the treatment group, and the opposite pattern is observed for households growing rice, although this parameter is only significant when region fixed effects are not included in the regression.

Table 6. Marginal effects for a logit model on being in the treatment group

	Treatment[(a)]		Interaction[(b)]	
Zone fixed effects	**No**	**Yes**	**No**	**Yes**
	(1)	**(2)**	**(3)**	**(4)**
A. Household head characteristics				
Female	-0.0807	-0.0829	0.0119	0.0272
	(0.0515)	(0.0521)	(0.0255)	(0.0247)
Age	0.000306	-0.000326	0.0000510	0.000511
	(0.00107)	(0.00104)	(0.000599)	(0.000531)
Education				
Primary	-0.0747	-0.132***	-0.0300	0.0188

[4] We do not include variables that are observed only for certain groups (like yields from specific crops), or variables that are too correlated, like the number of plots and the total area held (in this case, only the latter is included). We do not include variables related to income in order to rely in more invariant measurements of wealth, like household assets and land held.

Zone fixed effects	Treatment[a]		Interaction[b]	
	No	Yes	No	Yes
	(1)	(2)	(3)	(4)
	(0.0455)	(0.0414)	(0.0272)	(0.0284)
Junior High School	-0.0232	-0.0997**	0.0134	0.0812**
	(0.0562)	(0.0507)	(0.0328)	(0.0321)
Senior High School	-0.0878*	-0.167***	-0.0155	0.0589**
	(0.0520)	(0.0490)	(0.0257)	(0.0271)
Tertiary Education	-0.0268	-0.0785	0.0437	0.0894***
	(0.0539)	(0.0516)	(0.0280)	(0.0276)
B. Household characteristics				
Number of household members (Less than 5 is the left out category)				
Between 5 and 8	-0.000506	0.0267	0.0212	-0.00330
	(0.0393)	(0.0400)	(0.0294)	(0.0273)
Between 9 and 11	-0.0414	0.0116	0.0437	-0.00385
	(0.0499)	(0.0489)	(0.0330)	(0.0327)
More than 11	-0.0120	0.0539	0.0517	-0.0119
	(0.0604)	(0.0602)	(0.0320)	(0.0320)
Hungry season	0.0146	0.0197	0.0885***	0.0668***
	(0.0407)	(0.0405)	(0.0196)	(0.0187)
Always lived in the same village	-0.107	-0.0740	0.0573	0.0215
	(0.0699)	(0.0672)	(0.0482)	(0.0426)
Formal dwelling	0.0542	0.0349	0.0261	0.0416**
	(0.0404)	(0.0401)	(0.0197)	(0.0188)
Number of household assets	-0.000319	0.000934	0.00221*	0.000944
	(0.00328)	(0.00330)	(0.00116)	(0.00123)
C. Agricultural Production				
Fraction of area irrigated	-0.206***	-0.250***	-0.126**	-0.0892*
	(0.0769)	(0.0859)	(0.0595)	(0.0539)
Total area (GPS)	0.00317	0.00396	0.00357***	0.00348***
	(0.00351)	(0.00369)	(0.00115)	(0.00105)
Crop production				
Grows kernel maize	0.0547	0.0705	-0.00499	-0.0429
	(0.0516)	(0.0518)	(0.0318)	(0.0287)
Grows Rice	-0.132**	-0.0969	0.0439**	0.0119
	(0.0626)	(0.0632)	(0.0221)	(0.0203)
Grows fresh maize	-0.0579	-0.0573	0.0870**	0.0924***
	(0.0602)	(0.0613)	(0.0346)	(0.0332)
Received agricultural training	-0.0419	-0.0578	-0.0466*	-0.0248

Zone fixed effects	Treatment[a]		Interaction[b]	
	No	Yes	No	Yes
	(1)	(2)	(3)	(4)
	(0.0553)	(0.0566)	(0.0276)	(0.0255)
D. Agricultural Organizations				
Any member has mgmt position	-0.00432	-0.00560	0.0139	0.0137
	(0.0278)	(0.0280)	(0.0195)	(0.0173)
Distance to nearest MiDA ABC (left out category is 0 to 10 km)				
Between 10 and 20 km			-0.0868***	-0.0542**
			(0.0271)	(0.0250)
Between 20 and 30 km			-0.0620**	-0.0475*
			(0.0265)	(0.0245)
More than 30 km			-0.0173	-0.0114
			(0.0280)	(0.0254)
Dep. Var. mean	0.678	0.678	0.144	0.144
N	1959	1959	1894	1894

[a]Treatment is defined as being affiliated to an FBO that is 20 km or less away from a MiDA ABC.
[b]Interaction is defined as having had contact with any ABC (MiDA or other).
* p<.1 ** p<.05 *** p<.01
Notes: Standard errors clustered at the FBO level are presented in parentheses. All specifications include dummies for item response missing data.

Finally, characteristics such as having received training[5] or holding a management position in the respective FBO are not correlated with being in the treatment group.

These results indicate that, as it was expected, treatment and comparison group have relatively different characteristics. Therefore, when the impact evaluation is conducted, it is important to control for these factors. As described before, we will use difference-in-difference and matching estimators, with the objective of improving the comparability of treatment and comparison groups, in order to estimate the causal impact of the program.

In the third and fourth columns, the dependent variable is a dummy that equals one if the household has interacted with any ABC (MiDA or not), and zero otherwise. For this specification we also include distance to the nearest MiDA ABC as a control variable, given that distance to the closest ABC is a key variable for the identification design.

We see that education is positively correlated with a household's interaction with an ABC. This suggests that there might be some positive selection into contacting ABCs. Conversely, we found that education level is negatively correlated with selection into treatment. With respect to household characteristics, we find that having suffered hunger during the dry season is positively correlated with interactions with ABCs. Although there seems to be a positive correlation with household size and the dependent variable when we do not control for zone fixed effects, such correlation vanishes when we include dummies for each zone. A similar situation characterizes the results for number of household assets.

[5] This variable is defined as having received training in farming as a business, crop production, post-harvest training and/or irrigation operations.

Similarly to what was found for being in the treatment group, the fraction of land irrigated is negatively correlated with having interacted with an ABC. However, it is important to keep in mind that very few plots are irrigated. Also, when we focus on the last specification, we can see that there is positive relationship between interaction with ABCs and land size and the dummy indicating growing fresh maize.

Finally, we see that there is a negative correlation between distance to the nearest MiDA ABC and a household's interaction with the ABC, regardless of whether or not zone fixed effects are included. Although this is what should be expected, these results are concerning for two reasons.

First, there seems to be no difference between living 10 to 20 km and 20 to 30 km from the nearest MiDA ABC on the likelihood of having interacted with an ABC. This is potentially problematic because we plan to use 20 km as the threshold to define treatment and comparison FBOs. Although in the regressions we are referring to distances between households and MiDA ABC (which is not necessarily the same as the distances between FBOs and MiDA ABC), it is concerning that there is basically no difference between living 10 to 20 km and 20 to 30 km from the nearest MiDA on the probability of interaction.

Second, the coefficient for living further than 30 km from the nearest MiDA ABC is very small in absolute value and not significant, which is rather surprising as we would logically expect that households located further away from the MiDA ABC are less likely to have interacted with an ABC than households living between 10 and 20 km from a MiDA ABC.

In thinking about these findings, however, it is important to keep in mind two considerations:

(1) These results may be simply the consequence of the fact that the dependent variable of this exercise refers to having interacted with *any* ABC, not necessarily a MiDA ABC.

(2) We are looking at baseline data collected before MiDA ABCs were contructed. Therefore, the percentage of households that interacted with an ABC is relatively low across all households, whether treatment or control.

For these two reasons, at this stage, it is probably not so surprising that the difference in the likelihood of having interacted with an ABC between the treatment and comparison groups is minimal.

Section 6: Summary and Recommendations

The analysis of the baseline data shows that there are some differences between households in the treatment (including intention to treat) and the comparison group. In the treatment group household heads are less likely to be female and have less education than in the comparison group. Also, households in the treatment group are more likely to grow kernel maize than households in the comparison group. However, other important indicators seem to be very similar between the two study groups. For example, we do not find major differences for agricultural and total income and household size. This is important because it suggests that treatment and comparison groups are relatively comparable.

Another important fact described by this analysis is the heterogeneity of the agricultural zones where the project is being implemented. In particular, households in the Northern zone are more disadvantaged than households in the other two zones, which may have important effects on treatment heterogeneity. Along these lines, for the follow-up analysis it may be worth estimating separate models for the Northern and the other two regions.

We also analyze the determinants of having interacted with any ABC at baseline. We showed that household heads with more education are more likely to have interacted with an ABC. We also see that there is no clear correlation between distance to the nearest MiDA ABC and having interacted with an ABC. Although this could create some concerns to the extent that households that are further away from MiDA ABCs might be getting similar services (maybe from other sources) than households that are close to them, it is important to keep in mind that the project is just starting and the rate at which any households report having interacted with an ABC is low.

In this context, two main recommendations are worth stating. First, ongoing monitoring should assess to what extent households in the treatment group are getting the services provided by MiDAs ABCs. Second, if households in the comparison group are getting services similar to those provided by MiDA ABCs, it is important to document which households are receiving these services, and the sources of these services in order to properly control for it in future analyses.

Annex A: Additional table

Table 7. Selected descriptive statistics by gender of the household head

	Male	Female	Diff.
A. Household head characteristics			
Age	49.3	55.4	-6.18***
Education level			
No Education	0.59	0.51	0.08**
Primary	0.09	0.23	-0.14***
Junior High School	0.08	0.05	0.03
Senior High School	0.15	0.18	-0.03
Tertiary Education	0.09	0.04	0.05***
Years of education (mean)	3.57	3.37	0.2
B. Household characteristics			
Number of household members			
Less than 5	0.13	0.39	-0.26***
Between 5 and 8	0.38	0.41	0
Between 9 and 11	0.18	0.10	0.08***
More than 11	0.31	0.10	0.21***
Fraction of children 7-14 that is in school	0.89	0.97	-0.08***
Hungry season	0.21	0.17	0.04
Always lived in the same village	0.95	0.93	0.02
Dwelling characteristics			
Formal	0.35	0.59	-0.24***
Other	0.65	0.41	0.24***
Number of household assets	7.09	3.87	3.22***
C. Annual Income			
Income from crops			
No Income	0.10	0.11	-0.01
Less than USD 1,000	0.60	0.68	-0.08**
More than USD 1,000	0.30	0.21	0.08**
Other income			
No Income	0.59	0.52	0.06*
Less than USD 1,000	0.26	0.32	-0.06**
More than USD 1,000	0.16	0.15	0.00
Total income			
No Income	0.07	0.07	-0.01
Less than USD 1,000	0.51	0.53	-0.02
More than USD 1,000	0.42	0.39	0.03
N	**1781**	**217**	

* p<.1 ** p<.05 *** p<.01

Notes: Six outliers with agricultural income greater than USD 1M are dropped.

