



USAID
FROM THE AMERICAN PEOPLE



ASSESSMENT

BASELINE SURVEY FOR AN IMPACT EVALUATION OF THE GREENBELT TRANSFORMATION INITIATIVE

AUGUST 2013

This publication was produced for review by the United States Agency for International Development. It was prepared independently by Nina Blöndal, Melissa Chiappetta, and Kyle Block of Social Impact, Inc. (SI) and Andrew Epstein of Management Systems International (MSI).

CONTENTS

Executive Summary	i
Introduction	1
The Greenbelt Transformation Initiative	1
FARM Development Objectives and Project Components	1
Literature Review	3
Methodology and Limitations	5
Evaluation Questions	5
Impact Evaluation Methodology	6
Quantitative Survey	8
Qualitative Interviews	10
Study Limitations	11
Baseline Findings	15
Household Characteristics	15
Assets and Income	18
Agricultural Production	20
Adoption of Agricultural Technology	23
Post-Harvest Storage and Losses	27
Gender in Agriculture	28
Food Security	30
Conclusions and Recommendations	34
Conclusions	34
Recommendations	36
References	38
Annexes	39
Annex I: Evaluation Statement of Work	39
Annex II: Illustrative Data Collection Matrix and Work Plan	49
Annex III: Data Collection Instrument – FBO Questionnaire	53
Annex IV: Data Collection Instrument – Community Questionnaire	62
Annex V: Data Collection Instrument – Household Questionnaire	70
Annex VI: Baseline Sample Characteristics Overview	98
Annex VII: Evaluation Design	105
Annex VIII: Sample Selection and Power Analysis	107
Annex IX: South Sudan Agricultural and Food Security Situation from FEWSNET	111

ACRONYMS

AAH-I	Action Africa Help – International
ACDI-VOCA	Agricultural Cooperative Development International and Volunteers in Overseas Cooperative Assistance
AGRA	Alliance for a Green Revolution in Africa
AO	Assistance Objective
ASARECA	Association for Agricultural Research for Eastern and Central Africa
CES	Central Equatoria State
CIA	Central Intelligence Agency
COR	Contracting Officer’s Representative
COP	Chief of Party
DCA	Development Credit Authority
DEC	Development Experience Clearinghouse
DRRC	Demobilization, Recovery, and Reconstruction Commission
DFID	Department for International Development
DQA	Data Quality Assessment
EES	Eastern Equatoria State
FaaB	Farming as a Business
FAO	Food and Agriculture Organization of the United Nations
FBO	Farmer-Based Organization
FEWSNET	Farmer Early Warning Systems Network
FtF	Feed the Future
GAP	Good Agronomic Practices
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German Agency for International Cooperation)
ha	Hectares
IE	Impact Evaluation
IFDC	International Fertilizer Development Corporation
IFPRI	International Food Policy Research Institute
IPC	Integrated Food Security Phase Classification's
IPM	Integrated Pest Management
ISFM	Integrated soil fertility management
IR	Intermediate Result
JICA	Japan International Cooperation Agency
kg	Kilograms
MAF	Ministry of Agriculture and Forestry
MSME	Micro, Small, and Medium Enterprise
mt	Metric Tons
NPA	Norwegian People’s Aid
PASS	Program for Africa’s Seed Systems
P4P	Purchase for Progress
PMP	Performance Management Plan
RSM	Risk and Strategic Management Corporation
RSS	Republic of South Sudan
S4D	Seeds for Development
SNV	Netherlands Development Organization
SOW	Statement/Scope of Work
SSCCSE	Southern Sudan Centre for Census, Statistics and Evaluation
SSNBS	South Sudan National Bureau of Statistics
SSP	South Sudanese Pound
TOT	Training of Trainers
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children’s Fund
USAID	United States Agency for International Development
USG	United States Government
USD	U.S. Dollar

WES
WFP

Western Equatoria State
World Food Programme

EXECUTIVE SUMMARY

Background

The United States Agency for International Development (USAID) contracted with Social Impact (SI) in September 2012 to conduct both a mid-term performance evaluation (PE) and a baseline assessment for an impact evaluation (IE) of the Food, Agribusiness, and Rural Markets (FARM) Project. This report summarizes the findings from the IE baseline assessment, which included a small qualitative study and also incorporated findings from the PE (which was completed in November 2012).

The newest country in the world, South Sudan, is also one of the poorest. However, experts have said that the country, with its fertile soil and ideal rainfall, has the potential to be the “breadbasket of Africa.” Yet, a number of factors prevent South Sudan from reaching its agricultural potential, including the country’s rudimentary infrastructure, especially its poor-quality roads, the fact that many farmers moved away from roads during the country’s long civil war, the lack of value addition services, the limited government capacity to provide extension services to farmers, the lack of an input/output private sector, the fact that farmers have no access to finance, the limited availability and high cost of farm labor, a lack of mechanization, a nascent market structure, and continued insecurity. Even within its own borders, South Sudan has difficulty competing with lower-cost food imports from neighboring countries.

In an effort to address some of these constraints, USAID contracted with Abt Associates in February 2010 to implement the five-year, \$54 million FARM Project. While the FARM Project’s scope of work (SOW) has changed slightly over the first few years of implementation, it remains focused on three main components: increasing agricultural productivity (through the provision of improved farm inputs and training), increasing agricultural trade (by helping farmers to access markets), and capacity building of both the Government of the Republic of South Sudan (RSS) and farmer cooperatives.

Evaluation Design and Methodology

When the FARM Project began in 2010, no independent baseline assessment was conducted. As such, USAID decided to conduct a baseline assessment part way through the project period to help identify impacts between 2013 and the end of the project (2015) when USAID plans to conduct a sample follow-up survey. To select the sample for this study, SI used a stratified random sampling technique to identify 45 Farmer Based Organizations (FBOs) – groups of farmers who work together to farm at least 10 feddans of communal land – from the 174 new FBOs the FARM Project planned to reach in 2013. These FBOs had not received any FARM treatment at the time of this baseline assessment and, thus, comprise the treatment group for this assessment. This group will begin to receive FARM Project interventions beginning in 2013. To understand the impact of the FARM Project, SI paired these FBOs with 45 comparison (or control) FBOs selected to be as similar as possible to the treatment FBOs.

Since it was not possible to randomly assign FBOs to treatment and comparison groups, SI designed the impact evaluation using a difference-in-differences approach, which compares outcomes in the treatment group at baseline with outcomes in the treatment group at endline and then compares this difference in outcomes to the difference experienced over the same time period by the control group.

Additionally, SI randomly selected 30 FBOs (10 from each of the Greater Equatoria states) that received support from the FARM Project between 2010 and 2012 to examine this group’s agricultural production and use and application of technologies and practices promoted by the FARM Project. This group was included to help shed light on the potential impacts of the project to date. Throughout the report, evaluators refer to this group as the “current FARM beneficiaries,” whereas the group of future FARM beneficiaries (who have not yet received any FARM interventions) is referred to as the “treatment group,” and the comparison group, which will receive no assistance from FARM, is referred to as the “control group.” However, since the current FARM beneficiaries will not be compared to a control group and cannot be examined over time, no statistically valid conclusions can be made about project impact to date. For the purpose of drawing upon as large of a sample as possible when using descriptive statistics to describe the general state of farmers from FBO groups in these areas, some of the findings presented below include data from the “full

sample,” which includes households from all three groups (current FARM beneficiaries, the treatment group, and the control group).

In determining which households to survey within each of the 120 FBOs sampled, evaluators randomly selected 10 members from each FBO, resulting in a total sample population of 1,200 farmer households.

The survey instrument used for the household survey included modules from other validated survey instruments, including the October 2012 Feed the Future (FtF) Population Survey, the World Food Programme (WFP) Purchase for Progress (P4P) Farmer Livelihood and Agricultural Production Baseline Survey, and numerous World Bank surveys. While limited efforts to collect data on a wide scale have been attempted in South Sudan, the team also reviewed available previous survey instruments from the country and included information from them as relevant.

In addition to the quantitative survey conducted of farmer households, SI also surveyed FBO chair people and boma (the lowest government administrative level) administrators and conducted a short qualitative study of six FBOs (which was triangulated with findings from the PE) to provide context to quantitative findings.

Findings from this study follow. However, given that the study only includes data from baseline data collection, most findings are simply descriptive in nature. Also, as with any survey, it is important to note that some biases may be affecting the survey results and findings. These are elaborated upon in the limitations section of this report but include potential selection bias, response bias, and recall bias, among others. While some attempt was made to identify potential project outcomes and impacts to date through analysis of the sample of 30 current FARM beneficiary FBOs, evaluators will only be able to identify more definitive FARM outcomes upon midterm or endline data collection and analysis of the treatment and control groups. Evaluators will also be able to assess the longer-term effects of the FARM Project through analysis of the current FARM beneficiary group at baseline and midterm and/or endline.

Findings

General

Through the quantitative household survey, evaluators found that the average sample household has just more than six members, and almost 9 out of 10 household heads are male. Household heads have on average 2.5 years of education and a third have no education at all. The FBOs that have already received FARM support have the highest level of education, followed by the treatment group (which has not yet received FARM treatment but will in the future) and then the control group.

Access to Markets and Services

Most respondents travel by foot to main services and facilities such as schools, clinics, markets, and roads. Households are, on average, located within 1.5 hours walking distance of a clinic, 45 minutes of a school, a little more than two hours of a market, and a slightly more than three hours of an agricultural extension office. Travel times by group indicate that the control group is slightly more remotely located with greater time needed for household members to access roads, markets, and agricultural centers. Noticeably, current FARM beneficiary FBOs are closer to agricultural centers and markets than the other two groups. However, on average, all groups are still more than 1.5 hours from the nearest market.

Assets and Income

The evaluation team found that the average household surveyed had an annual net income of SSP 1,714, or just around \$429 USD. Current FARM beneficiaries had the highest annual income, though median incomes are similar among all groups. In addition to calculating income, evaluators constructed a Principal Component Analysis (PCA) and categorized households into wealth quintiles. Evaluators found that household wealth is mostly normally distributed, although a noticeably larger proportion of the treatment group (future FARM beneficiaries) belongs to the wealthiest 20 percent of the sample, while a larger proportion of the control group (non-FARM beneficiaries) are in the second poorest quintile.

Agricultural Yields

Using the full sample, evaluators found that maize is the most commonly produced crop, with 78 percent of farmers surveyed reporting that they grow the crop. On average, those farmers grew about 732 kilograms of maize in the year preceding this assessment. Groundnuts were the second most commonly grown crop, with 70 percent of farmers reporting that they grow that crop, averaging 780 kilograms of output in the past year. Sorghm, legumes, sesame, millet, and cassava were the third through seventh most commonly grown crops, respectively. In terms of yields (production per feddan), while current FARM beneficiaries achieved higher average maize yields than the treatment (future FARM beneficiary) and control groups, they appear to produce slightly lower yields of groundnuts and sorghum than do the treatment (future beneficiary) and control (non-beneficiary) groups. Moreover, interpretation of crop production and yield data was complicated by recall bias; the limited ability of farmers to know the exact size of their farm plots; the possibility that (according to FARM Project staff) since farmers think of their production for consumption as something completely different than their production for sale, some farmers may have responded with information about their total net agricultural production while others may have reported production destined for markets.

Adoption of Agricultural Technology

Evaluators found that current FARM beneficiaries were more likely than future beneficiaries and non-beneficiaries to state that they have received information from some donor or NGO group (including FARM) on the topics included in the FARM training curriculum. The differences are particularly noticeable for information on improved seeds, planting in rows, and planting one seed per hole, as well as applying fertilizer and keeping written records of farming activities. Although a greater proportion of current FARM beneficiaries have received such information, the numbers also demonstrate that a large proportion of both treatment and control groups received information on all of these topics as well (see Figure 15 for a breakdown of percent by topic). The differences between groups are visible not only in terms of the information received on key topics but also in the number of people implementing the practices. A substantially larger proportion of current FARM beneficiaries apply practices such as using improved seeds, planting in rows, planting one seed per hole, applying fertilizer, and even using an ox plow than farmers from the other two groups. Additionally, more treatment group members (those that will receive FARM interventions in the future but hadn't yet at the time of this assessment) had adopted these practices than members of the control group.

Gender in Agriculture

For the vast majority of activities, households report that men are the primary decision makers. Only on decisions related to weeding and harvesting do women act as primary decision makers with the same frequency as men. By examining who actually primarily engages in the same activities (not just makes decisions on them), evaluators identified a similar tendency, though women are sometimes the primary person to engage in activities for which they are not the primary decision maker – such as planting and storage of crops.

Food Security

The evaluation explored the level of hunger and food security among households and found that food shortage is a concern for some households. Forty percent of all respondents experienced reduced food consumption in the household at least three times during the four weeks preceding baseline data collection, which took place in January and February of 2013. USAID's Famine Early Warning Systems Network (FEWSNET) does not identify the weeks preceding these months as the typical lean season (which normally runs from May to August). Yet, during that same four weeks, close to a fifth of respondents reported the need to reduce food consumption for more than 10 of those 28 days. Sixteen percent of current FARM beneficiaries, 21 percent of the control group, and 29 percent of the treatment group stated that they sometimes or often go a whole day and night without eating due to a lack of food. Disaggregating results by state reveals more acute conditions in Western Equatoria. Though all conditions appear to fall below FEWSNET's definition of a crisis food security situation, there are differences between the evaluation's findings and other regional food security data, which is due to multiple factors, including different survey methodologies and the timing of the survey application.¹ Additionally, it is possible that farmers exaggerated their levels of food security in hopes of receiving

¹ These findings do not match expectations of food security in South Sudan as reported by FEWSNET, which categorizes most of Eastern Equatoria as a stressed state with concern to food security. FEWSNET categorizes most of Central and Western Equatoria with little to no food insecurity.

additional services from donors. Unfortunately, it is impossible to determine whether or not this is the case. However, even if farmers exaggerated their level of food insecurity in the baseline, this should not affect the feasibility of endline evaluators trying to understand whether the food security situation of farmers has changed as a result of the FARM Project. Rather, as long as farmers are likely to continue to exaggerate their food security concerns at endline, evaluators should still be able to assess the effect of the FARM Project on the food security situation in South Sudan.

Conclusions

The summary statistics presented demonstrate that there is a potentially large degree of selection bias present between the treatment and control groups, with the treatment group (those that will receive FARM interventions in the future but hadn't yet at the time of this assessment) being wealthier, better educated, and already more knowledgeable on key farming practices than the control group. Additionally, the survey findings and summary statistics show that both treatment and control groups already have a reasonable amount of knowledge on many of the technologies and practices that will be taught to the treatment group under FARM. Despite these differences, preliminary propensity score matching analysis shows the groups to be similar enough to compare.

Findings from the current FARM beneficiary sample do not allow evaluators to draw confident conclusions about project impact due to lack of a baseline or a valid comparison group. However, when considered alongside findings from the PE and the qualitative study, quantitative findings do shed light on some aspects of the FARM Project that might be improved. For instance, analysis of the data shows that knowledge and practice of good agricultural practices promoted by FARM are widespread for all three groups. While these practices are more prevalent among current FARM beneficiaries, these findings suggest that many farmers may not actually need training on FARM-promoted practices. Additionally, with the exception of maize, agricultural yields are not higher for current FARM participants than for the treatment or control group. There are many reasons this might be the case, including late or low-quality inputs provided by FARM (as discussed in more detail in the body of the report). Additionally, evaluators found that two of the most serious challenges facing farmers—post-harvest losses and limited market access—were addressed only to a limited extent by the FARM Project.

Recommendations

In moving forward with the implementation of the FARM Project in the new treatment areas, USAID and FARM should be aware that the vast majority of farmers in these areas already are familiar with, and in most cases also practice, many of the technologies taught and promoted by FARM. Additionally, an immediate area of focus for FARM and USAID should be to strengthen efforts to teach and promote pest management and improved storage for current and future FARM beneficiaries alike.

SI recommends a follow-up survey to be carried out in early 2015. However, this is dependent on USAID's careful consideration of the extent of change in income and agricultural productivity that the agency would be satisfied with being able to detect. If USAID expectations correspond with the minimal detectable effects allowed by the current sample size (as presented in the full report), then a follow-up survey and impact analysis should be implemented.

To avoid problems with selection bias, and in the interest of being better able to measure causality and attribution in future impact evaluations, USAID should seek to incorporate evaluation design into project design. Sufficient time and resources should be allocated for evaluation design and baseline survey implementation.

There are several reasons why baseline assessment findings may not match FEWSNET findings, which are discussed in detail in the body of the report.

INTRODUCTION

This evaluation baseline report describes the impact evaluation (IE) design and main findings from a baseline survey of the USAID-funded Food, Agribusiness, and Rural Markets (FARM) Project. USAID contracted with Social Impact (SI) in September 2012 to conduct this study.

This section presents an overview of the Greenbelt Transformation Initiative (the initiative under which the FARM Project is housed) and the FARM Project specifically. The following section introduces a number of key IE concepts and provides an overview of relevant literature. The third section describes the proposed IE approach and methodology. Main findings from both the qualitative and quantitative studies are presented in section four. Conclusions and recommendations are provided in section five, and a detailed methodology and statistics are presented in the annexes.

The Greenbelt Transformation Initiative

Agricultural development in South Sudan has the potential to drive economic diversification and reduce poverty and food insecurity in the country. Post-independence, South Sudan relied on oil for more than 98 percent of its income. However, when the government made the decision to suspend oil production after it could not come to an agreement with Sudanese government officials on how to split oil revenues, South Sudan's economy suffered immensely. Despite this, experts have cited the high potential for economic diversification and growth in South Sudan through investments in agriculture, speculating that the country has the potential to become the "breadbasket of Africa." However, several major constraints continue to limit the potential of the sector – most notably, the country's rudimentary infrastructure, especially its poor-quality roads, which result in extremely high transportation costs. Additional constraints include the lack of value-addition services, limited government capacity to provide extension services to farmers, the lack of an input/output private sector, no farmer access to financing, the limited availability and high cost of farm labor, a lack of mechanization, a nascent market structure, insecurity, and the fact that many farmers moved away from roads during the country's long civil war. Collectively, these factors render South Sudanese crops too expensive to compete with food imports from neighboring countries.

To assist the government of the Republic of South Sudan (RSS) in overcoming these challenges, USAID supports sustained and inclusive agriculture-led, development initiatives to improve economic opportunities in South Sudan. One of these initiatives is the Greenbelt Transformation Initiative, a comprehensive intervention aimed at increasing market-led agricultural productivity through a three-pronged approach: 1) improve agricultural sector productivity and marketing in the Greenbelt in support of the RSS' goal of increasing food supply and reaching food self-sufficiency; 2) focus on agribusinesses, including seed companies, trade hubs, and agro-dealers, as change agents that will sustain technology adoption and market development; and 3) develop a critical mass of seed development researchers and professionals to expand private sector seed development enterprises in South Sudan.

The Initiative consists of four interconnected funding mechanisms:

- FARM, implemented by Abt Associates;
- Seeds for Development—IFDC (S4D), implemented by the International Fertilizer Development Center (IFDC);
- Seeds for Development—AGRA, implemented by the Alliance for a Green Revolution in Africa (AGRA); and
- In some localities, the Greenbelt Transformation Initiative also includes USAID investments in feeder roads through a separate funding mechanism.

FARM Development Objectives and Project Components

The main focus of the FARM Project is to improve agricultural sector productivity and marketing in the Greenbelt and to support the government of the Government of RSS goal of increasing food supply to reach food self-sufficiency. To accomplish this goal, FARM originally intended to work through three interconnected components, as outlined in the

Project's original work plan²:

Component 1 - Agricultural Productivity

- **Provide small (in-kind) grants** of improved germplasm for selected crops (maize, groundnuts, sorghum, beans, and cassava), mechanized plowing services from private sector service providers, and goats to improve herd quality (livestock grants were discontinued in 2012) to farmer-based organizations (FBOs).
- **Train farmers** in improved production technologies and agronomic practices (i.e., seeding rates, seed spacing, timing of planting and harvest, safe seed handling, importance of weeding, post-harvest handling, storage, and farming as a business). The project employs a Training of Trainers (TOT) model, which trains FARM extension agents to lead and motivate farmers who then train individual farmers.
- **Provide demonstrations** of improved seed and management practices. On-farm and off-farm demonstrations and periodic visits by FARM extension agents serve to illustrate and reinforce lessons and monitor practices in the field. The project also establishes Farmer Field Schools (FFS), managed by lead farmers at the boma (smallest administrative unit) level to facilitate training and demonstration.
- **Establish extension offices** in each of the three FARM states and place extension workers in each county and payam in which activities are planned.
- **Establish private sector input-supply enterprises** to build capacity and increase access to improved inputs and technologies to farmers. This will ultimately supplant seed distribution through small grants. (The FARM Project did not implement this activity, as it was removed from its scope in 2011, with the addition of the S4D Projects).
- **Improve human and institutional capacity** of the extension service by training county extension staff using a TOT approach and co-locating county staff in state and county Ministry of Agriculture and Forestry (MAF) offices to facilitate exchange between FARM staff and government. FARM will also upgrade offices, and infrastructure (i.e., electricity, internet) in co-located offices.

Component 2 - Agricultural Trade³

- **Identify key feeder roads needing improvement** and share that information with the GOSS, donors, and those implementing infrastructure programs to better connect high-production areas to local and regional markets. (This activity was also removed from FARM's scope of work in 2011).
- **Conduct value chain and market analyses** to identify potential markets for each of the targeted value chains and constraints to reaching those markets. (This activity was removed from FARM's SOW in 2011).
- **Build capacity of the private financial sector** to provide credit to farmers, transporters, and traders, to facilitate growth in agricultural value chains. (This activity was also removed from FARM's SOW in 2011, with the addition of the S4D Projects).
- **Link farmers to markets or traders** by conducting marketing forums, introducing farmers and traders; supporting market information, i.e., location of surpluses; and brokering high-volume deals between farmers, traders, institutions, and other large buyers.

Component 3 - Capacity Building

- **Build management capacity of cooperatives and associations**, focusing initially on leadership, provision of technical training, harvest and post-harvest handling, and assistance with accessing finance. Work directly with cooperatives, groups, and associations as a cost-effective way to reach large numbers of farmers. FARM has only begun to take on these activities as of 2013.
- **Upgrade skill sets of the extension agents** so they can provide training to producer groups and farmers.
- **Support the GOSS in developing agricultural policies** to strengthen the enabling environment for market-led agricultural growth. As an input into this process, the project assessed the knowledge, attitudes, and practices of civil servants.