Annex B: Questionnaire

GHANA Agribusiness Centres Impact Evaluation

(Baseline Questionnaire)

INTERVIEW **Interviewer No.** |__|__|__| **Supervisor No.** |__|__|__|

REGION: _____

DISTRICT/COMMUNE: _____

VILLAGE/CLUSTER: _____

FBO NAME: _____ **FBO NUMBER:** |__|__|__|

HOUSEHOLD NUMBER: **Code** |__|__|

GIS LOCATION OF HOUSEHOLD **Latitude** **N –** |__|__|__| **Degrees** |__|__|__| . |__|__|__| **Minutes**

Longitude **W –** |__|__|__| **Degrees** |__|__|__| . |__|__|__| **Minutes**

TIME OF BEGINNING OF INTERVIEW: |____| |____| **(AUTO-CAPTURE)**

AGRIBUSINESS CENTER BASELINE SURVEY **QUESTIONNAIRE No. |__|__|__|__|__|**

SECTION A: INTRODUCTION AND CONSENT

Hello and thank you for talking to us. We are from Panafields, a Ghanaian social science research organization. We are working on a Millennium Development Authority farming activities that is intended to increase the income of households working plots in the intervention area.

To help us understand if the MiDA program is achieving this goal, we would like to ask you some questions about your household and your farming activities in order to understand the impacts of the agribusiness center scheme on farming households. This information is important to know as it will tell us how to improve the success of projects meant to support farmers such as yourself.

The interview will take about 90 minutes and we will ask questions to you or from other adults in the household who may be the most knowledgeable about particular topics. We also ask that you allow us to measure the size of your farm plots. This survey will be repeated in the future and you may be asked to participate again so that we can measure the changes among farmers.

All the information you and others in your household give us will remain confidential and you will not be identified, so please feel free to speak openly. The information that you provide will be kept until at least 2015 for the purposes of understanding MiDA program impacts and preparing reports to the project sponsor on the changes among farmers. Your participation is completely voluntary. You are free to not answer any question with which you are not comfortable, and you may stop the interview at any time.

If you have any questions about the survey, you may contact Seth Kande at Panafields at 233 302-250-965.

Do you wish to participate in this survey? May we start now?

IF YOU ADMINISTER PART OF THE QUESTIONNAIRE TO OTHER MEMBERS OF THE HOUSEHOLD (AS IS LIKELY), YOU MUST READ THIS GREETING/CONSENT TO EACH PERSON WHO PARTICIPATES IN THE SURVEY AND RECORD THEIR ID NUMBER (FROM SECTION B, PAGE 3) AND RESPONSE TO THE RIGHT.

Response to consent (*0 NO, 1 YES*) |__| IF NO, GO TO LIST OF DISPOSITION CODES

May I please talk to the person who knows most about your household's farming practices and other agricultural activities? Later on we will have more questions for your wife/husband about employment.

A4.	a. What is your first name?	b. What is your family name?
	[_____]	[_____]
	c. What is your cell phone number? _____	d. Alternative phone number _____

SECTION B: HOUSEHOLD COMPOSITION AND DEMOGRAPHICS

Now I would like to ask you some questions about the makeup of your household. . By household, we mean those of you that sleep under the same roof and take meals together at least four days a week.

B1.1	Has your household always lived in this village? *1 YES → B1.4 ; 2 NO; 99 REFUSED; 88 DON'T KNOW*	|__|	LANGUAGE CODES *11 Twi* *12 Fanti* *13 Akuapem* *14 Sefwi* *15 Brong* *16 Nzema* *17 Ga* *18 Dangme* *19 Ewe* *20 Guan* *21 Buli* *22 Mamprusi* *23 Frafra/Gruni* *24 Kassene* *25 Dagbani* *26 Wali/Dagari* *27 Sissala* *28 Other (specify)* *88 Don't know* *99 Refused*
B1.2	How many years ago did your household arrive in this village? *-1 REFUSED; -2 DON'T KNOW*	|__|__|	
B1.3	When your household arrived in this village, from where did it come? *1 THIS REGION (NEARBY); 2 ELSEWHERE IN GHANA* *3 ANOTHER COUNTRY; 7 REFUSED; 8 DON'T KNOW*	|__|	
B1.4	What is the main language you speak at home?	|__|__|	

Now I would like to ask you some questions about the makeup of your HOUSEHOLD. By household, we mean those of you that sleep under the same roof and take meals together at least four days a week." First, I would like to ask you the name of each person's in this household. IF THEY DO NOT WANT TO GIVE NAMES: or please give me initials or some other way for us to refer to them. COLLECT ALL NAMES FIRST IN B2.2 AND THEN ASK B2.3 – B2.7 FOR EACH PERSON BEFORE MOVING ON TO THE NEXT HOUSEHOLD MEMBER.

B2. HOUSEHOLD ROSTER
*TO BE COMPLETED FOR ALL PERSONS IN THE HOUSEHOLD, **INCLUDING** FOR HOUSEHOLD MEMBERS **NOT PRESENT** AT THE TIME OF THE INTERVIEW.*

B2.1	B2.2	B2.3	B2.4	B2.5	B2.6	B2.7
Member ID	**Can you tell me the name of all the members of this household?** *Record the household members beginning with the HOUSEHOLD head, followed by the spouse and then the children starting with youngest first and concluding with the oldest.*	What is [NAME]'s gender? *1 FEMALE* *2 MALE* *8 DON'T KNOW* *9 REFUSED*	How is [NAME] related to the head of the household? *SEE CODES*	How many years old is [NAME]? *IF UNDER AGE 1, ENTER "0"; IF OVER 99, ENTER 99* Years	What was the highest school grade / level [NAME] completed? IF B2.5 < 5 SKIP TO NEXT HOUSEHOLD MEMBER *SEE CODES*	Is [NAME] attending school this year? 0 NO 1 YES IF B2.5 < 5 or B2.5 > 25 SKIP TO NEXT HOUSEHOLD MEMBER
01	[_____]	|__|	|__|	|__|__|	|__|__|	|__|
02	[_____]	|__|	|__|	|__|__|	|__|__|	|__|
03	[_____]	|__|	|__|	|__|__|	|__|__|	|__|
04	[_____]	|__|	|__|	|__|__|	|__|__|	|__|
05	[_____]	|__|	|__|	|__|__|	|__|__|	|__|
06	[_____]	|__|	|__|	|__|__|	|__|__|	|__|
07	[_____]	|__|	|__|	|__|__|	|__|__|	|__|
08	[_____]	|__|	|__|	|__|__|	|__|__|	|__|
09	[_____]	|__|	|__|	|__|__|	|__|__|	|__|
10	[_____]	|__|	|__|	|__|__|	|__|__|	|__|
11	[_____]	|__|	|__|	|__|__|	|__|__|	|__|
12	[_____]	|__|	|__|	|__|__|	|__|__|	|__|

CODES FOR B2.4
1 HEAD
2 SPOUSE
3 CO-SPOUSE
4 SON/DAUGHTER
5 SON/DAUGTHER IN LAW
6 PARENT
7 PARENT IN LAW
8 SIBLINGS/SIBLINGS IN LAW
9 OTHER RELATIVES
10 NON-RELATIVES
77 REFUSED
88 DON'T KNOW
99 OTHER

CODES FOR B2.6
999 None
01 Pre-school
02 Primary 1
03 Primary 2
04 Primary 3
05 Primary 4
06 Primary 5
07 Primary 6
08 JSS1
09 JSS2
10 JSS3
11 M1
12 M2
13 M3
14 M4
15 SSS1
16 SSS2
17 SSS3
1000 SSS4
18 S1
19 S2
20 S3
21 S4
22 S5
23 L6
24 U6
25 Voc/Tech/Computer/Comm
26 Teacher Training
27 Nursing
28 Polytechnic
29 University
30 Other Tertiary
31Other (Specify)
88 Don't know
99 Refused

C: AGRICULTURAL ORGANIZATIONS

C1	Are any members of the household a current member of any formal, registered cooperative or farmer association? *1 YES 2 NO → C4 99 REFUSED 88 DON'T KNOW*		|__|
C2	**(a-c)** Who in your household is a member of any formal, registered cooperative or farmer association?	**(d-f)** What special function, if any, do they have in the organization?	
C2.a/d	*FIRST HOUSEHOLD MEMBER* (a) |__|	(d) |__| [_____]	
C2.b/e	*SECOND HOUSEHOLD MEMBER* (b) |__|	(e) |__| [_____]	
C2.c/f	*THIRD HOUSEHOLD MEMBER* (c) |__|	(f) |__| [_____]	
C3	For what reasons (UP TO THREE) do members of your household belong to any formal, registered cooperative or farmer association? *IF THE FARMER MENTIONS A REASON, RECORD "1" IN THE RESPONSE BOX; IF NOT MENTIONED, RECORD "0"; THEN → D1*		
(a)	Better access to inputs		|__|
(b)	Better information about prices		|__|
(c)	Better access to training		|__|
(d)	Sharing of farming techniques		|__|
(e)	Better access to/Sharing of equipment		|__|
(f)	Sharing of labor		|__|
(g)	Access to new farming plots		|__|
(h)	Do not know		
(i)	Other 1 [SPECIFY]: [_____]		|__|
(j)	Other 2 [SPECIFY]: [_____]		|__|
(k)	Other 3 [SPECIFY]: [_____]		|__|
C4	For what reasons (UP TO THREE) do members of your household **NOT** belong to any formal, registered cooperative or farmer association? *IF THE FARMER MENTIONS A REASON, RECORD "1" IN THE RESPONSE BOX; IF NOT MENTIONED, RECORD "0"; THEN → D1*		
(a)	Costs too much (fees/membership costs)		|__|
(b)	Takes too much time		|__|
(c)	Does not provide sufficient benefits (in terms of price information or price of crops)		|__|
(d)	Does not provide sufficient benefits (in terms of training/sharing of farming techniques, access to inputs)		|__|
(e)	Does not provide sufficient benefits (in terms of sharing of equipment)		|__|
(f)	Conflict/disagreement with members of cooperative/association		|__|

CODES FOR C2d/e/f

1 MEMBER, NO FUNCTION
2 MANAGEMENT/ ... ADMINISTRATION ... (NON-FINANCIAL)
3 ACCOUNTANT/ FINANCIAL ... ADMINISTRATION
4 SERVICE PROVIDER
5 TRAINER LEAD FARMER
99 REFUSED
88 DON'T KNOW
9 OTHER [SPECIFY]:

(g)	Do not know		
(h)	Other 1 [SPECIFY]: [_____]	|__|	
(i)	Other 2 [SPECIFY]: [_____]	|__|	
(j)	Other 3 [SPECIFY]: [_____]	|__|	

D. AGRIBUSINESS CENTERS and TRAINING

D1. Does your household interact with any Agribusiness Center in any capacity? For example, you may use the agribusiness center for inputs, processing, employment, or training, etc |__| 1 YES 0 NO→ Section D4

D1.a. Which agribusiness business does your household interact with? |_|_| (1 IPSL; 2 AMSIG RESOURCES; 3 SAVANNAH FARMERS; 4 GAABIC; 5 PRESBYTERIAN AG. SERVICES; 6 VICTORY FEED; 7 YAWAH SHALOM; 8 CPDF; 9 SEED SHOP; 10 QUALITY AG. SERVICES 11 OTHERS (SPECIFY) 88 DON'T KNOW 99 REFUSED)

D1c. Is your household part of a Farmer based organization (FBO) that has invested in the Agribusiness Center? |__| *1 YES 2 NO 88 DON'T KNOW 99 REFUSED*

	D3.1	D3.2	D3.3	D3.4	D3.5	
I will now read a list of services that the agribusiness center may offer. To your knowledge, which of the following services are offered by the agribusiness center? MAKE MULTI-CHOICE AND ASK FOLLOW-UP QUESTIONS ONLY FOR THOSE THAT ARE CHOSEN,		Does your household use the [SERVICE TYPE] offered by the agribusiness center? *2 NO→ D3.4* *1 YES* *88 DON'T KNOW* *99 REFUSED*	Which household member is mainly responsible for interacting with the agribusiness center in this regard? CAPI INSTRUCTIONS – POPULATE SCREEN WITH MEMBER ID'S FROM SECTION B AND ALLOW ONLY ONE RESPONSE *→ D3.5*	What is the main reason your household did NOT accept/use the [SERVICE TYPE] from the agribusiness center? *SEE CODES- ALLOW ONLY ONE RESPONSE* GO TO NEXT SERVICE	How useful or valuable is/are the [SERVICE TYPE]? ENUMERATOR SHOULD READ "NOT AT ALL", "SOMEWHAT", "VERY MUCH" TO RESPONDENT *99 NOT AT ALL* *1 SOMEWHAT* *2 VERY MUCH* *7 REFUSED* *8 DON'T KNOW*	***CODES FOR D3.4*** *1 TOO MUCH WORK* *2 CANNOT AFFORD PRICE OR FEES* *3 CANNOT AFFORD TO HIRE WORKERS TO DO IT* *4 DON'T THINK IT WILL INCREASE YIELDS/NOT USEFUL* *5 DON'T NEED IT* *6 FORGOT HOW TO DO METHOD* *7 WOULD THEN HAVE TO DO MORE WEEDING* *8 MORE EXPENSIVE THAN FROM OTHER SOURCES* *77 REFUSED* *88 DON'T KNOW* *99 OTHER [SPECIFY]*
(a) Access to improved seed	|__|	|__|	|__|	|__| |_____|	|__|	
(a2) Fertilizer, pesticides and other chemical inputs	|__|	|__|	|__|	|__| |_____|	|__|	
(a3) Tractor services	|__|	|__|	|__|	|__| |_____|	|__|	
(a4) Marketing services	|__|	|__|	|__|	|__| |_____|	|__|	
A5) Transport services	|__|	|__|	|__|	|__| |_____|	|__|	
A6) Contract farming	|__|	|__|	|__|	|__| |_____|	|__|	
A7) Drying of ANY of your crops	|__|	|__|	|__|	|__| |_____|	|__|	
A8) Sorting of ANY of your crops	|__|	|__|	|__|	|__| |_____|	|__|	
A9) Packaging of ANY of your crops	|__|	|__|	|__|	|__| |_____|	|__|	
A10) Storing of ANY of your crops	|__|	|__|	|__|	|__| |_____|	|__|	
A11) Purchasing of ANY of your crops	|__|	|__|	|__|	|__| |_____|	|__|	

D2. TRAINING

D2. Has anyone in your household received any training on best farming practices in the last 5 years? |__| *1 YES* *2 NO → **Section E*** 88 DON'T KNOW 99 REFUSED

	D2.1	**D2.2**	**D23**		**D2.4**	**D2.5**	**D2.6**
In which topics did household members receive training in the last 5 years? ALLOW MULTIPLE SELECTIONS – ONLY ASK FOLLOW-UP QUESTIONS ON THOSE WHICH ARE SELECTED HERE	Household members who received training? *List all people (up to 3) that receive training first, then move to D2.2*	For each person trained, how many years ago was the most recent training received? *ENTER 0 FOR WITHIN PAST 12 MONTHS* *5 WITHIN THE PAST 5 MONTHS* *1 1-2 YEARS AGO* *2 2-3 YEARS AGO* *3 3-4 YEARS AGO* *4 MORE THAN 4 YEARS AGO* *88 DON'T KNOW* *99 REFUSED*	Who provided the training? *PROVIDE UP TO 2 ANSWERS SEE CODES*		Did that person apply what was taught in the training to the last crop cycle (2012)? *2 NO* *1 YES→D2.6* *88 DON'T KNOW* *99 REFUSED*	Why did they NOT practice the methods in which they were trained? *SEE CODES* ALLOW ONLY ONE RESPONSE	How useful or valuable was the training? ENUMERATOR SHOULD READ "NOT AT ALL", "SOMEWHAT", "VERY MUCH" TO RESPONDENT *1 NOT AT ALL* *2 SOMEWHAT* *3 VERY MUCH* *99 REFUSED* *88 DON'T KNOW*
(a) Farming as a Business	|__|	|__|__|	|__|	|__|	|__|	|__|__| [_____]	|__|
	|__|	|__|__|	|__|	|__|	|__|	|__|__| [_____]	|__|
	|__|	|__|__|	|__|	|__|	|__|	|__|__| [_____]	|__|
(b) Crop Production	|__|	|__|__|	|__|	|__|	|__|	|__|__| [_____]	|__|
	|__|	|__|__|	|__|	|__|	|__|	|__|__| [_____]	|__|
	|__|	|__|__|	|__|	|__|	|__|	|__|__| [_____]	|__|
(c) Post Harvest Training	|__|	|__|__|	|__|	|__|	|__|	|__|__| [_____]	|__|
	|__|	|__|__|	|__|	|__|	|__|	|__|__| [_____]	|__|
	|__|	|__|__|	|__|	|__|	|__|	|__|__| [_____]	|__|
	|__|	|__|__|	|__|	|__|	|__|	|__|__| [_____]	|__|
(d) Irrigation Operations	|__|	|__|__|	|__|	|__|	|__|	|__|__| [_____]	|__|
	|__|	|__|__|	|__|	|__|	|__|	|__|__| [_____]	|__|
	|__|	|__|__|	|__|	|__|	|__|	|__|__| [_____]	|__|

CODES FOR D2.3

1 MIDA
2 AGRIBUSINESS CENTER
3 MINISTRY OF FOOD & AGRICULTURE
4 OTHER GOVT AGENCY
5 NGO
6 OTHER FARMER
7 REFUSED
8 DON'T KNOW
9 OTHER

CODES FOR D2.5

1 TOO MUCH WORK
2 CANNOT AFFORD PRICE OR FEES
3 CANNOT AFFORD TO HIRE WORKERS TO DO IT
4 DON'T THINK IT WILL INCREASE YIELDS/NOT USEFUL
5 DON'T NEED IT
6 FORGOT HOW TO DO METHOD
7 WOULD THEN HAVE TO DO MORE WEEDING
8 MORE EXPENSIVE THAN FROM OTHER SOURCES
77 REFUSED
88 DON'T KNOW
99 OTHER [SPECIFY]

SECTION E. AGRICULTURAL PRODUCTION

E1 Land Holdings

The following section will ask about your farmland holdings.

The following section will ask about your farmland holdings.

Please tell me about each piece of farm land belonging to your household and any other pieces of land that you are responsible for, whether or not they were cultivated by your household during the LAST 12 MONTHS, from August 2011 to August 2012.
How many pieces of land was this household responsible for during the last 12 months, regardless of whether there was crop growing on them or not? [_|_]

Now, please give me the name or location of each piece of land. I will use these names or locations to refer to the pieces of land for the rest of this interview. Please start with your largest piece of land, then follow with your second largest piece of land and so on.