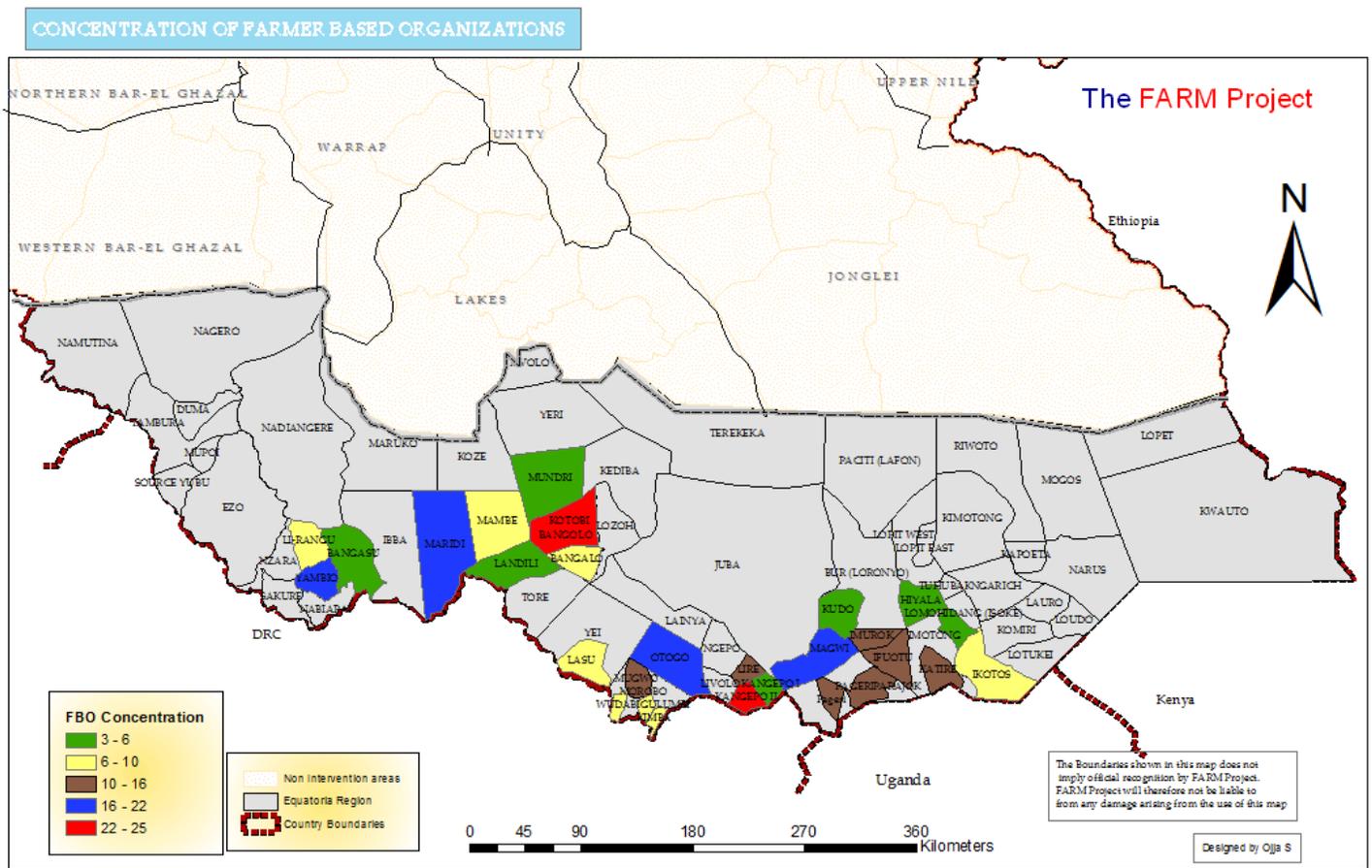
² A number of changes were made to the scope of the project in 2010. These substantially restricted project activities in marketing and narrowed the focus from livestock and a wide variety of crop value chains to four main crops. For further details on this change of scope see the Midterm Performance Evaluation, which is publically available on the Development Experience Clearinghouse (DEC).

³ Many of these activities were removed temporarily from FARM's SOW in 2011, and, as such, FARM is only beginning to engage in many most activities under Component 2 now (as of 2013)

FARM operates in three counties in each of the three Equatorial States. Within each county, the project operates in three payams, for a total of 27 payams, as illustrated in Figure 1. The bulk of FARM's work thus far has focused on providing improved seeds and training in agricultural techniques and business skills through FBOs, which are organizations composed of 10-30 farmers who farm both individual and collective land. A total of 310 FBOs have currently benefitted from FARM support, and FARM plans to expand to another 174 FBOs in 2013 and a further number in 2014.

Social Impact (SI) completed a Midterm Performance Evaluation of the FARM Project in November 2012, which described in detail the project, results, and current challenges.⁴ In particular, it concluded that the bulk of FARM inputs to date were concentrated on increasing agricultural productivity and that few gains were detected in the areas of agricultural trade and capacity (outside of individual farmer capacity). It also helped shed light on the extent to which the planned project components have been implemented thus far. A number of the planned activities underwent changes in scope and focus in 2011, and further refinements have taken place as a result of the Midterm Evaluation.

Figure 1. Greenbelt Transformation Initiative Area and FARM coverage 2011



Literature Review

A number of IEs of agricultural sector projects and programs in Sub-Saharan Africa have been carried out during recent years, yet only a few IEs have focused on FBOs. One example is an evaluation of the Millennium Challenge Account (MCA)–Ghana program “FBO and Starter Pack Component” (ISSER, 2012), which, much like the FARM Project,

⁴ The report can be found at:

<https://dec.usaid.gov/dec/content/Detail.aspx?ctID=ODVhZjk4NWQzM2YyMi00YjRmLTkxNjktZTcxMjM2NDNmY2Uy&rID=MzI2Mzg4&slD=MQ=&bckToL=VHJlZQ==&qcf=&ph=VHJlZQ>

introduced farmers to three thematic modules during the training – a Business Capacity Building Module, a Technical Training Module, and a Sales Maximization Module. Every farmer who was trained received a starter pack to pilot the knowledge and skills acquired during the training. The content of the starter pack included fertilizer, seeds for an acre, protective clothing, and some cash amount for land preparation, all valued at US\$230. The program, and hence the evaluation, was designed using a randomized phase-in approach where farmers were put into early treatment and late treatment categories to enable for the estimation of program impact between 2008 and 2011. Approximately 6,000 farmers in 1,200 FBOs were interviewed as part of this evaluation, with each farmer interviewed twice – at baseline and follow-up.

Interestingly, the evaluation found no evidence of impact of the intervention on crop yields and crop incomes, although an increase in the use of improved seeds and fertilizers by farmers was measured (mainly driven by the starter pack). The study did find, however, that training increased farmers' use of more formal sources for loans.

Although not on FBOs, a group of similar evaluations looked at FFSs, which provide training similar to the on-farm training provided by the FARM Project, though many of them are concerned with Integrated Pest Management (IPM) specifically rather than agricultural production techniques more broadly. Davis et al. (2010) evaluated the impact of FFS in East Africa. Using a difference-in-difference approach, the study found that participation in the training programs increased production, productivity, and income in nearly all cases. In Kenya, the evaluation found an 80 percent increase in crop production by farmers who participated in FFS, and in Tanzania agricultural income increased by more than 100 percent amongst farmers graduating from FFS.

The bulk of agricultural sector IEs conducted in Sub-Saharan Africa to date were designed around the hypothesis that farmers who receive direct agricultural input support are likely to be more productive, resilient, and/or to have better incomes than other farmers with equivalent land. Inputs have typically included cash grants and microfinance; savings and loan programs; loan indemnity and crop insurance schemes; training (sometimes through demonstration farms); and time-limited discounts/subsidies/vouchers for and/or direct distribution of improved seeds, fertilizers, and post-harvest storage supplies. For example, Duflo, Kremer, and Robinson (2011) examined the impact of time-limited discounts on fertilizer adoption among farmers in Western Kenya. In this study, farmers were randomly selected from lists of parents at local schools, who were then provided with fertilizer, seeds, and materials to use on a treatment plot set aside on their land. The selected farmers were then divided into four groups, each with a different approach to fertilizer use. The evaluation methods included surveys, observations, and crop yield analysis. The study found that all fertilizer treatments led to increases in yield, though in different amounts.

While many of the communities in these and similar studies aCurrent FARM Sub-Saharan Africa are characterized by conflict-affected populations whose livelihoods consist mainly of subsistence farming, there do not appear to be any evaluations specifically looking at the transition from subsistence to market agriculture, or on the particular challenges faced by conflict- and displacement-affected communities, all of which are conditions germane to the Equatoria regions of South Sudan.

There has been only one IE that overlaps with the agricultural sector in South Sudan, and this was the randomized evaluation of BRAC South Sudan's Food for Training and Income Generation Program (FFTIG) Program (BRAC, 2008; Sulaiman, 2011). The FFTIG offers an integrated package of food distribution, skill development, and savings and credit opportunities. The skills development component consisted of training in livelihood activities, mainly on vegetable cultivation. The baseline survey was conducted in 2008 to record benchmark information regarding key livelihood patterns of beneficiaries and non-beneficiaries and to help the program to craft an intervention, which can successfully create sustainable livelihoods for vulnerable women in southern Sudan, including smallholder agribusinesses. BRAC field staff members created a list of 1,058 potential beneficiaries in and around Juba. Four household poverty scoring criteria (female headship, housing structure, ownership of a house, and dependency) were used to select eligible beneficiaries. Randomization was done at the individual level, where 500 households were randomly selected to be treatment households and the rest, 558, to be control households. A follow-up survey carried out one year later in 2009, analyzed mostly the impact of the food distribution package but also concluded that the training in livelihood activities, including vegetable cultivation, was generally ineffective as participants did not start the activities they received training on and the reasons for this were not reported.

METHODOLOGY AND LIMITATIONS

This section of the report discusses the approach and methodology that the evaluation team employed for undertaking the baseline survey. Prior to deciding the approach, SI explored a number of possible methods, all of which are detailed in the Greenbelt Transformation Initiative Baseline Design Report. The aim of this exercise was to obtain the most methodologically rigorous option possible without interfering with project targets or selection criteria.

Evaluation Questions

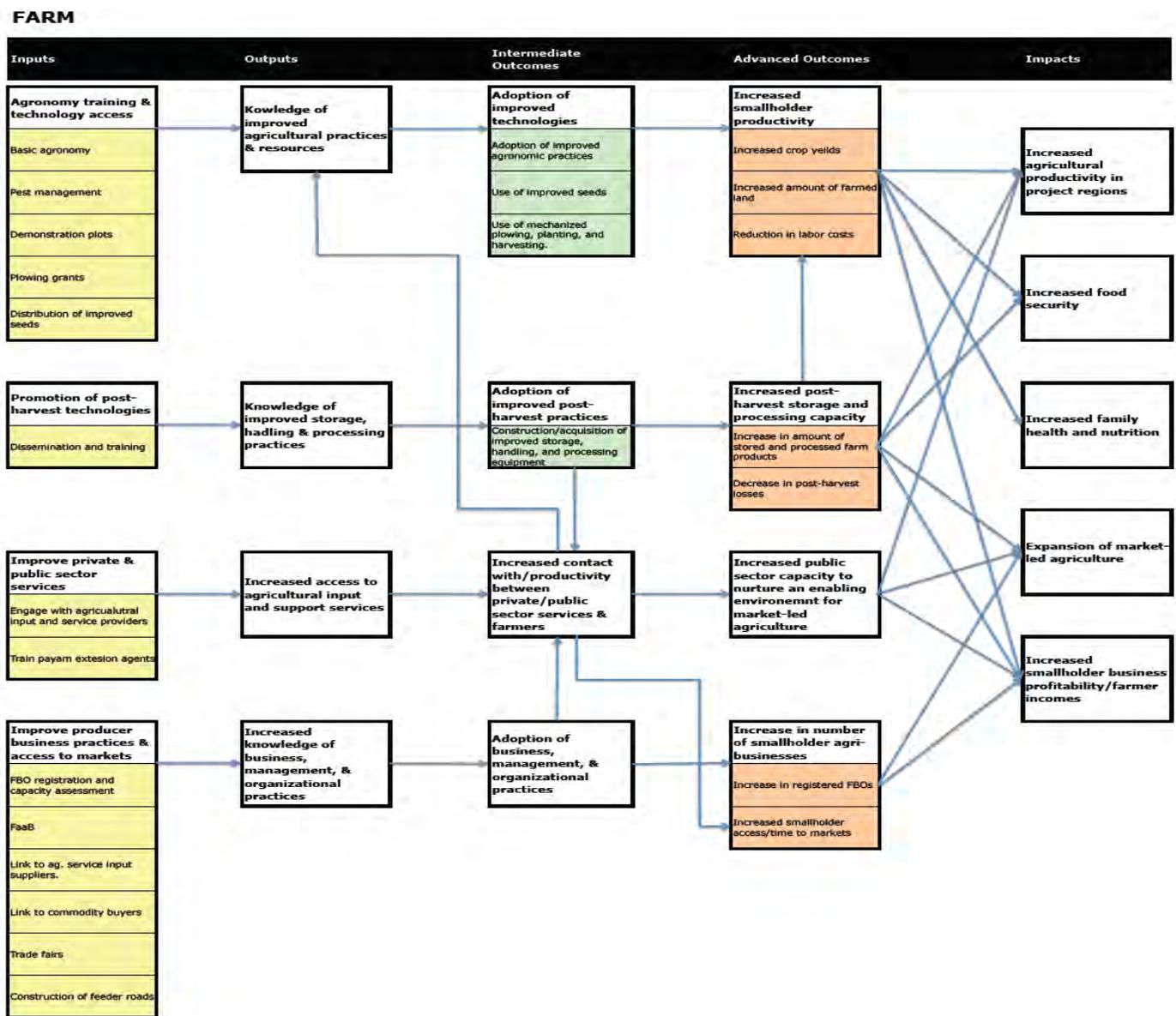
Based on the decision to focus on FARM, SI, in coordination with USAID, developed the following evaluation questions:

- 1) Do FARM Project activities improve livelihoods for FBO members participating in the project?
- 2) In particular, does the FARM Project affect:
 - Use of improved inputs
 - Yields
 - Post-harvest losses
 - Area farmed in total and with improved practices
 - Sales
 - Income/expenditure
 - Nutrition
 - Time to market
- 3) How do outcomes and impact vary according to the amount and combination of FARM support farmers receive (e.g., amount and types of training, inputs, and grants)?
- 4) To what extent are outcomes and impact affected by access to markets, roads, and towns?
- 5) How do outcomes and impact vary by socio-economic status, gender, and geographic location?

Disaggregating evaluation results by gender is also key and, as such, SI designed the survey to include a random sample of FBO members, allowing for the inclusion of women in the sample. Additionally, gender aspects were explored in the qualitative analysis through focus group discussions and semi-structured interviews.

Figure 2 illustrates the causal chain for FARM, which SI used to guide the development of household, FBO, and community questionnaires. Accordingly, evaluators should use the causal chain in Figure 2 to explore answers to the evaluation questions in depth upon midterm and/or endline data collection and analysis. Assume, for instance, that the evaluation finds little or no effect of FARM on agricultural productivity, as was the case in the evaluation of a similar MCA FBO program in Ghana described above. Measuring along the causal chain will allow evaluators to investigate what caused such limited impact. Was knowledge not obtained? Was knowledge obtained but new technologies not adopted? Were technologies adopted without a corresponding increase in yields and amount of land farmed? Finding out where the breakdown in the causal chain has occurred will allow evaluators to better prepare findings and pinpoint appropriate solutions or recommendations. Such analysis should be completed for all evaluation outcomes. While most of this can only be done following the endline survey, evaluators already know that some originally designed FARM components were not fully implemented, thereby causing some weak links in the project causal chain. Consequences of this are described in the discussion and conclusions following the presentation of the survey results.

Figure 2. FARM Project causal chain



Impact Evaluation Methodology

Before choosing a methodology for this IE, SI discussed and explored a variety of options with USAID and Abt Associates (the FARM implementing partner). While this exercise was primarily intended to be a baseline survey for new FARM activities, USAID also wanted to obtain a preliminary idea of FARM’s success to date through the collection and analysis of information on some FBOs that have already received FARM services. The evaluation, thus, contains two parts:

I. IE design and baseline data collection in new intervention and non-intervention areas

This component focuses on new areas of FARM activity. FARM plans to expand to 174 new FBOs in 2013, as well as an additional number in 2014. The project has tasked their extension agents with identifying new target FBOs for this purpose by surveying new boma areas within the same 27 payams (sub-district) in which FARM currently operates.

Potential new FBOs must meet the following criteria:

- A minimum of 10 members

- No less than 10 feddans (local measurement equal to 1.038 acres) of communally-farmed land
- Evidence of group organized activities for at least a few growing seasons

FARM completed the process for identifying new FBOs in late December 2012, listing all eligible FBOs in each payam along with additional information on production, previous training, and group capacity. The evaluation team recommended that during this process FARM staff identify an excess number of eligible FBOs, allowing the team to carry out a randomized design or a randomized roll-out design as described in Annex VI. This, however, was not an option according to FARM staff, as the identification process takes some time and resources, which the FARM Project could not commit to this activity.

Instead, evaluators selected a difference-in-differences approach. This approach involves surveying a treatment group (those that will receive FARM interventions in the future but hadn't yet at the time of this assessment) and a control group before project activities begin (baseline) and proposes to survey the same households once the project has been completed (endline). Project impact is estimated as the difference in outcomes for the two groups over time.

The difference-in-differences estimator can be expressed using an OLS regression framework as follows, in which $T2$ is a time dummy variable that takes the value of 1 if the time of observation is the post-project implementation period and 0 otherwise. The treatment dummy, D , takes the value of 1 if the unit was in the treatment group and 0 otherwise. The coefficient of interest is β_3 :

$$y = \beta_0 + \beta_1 D + \beta_2 T2 + \beta_3 D * T2 + u$$

The impact estimates obtained from this approach are valid as long as the *parallel trend assumption* holds true, which is the assumption that the two groups would have developed at the same rate in the absence of the project. This may not be the case if non-project related development plans and trajectories for the two groups are entirely different, or if particularly proactive, skilled or profit-oriented FBOs are located in the project affected area and not the control area or vice-versa. Evaluators explore whether or not it is safe to assume (at this stage at least) that the parallel trend assumption will hold true in the study limitations section of this report. And, further details still on the approach and underlying assumptions are described in detail in Annex VI.

As illustrated in Table I, the treatment group for this evaluation consists of 450 farm households selected for participation in FARM activities in 2013. The evaluation team randomly sampled approximately 45 FARM-supported FBOs stratified by state, county, and payam, and within each of these FBOs randomly survey 10 households, totaling 450 households. The comparison group similarly consists of 45 FBOs and a total of 450 households. These FBOs were sampled from those FBOs not receiving FARM support but still located within FARM payams or neighboring payams that will not receive FARM support in 2013. All comparison FBOs were chosen from within FARM counties to ensure comparability, while in each case assessing the likelihood of spillover effects.

In order for the methodology to provide reliable results, and for the parallel trend assumption described above to be valid, it was important that the control group was selected using the same criteria as those used by FARM. In addition, the comparison areas must be as similar as possible to FARM payams in terms of geography, agricultural conditions, and the socio-economic and political situation. To ensure this, the evaluation team worked with FARM to understand and follow their selection criteria. However, after visiting the project areas and discussing with FARM and payam extension officers, the evaluation team was faced with the fact that very few non-FARM FBOs existed. Where some did exist, they were often formed as part of a similar project by another agency or NGO. In many cases, therefore, rather than identifying comparison FBOs through random selection or matching, as planned, the evaluation team was limited to searching for the few existing non-FARM FBOs and using these as controls. The process the team followed in selecting control FBOs is described in detail in Annex VIII of this report, but, basically, the process involved visiting FARM staff and government officials in each of the counties where FARM works and sometimes also visiting potential control FBOs.

Secondary data is limited in South Sudan, but existing data sources were explored to see if payams and bomas could be matched using propensity score matching. However, no suitable data were available for this purpose and payams were instead matched to the best of the team's ability based on qualitative information. Given the lack of data for matching and the limited number of non-FARM FBOs available, chances that the sample may be biased are higher than otherwise. This will be discussed further in the section on study limitations.

2. Ex-post analysis

In addition to assessing outcomes amongst a group of future FARM beneficiary FBOs and a group of FBOs that will not receive any FARM intervention, evaluators also looked at a group of farmers who received FARM support between 2010 and 2012, referred to throughout the report as “current FARM beneficiaries.” Three-hundred farm households within 30 FBOs were randomly sampled for this part of the analysis, with 10 FBOs sampled in each of the three states. See the section on sampling below for details on this process. Because no appropriate baseline data is available for this group of farmers, analysis of this group consists of a Current FARM-sectional survey of farmers in FARM-supported areas at one point in time. That means evaluators cannot be certain that any outcomes identified amongst this group are due to FARM support. Additionally, while it may seem informative to compare this group of farmers with those farmers from the treatment (those that will receive FARM interventions in the future but hadn’t yet at the time of this assessment) and comparison groups (those who are not slotted to ever receive FARM treatment), no conclusions can be drawn from such a comparison because it is quite possible that any differences identified between the groups existed prior to the FARM intervention as well. Therefore, because no comparison group was identified for the current FARM beneficiaries before project implementation began with this group in 2010, there is no comparison group that will allow evaluators to estimate the impact of FARM participation for this group at this point in time. Rather, for the purposes of this report, evaluators have simply analyzed statistics and trends in technology adoption and productivity for the households belonging to this group. At midterm or endline, however, evaluators could collect new data on this group to help in determining FARM beneficiary outcomes for later years of FARM support. At that point, evaluators would compare changes in outcomes amongst this group with changes amongst the treatment and control groups.

Table 1. Sample overview

Label used in report	Current FARM Beneficiaries	Treatment Group	Comparison (Control) Group
FARM participation	Pre-2013 FARM beneficiaries	Post-2013 FARM beneficiaries	Non-FARM beneficiaries
Households surveyed	300	450	450
Households analyzed*	267	431	428

**Not all observations could be included in the analysis due to difficulties capturing the exact location of some respondents in the data.*

Quantitative Survey

SI designed the quantitative survey in collaboration with USAID to answer the evaluation questions and to measure outputs, outcomes, and impacts as outlined in the FARM Project causal chain (see Figure 2). It consists of a community questionnaire, an FBO questionnaire, and a household questionnaire. Evaluators designed the questionnaires for this evaluation but used questionnaires from previous surveys like the World Bank’s Living Standard Measurement Survey (LSMS), the Demographic and Health Surveys (DHS), and the Feed the Future (FtF) Population Survey as references. Specific modules on nutrition and hunger were included for comparability between this survey and forthcoming surveys to be carried out by the FtF Initiative and the World Bank.

The household questionnaire was designed so that interviews would last no longer than three hours. It included the following modules, each aimed specifically at uncovering what happens at each link of the causal chain:

- Household roster – for analyzing household structure.
- Household materials and ownership of assets – for measuring wealth and constructing asset indices.
- Employment info – for measuring non-agriculture income.
- Agricultural production, sales, and consumption – for measuring impact on agricultural activity/income.
- Knowledge of methods and concepts taught under the FARM Project – for measuring whether training provided the expected knowledge.

- Practices of same – for measuring whether knowledge was turned into practice.
- Farm inputs – for measuring expenses related to agriculture production, needed for measuring income.
- Livestock ownership – for measuring income and wealth.
- Income from sources not captured above.
- Consumption/expenditure – As a proxy for well-being and to understand how changes to agricultural production affect consumption and ultimately livelihoods.
- Decision-making and gender – To detect any project impact on division of labor and intra-household decision making.
- Credit – To assess financial vulnerability and access to capital.
- Nutrition – To measure impact on family health and nutrition.
- Hunger/Food Security – To measure impact on food security.