		E1.1. What is the total size of this piece of land in acres? **-1 REFUSED** **-2 DON'T KNOW**		**E1.2.** Does the piece of land belong to your household or has it been rented or borrowed? 1 = belongs to HOUSEHOLD ➔ **E1.6** 2 = rented 3 = borrowed ➔ **E1.8** 88 DON'T KNOW 99 REFUSED	**E1.3.** Does your household have a share cropping arrangement or do you pay a fixed price? 1 = share cropping 2 = fixed price ➔ **E1.5** 88 DON'T KNOW 99 REFUSED	**E1.4.**What is the percentage of harvest your HOUSEHOLD pays the landlord? -1 REFUSED -2 DON'T KNOW ➔ **E1.8**	**E1.5.** How much is your HOUSEHOLD paying the owner of the land for you to use it during the last 12 months? Please include payments in the form of money as well as goods or services. -1 REFUSED -2 DON'T KNOW	**E1.6.** Does your household lend or rent out [PLOT NAME] to another indivual or household? 2= no ➔ **E1.8** 1 = yes 88 DON'T KNOW 99 REFUSED	**E1.7.** If "yes", how much did or will your HOUSEHOLD receive (in kind or money) for conceding the use of this land during the last 12 months? -1 REFUSED -2 DON'T KNOW
Plot ID	Plot name /location to identify it (if applicable))	Amt							
01									
02									
03									
04									
05									
06									
07									
08									
09									
10									

		E1.8. Was this piece of land cultivated during any period within the past 12 months? 1 YES 2 NO →Next Plot 88 DON'T KNOW 99 REFUSED	E1.9. Is this piece of land more wet; less wet, or about the same as the other lands in your community? 1 MORE 2 LESS 3 ABOUT THE SAME 88 DON'T KNOW 99 REFUSED	E1.10. How many days does it take for this land to drain after a heavy rainfall? (# of Days) -1 REFUSED -2 DON'T KNOW	E1.11 Is this land watered from a source other than rain water? 1 YES 2 NO → E1.14 88 DON'T KNOW 99 REFUSED	E1.12. What is the main source of the water for this land besides rain? MAIN SOURCE 1 Weir/ Dam 2 Well 3 Borehole 4 River / Stream 5 Pipe-borne 6 Other (specify) 88 DON'T KNOW 99 REFUSED	E1.13. What is the main method you use to apply the water on this piece of land? MAIN METHOD 1 Irrigation by gravity 2 Irrigation by pump/sprinkler 3 Manual Irrigation5 Other (specify) 88 DON'T KNOW 99 REFUSED	E1.14. In what year was this piece of land last fallow? ONLY ALLOW YEARS BETWEEN 1950 and 2012 -1 REFUSED -2 DON'T KNOW
Plot ID	Plot name /location to identify it (if applicable)))							
01		|__|	|__|	|__|	|__|	|__| |_____|	|__| |_____|	|_|_|_|_|
02		|__|	|__|	|__|	|__|	|__| |_____|	|__| |_____|	|_|_|_|_|
03		|__|	|__|	|__|	|__|	|__| |_____|	|__| |_____|	|_|_|_|_|
04		|__|	|__|	|__|	|__|	|__| |_____|	|__| |_____|	|_|_|_|_|
05		|__|	|__|	|__|	|__|	|__| |_____|	|__| |_____|	|_|_|_|_|
06		|__|	|__|	|__|	|__|	|__| |_____|	|__| |_____|	|_|_|_|_|
07		|__|	|__|	|__|	|__|	|__| |_____|	|__| |_____|	|_|_|_|_|
08		|__|	|__|	|__|	|__|	|__| |_____|	|__| |_____|	|_|_|_|_|
09		|__|	|__|	|__|	|__|	|__| |_____|	|__| |_____|	|_|_|_|_|
10		|__|	|__|	|__|	|__|	|__| |_____|	|__| |_____|	|_|_|_|_|

F: Agricultural Production

F1: Wet Season Production

Now I'd like to ask about each of the MAJOR CROPS grown and harvested by your household during the most recent wet season. Please exclude any vegetables or other crops grown in a kitchen garden, as I will ask you about those later. Please tell me about each crop by piece of land that were grown during the most recent WET season that you completed.

	F1.1	F1.2	F1.3	F1.4	F1.5
Plot ID	What crops were grown on this piece of land during the last wet season? *(Make sure to ask if any part of the plot is in fallow to let us know this as well)* *Use codes*	What percentage of this piece of land is used to grow this crop (show percentage diagram) *(If 100% is in fallow, skip to next plot)* *-1 REFUSED* *-2 DON'T KNOW* *TOTAL MUST ADD TO 100%*	Which household member did most of the work cultivating this piece of land? *SEE HOUSEHOLD MEMBER CODES FROM SECTION B* *13 HIRED LABOR* *999 NONE* *88 DON'T KNOW* *99 REFUSED*	Which other household member assisted the most with cultivating this piece of land? *SEE HOUSEHOLD MEMBER CODES FROM SECTION B* *13 HIRED LABOR* *999 NONE* *88 DON'T KNOW* *99 REFUSED*	What type of equipment did your household use for cultivating this piece of land? CHOOSE ALL THAT APPLY *999 NONE* *1 MANUAL POWER* *2 ANIMAL POWER* *3 MACHINE POWER* *99 REFUSED* *88 DON'T KNOW*
01	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|
02	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|
03	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|
04	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|

CODES FOR F1.1

01 FALLOW
10 COTTON
11 MAIZE (DRIED KERNELS)
12 CASSAVA (GAR)I
13 MAIZE (FRESH ON HUSK)
14 WHEAT
15 MILLET
16 SORGHUM
17 RICE
18 CASSAVA (TUBERS)
19 POTATOES
20 SWEET POTATO
21 YAMS
22 PLANTAIN
24 CASHEW NUT
25 COCONUT
26 BEANS
27 LENTILS
28 PEAS
29 PIGEON PEA
30 COWPEA
31 CHICKPEA
32 CARROTS
33 TOMATOES
34 CABBAGES
35 SPINACH
36 LETTUCE
37 PEPPERS
38 SQUASH
39 CUCUMBERS
40 OKRA
41 ONIONS
42 BANANAS
43 MANGO
44 PINEAPPLE
45 PAPAYA
46 WATERMELON
47 ORANGES
48 LEMON
49 CASSAVA (CHIPS)
50 SOYA BEANS
51 SUNFLOWER
52 JATROPHA
53 TOBACCO
54 SHELLED GROUNDNUTS
55 UNSHELLED GROUNDNUTS
56 SUNHEMP
57 OTHER
88 DON'T KNOW
99 REFUSED

05	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|	
06	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|	
07	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|	
08	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|	
09	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|	
10	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|	

For each crop grown in the last WET season from April 2012 to August 2012 I will now ask you about how much was harvested and what happened to the crop.

	F2.1	F2.2	F2.3	F2.4	F2.5	F2.6	F2.7	F2.8	F2.9	F2.10	F2.11	CODE FOR F2.4
	Crop ID *Populate FROM PREVIOUS PAGE*	How much [CROP] did your HOUSEHOLD have in stock (in storage area not including an agribusiness center) before the harvest? -1 REFUSED -2 DON'T KNOW	How much [CROP] did your HOUSEHOLD have in stock at the agribusiness center before the harvest? -1 REFUSED -2 DON'T KNOW	Unit of Measure for F2.2 – F2.18 See codes	During the last wet season, how much [CROP] did your household harvest in total across all pieces of lands? USE UNITS FROM 2.4 -1 REFUSED -2 DON'T KNOW	After it was harvested, how much [CROP] was lost to insects, rodents, rotting or some other problem? USE UNITS FROM 2.4 -1 REFUSED -2 DON'T KNOW	How much of the [CROP] harvested during the last wet season was used for animal feed? USE UNITS FROM 2.4 -1 REFUSED -2 DON'T KNOW	What quantity of the [CROP] harvested during the last wet season was sold to an agribusiness center? -1 REFUSED -2 DON'T KNOW IF 0 → F2.10 USE UNITS FROM 2.4	How much did you receive for each [UNIT] of [CROP] sold to an agribusiness center? [CURRENCY] -1 REFUSED -2 DON'T KMOW	What quantity of the [CROP] harvested during the last wet season was sold to outlets other than an agribusiness center? IF 0 → F2.12 USE UNITS FROM 2.4 -1 REFUSED -2 DON'T KNOW	How much did you receive for each [UNIT] of [CROP] sold to outlets other than an agribusiness center? [CURRENCY] -1 REFUSED -2 DON'T KNOW	*11 KG* *12 LITRES* *13 BUSHELS* *14 BAGS (25 KG)* *15 BAGS (50 KG)* *16 TINS (5 LITRES)* *17 BUCKETS* *18 BUNCH* *19 CUP* *20 OXCARTS* *21 CRATES* *22 PIECES* *88 DON'T KNOW* *99 REFUSED*
(a)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(b)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(c)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(d)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(e)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(f)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(g)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(h)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(i)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(j)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(k)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	

	F2.12	F2.13	F2.14	F2.15	F2.16	F2.17	F2.18	F2.19	F2.20	F2.21	CODE FOR F2.4
	Crop ID *FROM PREVIOUS PAGE*	How much of the [CROP] harvested during the last wet period has been consumed by members of your household? USE UNITS FROM 2.4 -1 REFUSED -2 DON'T KNOW	How much of the [CROP] harvested during the last wet season has been dried by an agribusiness center? USE UNITS FROM 2.4 -1 REFUSED -2 DON'T KNOW	How much of the [CROP] harvested during the last wet season has been dried by someone, or someplace other than an agribusiness center? PROMPT TO INCLUDE THE HOUSEHOLD -1 REFUSED -2 DON'T KNOW USE UNITS FROM 2.4	How much of the [CROP] harvested during the last wet season has been sorted by an agribusiness center? -1 REFUSED -2 DON'T KNOW USE UNITS FROM 2.4	How much of the [CROP] harvested during the last wet season has been sorted by someone, or someplace other than an agribusiness center? PROMPT TO INCLUDE THE HOUSEHOLD -1 REFUSED -2 DON'T KNOW USE UNITS FROM 2.4	How much of the [CROP] harvested during the last wet season has been packaged by an agribusiness center? -1 REFUSED -2 DON'T KNOW USE UNITS FROM 2.4	How much of the [CROP] harvested during the last wet season has been packaged by someone, or someplace other than an AGRIBUSINESS CENTER? -1 REFUSED -2 DON'T KNOW PROMPT TO INCLUDE THE HOUSEHOLD USE UNITS FROM 2.4	How much of the [CROP] harvested during the last wet season is being stored now at an agribusiness center? -1 REFUSED -2 DON'T KNOW USE UNITS FROM 2.4	How much of the [CROP] harvested during the last wet season is stored now in places other than an agribusiness center? PROMPT TO INCLUDE THE HOUSEHOLD -1 REFUSED -2 DON'T KNOW USE UNITS FROM 2.4	*11 KG* *12 LITRES* *13 BUSHELS* *14 BAGS (25 KG)* *15 BAGS (50 KG)* *16 TINS (5 LITRES)* *17 BUCKETS* *18 BUNCH* *19 CUP* *20 OXCARTS* *21 CRATES* *22 PIECES* *88 DON'T KNOW* *99 REFUSED*
(a)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(b)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(c)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(d)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(e)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(f)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(g)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(h)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(i)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(j)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(k)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	