Sampling Methodology

In close consultation with USAID, a stratified, two-stage, cluster-sampling approach was chosen both for the ex-post evaluation sample and for the baseline sample. Stratifying by state and county, FBOs were chosen as the primary sampling unit and households as the second. The choice of FBOs as the primary sampling unit, as opposed to bomas or villages, was made to allow evaluators to estimate the Treatment Effect on the Treated (TOT), rather than the Average Treatment Effect (ATE). The former measures the effect of the project on those farmers who received the services, whereas the latter measures the effect of the project on residents in the boma more generally including those that did not receive the treatment. Details of the sampling process are described in Annex VII.

Sample Size and Power Calculations

The original scope of work for this study specified a sample size of approximately 1,200 households, and the budget was planned accordingly. To ensure that this sample size would allow evaluators to detect a given impact with the desired power, the evaluation team carried out a number of power calculations prior to baseline data collection.

Power calculations are completed using existing data, including, when available, a pilot or previous round of the same survey or, alternatively, a different dataset from a similar setting. The best such data the evaluation team was able to identify was the National Baseline Household Survey (NBHS) carried out by the South Sudan Bureau of Statistics in 2009. While this did not include information on agricultural production, it did contain demographic information and expenditure data for a representative sample of 5,280 households from all 10 South Sudanese states, including the state, county, payam, and cluster within which those households are located. Clusters were identical to the Enumeration Areas used for the 2008 census.

The evaluation team used Optimal Design software to complete power calculation with the expenditure data from the aforementioned survey. The desired level of power was set at 80 percent, and the significance level at 5 percent. Discussions with USAID revealed an expected yield increase for participating farmers at up to 300 percent. However, the team wished to detect a smaller effect and thus set a more conservative Minimal Detectable Effect (MDE) at between a 20-30 percent increase in consumption/expenditure.

The calculations, described in greater detail in Annex VII, revealed that a sample size of 900 for the baseline group would be able to detect an impact on expenditure of 18 percent or higher. With average expenses of about \$95 per month (as determined by analysis of the NBHS 2009 data), this corresponds to a change in FARM beneficiary's household monthly expenses from \$95 to \$112. As this was well below the expected project impact, the evaluation team was satisfied that a sample of 900 was suitable. Ideally however, given budget availability, the evaluation team would have recommended a larger sample, which would have allowed for further exploration of differential effects between states and counties. This would have also allowed the detection of smaller project effects. In comparison, the previously mentioned MCA evaluation of a similar project in Ghana included a sample of 1,200 FBOs with five members in each, totaling a sample of 6,000 households.

Following completion of the baseline survey, new power calculations were carried out using the newly collected data. The purpose was to identify the MDE for a number of outcome variables given the sample size of 90 FBOs. This

revealed that evaluators will be able to detect a change in agricultural income of 47 percent or more, a change in maize and sorghum production of 38 percent or more, and a change in yields of 37 percent or more, as shown in Table 2.

Table 2. Minimal detectable effects

	Inter-cluster Correlation*	Standard Deviations	Mean	Effect Size (MDE)	Percent Increase Evaluators can Measure
Agricultural Income	0.075	2280	1201	0.24734	46.96
Maize	0.075	1048	674	0.246988	38.40
Sorghum	0.014	840	452	0.202128	37.56
Maize yield	0.058	182	115	0.234043	37.04
Sorghum Yield	0.015	195	106	0.202128	37.18

*Inter-cluster correlation is a measure that compares variation within a cluster (in this case a FBO) with variation between clusters for any given outcome. Evaluators derived the ICC by comparing the variation for each of the variables above within FBOs with the variation for those same variables between FBOs.

Qualitative Interviews

The IE design draws on findings from the FARM Mid-term Performance Evaluation (PE) conducted by evaluation team members in November 2012. The PE primarily employed group discussions and key informant interviews. In addition, the quantitative baseline methodology employed a small-scale qualitative analysis to shed more light on a number of aspects of the survey, as discussed below. The qualitative design was driven primarily by two sources: the PE and observations of the evaluators during the baseline survey. It involved semi-structured interviews, focus group discussion (FGDs), and participant observations of members of six FBOs in Eastern and Central Equatoria,⁵ two of which belonged to the current FARM beneficiary sample, two to the treatment sample (those that will receive FARM interventions in the future but hadn't yet at the time of this assessment), and two to the control sample (those that will never receive FARM treatment). FBOs were selected randomly but with the intention of avoiding overlap between the PE and the qualitative study as well as ensuring convenience and coverage of as many areas as possible. Table 3 provides an overview of the methodology employed. Primary findings are outlined below, and the full qualitative approach is described in detail in Annex II.

⁵ The evaluation team did not visit any FBOs in Western Equatoria due to security concerns at the time of the qualitative study.

Table 3. Evaluation questions and data collection methods

Evaluation question	Methods	Source	Sampling/ selection	Data analysis methods
1. What are the perceived barriers to adopting improved agriculture practices?	Focus groups	<ul style="list-style-type: none"> Men Women 	Snowball*/available household members	Field notes and transcriptions coding. Compare responses and observations of beneficiary and non-beneficiary farmers/households.
2. What are the variations in the adoption of improved agriculture practices?	Semi-structured interviews	<ul style="list-style-type: none"> FBO Chairs FBO member farmers 	FBOs randomly selected from survey sample/farmer randomly selected from present members	
3. What are the variations in the ways farmers link (if at all) to local and regional agricultural markets and how are decisions made regarding the allocation of farm outputs for household consumption and for the market?	Participant observation	<ul style="list-style-type: none"> FBO member farmers 	farmer randomly selected from those present members	
4. What are the differential effects (if any) of changing agriculture practices on men and women.	Semi-structured interviews	<ul style="list-style-type: none"> FBO Chairs FBO member farmers 	FBOs randomly selected from survey sample/farmer randomly selected from present members.	

* Snowball sampling involves asking respondents who else evaluators should talk to and then going to visit those people and asking the same question until the desired sample size is reached.

Study Limitations

Given the environment in South Sudan—the lack of infrastructure, limited availability of secondary data identifying the population of FBOs, and limited capacity, this study was subject to challenges and limitations. Each of those challenges and potential biases are presented here.

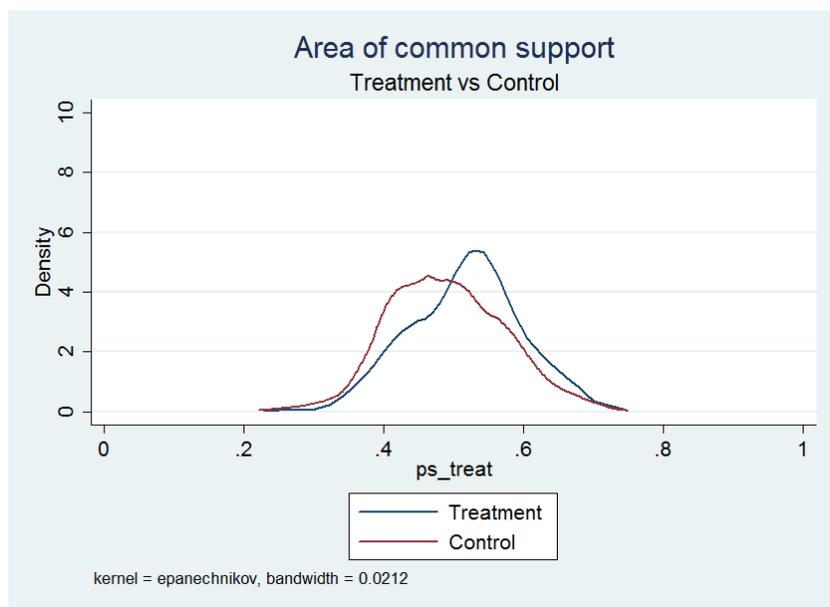
Selection Bias

Because treatment was not randomized and the evaluation team had to select the control group—through county and payam visits (as described in Annex VIII) and sometimes simply by selecting the only non-FARM FBOs in existence in specific payams, there is potential for selection bias between the treatment and control groups—meaning that the treatment group (future FARM beneficiaries) may be fundamentally different than the control group (non-beneficiaries). The reason for this is that FARM selected the FBOs it was going to work with based on specific criteria, and, therefore, the control FBOs may not meet this criteria (this may be why they weren't selected to participate in FARM in some cases). In attempt to mitigate this potential problem, the evaluation team attempted to apply the FARM FBO selection

criteria when selecting control FBOs. However, this was not always possible, as sometimes only a handful of non-FARM FBOs existed in certain payams or none of the FBOs met the selection criteria completely. Despite this limitation, evaluators can still have a valid comparison group if the parallel trend assumption holds—meaning that even if the treatment and control group do not match at baseline, as long as it is reasonable to assume that the control group would have experienced increases or decreases across key outcome variables at the same rate as the treatment group if it weren't for the intervention, then a study can still reveal valid results.

While this assumption cannot be tested, evaluators can look at the degree of similarity of the treatment and control groups across key variables that might affect the parallel trend assumption. Much of this analysis—comparing the treatment and control groups—is included in the findings section of this report, below. While findings show that the two groups are fairly different, the evaluation team used propensity score matching as an additional tool to assess the comparability of the two groups. And, fortunately, the matching reveals a high degree of similarity between the two groups in terms of access to market, access to feeder roads, agricultural income, education and gender of the household head, maize and sorghum yields, and amount of land farmed. Figure 18 shows the area of common support for the two groups.

Figure 3. Propensity score matching, treatment and control



The high degree of similarity between the two groups mitigates some of the evaluators' concerns regarding comparability of the groups. Moreover, even if a difference in trends does exist, that fact alone need not mean that no valid analysis can be carried out at endline. Rather, USAID or the team doing the endline analysis can assess the direction of potential bias and, thus, consider impact estimates as an upper or lower bound on the impact. In the case of this particular baseline group and the nature of the differences in characteristics, SI would expect any difference in trends to consist of a faster growth rate for the treatment group (the future FARM beneficiaries who have not received the FARM intervention yet). In such a case impact will be over estimated, and any impact estimates will thus constitute an upper limit of project impact.

Effect Size

The next thing to consider in assessing limitations to the study, and hence in considering whether to carry out a follow-up survey as planned, is the size of the effect USAID would like to be able to detect. As discussed in the section on sampling and power analysis above, during the evaluation design phase, USAID said they would expect to see a three-fold increase in yields. The evaluation team was slightly more conservative but was satisfied with a sample size that would allow the team to detect a 30 percent change in incomes. As discussed, the new power calculations done on the baseline data reveal that the current sample size will allow evaluators to measure a slightly more robust change in production and yields of just around 40 percent. While this is certainly much smaller than the expected 300 percent

increase projected by the FARM Project, USAID will need to consider whether they will be satisfied with being able to detect this magnitude of change.

Response Bias

There are many reasons why farmers may provide bias or less-than-truthful responses to questions. For instance, they may want to appear worse off than they are in the hopes that doing so may help to attract some donor support. Or, they may want to appear better off than they are for fear of being judged by enumerators. Additionally, some answer choices may have social connotations associated with them that would prevent farmers from wanting to provide accurate responses. FARM staff report frequent and recurrent farmer misunderstanding over the basic concepts of production and yield, so it is possible that reporting on these issues was not consistent. Evaluators attempted to reduce this potential bias by providing farmers with clear information about why they were being interviewed (including the fact that their responses would have no bearing on their participation or lack of participation in FARM) as well as transparent information about the use of their responses and the fact that they would never be identified individually or by name in any reports. Despite these efforts, some sections of the survey generated unexpected responses that did not fit with USAID's understanding of the environment. For instance, numbers on indicators of food insecurity appeared much higher than what USAID expected. USAID reports that this could be because farmers in East Africa will sometimes say that they have not eaten a meal if the timing, location, or contents of their foods did not fit certain patterns.

Recall Bias

Recall bias, which results from having to ask respondents for information from a period in the past, is inevitable. The evaluation team attempted to mitigate this potential bias by triangulating responses between the quantitative survey and qualitative survey (and also sometimes through actual measurement—when it comes to the amount of land farmed for instance) and also by giving farmers a point of reference for the quantities of their yields (i.e. - showing them a 50 pound bag). However, some recall bias is unavoidable. But, the good news is that there is no reason to believe that recall bias should differ in its severity between the treatment and control groups, which mitigates threats to the overall comparability of the groups. Additionally, in an attempt to reduce potential validity issues, the evaluation team also thoroughly analyzed the data to identify any significant outliers. And, when outliers could not be explained, they were eliminated (and noted throughout the findings section below). It is important to note that while there were some *significant* outliers, the total *number* of outliers was very small.

Inaccurate Questions

With any survey, there is always the potential that a question will be misunderstood or that it will not measure what it was intended to measure. The team worked to try and avoid such measurement issues by compiling most of the household survey modules from other validated survey instruments, including the October 2012 Feed the Future (FtF) Population Survey, the World Food Programme (WFP) Purchase for Progress (P4P) Farmer Livelihood and Agricultural Production Baseline Survey, and numerous World Bank surveys. While limited efforts to collect data on a wide scale have been attempted in South Sudan, the team also reviewed all available previous survey instruments from the country and included information from them as relevant. Finally, several enumerators pilot tested each of the data collection instruments in a handful of places in an effort to ensure questions were easy to understand and response choices made sense. Despite these efforts, it is still possible that farmers misunderstood questions or interpreted them in different ways. For instance, evaluators did not specify whether questions related to the production of groundnuts were meant to measure shelled or un-shelled groundnuts. Thus, some farmers may have interpreted this one way and others another way. Additionally, despite specifically asking farmers to report their income in South Sudanese Pounds, some farmers reported income in Ugandan Shillings. Known instances of this were very few in number and were also marked on farmer questionnaires and the data adjusted accordingly, but it is possible that some unknown (and undetectable) instances of this remained in the data.

Multivariate Analysis

In addition to the summary statistics provided in this report, the evaluation team also conducted a series of multivariate analyses to identify possible predictors of outcomes such as yields and the adoption of technology. However, the regressions performed, which tested various indicators as predictors, did not provide any statistically significant findings. A possible reason for this lack of predictors is that agricultural activities tend to have lagged effects. That is, activities completed in one period, such as the increased use of inputs, may not demonstrate effects until the next season or year.

As discussed, this report provides only summary statistics, while the bulk of the impact analysis will take place following the endline in 2015.

Summary of Limitations

As southern South Sudan emerges from conflict, new social, economic, and political patterns are still evolving. Low population densities spread across an area with one of the world's worst road networks makes sampling especially difficult. Sampling methodologies are not well established and local professional capacities are weak. Therefore, these data and conclusions may be inherently more likely than most to include errors and could also easily be misinterpreted. USAID and the authors see this publication as a potentially important step in developing a clear understanding of South Sudan's rural economy.

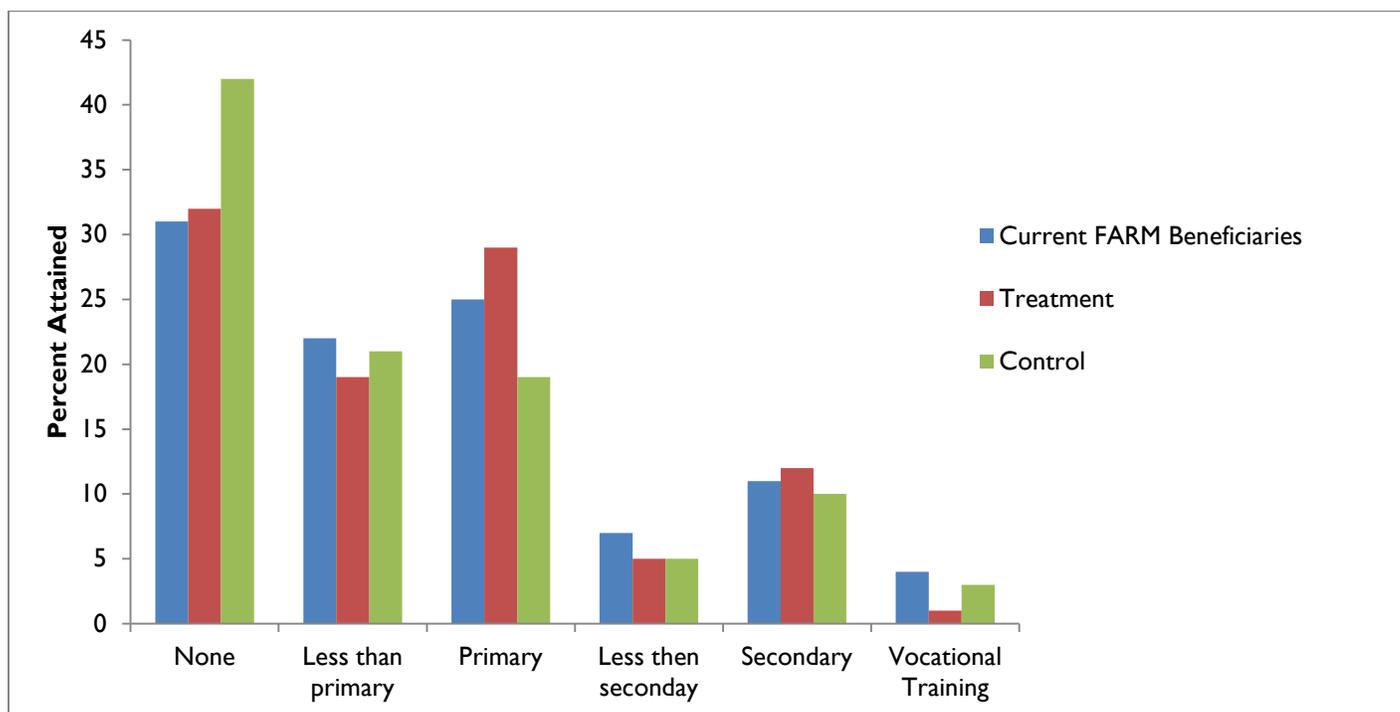
BASELINE FINDINGS

This section discusses the findings of the baseline data collection activities. The findings are presented along the themes of household characteristics, income and assets, agricultural production, gender in agriculture, and food security. The data are based on the quantitative survey conducted and are supported and elaborated upon by information collected from the PE, focus group discussions, and key informant interviews. In addition, it is possible that respondents deliberately provided incorrect data, e.g., out of embarrassment or in an attempt to attract donor resources.

Household Characteristics

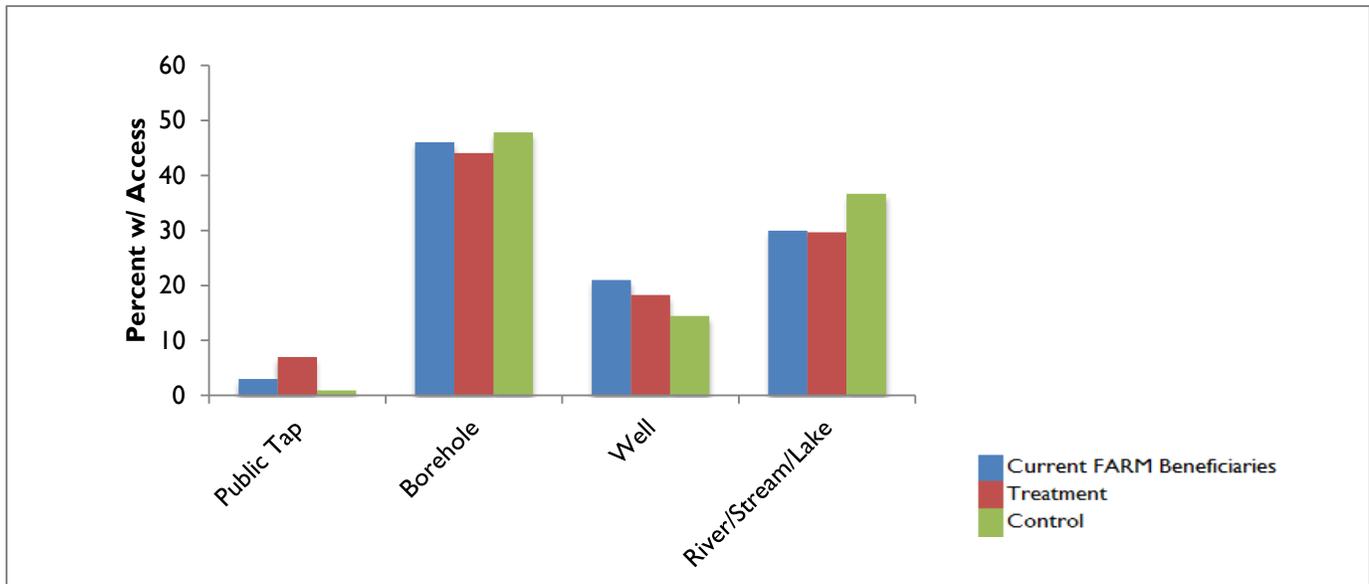
The quantitative survey sample included only rural households, with the vast majority being subsistence farmers. The average sample household has just more than six members, and almost nine out of 10 household heads are male. Household heads have on average 2.5 years of education, and a third had no education at all. As shown in Figure 4, education is highest for those households that received FARM interventions between 2010 and 2012 (the current FARM beneficiary group), a quarter of whom have completed primary school and just more than a tenth of whom have completed secondary school. The lowest level of education is found in the control group where more than 40 percent has no education at all.

Figure 4. Education of household head



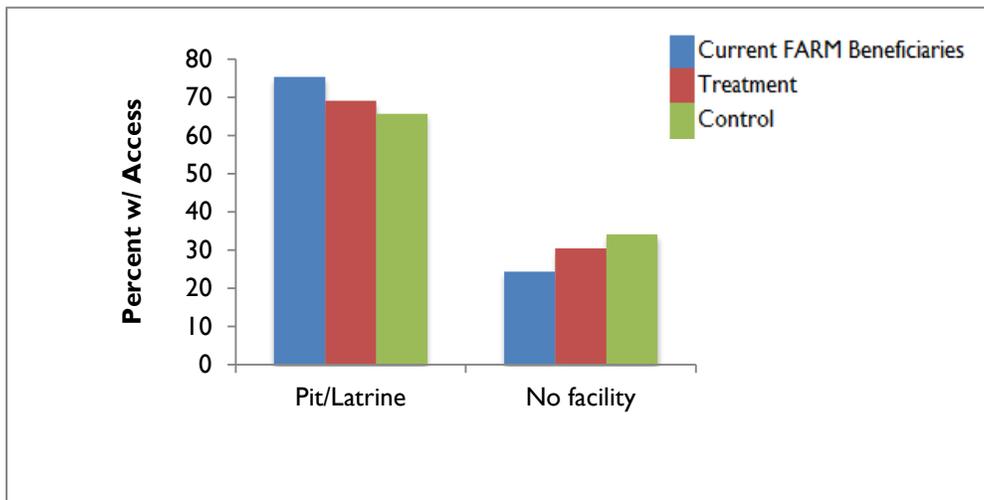
Close to 90 percent of respondents live in a mud wall tukul with a mud floor and a thatched roof, with the majority of the remainder living in concrete or wood-wall houses. Six percent have roofs made of corrugated metal (see Annex VI for more detail on household characteristics). The main source of lighting for most homes is a battery torch followed by firewood, grass, and battery-driven light bulbs.

Figure 5. Household access to drinking water sources



Just less than half of the surveyed population uses a borehole as the main source of drinking water, whereas around a third of households obtain their drinking water from rivers, streams, or ponds with some variation between the sampled groups as shown in Fig 5. The proportion of households that obtain their drinking water directly from rivers or streams is seven percent higher in the control group than the treatment group (which is very similar to the current FARM beneficiary group in terms of the source of each group's drinking water). Similarly, sanitation facilities are less frequent in the control sample, and most frequently available in the current FARM beneficiary sample, where 70 percent of people have a pit latrine, shared or private (Figure 6).

Figure 6. Household access to sanitation facilities



Most households travel by foot to main services and facilities such as schools, health clinics, markets, and roads. Table 4 provides an overview of the proportion of respondents who travel exclusively by foot to reach key facilities or infrastructure. Figure 7 illustrates distance to these services measured in hours of walking. Respondents, on average, are located within 1.5 hours walking distance of a clinic, 45 minutes of a school, a little more than two hours of a market, and a little more than three hours of an agricultural extension office. There are some differences between the groups, with the control group being located further from markets and agricultural extension offices, while current FARM

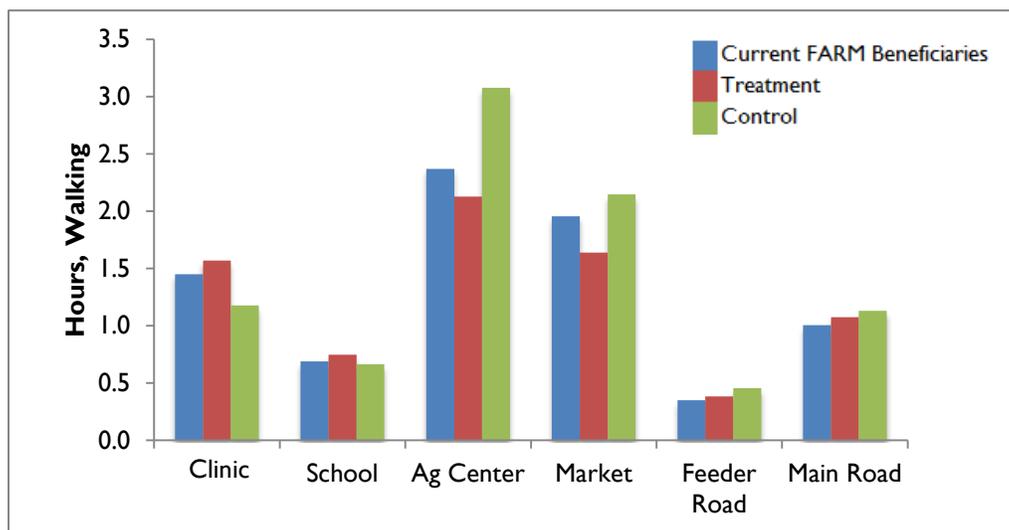
beneficiaries are located slightly closer than the other groups to feeder and main roads, though the difference is a matter of less than ten minutes walking distance on average.

As illustrated, the longest travel time is needed to get to an agricultural center, followed by the time needed to get to a market – an average of two hours by foot for existing FARM beneficiaries. This supports the FARM Project’s tenet that transportation and access to markets are critical inhibitors to increased agricultural productivity in the country. This finding supports findings from the Midterm PE, which found that access to markets (both in terms of market centers and buyers who might visit farmers in their communities) remains one of the greatest barriers for farmers in South Sudan.

Table 4. Proportion of respondents traveling by foot

Service	Observations	Percent
Health Clinic	1,196	99.67
Agricultural Extension Center	1,017	84.75
Market	1,165	97.08
Feeder road	1,136	94.67
Main road	1,168	97.33

Figure 7. Walking distance to services



Similarly, four of the six FBOs interviewed during the baseline qualitative study reported serious challenges in the area of market connections, citing the expense and challenge of moving farm products from storage to market. The two FBOs with stronger market connections – one current and one future FARM beneficiary group – had them for different reasons: one was near a paved and well-travelled road while the other had a regular customer – in the form of a bulk cereal buyer – nearby. All six FBOs expressed desires for a middle-man bulk buyer to come to their farm. None expressed any desire to take the products to market themselves due to the distance and cost.

Information from the Midterm PE demonstrated that FARM’s results on improving farmers’ access to markets have been limited to date. However, in addition the distance between households and markets or agricultural centers, the Midterm

PE report found that market access is also hampered by a continued lack of surplus crops and transportation among many groups.

FBOs interviewed during the baseline qualitative study as well as those interviewed during the PE also identified geographic isolation and transportation as contributing to post-harvest losses. The lack of access to proper vehicles and poor road conditions strand farm products in less-than-ideal storage facilities for long periods, leading to spoilage. One of the two FBOs interviewed (during the qualitative baseline study) that had strong market connections had the luxury of a local bulk buyer who sent trucks to the FBO's storage facility and bought directly from the FBO at prices that were nearly triple those fetched by FBOs in other regions. Part of the higher price had to do with the quality of the product vis-à-vis the way it was stored (on pallets in a cool, dry place). Establishing strong market links appears to require a combination of access to adequate storage facilities, transportation, and the existence of aggregate buyers.

Assets and Income

The survey collected information on asset ownership and income. Using reported earnings from agricultural production, wage labor activity, business activity, livestock, and other sources of incomes, the evaluation team calculated net household and net per capita household income. While there is quite significant variance and a number of outliers reporting very high incomes, which pull mean incomes upwards, the team found that the average household surveyed has an annual net income of SSP 1,714, or just around \$429 USD and an agricultural income of SSP 1,144, equal to approximately \$286 USD (representing approximately two-thirds of all household income, on average). The remaining one-third of household income is comprised of income from other sources, including non-agricultural labor, businesses, remittances, sale of handicrafts, religious payments, etc. Figure 8 illustrates net per capita income and agricultural income for the three sample groups, indicating a slightly larger mean income for current FARM beneficiaries,⁶ though median incomes are similar for the three groups. The balancing tests for the baseline survey (See Annex VI) reveal no statistically significant differences in incomes for the treatment and control samples (future and non-beneficiaries).

Furthermore, in addition to calculating income, evaluators constructed an asset index using Principal Component Analysis (PCA). Figure 9 shows the proportion of the three groups belonging to each wealth quintile. We see that respondents belong reasonably equally to each quintile, though a noticeably larger proportion of the treatment group belongs to the wealthiest 20 percent of the sample, while a larger proportion of the control group are in the second poorest quintile. A test of asset ownership for the baseline sample (Annex VI) shows that the treatment group (those that will receive FARM interventions in the future but hadn't yet at the time of this assessment) is statistically significantly wealthier than the control group, which, looking at Figure 9 appears to be driven by the excess of wealthier treatment group members.

⁶ The fact that current FARM beneficiaries report higher income than the control or treatment group could be due to benefits already experienced by this group from participation in the FARM Project or it could be that the group already had higher incomes before FARM, or (as shown in Figure 8) it could simply be that such a difference does not exist at all in the full population of current FARM beneficiaries and is only showing up here because of bias in sample selection (due to having a small sample size). The latter is a possibility because the error bars for this group overlap with error bars for the other groups.

Figure 8. Income by group for the year preceding the baseline survey⁷

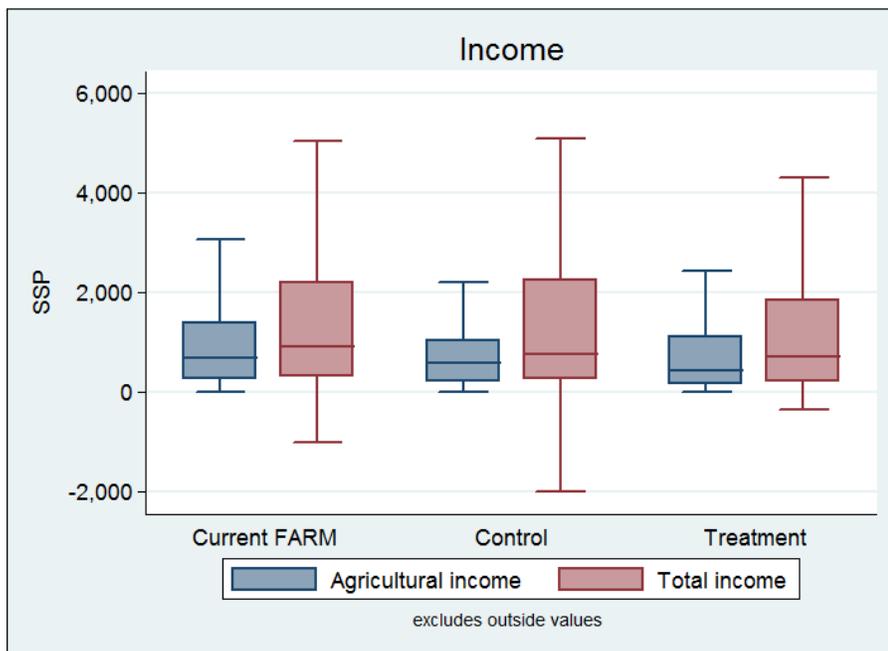
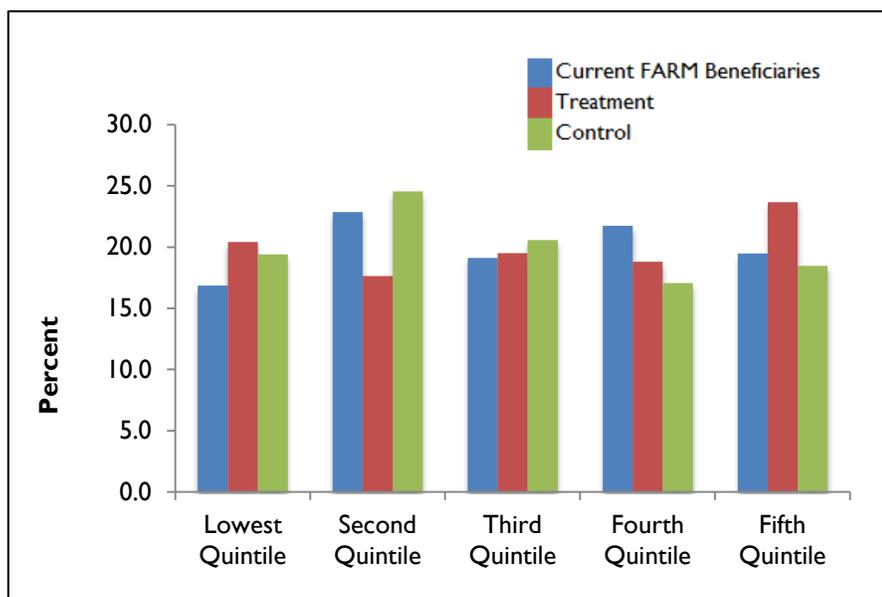


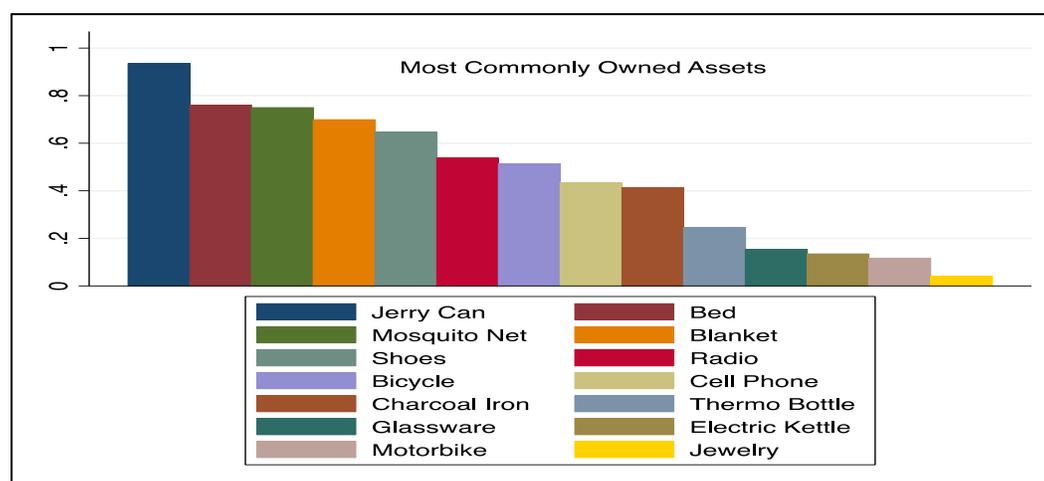
Figure 9. Asset wealth quintiles



As demonstrated in Figure 9, the evaluation team found that the most commonly owned assets are jerry cans for fetching water (nearly 100 percent of respondents report having a jerry can), followed by beds (with about 75 percent of households owning a bed), mosquito nets (with about 75 percent of households owning a mosquito net), blankets, and shoes. The number of respondents owning cars, trucks, and/or tractors was so few that they cannot be represented in Figure 10.

⁷ The rectangles represent the range of incomes by group, with the horizontal lines representing the average income. Error bars (the T-bars above and below represent range) represent the range within which the mean of the entire population (rather than just the sample, presented here), might fall.

Figure 10. Household assets, percent claiming ownership⁸



Agricultural Production

Nearly eighty percent of all households grow maize, making it the most commonly produced crop, followed by groundnuts and sorghum, as shown in Table 5. The commonality of crops by treatment group is presented in Figure 11, which shows that there aren't any *major* differences in the likelihood that the treatment and control groups grow certain crops—though the treatment group (future FARM beneficiaries) is slightly more likely to grow maize and groundnuts than the control group.

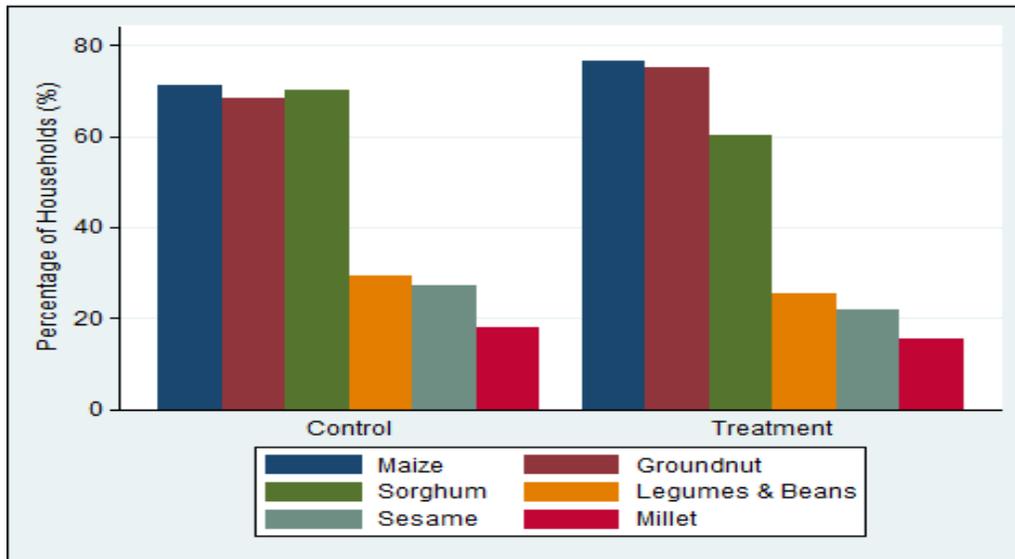
Table 5. Most commonly grown crops and mean production per crop* – all groups

Crop	Observations	Mean Production	Standard Deviation	Minimum Production	Maximum Production	Households Producing (%)
Maize	936	731.70	1,189.07	1	200,000	79
Groundnuts	840	779.41	1,074.06	1	13,300	74
Sorghum	704	473.51	823.41	1	10,700	62
Legumes/Beans	286	198.06	380.38	1	4,000	26
Sesame	282	144.46	196.34	0.5	1,350	25
Millet	158	315.97	450.32	1	3,500	14
Cassava	72	866.65	728.44	0.5	3,000	12

* Mean production per crop does not include those households that do not grow the crop.

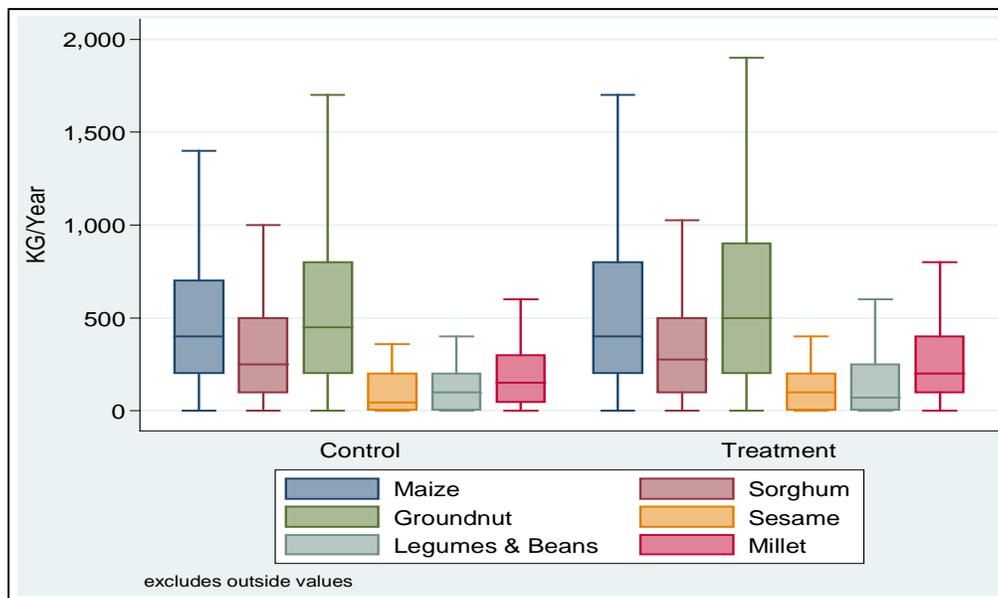
⁸ The y-axis of the figure differentiates between each of the assets (as described in the key).

Figure 11. Most Commonly Grown Crops (Treatment and Control Only)



The crop with the highest average household production is cassava, with a mean production per household of 867 kilograms during the three cropping seasons preceding this assessment. Groundnuts, with a mean household production of 779 kilograms, are the crop with the second highest production, followed by maize, sorghum, millet, legumes/beans, and sesame, respectively. Production figures by crop are presented in Table 5, and Figure 12 illustrates the range of production of the six most common crops for the treatment and control groups only, with the horizontal line in each box indicating median production value.⁹ Mean production for the top five crops for treatment and control groups are shown in Annex VI.

Figure 12. Mean production of most common crops



Production in kilograms, as reported above, provides an overview of the magnitude of production of each crop. These numbers, however, do not take into account whether the quantities are driven by farmer preference for specific crops in terms of area grown or whether they are driven by yield – defined as output per unit of area grown (measured in

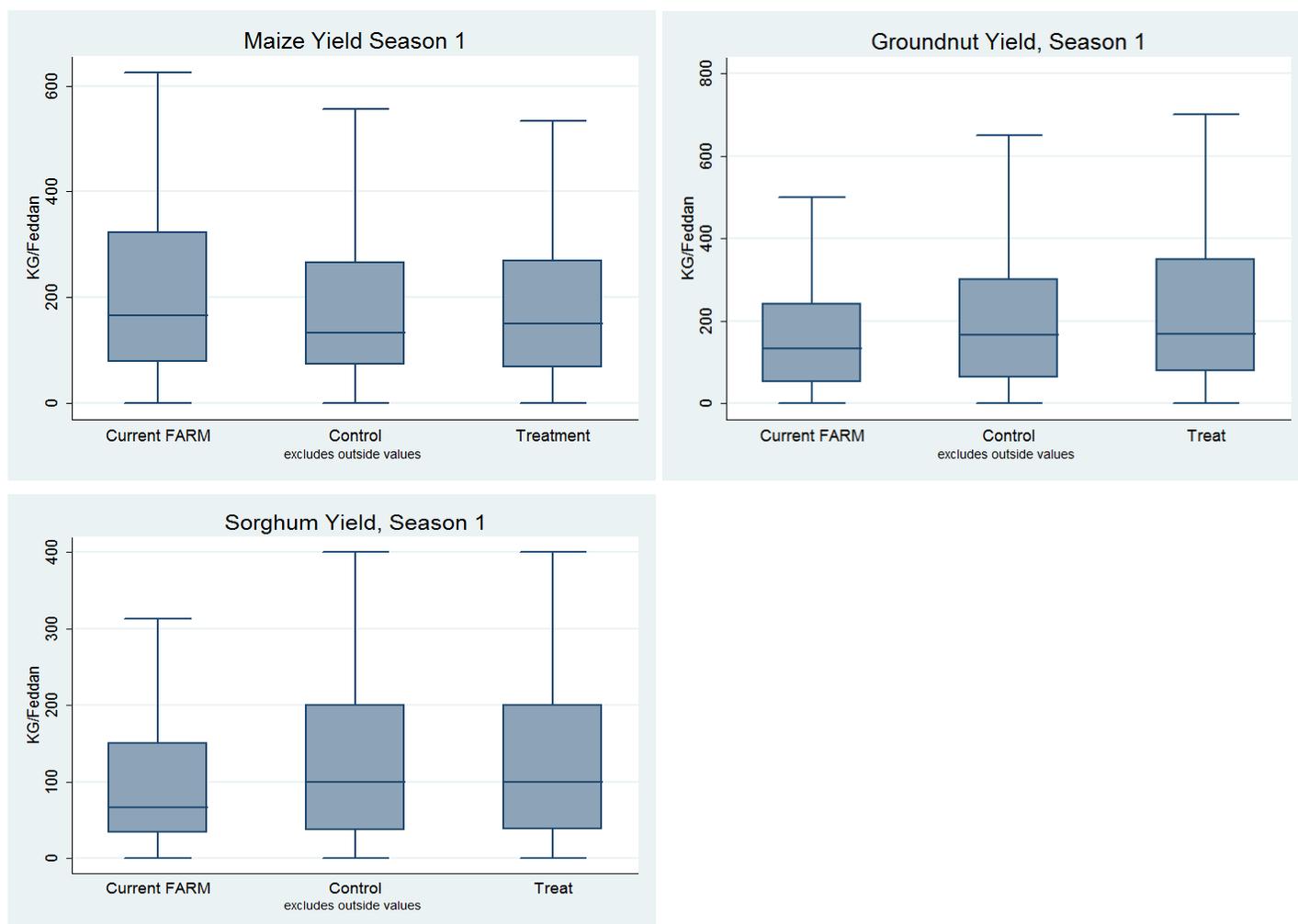
⁹ The figure includes the full sample. Outliers and values that are more than 2/3 of the upper quartile are not pictured.

feddans). The latter is the most appropriate measure for examining changes to productivity as a result of new technology and is also the best measure for examining differences in productivity between groups. Yield, measured in this study as kilograms/feddan, will allow endline evaluators to understand whether FARM and the agricultural technologies promoted by FARM have been successful in improving output from cultivated land. Yields for the three most commonly produced crops are 927 kilograms/feddan for maize , 833 kilograms/feddan for groundnuts, and 696 kilograms/feddan for sorghum. The study also looked at production of cassava, which is one of the FARM Project’s targeted crops. While only a small number of households produced this crop—27 FARM households and 41 in treatment/control households, evaluators found an average production amongst those households of 72 kilograms/feddan. (See Annex VI for more detailed numbers on crop production and yields).