	F3.1	**F3.2**	**F3.3**	**F3.4**	**F3.5**	**F3.6**	**F3.7**
	Crop *FROM PREVIOUS PAGE*	What amount of [CROP] seeds did you buy from the Agribusiness Center for the previous WET season? GO TO 3.5 if F3.2 = 0		In total, how much did you pay for those [CROP] seeds you bought at the Agribusiness Center?	What amount of [CROP] seeds did you buy at any other sources not from The Agribusiness Center for the previous WET season? GO TO NEXT SEED TYPE if F3.5 = 0		In Total, how much did you pay for those [CROP] seeds?
		Quantity -1 REFUSED -2 DON'T KNOW	Unit *11 KG* *12 LITRES* *13 BUSHELS* *14 BAGS (25 KG)* *15 BAGS (50 KG)* *16 TINS (5 LITRES)* *17 BUCKETS* *18 BUNCH* *19 CUP* *20 OXCARTS* *21 CRATES* *22 PIECES* **23 SACHET (1/2 KG)**	Total Price -1 REFUSED -2 DON'T KNOW	Quantity 1 REFUSED -2 DON'T KNOW	Unit *11 KG* *12 LITRES* *13 BUSHELS* *14 BAGS (25 KG)* *15 BAGS (50 KG)* *16 TINS (5 LITRES)* *17 BUCKETS* *18 BUNCH* *19 CUP* *20 OXCARTS* *21 CRATES* *22 PIECES* **23 SACHET (1/2 KG)**	Total Price -1 REFUSED -2 DON'T KNOW
(a)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(b)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(c)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(d)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(e)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(f)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(g)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(h)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(i)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(j)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(k)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|

	F3.8	F3.9	F3.10	F3.11	F3.12	F3.13	F3.14
		What amount of [ITEM] did you buy from the Agribusiness Center for the previous WET season? GO TO F3.12 if F3.9 = 0		In total, how much did you pay for the [INPUT] you bought at the Agribusiness Center?	What amount of [ITEM] did you buy from any other source other than the Agribusiness Center for the previous WET season? GO TO NEXT INPUT TYPE if F3.12=0		In total, how much did you pay for the [INPUT] you bought from that source/s?
		Quantity -1 REFUSED -2 DON'T KNOW	Unit 11 KGS 12 LITRES 13 BUSHELS 14 BAGS (25 KG) 15 BAGS (50 KG) 16 TINS (5 LITRES) 17 BUCKETS 18 BUNCH 19 CUP 20 OXCARTS 21 CRATES 22 PIECES 88 DON'T KNOW 99 REFUSED	Total Price -1 REFUSED -2 DON'T KNOW	Quantity -1 REFUSED -2 DON'T KNOW	UNIT 11 KGS 12 LITRES 13 BUSHELS 14 BAGS (25 KG) 15 BAGS (50 KG) 16 TINS (5 LITRES) 17 BUCKETS 18 BUNCH 19 CUP 20 OXCARTS 21 CRATES 22 PIECES 88 DON'T KNOW 99 REFUSED	Total Price -1 REFUSED -2 DON'T KNOW
(a)	Manure or compost	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(b)	Fertilizer	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(c)	Pesticide	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(d)	Herbicide	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|

SECTION F. AGRICULTURAL PRODUCTION

F4: Dry Season Production

Now I'd like to ask about each of the MAJOR CROPS grown and harvested by your household during the most recent dry season. Please exclude any vegetables or other crops grown in a kitchen garden, as I will ask you about those later. Please tell me about each crop by plot that were grown during the most recent DRY season that you completed.

	F4.1	**F4.2**	**F4.3**	**F4.4**	**F4.5**
Plot ID	What crops were grown on this piece of land during the last dry season? *(Make sure to ask if any part of the plot is in fallow to let us know this as well)* *Use codes*	What percentage of this piece of land is used to grow this crop (show percentage diagram) *-1 REFUSED* *-2 DON'T KNOW* *(If 100% is in fallow, skip to next plot)* *TOTAL MUST ADD TO 100%*	Which household member did most of the work cultivating this piece of land? *SEE HOUSEHOLD MEMBER CODES FROM SECTION B* 13 HIRED LABOR 999 NONE 88 DON'T KNOW 99 REFUSED	Which other household member assisted the most with cultivating this piece of land? *SEE HOUSEHOLD MEMBER CODES FROM SECTION B* 13 HIRED LABOR 999 NONE 88 DON'T KNOW 99 REFUSED	What type of equipment did your household use for cultivating this piece of land? CHOOSE ALL THAT APPLY *999 NONE* *1 MANUAL POWER* *2 ANIMAL POWER* *3 MACHINE POWER* *99 REFUSED* *88 DON'T KNOW*
01	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|
02	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|
03	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|
04	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|

CODES FOR F4.1

01 FALLOW
10 COTTON
11 MAIZE (DRIED KERNELS)
12 CASSAVA (GARI)
13 MAIZE (FRESH ON HUSK)
14 WHEAT
15 MILLET
16 SORGHUM
17 RICE
18 CASSAVA (TUBERS)
19 POTATOES
20 SWEET POTATO
21 YAMS
22 PLANTAIN
24 CASHEW NUT
25 COCONUT
26 BEANS
27 LENTILS
28 PEAS
29 PIGEON PEA
30 COWPEA
31 CHICKPEA
32 CARROTS
33 TOMATOES
34 CABBAGES
35 SPINACH
36 LETTUCE
37 PEPPERS
38 SQUASH
39 CUCUMBERS
40 OKRA
41 ONIONS
42 BANANAS
43 MANGO
44 PINEAPPLE
45 PAPAYA
46 WATERMELON
47 ORANGES
48 LEMON
49 CASSAVA (CHIPS)
50 SOYA BEANS
51 SUNFLOWER
52 *JATROPHA*
53 TOBACCO
54 SHELLED GROUNDNUTS
55 UNSHELLED GROUNDNUTS
56 SUNHEMP
57 OTHER
88 DON'T KNOW
99 REFUSED

05	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|	
06	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|	
07	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|	
08	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|	
09	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|	
10	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	Crop 1 |__|__|__| Crop 2 |__|__|__| Crop 3 |__|__|__|	|__|__|	|__|__|	|__|	

For each crop grown in the last DRY season from September 2011 to March 2012 I will now ask you about how much was harvested and what happened to the crop.

	F5.1	F5.2	F5.3	F5.4	F5.5	F5.6	F5.7	F5.8	F5.9	F5.10	F5.11	CODE FOR F5.4
	Crop ID *Populate FROM PREVIOUS PAGE*	How much [CROP] did your HOUSEHOLD have in stock (in storage area not including an agribusiness center) before the harvest? -1 REFUSED -2 DON'T KNOW	How much [CROP] did your HOUSEHOLD have in stock at the agribusiness center before the harvest? *-1 REFUSED* *-2 DON'T KNOW*	Unit of Measure for F2.2 – F2.18 See codes	During the last dry season, how much [CROP] did your household harvest in total across all pieces of lands? USE UNITS FROM 5.4 -1 REFUSED -2 DON'T KNOW	After it was harvested, how much [CROP] was lost to insects, rodents, rotting or some other problem? USE UNITS FROM 5.4 -1 REFUSED -2 DON'T KNOW	How much of the [CROP] harvested during the last dry season was used for animal feed? USE UNITS FROM 5.4 -1 REFUSED -2 DON'T KNOW	What quantity of the [CROP] harvested during the last dry season was sold to an agribusiness center? IF 0 → F5.10 -1 REFUSED -2 DON'T KNOW USE UNITS FROM 5.4	How much did you receive for each [UNIT] of [CROP] sold to an agribusiness center? [CURRENCY] -1 REFUSED -2 DON'T KNOW	What quantity of the [CROP] harvested during the last dry season was sold to outlets other than an agribusiness center? IF 0 → F5.12 USE UNITS FROM 5.4 -1 REFUSED -2 DON'T KNOW	How much did you receive for each [UNIT] of [CROP] sold to outlets other than an agribusiness center? [CURRENCY] -1 REFUSED -2 DON'T KNOW	*11 KG* *12 LITRES* *13 BUSHELS* *14 BAGS (25 KG)* *15 BAGS (50 KG)* *16 TINS (5 LITRES)* *17 BUCKETS* *18 BUNCH* *19 CUP* *20 OXCARTS* *21 CRATES* *22 PIECES* *88 DON'T KNOW* *99 REFUSED*
(a)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(b)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(c)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(d)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(e)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(f)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(g)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(h)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(i)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(j)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	
(k)	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	|__|__|__|	|__|__|__|	|__|__|__|	