Looking more closely at yields for the three most commonly produced crops—groundnuts, maize, and sorghum—the data reveals some differences in yields across the three study groups (current FARM beneficiaries, future beneficiaries (treatment), and non-beneficiaries (control), as illustrated in Figure 13. Specifically, while yields appear to be very similar between treatment and control groups (which is very good for the validity of this study), the current FARM beneficiary group appears to have higher maize yields than the other two groups but lower groundnut and sorghum yields.

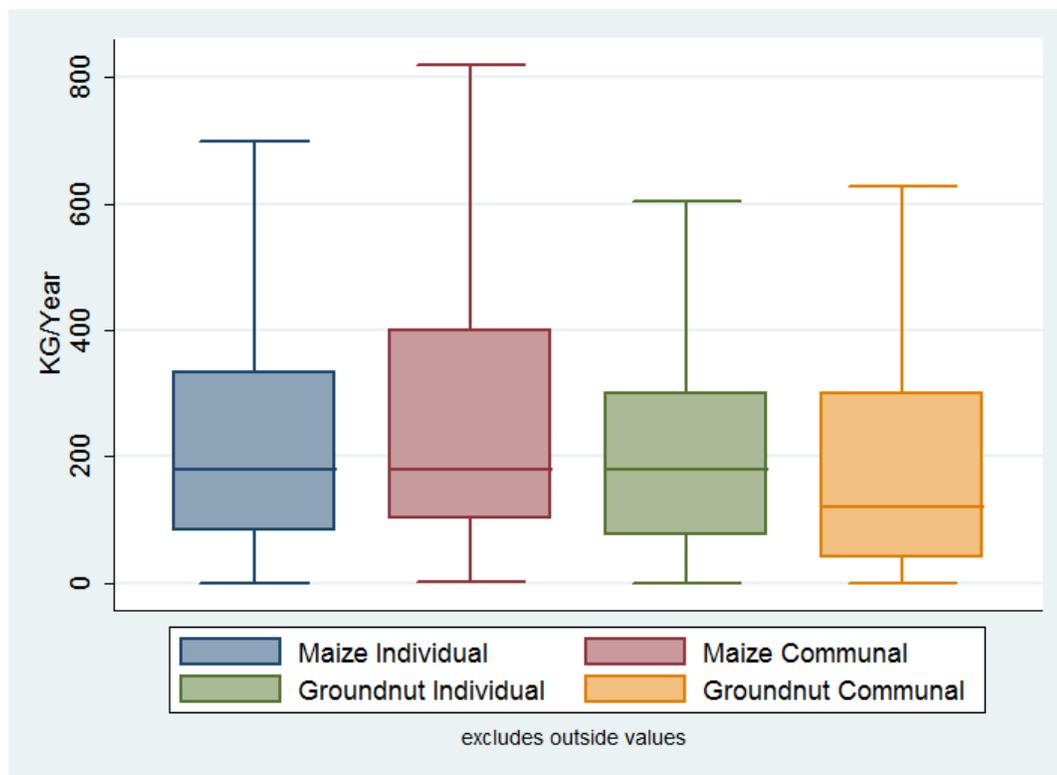
Current FARM beneficiary yields may be lower than expected because, as the PE evaluators found, some current FARM beneficiaries reported that their crops sometimes failed either because they did not receive FARM-supplied inputs (specifically seeds and tractor services for plowing land) in time to plant their crops according to the appropriate harvest schedule or because the inputs they did receive (in this case seeds) were poor quality, leading to poor germination rates.

Figure 13. Common crop yields –maize, groundnuts, and sorghum



The data on crops grown on communally farmed land show that groundnuts and maize have higher yields/ feddan when grown communally rather than on individual land (Figure 14). While reasons for this need to be explored more closely, this finding corresponds well with qualitative findings that improved technologies, including those taught by FARM, were often carried out on communal land, but not on the land farmed individually by the households.

Figure 14. Yields by type of land (current FARM beneficiaries)



Interpretation of crop production and yield data was complicated by recall bias; the limited ability of farmers to know the exact size of their farm plots; and the possibility that (according to FARM Project staff) since farmers think of their production for consumption as something completely different than their production for sale, some farmers may have responded with information about their total net agricultural production while others may have reported production destined for markets.

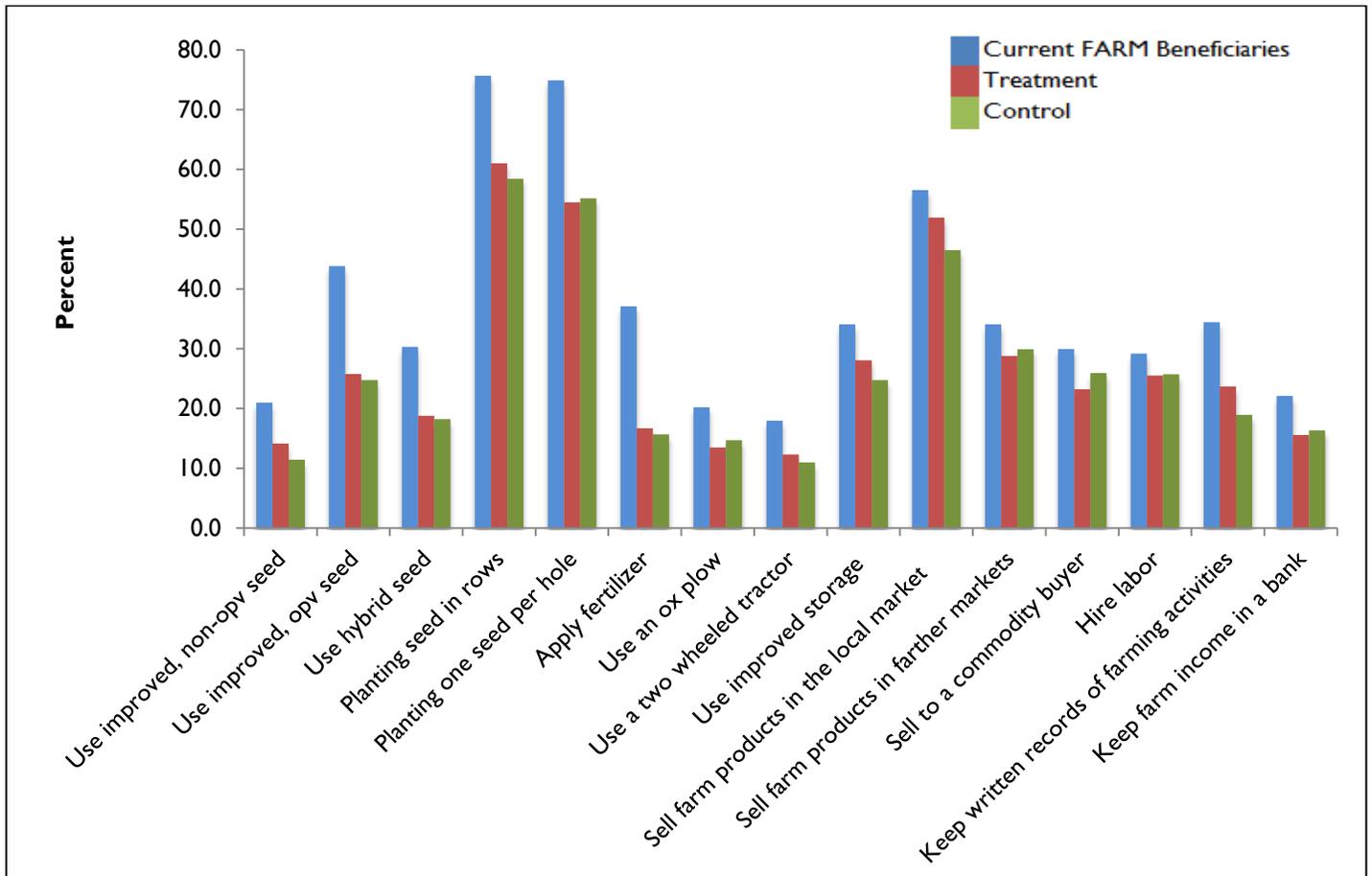
Adoption of Agricultural Technology

Where differences between the groups became most evident is on the knowledge and practice of the agricultural technologies promoted by FARM.

Evaluators found that current FARM beneficiaries were more likely than those from other groups to state that they received information from some non-governmental organization (NGO) or group (which could include FARM) on the topics included in the FARM training curriculum. Three quarters of current FARM beneficiaries reported having received information on planting in rows and planting one seed per hole, close to half said they had received information on using improved open pollinated variety (OPV) seeds, and a third said they had received information on the use of improved storage. Although these numbers were higher for current FARM beneficiaries than for the remaining respondents, the numbers also show that a large proportion of the baseline sample – both treatment and control groups (future and non-beneficiary groups) – received information on these topics as well. For instance, a quarter of both the treatment and control groups, received information on using improved, OPV seeds, and close to 60 percent received information on planting in rows. This is perhaps not strange. According to information from both the PE and the baseline qualitative study, the technique of planting in rows has been promoted for decades by different development agencies and NGOs, so the majority of people are likely to have learned from either past trainings or through their social networks.

The differences between groups—shown in Figure 15—are particularly noticeable for information on improved seeds, planting in rows, and planting one seed per hole, as well as applying fertilizer and keeping written records of farming activities.

Figure 15. Received information about agricultural technologies in previous year

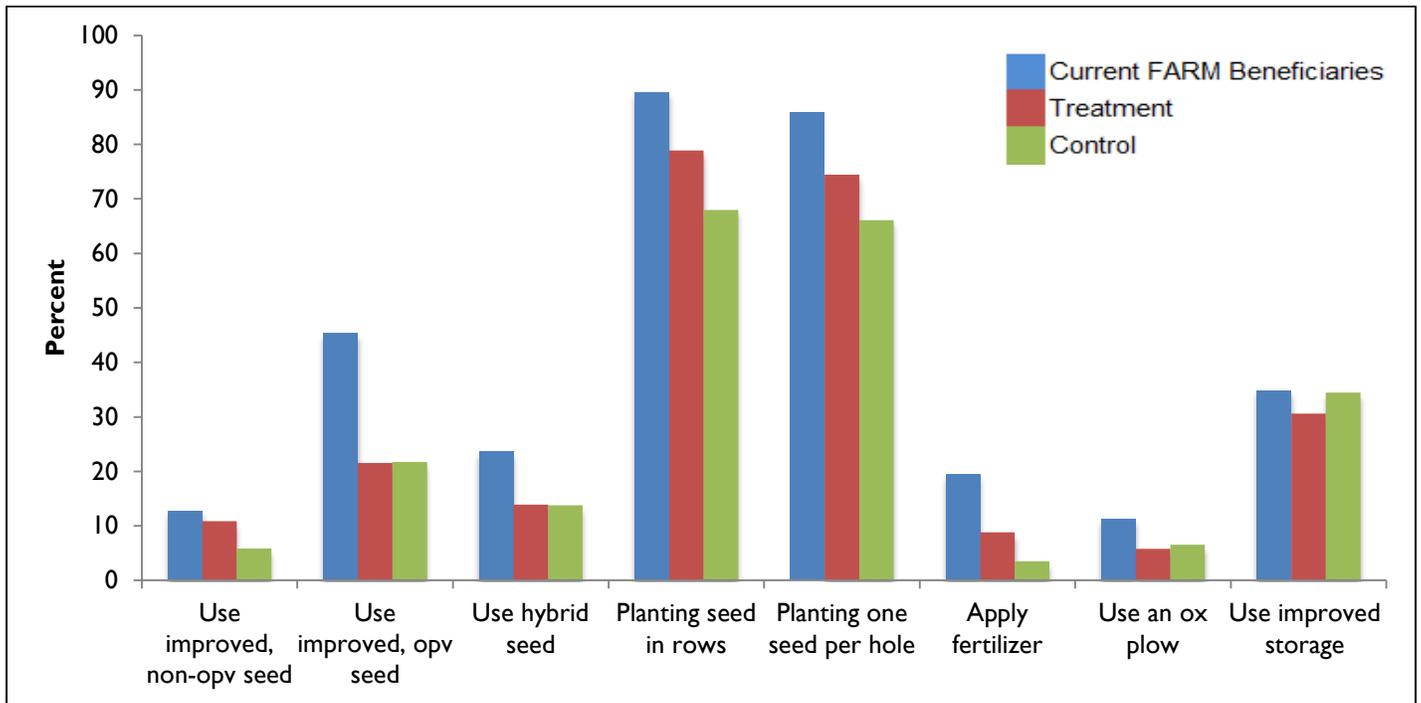


Narrowing in on current FARM beneficiaries, the numbers show that a limited proportion of these households have in fact received information on many of the practices and technologies promoted by FARM. For example, only a fifth of beneficiaries reported receiving information on using improved non-OPV seeds (despite findings from the PE that all FARM beneficiary FBOs had received improved seeds from the project), and only 35 percent received information on improved storage, quite a low number considering qualitative findings that post-harvest losses are one of the major challenges farmers face. The issue of post-harvest losses and storage will be explored further below.

The differences between groups are visible not only in terms of the information received on key topics but also in the number of people implementing the practices. Figure 16 illustrates this well for a select number of technologies. A substantially larger proportion of current FARM beneficiaries apply practices such as using improved seeds, planting in rows, planting one seed per hole, applying fertilizer, and even using an ox plow (though using an ox plow to date has not been a practice promoted by FARM except in a few limited areas, which is reflected in just 11 percent of existing FARM beneficiaries using one). Within the treatment and control groups, there is quite a large difference in adoption of many of these practices. Annex VI provides the results of t-tests between the groups for each of the main practices and technologies promoted by farm. The control group applied the practices significantly less in the case of six of the 16 practices analyzed: using improved non-OPV seeds, planting in rows, planting one seed per row, applying fertilizer, selling products in the local market, and keeping written records of farm activities. While there may be several reasons for these significant differences, it may indicate that the treatment group (those that will receive FARM interventions in the future but hadn't yet at the time of this assessment) has been subject to some degree of spillover or contamination

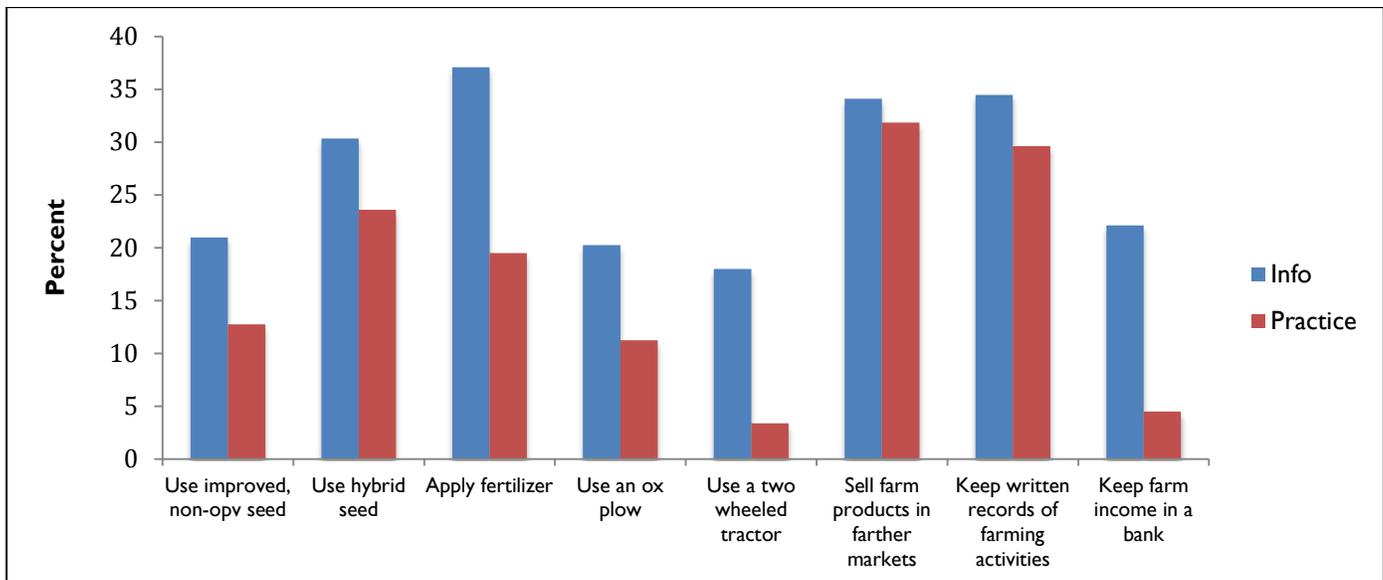
effects, the former referring to a spillover of FARM knowledge to non-FARM groups nearby, and the latter referring to the existence of similar projects within these areas.

Figure 16. Agricultural practices



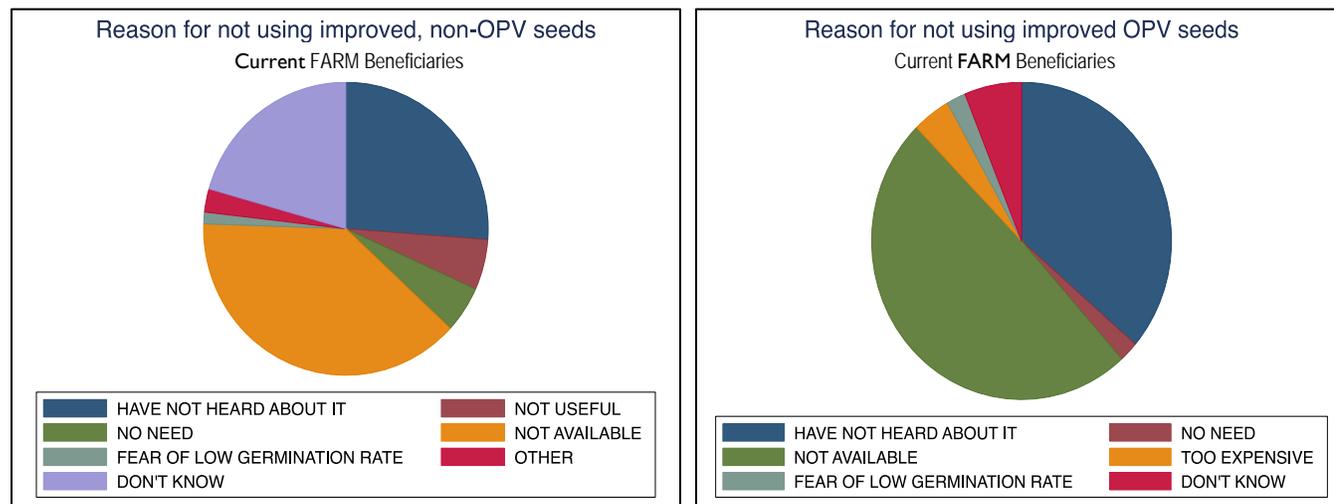
Despite the greater proportion of current FARM beneficiaries implementing a range of practices, a gap remains between knowledge and practice of a number of the promoted technologies. Figure 17 illustrates this gap for the sample of current FARM beneficiaries – those who already have participated in FARM activities. In particular, the gap is large between information and practice related to use of improved non-OPV seeds, applying fertilizer, and keeping income in a bank. This may be due to a lack of availability of each of these inputs in South Sudan, a fact supported through findings from the Midterm PE.

Figure 17. Information practice gap



The survey explored the reasons (amongst all groups) for not adopting various technologies and practices included in FARM trainings. Figure 18 shows the reasons reported for not using improved non-OPV seeds and improved OPV seeds for those households who have already participated in FARM activities. A total of 36 percent of respondents say they have not heard of improved OPV seeds and half say they are not available to them. A few think they are too expensive, there is no need to use them (they do not understand the benefits), or fear that the seeds have a low germination rate. The numbers for non-OPV seeds are similar though only a fourth here say they have not heard of the seeds, and just less than 40 percent say the seeds are not available. One in five say they do not know why they use the seeds, which may also indicate a lack of information or awareness of the technology.

Figure 18. Reasons for not using improved seeds



Qualitative Findings on Agricultural Practices

The qualitative baseline study explored further variations in the adoption of improved agricultural practices. The study found that all of the six FBOs interviewed (including the treatment and control groups that have not benefited from the FARM Project) expressed a firm grasp on most of the basic agronomic principles that are part of the FARM training curriculum due to the fact that most members had attended or knew someone who attended training provided over the last few decades by the government or other NGOs, including the Demobilization, Recovery, and Reconstruction Commission (DRRC) and Norwegian People’s Aid (NPA), most recently. The methods used to clear, plow, plant, weed, and harvest crops were generally consistent across the three different types of FBOs, with the exception of a few variations mentioned below. This means that, despite findings from the PE in which FARM-beneficiary FBOs reported strong positive effects of FARM trainings, it would be very difficult to attribute knowledge about these practices to the FARM Project alone.

Planting

The qualitative evaluation component found differences between knowledge and practice in regards to the manner in which seeds were planted. Amongst members from the treatment and current FARM beneficiary groups, a palpable degree of skepticism toward the germination rates of FARM Project-supplied seed is held. As such, these farmers often place anywhere from two to five seeds in each hole to ensure that at least one will germinate, but then thin to two to three plants, instead of starting by planting only the recommended one seed per hole.

One current FARM beneficiary farmer showed evaluators a field planted with FARM maize seeds that had regular gaps in the rows, where seeds had not germinated. The farmer who owned that field estimated a germination rate of about 75 percent for the seeds they were given by FARM. This same farmer showed evaluators a field planted with local seeds that appeared to have a higher rate of germination. This same scenario was found with a treatment FBO in a different location. In general, all the FBOs planned to thin the rows after assessing the germination rate. However, two FBO chairmen explained that they leave two to three stalks rising from a single hole, explaining that these extra stalks made

up for the spaces where no seed had germinated. When asked about plant yields from multiple stalks growing per hole, the farmers said this was not a concern. According to them, “The plants still grow big.”

It is important to note that this practice of planting multiple seeds per hole was practiced much less frequently by those current FARM beneficiaries interviewed during the PE – most of whom also reported lower yields from planting more than one seed per hole. PE team members also observed larger crops growing in areas where one seed was planted per hole than in other areas. Given the sample size of the PE study (17 FBOs) compared to the current FARM beneficiary qualitative sample size in the baseline study (2 FBOs), it is likely that current FARM beneficiary FBOs may be planting one seed per hole more often than experienced during the baseline qualitative study.

Clearing

Similarly, the study found a slight differentiation in understandings of proper clearing techniques, usually having to do with burning field refuse after slashing. Four of the six groups interviewed during the qualitative study understood that leaving refuse in the field is good for the soil. The other two – one control and one current FARM beneficiary FBO – reported that they collect their refuse and pile it under trees to kill the trees and keep shade from affecting their crops. The FBOs engage in the latter practice due to the limited availability of axes and tractors to cut down the trees that grew in abundance when farmers moved away from their land during the lengthy civil war.