	F5.12	**F5.13**	**F5.14**	**F5.15**	**F5.16**	**F5.17**	**F5.18**	**F5.19**	**F5.20**	**F5.21**	**CODE FOR F5.4**
	Crop ID *FROM PREVIOUS PAGE*	How much of the [CROP] harvested during the last dry period has been consumed by members of your household? USE UNITS FROM 5.4 -1 REFUSED -2 DON'T KNOW	How much of the [CROP] harvested during the last dry season has been dried by an agribusiness center? USE UNITS FROM 5.4 -1 REFUSED -2 DON'T KNOW	How much of the [CROP] harvested during the last dry season has been dried by someone, or someplace other than an agribusiness center? -1 REFUSED -2 DON'T KNOW PROMPT TO INCLUDE THE HOUSEHOLD USE UNITS FROM 5.4	How much of the [CROP] harvested during the last dry season has been sorted by an agribusiness center? -1 REFUSED -2 DON'T KNOW USE UNITS FROM 5.4	How much of the [CROP] harvested during the last dry season has been sorted by someone, or someplace other than an agribusiness center? PROMPT TO INCLUDE THE HOUSEHOLD -1 REFUSED -2 DON'T KNOW USE UNITS FROM 5.4	How much of the [CROP] harvested during the last dry season has been packaged by an agribusiness center? USE UNITS FROM 5.4 -1 REFUSED -2 DON'T KNOW	How much of the [CROP] harvested during the last dry season has been packaged by someone, or someplace other than an agribusiness center? PROMPT TO INCLUDE THE HOUSEHOLD -1 REFUSED -2 DON'T KNOW USE UNITS FROM 5.4	How much of the [CROP] harvested during the last dry season is being stored now at an agribusiness center? -1 REFUSED -2 DON'T KNOW USE UNITS FROM 5.4	How much of the [CROP] harvested during the last dry season is stored now in places other than an agribusiness center? PROMPT TO INCLUDE THE HOUSEHOLD -1 REFUSED -2 DON'T KNOW USE UNITS FROM 5.4	*11 KG* *12 LITRES* *13 BUSHELS* *14 BAGS (25 KG)* *15 BAGS (50 KG)* *16 TINS (5 LITRES)* *17 BUCKETS* *18 BUNCH* *19 CUP* *20 OXCARTS* *21 CRATES* *22 PIECES*
(a)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(b)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(c)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(d)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(e)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(f)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(g)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(h)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(i)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(j)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	
(k)	|__|__|	|__|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|__|	|__|__|	|__|__|	|__|__|	

	F6.1	**F6.2**	**F6.3**	**F6.4**	**F6.5**	**F6.6**	**F6.7**
	Crop *FROM PREVIOUS PAGE*	What amount of [CROP] seeds did you buy from The Agribusiness Center for the previous DRY season? GO TO 6.5 if F6.2 = 0		In total, how much did you pay for the [CROP] seeds you bought at the Agribusiness Center?	What amount of [CROP] seeds did you buy at any other sources not from The Agribusiness Center for the previous DRY season? GO TO NEXT SEED TYPE if F6.5 = 0		How much did you pay for those [CROP] seeds in total?
		Quantity -1 REFUSED -2 DON'T KNOW	Unit *11 KG* *12 LITRES* *13 BUSHELS* *14 BAGS (25 KG)* *15 BAGS (50 KG)* *16 TINS (5 LITRES)* *17 BUCKETS* *18 BUNCH* *19 CUP* *20 OXCARTS* *21 CRATES* *22 PIECES* **23 SACHET (1/2 KG)** **88 DON'T KNOW** **99 REFUSED**	Total Price -1 REFUSED -2 DON'T KNOW	Quantity -1 REFUSED -2 DON'T KNOW	Unit *11 KG* *12 LITRES* *13 BUSHELS* *14 BAGS (25 KG)* *15 BAGS (50 KG)* *16 TINS (5 LITRES)* *17 BUCKETS* *18 BUNCH* *19 CUP* *20 OXCARTS* *21 CRATES* *22 PIECES* **23 SACHET (1/2 KG)** **88 DON'T KNOW** **99 REFUSED**	Total Price -1 REFUSED -2 DON'T KNOW
(a)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(b)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(c)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(d)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(e)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(f)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(g)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(h)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(i)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(j)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(k)	|__|__|	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|

	F6.8	F6.9	F6.10	F6.11	F6.12	F6.13	F6.14
		What amount of [ITEM] did you buy from the Agribusiness Center for the previous DRY season? GO TO F6.12 if F6.9 = 0		In total, how much did you pay for the [INPUT] you bought at the Agribusiness Center?	What amount of [ITEM] did you buy from any other source/s other than the Agribusiness Center for the previous Dry season? GO TO NEXT INPUT TYPE if F6.12=0		In total, how much did you pay for the [INPUT] you bought from that source/s?
		Quantity -7 REFUSED -8 DON'T KNOW	Unit *11 KG* *12 LITRES* *13 BUSHELS* *14 BAGS (25 KG)* *15 BAGS (50 KG)* *16 TINS (5 LITRES)* *17 BUCKETS* *18 BUNCH* *19 CUP* *20 OXCARTS* *21 CRATES* *22 PIECES* **23 SACHET (1/2 KG)** **88 DON'T KNOW** **99 REFUSED**	Total Price -7 REFUSED -8 DON'T KNOW	Quantity -7 REFUSED -8 DON'T KNOW	Unit *11 KG* *12 LITRES* *13 BUSHELS* *14 BAGS (25 KG)* *15 BAGS (50 KG)* *16 TINS (5 LITRES)* *17 BUCKETS* *18 BUNCH* *19 CUP* *20 OXCARTS* *21 CRATES* *22 PIECES* **23 SACHET (1/2 KG)** **88 DON'T KNOW** **99 REFUSED**	Total Price -7 REFUSED -8 DON'T KNOW
(a)	Manure or compost	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(b)	Fertilizer	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(c)	Pesticide	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|
(d)	Herbicide	|__|__|		|__|__|__|__|__|__|	|__|__|		|__|__|__|__|__|__|

G. AGRICULTURAL LAND

Now, I would like to ask you few questions about any kitchen gardens your household might have. First I will ask you about any kitchen garden you grew during the WET SEASON and then about the DRY SEASON.

G1.	Does your household have a kitchen garden to grow vegetables in the **WET** season? *1 YES 2 NO* → G2 88 DON'T KNOW 99 REFUSED	|__|	**CODES FOR G1.2 & G2.1**
G1.1	Which household member is mainly responsible for caring for the kitchen garden in the WET seasom? |__|__| (member ID)		
G1.2	What vegetables or other crops do you grow in this kitchen garden in the WET season? Please list them in order of importance to your household in terms of amount consumed or sold. *SEE CODES AT RIGHT*		
	(a) |__|__| / (b) |__|__| / (c) |__|__| / (d) |__|__| / (e) |__|__| / (f) |__|__| / (g) |__|__| / (h) |__|__| / (i) |__|__|		
G1.3	In the last 12 months how much income [CURRENCY] did your household earn from vegetables and other crops grown in this kitchen garden in the WET season? *-1 REFUSED -2 DON'T KNOW*	|__|__|__|__|__|	
G1.4	How much land is used for this kitchen garden in the WET season? *-1 REFUSED -2 DON' KNOW*	(a) Amount: |_|_|_| / (b) Units: |_| (1 Acres, 2 Poles, 3 Ropes, 4 Plots, 5 Sq.meters, 88 DON'T KNOW, 99 REFUSED)	
G2.	Does your household have a kitchen garden to grow vegetables in the **DRY** season? *1 YES 2 NO* → SECTION H 88 DON'T KNOW 99 REFUSED	|__|	
G2a	Which household member is mainly responsible for caring for the kitchen garden in the DRY seasom? |__|__| (member ID		

01 FALLOW
10 COTTON
11 MAIZE (DRIED KERNELS)
12 CASSAVA (GARI)
13 MAIZE (FRESH ON HUSK)
14 WHEAT
15 MILLET
16 SORGHUM
17 RICE
18 CASSAVA (TUBERS)
19 POTATOES
20 SWEET POTATO
21 YAMS
22 PLANTAIN
24 CASHEW NUT
25 COCONUT
26 BEANS
27 LENTILS
28 PEAS
29 PIGEON PEA
30 COWPEA
31 CHICKPEA
32 CARROTS
33 TOMATOES
34 CABBAGES
35 SPINACH
36 LETTUCE
37 PEPPERS
38 SQUASH
39 CUCUMBERS
40 OKRA
41 ONIONS
42 BANANAS
43 MANGO
44 PINEAPPLE
45 PAPAYA
46 WATERMELON
47 ORANGES
48 LEMON
49 CASSAVA (CHIPS)
50 SOYA BEANS
51 SUNFLOWER
52 JATROPHA
53 TOBACCO
54 SHELLED GROUNDNUTS
55 UNSHELLED GROUNDNUTS
56 SUNHEMP99
57 OTHER
88 DON'T KNOW
99 REFUSED

G2.1	What vegetables or other crops do you grow in this kitchen garden in the DRY season? Please list them in order to your household in terms of amount consumed or sold. *SEE CODES AT RIGHT*										
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)		
	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	|__|__|	
G2.2	In the last 12 months how much income [CURRENCY] did your household earn from vegetables and other crops grown in this kitchen garden in the DRY season? *-1 REFUSED -2 DON'T KNOW*									|__|__|__|__|__|	
G2.3	How much land is used for this kitchen garden in the DRY season? *-1 REFUSED -2 DON'T KNOW*									(a) Amount	(b)Units 1 Acres 2 Poles 3 Ropes 4 Plots 5 Sq.meters 88 DON'T KNOW 99 REFUSED
										|_|_|_|	|_|

H. AGRICULTURAL ASSETS

Please tell me about any farm equipment that your household owns

H1. Farm equipment	**H1.1** How many of this type of [EQUIPMENT] are owned by your household? *IF NONE , ENTER 0* *-1 REFUSED* *-2 DON'T KNOW* *SKIP TO NEXT EQUIPMENT*	**H1.2** Did you split the cost of [EQUIPMENT] with any other person outside of your household? 1 YES 2 NO → H1.4 88 DON'T KNOW 99 REFUSED	**H1.3** How many people outside of your household contributed to the purchase of [EQUIPMENT]? -1 REFUSED -2 DON'T KNOW	**H1.4** What is the estimated value of one of these [EQUIPMENT] if sold today? [CURRENCY] *(unit value)* *-1 REFUSED* *-2 DON'T KNOW*
(a) Tractor	|__|__|	|_|	|_|_|	|__|__|__|__|__|__|
(b) Machine pulled plow or harrow	|__|__|	|_|	|_|_|	|__|__|__|__|__|__|
(c) Animal pulled plow	|__|__|	|_|	|_|_|	|__|__|__|__|__|__|
(d) Animal Cart	|__|__|	|_|	|_|_|	|__|__|__|__|__|__|
(e) Seeder	|__|__|	|_|	|_|_|	|__|__|__|__|__|__|
(f) Harvester	|__|__|	|_|	|_|_|	|__|__|__|__|__|__|
(g) Spreader or sprayer	|__|__|	|_|	|_|_|	|__|__|__|__|__|__|
(h) Wheelbarrow or hand cart	|__|__|	|_|	|_|_|	|__|__|__|__|__|__|
(i) Irrigation water pumps	|__|__|	|_|	|_|_|	|__|__|__|__|__|__|
(k)Generator	|__|__|	|_|	|_|_|	|__|__|__|__|__|__|