Communal Versus Homestead Plots

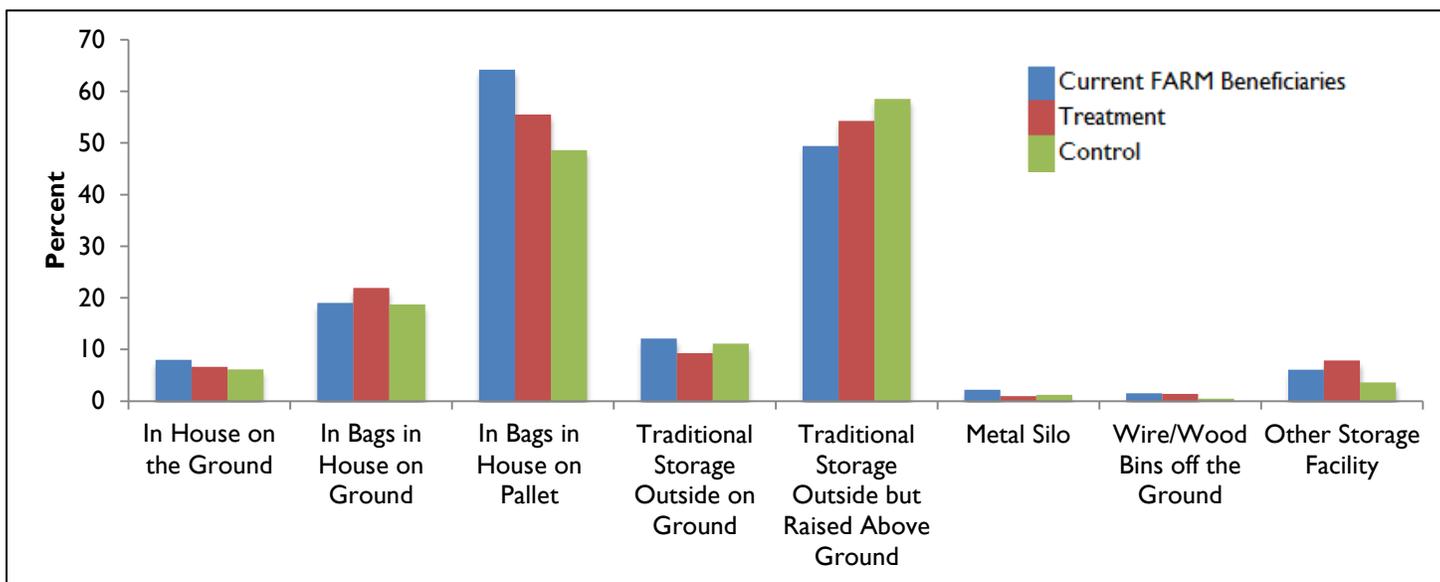
Differentiation between knowledge and practice was also observed when contrasting FBO communal land to home gardens (or private plots), the latter of which were often as large as the communal plots when considering an entire homestead. The evaluation team commonly observed home gardens planted in a mix of practices; the same crop might be planted in rows in one plot and then broadcast in another. Additionally, the team found that some FBO members used different farming practices on their private plots than they used on the communal plots. If this qualitative finding is indeed indicative of the broader sample, this may explain some of the differences between yields for communal and individual land as discussed in the section on agricultural production above.

Post-Harvest Storage and Losses

The baseline survey revealed that the extent of crop losses is a major challenge for farmers. Summary statistics show that the average annual loss of crops in the field or post-harvest is close to 570-650 kilograms of total produce (all crops combined) per households – corresponding nearly to the average annual household production of maize (Annex VI).

The quantitative survey found that the vast majority of people in all three groups store their crops either in bags on a pallet in the house or raised from the ground outside, or both (Figure 19). FARM defines storing produce in bags on a pallet in the house as an improved form of storage, and the data correspondingly reveals that a higher proportion of current FARM beneficiary households use this method. However, as observed both in the data and by the evaluation team in the field, most houses are simple tukuls with thatched roofs, leaving the crops prone to moisture and pests even if stored on pallets. As illustrated in Figure 19, only a few percent of farmers store their crops in wire/wood bins or metal silos.

Figure 19. Post-harvest storage techniques



While Figure 19 shows that two-thirds of current FARM beneficiaries store at least some crops in bags on pallets in the house, only just more than a third report that they use “improved storage.” Exploring the reasons for this discrepancy, evaluators found that 15 percent of sampled households said they were not familiar with improved storage techniques; 21 percent said there is no need for improved techniques or that they were not useful; 23 percent say improved techniques are not available; 20 percent that improved techniques are too expensive; and 12 percent said that they lack the skills or know-how on how to use improved techniques. Additionally, observations made during the PE suggest that most households do not have pallets (none of the households visited in the 17 FBO groups interviewed during the PE had pallets). Thus, it is quite possible that quantitative survey respondents did not understand what the term pallet meant when they were surveyed and, thus, wrongly selected that option. It is also possible that respondents had different ideas of what “improved storage” is, and many may not consider storing crops in the house on pallets as “improved.”

The qualitative study similarly found that farmers had limited knowledge of improved storage methods and that poor storage caused considerable crop loss and devaluation. The qualitative study found that, in the FBOs visited, traditional methods were generally relied upon and most farmers battled pests and moisture with little success.

Gender in Agriculture

As shown in Table 6, for the vast majority of activities, households report that men are the primary decision makers. This is the case for between 75 and 85 percent of households, which is very close to equaling the proportion of male-headed households. Only for decisions related to weeding and harvesting do women act as primary decision makers as frequently as do men. For shelling and taking products to the local market, women are primary decision makers in a third of the surveyed households.

Looking at who actually primarily engages in the same activities (not just makes decisions on them), we see a similar tendency, though we also note that 5-10 percent of women act as the primary person to engage in activities for which they are not the primary decision maker, varying somewhat between activities. For instance, women are primary decision makers on how to store crops in only 25 percent of households, but they are the primary person to engage in storing crops in 34 percent of households – a difference of 9 percentage points. Similarly for planting, women are primary decision makers in only 24 percent of households but are primary planters in 31 percent of cases. For weeding and harvesting – the most labor intensive activities – we see that women are more likely to be the primary person to engage than men. This is true in 59 percent of households for weeding and 55 percent of households for harvesting. Table 6 shows the percentage of males and females engaging in decision making and planting activities for each of the three surveyed populations. Annex VI provides similar tables for all agricultural activities included in the survey.

The proportion of males to females acting as primary decision makers and primary engagers varies slightly between the three groups, with no clear systematic difference between current FARM beneficiaries and future beneficiaries (the treatment group), but with a clear difference between those groups and the control group. For all of the activities, a larger proportion of women in the control group act as primary decision maker *and* the primary person to engage than in the other two groups. The difference is not driven by a larger proportion of female-headed households in the control group, as might be expected. The source of this bias is unclear and should be explored further in the endline survey.

Expanding on the quantitative survey results, the qualitative study revealed that gender differences vary not only by task but also when comparing the same task performed on communal versus homestead agricultural plots. In the communal-space, roles such as clearing, plowing, planting, weeding, and harvesting were reported and observed as shared equally between the male and female members of the FBO; this confirms similar findings by the Midterm PE evaluators. But the domestic-space was more commonly organized into divisions of labor, in which some farming tasks are assigned to women and others to men, such as planting and weeding to the former, and clearing to the latter. Women remain the caretakers of the home, and fetching water, cooking, washing clothes, and feeding the family are – for the most part – not increasingly shared by men.

Table 6: Gender of primary decision-maker and gender of person to engage in farm activities

Primary Decision Maker on Planting					Primary Person to Engage in Planting				
Treatment (Future FARM beneficiaries)	Male	Female	Unknown	Total	Treatment (Future FARM beneficiaries)	Male	Female	Unknown	Total
Current FARM	204	59	1	264	Current FARM	187	73	0	260
	77.27%	22.35%	0.38%	100%		71.92%	28.08%	0.00%	100%
Control	315	111	0	426	Control	278	140	1	419
	73.94%	26.06%	0.00%	100%		66.35%	33.41%	0.24%	100%
Treatment	331	94	3	428	Treatment	290	127	2	419
	77.34%	21.96%	0.70%	100%		69.21%	30.31%	0.48%	100%
Total	850	264	4	1118	Total	755	340	3	1098

	76.03%	23.61%	0.36%	100%		68.76%	30.97%	0.27%	100%
--	--------	--------	-------	------	--	--------	--------	-------	------

Some women talked about negotiating domestic relations that were modeled more like the FBO model, whereby their husbands were expected to share in domestic tasks. However, not all the women in each of the focus groups desired this structure of domestic life, and some FBO members maintained more traditional farming practices on homestead plots – including broadcasting and intercropping, practices often thought of as “traditional” but that, in fact, may be reactions to an unequal share of domestic tasks (both men and women reported during the PE that when crops are planted in rows, men are more likely to assist with weeding).

There is, thus, some qualitative evidence to suggest that organization under FBOs (a practice largely driven by donor and NGO interventions, such as the FARM Project) may have some impact on gender relations and equity, but that it may be limited to FBO-specific activities.

Food Security

Using the FtF Population Survey food security/hunger module¹⁰, the baseline assessment explored the level of hunger and food security for households during the four weeks preceding the quantitative survey, which took place in January and February of 2013—the period of time just following the second harvest season in the Greenbelt (Greater Equatoria) and prior to the lean/hunger season (May through August) (See Annex IX for more details). Because of the timing, evaluators expected to find lower levels of food insecurity than they might in later months. However, the numbers reveal that food shortage was still an issue for some households in the sample—though hunger did not arise to the level of crisis, according to USAID’s Famine Early Warning System Network’s¹¹ (FEWSNET’s) Integrated Food Security Phase Classification’s (IPC) Acute Food Insecurity Reference Table for Household Groups (See Annex IX for the IPC Reference Table). As such findings are in line with or similar to FEWSNET’s findings on hunger and food security in the Greater Equatoria Region, which projected no acute food security conditions in most of Western Equatoria and Central Equatoria and stressed food security conditions for parts of Western and Central Equatoria and a large portion of Eastern Equatoria (for the same time period covered by this evaluation) (See Annex IX for more details).¹²

As shown in Table 7, while most respondents across the three survey groups stated that they rarely went an entire day and night without eating during the four weeks prior to baseline data collection, 16 percent of the current FARM beneficiary group, 21 percent of the control group, and close to 29 percent of the treatment group stated that they sometimes or often go a whole day and night without eating due to a lack of food.

Table 7. Percent of households where members report not eating for a full day

In the past 4 weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?

	Current FARM (n=347)	Control (n=428)	Treatment (n=431)
(% of respondents)			
No	3.75	6.31	9.51
Rarely (once or twice)	80.12	73.13	62.18
Sometimes (3 to 10 times)	11.53	14.02	19.49
Often (more than 10 times)	4.61	6.54	8.82

¹⁰ Results from this section will be comparable with future FtF surveys conducted in South Sudan.

¹¹ See FEWSNET East Africa Food Security Outlook, January-June 2013.

¹² FEWSNET. “South Sudan Food Security Update, February 2013.

The numbers on those households where at least some household members have had to skip a meal in the four weeks preceding baseline data collection are even higher, according to Table 8. At least 40 percent of respondents from each sample group stated that one or more household members had to skip a meal at least three times during the four weeks prior to the survey, and close to 20 percent of respondents reported skipping at least one meal per day more than 10 times in the four weeks prior to the survey.

Table 8. Percent of households where members report skipped meals

In the past 4 weeks, did you or any household member have to eat fewer meals in a day because there was not enough food?			
	Current FARM (n=347)	Control (n=428)	Treatment (n=431)
(% of respondents)			
No	3.17	3.04	6.26
Rarely (once or twice)	52.16	49.77	42.23
Sometimes (3 to 10 times)	26.22	28.74	32.25
Often (more than 10 times)	18.44	18.46	19.26

The survey also explored if hunger in the household was due to a lack of resources to get food. Results are shown in Table 9. While most respondents did not experience a lack of resources in the four weeks prior to data collection, at least one-third of members from all three sample groups stated having experienced a lack of resources to obtain food at least three times during the four weeks preceding the survey.

Table 9. Households reporting a lack of resources to get food

In the past 4 weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?			
	Current FARM (n=347)	Control (n=428)	Treatment (n=431)
(% of respondents)			
No	3.46	4.21	8.12
Rarely (once or twice)	58.5	61.45	52.67
Sometimes (3 to 10 times)	22.48	22.66	20.42
Often (more than 10 times)	15.56	11.68	18.79

Table 10 shows the percent of respondents who report not being able to eat food they preferred due to a lack of resources. The distributions of responses were fairly even among those who rarely, sometimes, or often experienced not eating the food they like because of a lack of resources. Overall, results show that a third of respondents felt constrained in consuming their preferred foods more than ten of the days in the four weeks prior to the survey.

Table 10. Households reporting not being able to eat preferred food

In the past 4 weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?			
	Current FARM (n=347)	Control (n=428)	Treatment (n=431)
(% of respondents)			
No	1.15	0.7	2.78
Rarely (once or twice)	35.73	34.58	33.64
Sometimes (3 to 10 times)	29.68	34.58	34.34
Often (more than 10 times)	33.43	30.14	29.23

Table 11 further explores perceptions of hunger but in the context of having the sufficient amount of food at each meal. The table shows the three survey groups are roughly divided between respondents rarely having less food than they needed and respondents who sometimes or often having less food than they needed.

Table 11. Households reporting eating smaller meals

In the past 4 weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?			
	Current FARM (n=347)	Control (n=428)	Treatment (n=431)
(% of respondents)			
No	2.02	2.57	4.87
Rarely (once or twice)	47.55	44.63	38.98
Sometimes (3 to 10 times)	31.41	32.94	33.41
Often (more than 10 times)	19.02	19.86	22.74

To get a geographic perspective of food security issues, data using the same questions above were disaggregated by state. The states covered by the quantitative survey include Eastern, Central, and Western Equatoria. It is important to note that food security conditions in South Sudan are never static and are influenced by various factors such as crop production cycles, climate patterns, and circumstances concerning local conflict. From a geographic perspective, results are similar to the data across the treatment (future FARM beneficiary), control (non-beneficiary), and current FARM beneficiary groups. However, as shown in Tables 12, 13, 14, and 15, food insecurity appears to be more acute in Western Equatoria than the other two states, with Eastern Equatoria ranking second and Central Equatoria having the lowest level of food insecurity.

These findings are somewhat surprising because they do not match up with findings from FEWSNET, which shows more acute food security issues in Eastern Equatoria. However, these differences could be due to the fact that the FARM Project does not operate in all across the whole of the three Equatoria states. In fact, the areas with the greatest food insecurity in East Equatoria are in regions outside of where the FARM Project operates. Further, USAID reports that the food security results presented in this study paint a picture of greater food insecurity than many other studies do. While it is beyond the scope of this evaluation to identify the causes of this discrepancy, cross-referencing survey findings against other studies provides some insights on the conditions that may have affected the outcomes. According to the FEWSNET,¹³ while the 2012 production season in South Sudan was favorable, food prices increased quite extensively

¹³ See FEWSNET East Africa Food Security Outlook, January-June 2013.

during the data collection period because 70 trucks shipping food from Sudan to South Sudan were seized, putting an end to the informal trading that had been occurring since Sudan's imposition of trade restrictions in 2011. These conditions may have adversely affected the access to food in the Equatoria region by the time of the survey. Additionally, differences could just be due to the fact that the methods and samples surveyed by FEWSNET differ from those used in this survey, which focuses only on poor, rural farmers belonging to FBOs (likely not a group that represents the entire population of each of the Greater Equatoria states). There may also have been a general issue related to farmers' understanding of the survey questions regarding food consumption. According to USAID, many people in the region will state that they have not eaten at all or that they have eaten a reduced meal when, in fact, they did eat a sufficient meal, but their meal did not contain a staple starch. Therefore, USAID reports the terms "eating," "meals" and "food" could have different meanings to different farmers. Finally, it is possible that farmers exaggerated their levels of food security in hopes of receiving additional services from donors. Unfortunately, it is impossible to determine whether or not this is the case. However, even if farmers exaggerated their level of food insecurity in the baseline, this should not affect the feasibility of endline evaluators trying to understand whether the food security situation of farmers has changed as a result of the FARM Project. Rather, as long as farmers are likely to continue to exaggerate their food security concerns at endline, evaluators should still be able to assess the effect of the FARM Project on the food security situation in South Sudan.

Table 12
In the past 4 weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?

(% of respondents)	No	Rarely (once or twice)	Sometimes (3 to 10 x)	Often (more than 10x)
Treatment				
Eastern		66	20	14
Central	30.87	53.69	10.74	4.7
Western		68.31	22.54	9.15
Control				
Eastern		77.5	14.38	8.13
Central	15.83	68.35	11.51	4.32
Western	3.6	71.22	17.99	7.19
Current FARM				
Eastern		90.11	7.69	2.2
Central	8.79	73.63	14.29	3.3
Western		80	15.17	4.83

Table 13
In the past 4 weeks, did you or any household member have to eat fewer meals in a day because there was not enough food?

(% of respondents)	No	Rarely (once or twice)	Sometimes (3 to 10 x)	Often (more than 10x)
Treatment				
Eastern		49.33	30.67	20
Central	20.81	45.64	23.49	10.07
Western		30.99	42.96	26.06
Control				
Eastern		60	23.13	16.88
Central	8.63	52.52	27.34	11.51
Western	0.72	35.25	35.97	28.06
Current FARM				
Eastern		68.13	17.58	14.29
Central	7.69	62.64	25.27	4.4
Western		36.55	32.41	31.03

Table 14
In the past 4 weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?

(% of respondents)	No	Rarely (once or twice)	Sometimes (3 to 10 x)	Often (more than 10x)
Treatment				
Eastern		61.33	16.67	22
Central	26.17	51.01	15.44	7.38
Western		43.66	28.87	27.46
Control				
Eastern		68.75	16.25	15
Central	11.51	60.43	22.3	5.76
Western	1.44	51.8	32.37	14.39
Current FARM				
Eastern		64.84	18.68	16.48
Central	8.79	67.03	20.88	3.3
Western		53.1	24.83	22.07

Table 15
In the past 4 weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?

(% of respondents)	No	Rarely (once or twice)	Sometimes (3 to 10 x)	Often (more than 10x)
Treatment				
Eastern		49.33	27.33	23.33
Central	8.05	36.91	37.58	17.45
Western		18.31	35.92	45.77
Control				
Eastern		58.13	26.25	15.63
Central	2.16	25.18	42.45	30.22
Western		16.55	37.41	46.04
Current Farm				
Eastern		49.45	27.47	23.08
Central	4.4	36.26	34.07	25.27
Western		22.76	28.97	48.28

CONCLUSIONS AND RECOMMENDATIONS

The previous sections have reviewed qualitative findings and reported summary statistics for a sample of current FARM beneficiaries as well as a baseline survey for forthcoming beneficiaries and a control group. This section sums up main findings and provides recommendations for USAID on next steps.

Conclusions

Baseline Sample

The baseline sample covers a treatment group of 450 future FARM beneficiaries (who had not yet received any FARM interventions at the time of this survey) and a control group of 450 farmers who will not benefit from FARM. The purpose of the baseline sample is to evaluate the impact of FARM on the beneficiaries receiving FARM services between January 2013 and 2015. In order to achieve the greatest likelihood that an unbiased estimate of such impact can be obtained, the baseline sample should be balanced, with treatment and control groups being as similar as possible.

The summary statistics presented above and in Annex VI, however, show that there is indeed a potentially large degree of selection bias present between the two groups, with the treatment group owning more land, being wealthier, better educated, and already more knowledgeable on key farming practices than the control group, though there are no statistically significant differences between the two groups in terms of income and agricultural production of most crops. Overall, the survey findings and summary statistics show that both treatment and control groups already have a substantial amount of knowledge on many of the technologies and practices taught under FARM. And, even more importantly, there are strongly significant differences in the extent to which the two groups implement a number of these farming practices and technologies currently, with future FARM beneficiaries implementing best practices more frequently. Despite these differences, the two groups might still be comparable if the parallel trend assumption holds, which is discussed in more in the study limitations section above.

Current FARM Beneficiary Sample

The current FARM beneficiary sample, a small sample of FARM beneficiaries collected after two years of project activity, was intended to provide an overview of livelihoods and FARM-related practices amongst farmers who have already begun to receive support from the FARM Project. Data collected on this group was not meant to be used for analyzing impact. Indeed, the data does not allow evaluators to draw any conclusions about the impact of FARM. Along with the FARM Performance Evaluation and the qualitative study it does, however, shed light on some aspects of the FARM Project, which can potentially be adjusted and improved, and that might help inform the design of future FARM Projects or similar projects elsewhere.

Taking a theory-based approach to the analysis of the information obtained from this mixed-method evaluation allows evaluators to at least suggest where impact may have been lower than expected (though it is impossible to know from where the group started—since evaluators have no baseline data for this group from prior to FARM intervention). Following this approach, SI has constructed Table 16 to illustrate potential weak links in the causal chain. Several of these relate to the partial implementation of Project Components 2 (Access to Markets) and 3 (Crop Management and Capacity Building), as well as some sub-components of Component 1 (Production).

FARM activities were fully implemented in the training of beneficiaries. However, both quantitative and qualitative results show that though the technologies are being taught, they are often not practiced. This is often due to lack of availability of inputs, such as improved seeds or fertilizer or access to finance and tractors. Additionally, even when practices are adopted by farmers, evaluators found that such practices were often times already being practiced prior to FARM, or were adopted by farmers only to fail due to late delivery or low quality of project inputs (as described in the findings section on yields).

In addition, combined sources of information point to the fact that one of the most serious challenges facing farmers was crop loss and post-harvest losses – but that a limited proportion of current FARM beneficiaries had much knowledge of improved storage methods despite having taken part in FARM trainings.

One noticeable finding from the quantitative survey of current FARM beneficiaries, was the greater productivity of communal land compared to individually farmed land (see Figure 14 above), pointing towards some benefits of this type of production. Qualitative findings also revealed a greater degree of gender equality in work carried out on communal land, a practice promoted by FARM.

Table 16. FARM Project Components

Subcomponent	Degree of implementation	Intermediate outcomes	Advanced outcomes
COMPONENT 1: PRODUCTION			
Basic agronomy training	full	Knowledge of improved farming practices was evident among current FARM beneficiaries but also other groups.	Increased yields on FBO land. Mixed outcomes in individual land. One-seed-per-hole practice ignored by some.
Demonstration plots	full	Knowledge of improved farming practices was evident among current FARM beneficiaries.	More knowledge than amongst other groups, which may have led to the increased yields in FBO land. Mixed outcomes on individual land.
Plowing grants	partial	Limited number of FARM beneficiary FBOs have made use of plowing grants due to limited availability of tractors as well as late arrival of the tractors.	Grants have yet to be fully utilized.
Fertilizer use	partial	Knowledge of fertilizer use possessed by select current FARM beneficiary FBOs.	Fertilizer is used more in current FARM beneficiary FBOs than in other groups.
Access to improved seeds	full	Knowledge of improved seeds was evident not only amongst current FARM beneficiaries but also control and treatment groups.	Widespread use of improved seed, but also some farmer skepticism about their value compared to local seed.
Establish extension offices	full	Extension workers were stationed at the state, county, and payam levels in all three states.	Sustainability of offices unclear as all officers remain compensated by FARM (See PE).
Improve human and institutional capacity of extension system	partial	Many officers remain unable to carry out their full mission due to lack of training and resources.	This input has yet to be fully implemented.
COMPONENT 2: ACCESS TO MARKETS			
Link to markets and traders	partial	Limited access to local and regional markets.	This input has yet to be fully implemented.
Value and market chain research	limited	Limited access to value and market chain research.	This input has yet to be fully implemented.