Please tell me about any farm livestock that your household owns

H2. Farm livestock	**H2.1** How many [ANIMALS] does the household own? IF RESPONDENT DOES NOT OWN [ANIMAL], ENTER "0" SKIP TO NEXT ANIMAL -1 REFUSED -2 DON'T KNOW IF 0 SKIP TO NEXT ANIMAL TYPE	**H2.2** What is the estimated value of one of these [ANIMAL] if sold today? [CURRENCY] *(unit value)* *-1 REFUSED* *-2 DON'T KNOW*
(a) Cattle	|__|__|__|	|__|__|__|__|__|__|
(b) Draft animal such as donkey, horse, or bullock	|__|__|__|	|__|__|__|__|__|__|
(c) Goats	|__|__|__|	|__|__|__|__|__|__|
(d) Sheep	|__|__|__|	|__|__|__|__|__|__|
(e) Pigs	|__|__|__|	|__|__|__|__|__|__|
(f) Chickens	|__|__|__|	|__|__|__|__|__|__|
(g) Other fowl	|__|__|__|	|__|__|__|__|__|__|
(h) Rabbit	|__|__|__|	|__|__|__|__|__|__|
(i) Other 1 [SPECIFY]: [_____]	|__|__|__|	|__|__|__|__|__|__|
(jb) Other 2 [SPECIFY]: [_____]	|__|__|__|	|__|__|__|__|__|__|
(ic) Other 3 [SPECIFY]: [_____]	|__|__|__|	|__|__|__|__|__|__|

SECTION J. HOUSEHOLD INCOME, SAVINGS AND NON-AGRICULTURAL ASSETS

I would like to ask you now about non farming assets that you household may own

J1. Non-agricultural Assets of the Household

	J1.1 How many [ITEM] does your household have that are in working condition? *-1 REFUSED* *-2 DON'T KNOW* *0 NONE → NEXT ITEM*	**J1.2** What is the estimated value of one of these [ITEM] if sold today? [CURRENCY] *(unit value)* *-1 REFUSED* *-2 DON'T KNOW*
(a) Radio	|__|__|	|__|__|__|__|__|__|__|__|
(b) TV	|__|__|	|__|__|__|__|__|__|__|__|
(c) DVD Player	|__|__|	|__|__|__|__|__|__|__|__|
(d) Mobile Telephone	|__|__|	|__|__|__|__|__|__|__|__|
(e) Refrigerator	|__|__|	|__|__|__|__|__|__|__|__|
(f) Kerosene stove	|__|__|	|__|__|__|__|__|__|__|__|
(g) Electric Stove	|__|__|	|__|__|__|__|__|__|__|__|
(h) Bicycle	|__|__|	|__|__|__|__|__|__|__|__|
(i) Motorbike	|__|__|	|__|__|__|__|__|__|__|__|
(j) Automobiles, including Pick-up trucks or Minibuses	|__|__|	|__|__|__|__|__|__|__|__|
(k) Boats or boat motors	|__|__|	|__|__|__|__|__|__|__|__|
(m) Computer	|__|__|	|__|__|__|__|__|__|__|__|
J1. 3 Is you household connected to the electric grid? 2 NO 1 YES 88 DON'T KNOW 99 REFUSED	|_|	
J1. 4 Does anyone in your household have a bank account? 2 NO 1 YES 88 DON'T KNOW 99 REFUSED	|_|	

J2 Employment and Off-Farm Income **(everyone 7 and older) Populate from household member codes FROM SECTION B**

We have already talked about cultivating the household plots. Now, I would like to ask you a few questions about any OTHER work that members of your household may have done during the last 12 months, from August 2011 – August 2012.

Member ID	J2.1 Other than working on the household plots, did [NAME] do anything else to earn money including work for pay, work in business for his/herself, work in a family business, making things to sell, casual labor, odd jobs, or any other activity to earn money? 2 No ➔*NEXT MEMBER* 1 Yes 88 DON'T KNOW 99 REFUSED	J2.2 In the main activity other than working on the household plots to earn money during the last year was [NAME]... 1 ... a paid employee? 2 ... self employed? 3 ... working for a family business? 88 don't know 99 REFUSED ➔*IF J2.2>1,* ***GO TO J2.4***	J2.3 For whom did [NAME] work in this main activity? ENUMERATOR SHOULD READ RESPONSE OPTIONS TO RESPONDENT 01 Agribusiness Center 02 Other private sector employer (other farm, business, or private services) 03 Government Sector 04 NGO, Inter. Org, or Cooperative 05 Other 88 DON'T KNOW 99 REFUSED
01	|_|	|_|	|_|_|
02	|_|	|_|	|_|_|
03	|_|	|_|	|_|_|
04	|_|	|_|	|_|_|
05	|_|	|_|	|_|_|
06	|_|	|_|	|_|_|
07	|_|	|_|	|_|_|
08	|_|	|_|	|_|_|
09	|_|	|_|	|_|_|
10	|_|	|_|	|_|_|
11	|_|	|_|	|_|_|
12	|_|	|_|	|_|_|
13	|_|	|_|	|_|_|
14	|_|	|_|	|_|_|
15	|_|	|_|	|_|_|
16	|_|	|_|	|_|_|
17	|_|	|_|	|_|_|
18	|_|	|_|	|_|_|

Member ID	J2.4	J2.5	J2.6	J2.7	J2.8
	How much did [NAME] make doing this work, including any bonuses, commissions allowances, or tips? TIME UNIT CODES 1 Daily 2 Weekly 3 Fortnightly (every two weeks) 4 Monthly 5 Quarterly (every 3 months) 6 Yearly 88 DON'T KNOW 99 REFUSED		Does [NAME] receive any payment for this work in the form of goods and services? 2 No ➔ *J2.9* 1 Yes 88 DON'T KNOW 99 REFUSED	Approximately what is the value of goods or services provided? TIME UNIT CODES 1 Daily 2 Weekly 3 Fortnightly (every two weeks) 4 Monthly 5 Quarterly (every 3 months) 6 Yearly 88 DON'T KNOW 99 REFUSED	
	GH¢ -1 REFUSED -2 DON'T KNOW	TIME UNIT		GH¢ -1 REFUSED -2 DON'T KNOW	TIME UNIT
01	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|
02	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|
03	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|
04	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|
05	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|
06	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|
07	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|
08	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|
09	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|
10	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|
11	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|
12	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|
13	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|
14	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|
15	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|
16	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|
17	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|
18	|_|_|_|_|	|_|	|_|	|_|_|_|_|	|_|

Member ID	J2.9 During the past 12 months, for how many weeks did [NAME] do work in this activity? WEEKS -1 REFUSED -2 DON'T KNOW	J2.10 During these weeks, how many hours per week did [NAME] usually work in this activity? HOURS/WEEK -1 REFUSED -2 DON'T KNOW	J2.11 Is [Name] still working on this activity? 2 No 1 Yes 88 DON'T KNOW 99 REFUSED (if activity is seasonal but will work next season indicate 1 Yes)	J2.12 During the past 12 months, did [NAME] do any secondary work beside the activity we just discussed or working on household plots? 2 No ➔*NEXT MEMBER* 1 Yes 88 DON'T KNOW 99 REFUSED	J2.13 How much did this member earn in the secondary job in the past 12 months? GH¢ -1 REFUSED -2 DON'T KNOW
01	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|
02	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|
03	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|
04	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|
05	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|
06	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|
07	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|
08	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|
09	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|
10	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|
11	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|
12	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|
13	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|
14	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|
15	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|
16	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|
17	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|
18	|_|_|	|_|_|_|	|_|	|_|	|_|_|_|_|

Member ID	J2.15 In this secondary activity to earn money during the last year was [NAME]... 1 ... a paid employee? 2 ... self employed? 3 ... working for a family business? 88 don't know 99 REFUSED ➔*IF J2.15>1,* ➔*NEXT MEMBER*	J2.16 *(IF J2.15=1)* For whom did [NAME] work in this main activity? 01 Agribusiness Center __(name)__ 02 Other private sector employer (other farm, business, or private services) 03 Government Sector 04 NGO, Inter. Org, or Cooperative 05 Other 88 DON'T KNOW 99 REFUSED
01	|_|	|_|_|
02	|_|	|_|_|
03	|_|	|_|_|
04	|_|	|_|_|
05	|_|	|_|_|
06	|_|	|_|_|
07	|_|	|_|_|
08	|_|	|_|_|
09	|_|	|_|_|
10	|_|	|_|_|
11	|_|	|_|_|
12	|_|	|_|_|
13	|_|	|_|_|
14	|_|	|_|_|
15	|_|	|_|_|
16	|_|	|_|_|
17	|_|	|_|_|
18	|_|	|_|_|

J3. Other, non-labor, income		**J3.1** How much did your household receive during the last 12 months from [INCOME TYPE] including the value of any payment in the form of goods? [CURRENCY] -1 REFUSED -2 DON'T KNOW IF NONE, ENTER "0" ➔ *NEXT INCOME TYPE*	**J3.2** Who in your household received this payment? (Specific member, or whole household) *Use Member codes from Section B – List up to three* CAPI INSTRUCTIONS – POPULATE WITH HOUSEHOLD MEMBER CODES FROM SECTION B
(a)	Rental of land / property	|__|__|__|__|__|__|	|__|__| |__|__| |__|__|
(b)	Rental of farm equipment / animals	|__|__|__|__|__|__|	|__|__| |__|__| |__|__|
(c)	Sale of household assets	|__|__|__|__|__|__|	|__|__| |__|__| |__|__|
(d)	Remittances from family outside the household, friends or others	|__|__|__|__|__|__|	|__|__| |__|__| |__|__|
(e)	Social Security National Insurance Trust, or SSNIT	|__|__|__|__|__|__|	|__|__| |__|__| |__|__|
(f)	Private pensions or other retirement payments	|__|__|__|__|__|__|	|__|__| |__|__| |__|__|
(i)	social assistance payments from the government (i.e., scholarships, disability payments, etc.)	|__|__|__|__|__|__|	|__|__| |__|__| |__|__|
(j)	Social assistance from aid programs, church, or others	|__|__|__|__|__|__|	|__|__| |__|__| |__|__|
(k)	OTHER [SPECIFY]:_____	|__|__|__|__|__|__|	|__|__| |__|__| |__|__|

SECTION K. FOOD SECURITY

ASK THE MEMBER OF THE HOUSEHOLD MAINLY RESPONSIBLE FOR FOOD PREPARATION.