Subcomponent	Degree of implementation	Intermediate outcomes	Advanced outcomes
Link beneficiaries to known possible sources of credit	none	Limited access to credit.	This input has yet to be implemented, as FARM's responsibilities in this area have changed over time, as described in the PE report
Construction of feeder roads	limited	Limited access to local and regional markets.	This input has yet to be fully implemented.
COMPONENT 3: CROP MANAGEMENT/ CAPACITY BUILDING			
Integrated Pest Management (IPM) training	partial	Knowledge of pest management was evident, though not to the extent taught by FARM and not any more so than for the treatment/control group.	Pest management was correlated with post-harvest storage capacity; local pest control methods and materials still widely used where there was a lack of effective storage.
Post-harvest storage training	partial	Knowledge of improved post-harvest storage practices was present among current FARM beneficiaries but also among the other groups.	Inadequate post-harvest storage practices and crop losses remain widespread, b/c access to materials and funds is limited.
Farming as a Business (FaaB)	partial	Some knowledge of business practices among current FARM beneficiaries.	Mixed responses to FaaB; some practices in use, some not.

Recommendations

Immediate Actionable Results

As discussed above, no conclusions on impact of the FARM Project can be drawn at this stage. However, the data does reveal a number of areas where USAID might focus their immediate attention.

In moving forward with the implementation of FARM in the new treatment areas, USAID and FARM should be aware that the vast majority of farmers in these areas already are familiar with, and in most cases also practice, many of the technologies taught and promoted by FARM. Care should be taken not to teach farmers what they already know, but to identify and address causes for gaps in knowledge and implementation of FARM technologies or to focus resources on those areas where knowledge is low—such as methods for improved storage.

The survey data revealed that there is a food shortage for many farmers in the three states, most significantly in Western Equatoria. It also revealed that one of the main challenges facing farmers is loss of crop due to pests and poor storage facilities. An immediate area of focus for FARM and USAID might, therefore, be to strengthen efforts to teach and promote pest management and improved storage for current and future FARM beneficiaries alike in an effort to increase access to food throughout the year.

As part of its broader development strategy, USAID should also consider the lack of infrastructure, which, as reported above, restricts farmers from accessing markets – and should hence prioritize complimentary initiatives to construct better feeder roads in the three states.

Finally, more generally, the data reveals very low rates of improved water and sanitation sources, which makes households vulnerable to water borne diseases and resulting morbidity, in turn affecting agricultural productivity (through its effect on human resources). USAID should consider how complimentary projects might address these issues.

Follow-up Survey

Evaluators discuss a number of study limitations above. While there is a concern about bias between the treatment and control groups, this bias is not significant for impact variables—yields and incomes—and, further, propensity score matching reveals a great degree of similarity between the groups. As such, SI recommends that USAID carry out a follow up survey in 2015. However, this recommendation is contingent upon USAID being satisfied with the ability to detect changes to farmer incomes of more than 50 percent and changes to production of more than 40 percent. Should USAID decide to conduct an endline study in 2016, a rich and reliable analysis of agricultural production, credit, shocks, and nutrition should be possible.

In preparing for the endline study, USAID should plan to re-interview the same households again to create a panel data set. Additionally, endline data collectors should ensure respondents are efficiently tracked in order to limit attrition as much as possible. Additionally, SI recommends allocating a significant amount of time to enumerator training and fieldwork. Capacity in South Sudan is lacking, and the limited infrastructure and security situation make data collection in the country particularly prone to delays. The collection of the baseline data took close to eight weeks with a large team of enumerators operating concurrently in all three states, many of whom experienced considerable delays due to logistics, transportation, insecurity, and accessibility difficulties. Cleaning and preparing an extensive dataset such as the one used for the analysis presented in this report also requires a substantial amount of time, and sufficient time and resources should be allocated to the process to ensure high quality results.

Future Impact Evaluations

To avoid problems with selection bias, and in the interest of measuring causality and attribution as well as possible, USAID should seek to incorporate evaluation design into project design. While an impact evaluation should not, of course, dictate the *content* of a project or program, USAID must consider the fact that trying to design a methodologically sound impact evaluation of a project becomes very difficult after a project has already begun, when beneficiaries have already been selected (and in such a way that similar beneficiaries do not exist at all or are very difficult to identify), and when little flexibility exists within the project.

Further, in designing future impact evaluations in South Sudan, USAID should be careful to allow sufficient time for a rigorous study, including time for addressing unintended challenges. Generally, a very thorough and effective baseline assessment for an impact evaluation takes at least a year to complete with a substantial amount of resources required for carrying out the field survey. Further, more detailed analysis is always possible given data as rich as that provided in this study. Thus, allowing more time for analysis can only work to improve the quality of the final deliverables.

REFERENCES

- Beaman, L., Karlan, D., Thuysbaert, B., and Udry, C. *Opportunities to Improve the Expansion and Impact of Agricultural Lending in Mali*. Poverty Action Lab, <http://www.povertyactionlab.org/evaluation/opportunities-improve-expansion-and-impact-agricultural-lending-mali>.
- BRAC (2008) *Baseline Report on Food Distribution, Skill Development, and Financial Services: An Evaluation of BRAC South Sudan's FFTIG Program*. Juba: BRAC South Sudan.
- Carter, M., Laajaj, R., and Yang, D. *Savings, Subsidies and Sustainable Food Security in Mozambique*. Poverty Action Lab, <http://www.povertyactionlab.org/evaluation/savings-subsidies-and-sustainable-food-security-mozambique>.
- Davis, et al. (2010) "Impact of Farmer Field Schools on Agricultural Productivity and Poverty in East Africa." <http://www.ifpri.org/sites/default/files/publications/ifpridp00992.pdf>
- Duflo, E., Kremer, M., and Robinson, J. (2011) "Nudging Farmers to Use Fertilizer: Experimental Evidence from Kenya." *American Economic Review* 101 (October 2011): 2350–90.
- Duflo, E., Keniston, D., and Suri, T. *Promoting Agricultural Technology Adoption in Rwanda*. Poverty Action Lab, <http://www.povertyactionlab.org/evaluation/promoting-agricultural-technology-adoption-rwanda>.
- Karlan, D., Osei, R., Osei-Okoto, I., and Udry, C. (2012) *Agricultural Decisions after Relaxing Credit and Risk Constraints*.
- Mendriatta, V. (2010) *Report on Impact Evaluation in Sub-Saharan Africa*. Paris: Institut de Recherche por le Développement.
- MCC. (2012a) *Impact Evaluations of Agriculture Projects*. Washington DC: Millennium Challenge Corporation.
- MCC. (2012b) *Issue Brief: MCC's First Impact Evaluations: Farmer Training in Five Countries*. <http://www.mcc.gov/documents/reports/issuebrief-2012002119501-ag-impact-evals.pdf>.
- Sulaiman, M. (2010) "Incentive and crowding out effects of food assistance: Evidence from randomized evaluation of food-for-training project in Southern Sudan." LSE STICERD Research Paper No. EOPP 019.
- World Bank (2012) *Impact Evaluation of Tanzania's National Agricultural Input Voucher Scheme*, <http://go.worldbank.org/IBOBDLROF0>.

ANNEX I: EVALUATION STATEMENT OF WORK

SECTION C – DESCRIPTION / SPECIFICATIONS/STATEMENT OF WORK

C.1 Introduction

USAID South Sudan requires an evaluation contractor to design and implement two evaluations: a mid-term performance evaluation of one agriculture project (Evaluation 1), and also a baseline survey for an impact evaluation of USAID’s broad agriculture program in South Sudan (Evaluation 2).

C.10 EVALUATION 2: BASELINE SURVEY FOR IMPACT EVALUATION OF THE –GREENBELT TRANSFORMATION

Background—Context and Development Hypothesis

USAID/South Sudan requires a baseline survey for an impact evaluation for USAID’s broader economic growth program, the Greenbelt Transformation, a comprehensive intervention primarily aimed at increasing agriculture productivity. The Greenbelt Transformation focuses on agribusinesses, including seed companies, trade-hubs and agro-dealers, as –change agents that will sustain technology adoption and market development. The agribusinesses will, in turn, each support 250-500 surrounding farms. To stimulate demand for the improved inputs and services provided by the agro-businesses, the project will directly establish thousands of small demonstration plots. Also to stimulate demand, the project will distribute vouchers for seeds and inputs, which can be redeemed with the supported agro-businesses. The program aligns three funding mechanisms: Food, Agribusiness and Rural Markets (FARM), implemented by Abt Associates; Seeds for Development—IFDC, implemented by the International Fertilizer Development Center (IFDC); and Seeds for Development—AGRA, implemented by the Alliance for a Green Revolution in Africa (AGRA). In some localities, the Greenbelt Transformation also includes USAID investments in feeder roads through a separate funding mechanism.

The overall objective of Seeds for Development is to improve food security and incomes of smallholder farmers in South Sudan through:

- a) Strengthening South Sudan’s capacity to breed and produce high quality seeds and planting materials
- b) Developing local agribusinesses to supply farmers with improved planting materials, fertilizers and other inputs
- c) Helping farmers to access markets for produce so as to move the country from subsistence farming to commercial agriculture

This evaluation and baseline will be designed to examine the program’s objectives and the programs hypotheses.

Although the FARM portion of the Greenbelt Transformation has been in operation since 2010, Evaluation 2 is characterized as a –baseline as the overall program approach and future scope will be significantly different than the first two years. The focus on using agro-businesses as agents of change and using vouchers to generate demand for improved inputs are both new innovations. Furthermore, the project envisions have 50,000 beneficiaries of the voucher program in coming years while in 2012 it is possible only 4,000 vouchers will be distributed.

C.11 Baseline and Impact Evaluation Purpose

The impact evaluation questions below cover the most basic issues that should be explored. Given some

of the dominate characteristics of the country—very little market-oriented agriculture, a post-conflict environment, a very poor road network, and the challenges of a petro-state—it is important, at a minimum, to ask the fundamental questions regarding effectiveness. This baseline study will lay the foundation in terms of data and analytical methodology going forward for a rigorous evaluation.

C.12 Evaluation Questions

1. Do farmers in the project’s zone of influence (near agro-businesses supported by IFDC and in administrative units where the FARM project is active) realize changes on the key project outcome indicators, or variables, listed below compared to a counterfactual group? How may these effects increase or diminish after direct assistance from the project ends and why (i.e. are the changes sustainable)?
2. Do impacts (the key variables are listed in table below) on farmers change when key aspects of assistance to the agro-business are added (e.g. land clearance services, storage capacity, etc.) and how and why?
3. How does exposure to demonstration plots affect the variables?
4. How much does feeder road improvement affect the outcome indicators or variables for farmers within the road’s catchment?

Key Greenbelt Dependent Variables
<ul style="list-style-type: none"> a. Use of improved inputs (seed and fertilizer) b. Yields c. Post-harvest losses d. Area farmed in total and with improved practices e. Sales f. Income/Expenditure g. Nutrition h. Time to market

The evaluation team will need to further define the variables above such that the variables can be precisely measured and are relevant to the program interventions. For example, nutritional status is a composite indicator/variable that is affected by several factors and it will be necessary to define the key indicators/variable (s) of nutritional status that will be measured. Variation in effects will be examined by, 1) gender of household head; and 2) initial level of income—poverty.

C.13 Evaluation Methods

A quasi-experimental design employing either propensity score matching or regression discontinuity will be most appropriate. Treatment farms or communities (as appropriate) will be compared statistically to similar farms outside the treatment area.

The evaluator will need to determine the most appropriate definitions of a treatment farm or community. In the most exhaustive sense, there are several typologies of treatment or even a continuum of treatment. The table below illustrates a potential typology of treatment. Ideally, the evaluation would be able to determine the treatment effect for each level of treatment. However, the data requirements for numerous types of treatments may not be feasible and a simplified typology may be necessary. In the process of designing the survey, the evaluator will examine potential typologies of treatment and recommend the most feasible approach.

Illustrative Typology of –Treatment

<u>Type of Beneficiary</u>	<u>Description</u>
Agro-dealer farmer	Highest treatment: These are 30 to 100 farmers who also run an agro- dealership. They will be intensely involved with both the FARM and Seeds for Development projects. They will serve as disbursement points for the improved inputs and therefore may have the highest rates of use of the inputs on their own plots.
Motivational farmer	High treatment: In 2012, these are the 200 farmers who are trained by the FARM project to teach approximately 30 neighbors each how to use the improved seeds and fertilizer. Specifically, these motivational farmer helped plant small demo plots on each neighbor's property. Besides being a key point of contact for the project, these individuals may also receive assets such as bicycles to facilitate their work.

Voucher and demo plot beneficiary

Enhanced treatment: These are farmers that receive direct assistance from the projects. There are several variations in types of direct assistance farmers may receive. In 2012, there are expected to be three major kinds of farmers in this category. The first category is approximately 1,200 farmers who receive training from the FARM project and vouchers from Seeds for Development. The second category are 2000 to 3000 contacts of farmers in the first category who are referred to the project and given vouchers but not the same level of training as the first category. The third category is farmers who received a demo plot but not a voucher (6000 demo plots – 3000 vouchers = ~3000 demo plot only beneficiaries). Direct beneficiaries may also receive a small demo plot on their property, training on improved techniques, and/or vouchers for improved inputs. Other combinations of these kinds of assistance are possible during the life of the program suggesting gradations of treatment within this category.

Neighbor of voucher and demo plot beneficiary

Basic treatment: These are farmers who do not receive direct assistance from the project but whose farms are in the sphere of influence of the project. These farmers are expected to observe the behavior of their assisted neighbors and replicate the improved practices. Also, these farmers are expected to benefit from the improved services of their local agro-dealer and potentially from improvements in market access due to roads improvements. A likely definition for this group is all farmers located in the 27 payams where the FARM project is active.¹ However, the evaluator will examine this assumption in the process of designing the survey.

The control group will ideally be farmers identical to the treatment population but unaffected by the program. Realistically, this is likely to be farmers in non-project payams in the target states (Western Equatoria, Central Equatoria, and Eastern Equatoria). More specifically, the control population should be similar to the treatment population in terms of pre-project crop patterns, yields, ecological zone, and distance to markets (in travel time). Additionally, the Greenbelt project is expected to expand its geographic coverage in the coming years. Therefore, some control observations will be –lost to treatment.¶ Sufficient initial control observations will need to be included to ensure that the evaluation will have enough observations at the final evaluation. The evaluator will examine the issue in more detail and make specific recommendations regarding the best control population for the baseline.

The methodology will also employ qualitative analysis. The first round of qualitative analysis will focus on process questions and address issues such as:

Perceived barriers to adopting improved agriculture practices

Recent unusual events affecting baseline values

Open ended questions on farming techniques used
Perceptions of likely differential effects of improved agriculture practices on men and women

Subsequent rounds of qualitative analysis after this baseline survey will focus on asking –why| particular quantitative results did or did not occur and the qualitative questions asked at this stage should help inform the later surveys. Qualitative analysis will involve focus groups and key informant interviews. Focus groups and key informants should be drawn from project beneficiaries and a control group following the typology determined for the quantitative survey. Additionally, USAID staff, government officials, and implementer staff should be interviewed. It is expected that the qualitative analysis applying to the FARM Project will be drawn from the Evaluation 1 work. Additional qualitative analysis will be required to cover the IFDC, AGRA, and feeder road components.

The impact evaluation will need to budget for a household survey of income and expenditure as well as information about agricultural production and nutrition. USAID is not aware of any existing or planned datasets that would provide this data in sufficient detail for this impact evaluation.² For the sake of ensuring comparable proposals, bidders should assume they will collect approximately 1,200 observations and assume 3-6 hours per survey.

In addition to a household questionnaire, the survey should include a questionnaire for agro-businesses (approximately 100 observations) to understand exactly what kinds of services they have been providing and a definition of their client catchment. GIS information will be necessary for both the household and agro-business instruments.

The evaluators will need to assess the availability of market prices from third-party sources. Several options are available; however if these are deemed insufficient, an additional instrument will need to be designed and administered.

The evaluator will need to examine the options available and select the most appropriate for a sample frame. Project implementers have recorded lists of farmer and agro-dealer beneficiaries to-date which may be useful. However, determining likely future beneficiaries and control observations will be more difficult. It may be necessary to create a sample frame from satellite images. Other options available include the census of 2008 (though its results are disputed) or a method akin to a –random walk.||

The offer has the option to suggest alternative designs and approaches to achieve the purpose of this baseline survey and impact evaluation for discussion and approval by USAID, if viewed as more appropriate than those described here.

C.14 Deliverables

Task 1: Preparation, Background Review and Orientation

Background Review

- Review the project documents, economic analysis (ERR models) previously conducted by USAID, and supplemental documents provided by USAID to understand the activities and the main hypotheses that the impact evaluation will test.

USAID Orientation

- Meet with key staff of USAID-South Sudan and USAID-Washington (by teleconference if not present in South Sudan at the time of the meeting) to discuss the projects and their expected impacts.
- Present preliminary design options for rigorous impact evaluation of each project, outlining for each alternative the trade-offs (such as cost, implementation challenges and risks, rigor, data quality, potential for learning, etc.).

- Discuss with USAID a work plan.
- Implementing entities and Government officials orientation. Meetings should foster understanding and consensus by counterparts for the recommended strategies. Initial meetings will include presentation and discussion of:
- benefits of rigorous impact evaluation methodologies
 - feasibility and pros/cons of proposed designs (given program objectives, quality of data sources, and requirements of activity implementation)
 - implications of impact evaluation for program design and beneficiary selection (if any)
 - potential for coordinating evaluation with other donors to achieve greater generalizability
 - current state of activity preparation by project implementers

DELIVERABLE #1: *Work Plan*

- Work Plan with detail at the week level. The work plan will include the specific team members assigned to each task.

Task 2: Evaluation Design and Planning

Work closely with USAID and implementing entities to develop an agreed upon evaluation design to answer the questions listed in Section 2.2

Assess the probability that the evaluation technique initially proposed would produce a clear conclusion.

DELIVERABLE #2: *Evaluation Design Report*

The Contractor shall prepare a report to USAID describing the recommended evaluation strategies and a detailed plan for executing the strategies. The report shall address:

- Introduction
 - a. Evaluation Objectives
 - b. Potential contribution of the proposed impact evaluation to economic development and poverty reduction literature
- Hypotheses
 - a. State specific, well-defined hypotheses to be tested related to the key evaluation questions.
- Methodology
 - a. Design: Detailed explanation and justification for proposed analytical design, including description of strategies for identifying the counterfactual and addressing selection bias issues, and assessment of the internal and external validity of the design. Include specification of the mathematical models to be tested.
 - b. Design Power: Discuss the power and minimal detectable effect (MDE) of the proposed design and compare MDE to similar interventions as the literature permits.
 - c. Beneficiary Disaggregation: Describe strategy for disaggregation of impacts based on beneficiary characteristics
 - d. 3-Year Results: Discuss feasibility and plan for reaching interim (before Year 5) results
 - e. 5-Year Results: Discuss the types of results expected to be observable within 5 years.
 - f. Implications for Project Implementation: Discuss any requirements of project implementation considering selected methodology such as beneficiary selection and phasing of treatments. Note, given the extremely difficult operating environment in South Sudan and the fact that projects are already initiated; additional requirements on project implementation should be minimized.
- Data
 - a. Variables: List and define the specific variables for treatment, outcome, and controls along with detail definitions required for the evaluation.
 - b. Survey Plan: Provide a detailed plan for the survey to be used in the evaluation.

This plan should outline all steps required for the survey (see Task 3: –Surveyll for illustrative steps). Include the proposed questionnaire as an annex. Explain how the baseline will be collected. Also, provide a plan for collecting the mid-term and final data that ensure comparability with the baseline. For example, the plan for future surveys should address issues such as respondent tracking if a panel methodology is proposed. (note: mid-term and final data collection will be procured outside this assignment).

- c. Data Quality: Present a plan for ensuring data quality that the Contractor will follow during the evaluation and the other data quality procedures the project needs to put in place to ensure that the M&E systems data collected between this baseline evaluation and mid and final evaluations will be of good quality. This should include a plan for field supervision of enumerators.
- o Key Challenges and Risks to the recommended design a.
Technical analysis of the challenges and risks b.
Plans to mitigate risks
- o Work Plan Update
 - a. Elaborate on the earlier prepared work plan incorporating details of the survey in particular.
- o Page requirement: no more than 60 pages (without charts, graphs, and referenced document list)

USAID may further specify contents upon submission of preliminary design report.

Task 3: Quantitative Survey

Conduct a baseline survey in accordance with the survey plan in the Evaluation Design Report

Geographic location will be a critical component of the eventual analysis; therefore GPS information should be collected for each survey observation.

Execute and document the survey professionally and with exceptional care. It is crucial that future surveys are able to replicate the procedures of the baseline survey. Illustrative survey steps include:

- o Sample Frame definition (this may require actual creation of a sample frame) and sample selection. This should include documentation plan for ensuring sample weights can be connected to specific questionnaires and how the sample weights are to be applied.
 - o Questionnaire pretesting
 - o Questionnaire revision
 - o Prepare enumerator procedure document. For example, this will address procedures for locating the respondents, procedures for non-response, guidelines for administering the survey, etc.)
 - o Enumerator and supervisor training
 - o Fieldwork
 - o Data entry and data quality control
 - o Documentation of procedures for reproducing survey
 - o Documentation of final dataset. For example, this should include a description of the original plan for conducting the survey and note any actual discrepancies from the plan, a codebook, and any other directions required for users of the dataset.
- DELIVERABLE #3: *Baseline Datasets*
This will include baseline data files and appropriate documentation.

Task 4: Qualitative Interviews

- Conduct qualitative analysis with key informants.
- Document results.

Task 5: Summary and Communication

- Consolidate relevant data into clean data sets necessary to conduct the impact evaluations.
- Produce summary statistics and charts for key variables by treatment, control, and other dimensions of disaggregation.
- Prepare final impact baseline report and related dissemination materials with, summary of statistics and charts from baseline survey, detailed methodology for follow-on surveys, mid-term, and final evaluations. Present report to USAID, project implementers, and officials of the Government of South Sudan.
- Submit the final deliverable to USAID's Development Experience Clearinghouse (DEC).
- *DELIVERABLE #4: Final Impact Evaluation Baseline Report*
 - Executive Summary
 - Overview of the Program
 - Impact Evaluation Design
 - Data Collection
 - Key summary statistics and charts
 - Plan for Follow-on Data Collection and Analysis

Final Report. A draft final report will first be submitted to the USAID COR. The Final Report will be provided to the COR in electronic form within 12 days following receipt of comments from USAID. The report shall include an executive summary and not exceed 50 pages (excluding appendices). The executive summary should be 3-5 pages in length and summarize the purpose, background of the project being evaluated, main evaluation questions, methods, findings, conclusions, and recommendations and lessons learned (if applicable).