Now, I would like to ask you few questions related to your household's access to sufficient food for everyone in the household to eat during the year.

K1	During the last 12 months did your household experience a period of time when there was not enough food for everyone to eat ("Hungry Season")? *2 NO → GO TO SECTION L 1 YES 88 DON'T KNOW 99 REFUSED*	|__|	**CODES FOR K2.1 – K2.2** *01 JANUARY* *02 FEBRUARY* *03 MARCH* *04 APRIL* *05 MAY* *06 JUNE* *07 JULY* *08 AUGUST* *09 SEPTEMBER* *10 OCTOBER* *11 NOVEMBER* *12 DECEMBER* *88 DON'T KNOW* *99 REFUSED*
K2.1	What was the starting month of the Hungry Season?	|__|__|	
K2.2	Wha was the ending month of the Hungry Season?	|__|__|	

For the rest of these questions that I will ask about your household's food security, I want you to think about the last four weeks of the last Hungry Season, the [ENDING MONTH = LAST MONTH OF THE CRITICAL PERIOD]

K3	Last [ENDING MONTH] were you or any household member not able to eat the kinds of food that you usually eat because of a lack of money or other resources? *1 YES 2 NO → GO TO K4 88 DON'T KNOW 99 REFUSED*	|__|	**CODES FOR K3.1, K4.1, K5.1, K6.1** *1 RARELY (ONCE OR TWICE)* *2 SOMETIMES (3-10 TIMES)* *3 OFTEN (MORE THAN 10 TIMES)* *99 REFUSED* *88 DON'T KNOW*
K3.1	How often did this happen during [ENDING MONTH]? *SEE CODES*	|__|	
K4	Last [ENDING MONTH], did you or any other household member have to eat a smaller meal because of a lack of money or other resources? *1 YES 2 NO → GO TO K5 88 DON'T KNOW 99 REFUSED*	|__|	
K4.1	How often did this happen during [ENDING MONTH]? *SEE CODES*	|__|	
K5	Last [ENDING MONTH] did you or any other household member have to eat fewer meals because of a lack of money or other resources? *1 YES 2 NO → GO TO K6 88 DON'T KNOW 99 REFUSED*	|__|	
K5.1	How often did this happen during [ENDING MONTH]? *SEE CODES*	|__|	
K6	Last (ENDING MONTH) did you or any other household member have to sell any household assets that you did not want to in order to buy food? *1 YES 2 NO → GO TO SECTION L* 88 DON'T KNOW 99 REFUSED	|__|	
K6.1	How often did this happen during [ENDING MONTH]? *SEE CODES*	|__|	

Section L

L.1	INTERVIEWER PLEASE CHOOSE THE HOUSING TYPE FROM THIS LIST:	1 Formal dwelling / house on a separate site 2 Traditional dwelling / hut 3 Informal dwelling / shack 4 Other (SPECIFY) 88 DON'T KNOW 99 REFUSED		**L1.1** |_|	**L1.2**
L.2	How many rooms in total does this household occupy? COUNT BEDROOMS, LIVING ROOMS, DINING ROOMS, KITCHEN BUT NOT BATHROOMS -1 REFUSED -2 DON'T KNOW			|_|_|	
L.3	What type of sanitation toilet do you use daily?	0 No facilities 1 Flush toilet to sewage network 2 Flush toilet to septic tank 3 Chemical Toilet 4 Ventilated Improved Pit Latrine 5 Pit Latrine 5 Tub or bucket latrine (where feces are manually removed) 6 Other (Specify) 88 DON'T KNOW 99 REFUSED		**L3.1** |_|	**L3.2** Specify: _____
L.4	What is your main source of drinking water?	1 Piped water into dwelling 2 Piped water to yard/plot 3 Piped into someone else's yard/plot 4 Public tap/standpipe 5 Tube-well/borehole 6 Protected dug well 7 Unprotected dug well	8 Protected spring 9 Unprotected spring 10 Rainwater collection 11 Bottled/Sachet water 12 Cart with small tank/drum 13 Tanker-truck 14 Surface water (river, dam, lake, pond) 88 DON'T KNOW 99 REFUSED	|_|_|	
L.5	What is the main fuel used by the household for cooking?	1 Wood 2 Charcoal 3 Gas 4 Electricity	5 Kerosene 6 Crop residue/ sawdust 7 Animal waste 8 Other (Specify) 88 DON'T KNOW 99 REFUSED	**L5.1** |_|	**L5.2** Specify: _____

M. FARM AREA(S) SIZE(S) AND NUMBER(S) OF PLOTS

NOTE THAT THE FOLLOWING MEASUREMENTS MUST BE MADE AT THE FARMER'S PLOTS AREA(S) AND THAT SOME OF THESE MEASUREMENTS REQUIRE USE OF THE MAP60 GPS UNIT. LOCATION OF (CENTER OF) PLOT AREAS AND SIZE OF AREAS (HA) BY WALKING AROUND AREAS WITH THE GPS:

M1.1 PLOT AREA 1 – Was this plot measured? 1 YES 2 NO 88 DON'T KNOW 99 REFUSED			**COMMENTS/ OBSERVATIONS**
M1.1a	Area 1 Center Latitude	N– |__|__|__|º |__|__|.|__|__|__|'	
M1.1b	Longitude	E – |__|__|__|º |__|__|.|__|__|__|'	
M1.1c	Area 1 size (ha) -1 REFUSED -2 DON'T KNOW	|__|__|__|.|__|__|	
M2.1 PLOT AREA 2 – Was this plot measured? 1 YES 0 NO			**COMMENTS/ OBSERVATIONS**
M2.1a	Area 2 Center Latitude	N– |__|__|__|º |__|__|.|__|__|__|'	
M2.1b	Longitude	E – |__|__|__|º |__|__|.|__|__|__|'	
M2.1c	Area 2 size (ha) -1 REFUSED -2 DON'T KNOW	|__|__|__|.|__|__|	
M3.1 PLOT AREA 3 – Was this plot measured? 1 YES 2 NO 88 DON'T KNOW 99 REFUSED			**COMMENTS/ OBSERVATIONS**
M3.1a	Area 3 Center Latitude	N– |__|__|__|º |__|__|.|__|__|__|'	
M3.1b	Longitude	E – |__|__|__|º |__|__|.|__|__|__|'	
M3.1c	Area 3 size (ha) -1 REFUSED -2 DON'T KNOW	|__|__|__|.|__|__|	
M4.1 PLOT AREA 4 – Was this plot measured? 1 YES 2 NO 88 DON'T KNOW 99 REFUSED			**COMMENTS/ OBSERVATIONS**
M4.1a	Area 4 Center Latitude	N– |__|__|__|º |__|__|.|__|__|__|'	
M4.1b	Longitude	E – |__|__|__|º |__|__|.|__|__|__|'	
M4.1c	Area 4 size (ha) -1 REFUSED -2 DON'T KNOW	|__|__|__|.|__|__|	

M5.1 PLOT AREA 5 – Was this plot measured? 1 YES 2 NO 88 DON'T KNOW 99 REFUSED			**COMMENTS/ OBSERVATIONS**
M5.1a	Area 5 Center Latitude	N– |__|__|__|º |__|__|.|__|__|__|'	
M5.1b	Longitude	E – |__|__|__|º |__|__|.|__|__|__|'	
M5.1c	Area 5 size (ha) -1 REFUSED -2 DON'T KNOW	|__|__|__|.|__|__|	
M6.1 PLOT AREA 6 – Was this plot measured? 1 YES 2 NO 88 DON'T KNOW 99 REFUSED			**COMMENTS/ OBSERVATIONS**
M6.1a	Area 6 Center Latitude	N– |__|__|__|º |__|__|.|__|__|__|'	
M6.1b	Longitude	E – |__|__|__|º |__|__|.|__|__|__|'	
M6.1c	Area 6 size (ha) -1 REFUSED -2 DON'T KNOW	|__|__|__|.|__|__|	
M7.1 PLOT AREA 7 – Was this plot measured? 1 YES 2 NO 88 DON'T KNOW 99 REFUSED			**COMMENTS/ OBSERVATIONS**
M7.1a	Area 7 Center Latitude	N– |__|__|__|º |__|__|.|__|__|__|'	
M7.1b	Longitude	E – |__|__|__|º |__|__|.|__|__|__|'	
M7.1c	Area 7 size (ha) -1 REFUSED -2 DON'T KNOW	|__|__|__|.|__|__|	
M8.1 PLOT AREA 8 – Was this plot measured? 1 YES 2 NO 88 DON'T KNOW 99 REFUSED			**COMMENTS/ OBSERVATIONS**
M8.1a	Area 8 Center Latitude	N– |__|__|__|º |__|__|.|__|__|__|'	
M8.1b	Longitude	E – |__|__|__|º |__|__|.|__|__|__|'	
M8.1c	Area 8 size (ha) -1 REFUSED -2 DON'T KNOW	|__|__|__|.|__|__|	

M9.1 PLOT AREA 9 – Was this plot measured? 1 YES 2 NO 88 DON'T KNOW 99 REFUSED			**COMMENTS/ OBSERVATIONS**
M9.1a	Area 9 Center Latitude	N– |__|__|__|º |__|__|.|__|__|__|'	
M9.1b	Longitude	E – |__|__|__|º |__|__|.|__|__|__|'	
M9.1c	Area 9 size (ha) -1 REFUSED -2 DON'T KNOW	|__|__|__|.|__|__|	
M10.1 PLOT AREA 10 – Was this plot measured? 1 YES 2 NO 88 DON'T KNOW 99 REFUSED			**COMMENTS/ OBSERVATIONS**
M10.1a	Area 10 Center Latitude	N– |__|__|__|º |__|__|.|__|__|__|'	
M10.1b	Longitude	E – |__|__|__|º |__|__|.|__|__|__|'	
M10.1c	Area 10 size (ha) -1 REFUSED -2 DON'T KNOW	|__|__|__|.|__|__|	