1. The report shall follow USAID branding procedures.

The annexes to the report shall include:

- The Evaluation Scope of Work
- Any –statements of differences|| regarding significant unresolved difference of opinion by funders, implementers, and/or members of the evaluation team
- All tools used in conducting the evaluation, such as questionnaires, checklists, survey instruments, and discussion guides
- Sources of information, properly identified and listed
- Disclosure of conflicts of interest forms for all evaluation team members, either attesting to a lack of conflict of interest or describing existing conflict of interest.

An acceptable report will meet the following requirements as per USAID policy (please see: the USAID Evaluation Policy)

- The evaluation report should represent a thoughtful, well-researched and well organized effort to objectively evaluate what worked in the project, what did not and why.
- The evaluation report should address all evaluation questions included in the scope of work.
- The evaluation report should include the scope of work as an Annex. All modifications to the scope of work, whether in technical requirements, evaluation questions, evaluation team composition, methodology or timeline shall be agreed upon in writing by the USAID Mission M&E Specialist.
- Evaluation methodology shall be explained in detail and all tools used in conducting the evaluation such as questionnaires, checklists and discussion guides will be included in an Annex to the final report.
- Evaluation findings will assess outcomes and impacts using gender disaggregated data.
- Limitations to the evaluation shall be disclosed in the report, with particular attention to the limitations associated with the evaluation methodology (selection bias, recall bias, unobservable differences between comparator groups, etc.).
- Evaluation findings should be presented as analyzed facts, evidence and data and not based on anecdotes, hearsay or the compilation of people's opinions.

- Findings should be specific, concise and supported by strong quantitative or qualitative evidence.
- Sources of information need to be properly identified and listed in an Annex, including a list of all individuals interviewed.
- Recommendations need to be supported by a specific set of findings.
- Recommendations should be action-oriented, practical and specific, with defined responsibility for the action.

C.15 Team Composition

The core portion of the Evaluation 2 team will consist of at least three consultants and be complemented by a team in both Juba as well as the contractor home office. USAID strongly prefers that part of the team selected will conduct both the performance and the baseline impact evaluations, as there will be significant overlap between both evaluations. The team will also require sufficient staffing to conduct a large survey.

Illustrative Staffing Chart

Position	Role	Experience
Team Leader	Overall responsibility for the project. Provides both administrative and technical guidance. Point of contact with USAID.	Experience managing teams for evaluations and surveys Experience in challenging logistical environments similar to South Sudan. Experience with agriculture evaluation.
Ag technical specialist	(in this illustrative example, involved only in Evaluation 1)	(N/A)
Impact evaluation specialist	Designs methodology for demonstrating cause and effect. Provides guidance on framing research questions and prioritizing questions to be asked.	Experience designing impact evaluations with rigorous counterfactual. Experience with agriculture evaluation.
Survey specialist	Ensures survey is conducted professionally and scientifically. Provides guidance on all issues related to the survey and personally supervises the data collection. Responsible for quality control.	Experience managing large agriculture surveys which maintained a high standard of quality control.

Statistical support (home office)	Ensures the statistical elements of the survey are accurately addressed. This includes determining sample size given MDE, sample selection, sample weighting, etc. Also will provide help setting up dataset.	Training in advanced statistics Experience working on surveys including determining sampling strategies and sample weights
Enumerators and field supervisors	Approximately 32 enumerators and 10 supervisors will conduct the field work	Enumerators should have fluency in English and applicable local language. Field supervisors should have at minimum a high school degree and ideally a bachelor's degree. A record of dependability is essential. Individuals in both positions must be detail oriented.
Data Entry	Approximately 15 individuals will be required for data entry. (This number may vary if field collection is complete electronically in the field.)	Good computer skills are necessary, experience with previous data entry preferred.
Locally base logistician (Juba)	This individual will arrange the logistics for the survey including transportation during the survey, operation of working space in Juba, lodging for international members of the team, identification of local staff members, etc.	Experience arranging logistics for projects in operating environments similar to South Sudan. Experience in South Sudan strongly preferred.
Admin support (local)	Administrative support	Experience providing administrative support
Admin support (home office)	Administrative support	Experience providing administrative support

Skills, work experience and expertise are required in: (i) designing rigorous impact evaluations of agricultural projects and (ii) conducting large agriculture surveys in difficult operating environments. Prior experience working in Africa or a post-conflict environment similar to South Sudan is also a requirement.

C.16 Schedule and Logistics

The evaluation will require approximately 4-5 months in South Sudan to prepare for and conduct the survey. The document review, initial consultations, final presentations and drafting of the final report will require approximately 9 weeks from headquarters. USAID aims to begin the evaluation immediately following the FARM mid-term performance evaluations, in approximately November 2012. Preparations for the work should begin during the final month of Evaluation 1. A November-December timeline for the work is desirable in order to align with the post-harvest period when farmers will have best recollection of quantities and prices of any production sold.

The overall timeframe is as follows. The specifics of the timeframe, schedule of visits and deliverables, as well as responsibilities of individual team members, will be finalized at the Team Planning Meeting. A more detailed illustrative description of Level of Effort by team member and task is provided in Appendix II.

Evaluation 2	Estimated Timeline
Task 1: Background Review and Orientation	
Preparation and background review from home locations	Oct 7-Nov 7
Travel to South Sudan	Nov 5-6
South Sudan orientation	Nov 7-9
Task 2: Evaluation Design and Planning	Nov 10-19
Task 3: Quantitative Survey	

Logistical preparation (enumerator identification, transportation arrangements, etc.)	Oct - Nov (on going preparation starting during Evaluation 1 phase and continuing throughout project)
Sample frame definition and sample selection	Dec 1 (occurs through this period, completed by date listed)
Questionnaire pretesting	Nov 20-30
Enumerator and supervisor training	Dec 1-Dec 8
Field data collection	Dec 8-Dec 31
Data entry and data quality control	Jan 1 - Jan 21
Documentation of final dataset	Jan 22 - Feb 7
Task 4: Qualitative Interviews	Feb 8 - Feb 20

The contractor will be responsible for office space, lodging and transportation while in South Sudan.

ANNEX II: ILLUSTRATIVE DATA COLLECTION MATRIX AND WORK PLAN

Mid-Term Performance Evaluation of the FARM Project			
Question	Indicator	Data Source or Proposed Collection Methodology	Disaggregated By
Agricultural Productivity			
1. To what extent have projects met high-level objectives in the intermediate result (IR) to increase agricultural productivity	% of project beneficiaries who report having adopted improved technologies (this indicator, as is true of many of the below indicators, would be more robust if we could compare data collected at project baseline with that which will be collected at the mid-term to avoid reliance on respondent recall)	Review and analysis of background documents and reports, SKIs and FGDs with project beneficiaries (the treated) and untreated community members from communities with similar demographic profiles	Gender (G), Payam (P), County (C), State (S)
	% of project beneficiaries reporting improvement in public and private service provision in support of agricultural production		
	% of project beneficiaries reporting having improved agricultural yields compared against the same measure of members of untreated communities		
	% of project beneficiaries who received training in business and management skills taught		
	% of project beneficiaries who report perceptions of improved business and management skills		
2. To what extent has the project met high-level objectives in the intermediate result (IR) of increased trade in selected agricultural commodities	% of project beneficiaries reporting change in smallholder access to market services (storage, finance, transport, information)	Review and analysis of background documents and reports, SKIs and FGDs with project beneficiaries (the treated) and untreated community members from communities with similar demographic profiles	P, C, and S
	% of project beneficiaries reporting improvements (and maintained improvements) on high priority feeder roads		
	% of project beneficiaries reporting an increase in private sector businesses (including MSMEs) that support marketing and finance		
	% of project beneficiaries reporting improvements in the legal, regulatory, and policy environment to facilitate trade and marketing		
Capacity Building			
3. To what extent has the project met high level results objectives in the intermediate result (IR) of increased capacity building to support market-led agriculture	% of project beneficiaries reporting improved business management and service provision skills of private sector, including MSMEs	SKIs and FGDs with project beneficiaries involved in the MSMEs and farmer associations	G, P, C, and S
	% of project beneficiaries who report perception of improved public sector capacity to support market led agriculture		
	% of project beneficiaries and stakeholders who report perception of improved public sector capacity to provide quality services		
4. To what extent is the project promoting sustainable activities; what support will be needed for SMEs and farmer organizations to continue providing benefits to their employees/members?	Changes in the revenue of these groups from project baseline to project mid-term (if available) as well as perceptions of what led to the changes		
	Perceptions of improved internal management of these groups and causes of any improvements		
Sustainability			

5. To what extent are project activities and outcomes sustainable?	Reported dollar amount of donor support necessary for SMEs, associations, and farmers to continue efficient operations this year, next year, the following year, and for the next five to ten years	SKILs and FGDs with project beneficiaries involved in the MSMEs and farmer associations	G, P, C, and S
Gender and Its Effects			
6. To what extent have women been integrated into farming activities, producer association management, or both? If they have been integrated, have these interventions affected poverty or the prevalence of hunger and malnutrition in those households and payams?	% of women reporting employment, participation, and/or leadership in farming activities and producer associations in treated payams compared with % of members of untreated payams and % of men reporting the same (this indicator would be more robust if we could compare data collected at project baseline with that which will be collected at the mid-term to avoid reliance on respondent recall)	SKILs and FGDs with beneficiaries and households (the treated) and untreated individuals from payams with similar demographic profiles	G, P, C, and S
	Poverty and malnutrition indicators described above; may also be able to look at actual malnutrition levels through use of national surveys	SKILs and FGDs with beneficiaries and households (the treated) and untreated individuals from payams with similar demographic profiles	
7. Assuming women's participation in agricultural production, what effects are seen at the household-level—i.e. greater involvement with purchasing decisions or changes in household food security?	Reported role of women in the household	SKILs and FGDs with beneficiaries and households (the treated) and individuals from untreated payams with similar demographic profiles (analysis will compare those households where a woman is involved in agricultural production with those where this is not the case)	G, P, C, and S
	Household Hunger Score		

Impact Evaluation Baseline Study for the Greenbelt Transformation Program

Question	Indicator	Data Source or Proposed Collection Methodology	Disaggregate By
Project Results and Sustainability			
1. To what extent do farmer's in each of the beneficiary typologies (motivational farmers, voucher and demo plot beneficiaries, and neighbors) realize changes in use of improved inputs, yields, post-harvest losses, total area farmed using improved practices, sales, income/expenses, nutrition, and time to market as a result of the Greenbelt Transformation project How and why?	% change in project beneficiary farm households' use of improved inputs, yields, post-harvest losses, total area farmed using improved practices, sales, income/expenses (looking at total household livelihoods both financial and asset-based), nutrition (identified by measuring children to determine malnutrition rates), and time to market between project baseline and endline survey compared with % change of untreated farm households on the same indicators between project baseline and endline	Statistically representative baseline survey of 275 farmers from each of the typologies of treatment and a control group with similar baseline demographic characteristics as the treatment groups compared to an endline survey of the same (will control for regional shocks through use of experimental design or additional variables if I QED is used and will also thoroughly document the context)	Gender (G) of farm owner/head, Payam (P), County (C), State (S), Initial Level of Income (I), Distance to major road (D), and Size of household (H)
	Beneficiary and expert perceptions of farm and household changes as a result of the project	FGDs with beneficiary farmers in several payams in Western, Central, and Eastern Equatoria and SKILs with USAID/SS, Abt Associates, other implementers, other donor organizations working in agriculture, farmer association heads, etc. Perceptions will be compared between the baseline and endline studies to identify changes	G, P, C, and S
	Beneficiary and expert perceptions of successes and challenges to achieving desired outcomes/impacts		G, P, C, and S
2. To what extent do project interventions change the customer base, sales, and services provided by agro-dealers? Why?	% change in customer base, sales, and number of services provided (will also look at type of services provided) by beneficiary agro-dealers compared with control agro-dealers between the baseline and endline	Statistically representative survey of 50 beneficiary agro-dealers and 50 control agro-dealers taken at both baseline and endline	G, P, C, S, and initial size/services offered by agro-dealers
	Agro-dealer and expert perceptions of why agro-dealers did/did not experience change as well as a comparison of concerns, successes, and challenges identified between baseline and endline	FGDs with agro-dealer owners in Western, Central, and Eastern Equatoria and SKILs with USAID/SS, Abt Associates, other implementers, other donor organizations, etc. Perceptions will be compared between the baseline and endline studies to identify changes	G, P, C, S, and initial size/services offered by agro-dealers

3. To what extent are downstream farmer impacts dependent on key aspects of assistance to agro-dealers such as land-clearance services and storage capacity? How and why?	Changes in impacts between farms located near agro-businesses that experienced major changes in their services and farms located near those that did not. Will also look at whether farmers purchased or received services from the agro-dealers	Comparison studies between results of the agro-business survey described above and the farm household survey	G of agro-business owner and farm household, P, C, and S
	Perceptions of farmers regarding ease of access to services and usefulness of services.	FGDs with beneficiary farmers in several payams in Western, Central, and Eastern Equatoria Perceptions will be compared between the baseline and endline studies to identify changes	G, P, C, and S
4. To what extent does feeder road improvement affect the outcome indicators for different groups of agro-dealers and farmers? How and why?	Changes in access to roads (distance to major road, could also include a general condition of the road if obtainable from third-party data) compared with results identified in Questions 1 and 2, above.	Key informant interviews with IPs, SME owners and association members, advocacy network staff, staff from Land Affairs offices, and staff from PRONACOM and PDER; focus groups with community leaders/councils; and focus groups with other donor organizations including DANIDA, IFAD, the FAO, IFPRI, the WB, and the IDB	S
	Perceptions of agro-dealers and beneficiary farmers on to what extent their livelihoods have been affected by roads	FGDs with agro-dealer owners and other beneficiary farmers in Western, Central, and Eastern Equatoria Perceptions will be compared between the baseline and endline	S
5. Do beneficiaries from some program typologies experience greater impacts than those from other typologies? If so, who and how? Also, for which beneficiaries is the economic rate of return the highest? Why?	Comparison of outcomes/impacts identified in Question 1 above between the different types of beneficiaries	See Question 1 above	Same as Question 1 above, if possible (if sufficient numbers representing each group)
	Program costs per beneficiary type compared with identifiable financial outcomes	Cost data obtained from USAID/SS and implementing partners compared with changes in financial status of households (collected from the survey described in Question 1 above)	G, P, C, S
	Beneficiary and expert perceptions of whether, how, and why certain beneficiaries experience greater outcomes than others (as with many of the qualitative data components, SI suggests analyzing quantitative data before obtaining qualitative data during the endline survey, if at all possible, to allow qualitative questions to be tailored to the results of the survey)	FGDs with beneficiary farmers in several payams in Western, Central, and Eastern Equatoria and SKIs with USAID/SS, Abt Associates, other implementers, other donor organizations working in agriculture, farmer association heads, etc. Perceptions will be compared between the baseline and endline studies to identify changes	S
6. To what extent are project outcomes sustainable?	Agro-dealer income (not including USAID funds) compared against expenses at endline	Statistically representative survey of 50 beneficiary agro-dealers and 50 control agro-dealers taken at both baseline and endline	G, P, C, S, I
	Farmer incomes (not including project donations) compared against expenses at endline	Statistically representative baseline survey of 275 farmers from each of the typologies of treatment and a control group with similar baseline demographic characteristics as the treatment groups compared to an endline survey of the same	G, P, C, S, I
	Perceptions of beneficiary agro-dealers, farmers, and experts on what is required to make the outcomes sustainable	FGDs with agro-dealers and beneficiary farmers and SKIs	G, P, C, S, I
Gender and its Effects			

7. To what extent have women been integrated into farming activities, agro-dealer management, or both?	% of women reporting employment, participation, and/or leadership in farming activities and agro-dealers in treated communities compared with % of members of untreated communities and % of men reporting the same (also, most of the indicators above will be disaggregated by gender to show how women may be benefitting differently from project interventions and to find out why)	Statistically representative baseline survey of 275 farmers from each of the typologies of treatment and a control group with similar baseline demographic characteristics as the treatment groups compared to an endline survey of the same AND statistically representative survey of 50 beneficiary and 50 control agro-dealer owners	G, P, C, S, I
8. To what extent have women's roles in the household or in agro-dealerships changed due to project interventions	Agro-dealer, farmer, and expert perceptions of women's roles and why they have changed (must be collected at endline as well)	FGDs with agro-dealer owners and other beneficiary farmers in Western, Central, and Eastern Equatoria and SKIs with key experts. Perceptions will be compared between the baseline and endline	C, S, I
*Note: Please note that the questions outlined for the IE baseline can only be answered in their entirety once the endline survey of the Greenbelt Transformation program has occurred. However, questions must be identified up front to ensure appropriate indicators, outcomes, and impacts are tracked.			

FBO QUESTIONNAIRE: MAPPING (B)

B1. DRAW A MAP OF THE VILLAGE, INCLUDING AREAS WHERE MEMBERS OF THE FBO LIVE AND FARM.

B2. IDENTIFY INDIVIDUAL AND COMMUNAL FARMING PLOTS AND APPROXIMATE SIZE OF EACH IN FEDDANS.

B3. IDENTIFY AREAS WHERE DIFFERENT CROPS ARE CULTIVATED, INCLUDING:

B3A	Maize	B3G	Teak
B3B	Sorghum	B3H	Bamboo
B3C	Groundnuts	B3I	Mahogany
B3D	Cassava	B3J	Rice
B3E	Tobacco	B3K	Sweet potatoes
B3F	Legumes		

B4. IDENTIFY WATERWAYS AND ROADS, AND MARK ROAD AREAS THAT ARE:

A. IMPASSABLE BY TRUCKS YEAR-ROUND

B. IMPASSABLE BY TRUCKS IN RAINY SEASON

B5. IDENTIFY THE FOLLOWING:

A. POST HARVEST STORES (AND WHICH FARMERS/FBO'S USE THEM)

B. MILLS (AND WHICH FARMERS/FBO'S USE THEM)

C. BORE HOLES

D. AGRICULTURAL TRAINING / DEMONSTRATION FARM SITES

E. AREAS WHERE VALUE-ADDED PRODUCTS ARE PRODUCED SUCH AS CASSAVA CHIPS, ETC.

FBO QUESTIONNAIRE: LAND & AGRICULTURE (C)

C1 Total Members:	M: <input type="text"/>	F: <input type="text"/>	C2. Year Established: <input type="text"/>
--------------------------	--------------------------------	--------------------------------	---

	C3. Reasons for establishment, in order of importance:	CODES	Reason Codes
1	<input type="text"/>	<input type="text"/>	1=Increase land under cultivation 2=Establish a business 3=Qualify for assistance 4=Other: Specify
2	<input type="text"/>	<input type="text"/>	
3	<input type="text"/>	<input type="text"/>	

OTHER REASON (SPECIFY)

	C4. Requirements for membership:	CODES	Requirements Codes
1	<input type="text"/>	<input type="text"/>	1. Membership fees 2. Meeting attendance 3. Labor (time) requirements 4. Maintenance of their own fields 5. Land (amount) requirements 6. Other (specify)
2	<input type="text"/>	<input type="text"/>	
3	<input type="text"/>	<input type="text"/>	

OTHER REQUIREMENT (SPECIFY)

	CODE	FREQUENCY CODES		
C5. How often does the FBO have formal meetings?	<input type="text"/>	1=A few times a week	3=A few times a month	5=A few times a year
C6. How many times has the FBO met in the last three (3) months?	<input type="text"/>	2=Once a week	4=Once a month	6=Once a year

C7. What are the most common topics discussed in these meetings?

1	<input type="text"/>
2	<input type="text"/>
3	<input type="text"/>
4	<input type="text"/>

C8. Describe the growing seasons:								CROP CODES
		Season 1		Season 2		Season 3		
		Month (write month number)	Part of month: 1=1st half 2=2nd half	Month (write month number)	Part of month: 1=1st half 2=2nd half	Month (write month number)	Part of month: 1=1st half 2=2nd half	
1	Planting	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1. Maize 2. Sorghum 3. Groundnuts 4. Cassava 5. Sesame 6. Tobacco 7. Legumes/beans 8. Millet 9. Teak 10. Bamboo 11. Mahogany 12. Rice 13. Sweet potatoes 14. Yams 15. Sugarcane 16. Bananas 17. Matoke 18. Casia 19. Eggplant 20. Peppers 21. Tomatoes 22. Pineapple 23. Okra 24. Greens 25. Onions 26. Sunflower 27. Mangoes 28. Potatos 29. Cabbage 30. Garlic 31. Squash/Pumpkin
2	Harvesting	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
Crops, Season 1		Crops, Season 2		Crops, Season 3				
Name		Code		Name		Code		
		<input type="text"/>				<input type="text"/>		
		<input type="text"/>				<input type="text"/>		
		<input type="text"/>				<input type="text"/>		
		<input type="text"/>				<input type="text"/>		
		<input type="text"/>				<input type="text"/>		
		<input type="text"/>				<input type="text"/>		
		<input type="text"/>				<input type="text"/>		
		<input type="text"/>				<input type="text"/>		

C9. Approximately how many feddans in the area (Boma) are under cultivation (including forest products, not including livestock) by FBO members in the following categories?		
	Feddans	Increase or decrease from previous year
Land farmed by individual farmers/families	<input type="text"/>	<input type="text"/>
Land farmed communally by the FBO.	<input type="text"/>	<input type="text"/>

C10. Approximately how many TOTAL FEDDANS are planted by the members of the FBO. Indicate individual land and communal land separately:							
CROP CODE	Individual Land: Feddans	Compared to this time last year, is this an:		Communal Land: Feddans	Compared to this time last year, is this an:		Indicate number of feddans that are intercropped. If none, write 0.
		1=Increase 3=Same	2=Decrease		1=Increase 3=Same	2=Decrease	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	

REASON CODES DECREASED YEILDS/INCOME		REASON CODES INCREASED YEILDS/INCOME:	
1=DROUGHT	9=POOR FARMING PRACTICES	16=IMPROVED PEST/DISEASE PROTECTION	23=IMPROVED PLOWING PRACTICES
2=CROP DISEASE	10=IMPROPER USE OF FERTILIZER	17=IMPROVED PLANTING PRACTICES	24=IMPROVED LABOR ACCESS
3=PEST	11=TRANSPORT COSTS/AVAILABILITY	18=IMPROVED HARVESTING PRACTICES	25=INCREASED AMOUNT OF FARMED LAND
4=POOR SOIL	12=LACK OF PROPER STORAGE	19=IMPROVED SEEDS	26=BETTER TRANSPORT
5=CONFLICT	13=LACK OF BUYERS	20=FERTILIZER USE	27=MORE BUYERS
6=HUMAN DISEASE	14=DECLINING PRICES	21=IMPROVED STORAGE PRACTICES	28=BETTER PRICES
7=LABOR COST/SHORTAGE	15=Other decrease: specify	22=GOOD RAIN	29=Other increase: specify
8=PLOWING COSTS/AVAILABILITY			

OTHER REASONS FOR DECREASED YEILDS/INCOME (SPECIFY)

OTHER REASONS FOR INCREASED YEILDS/INCOME (SPECIFY)

C12. In the last growing season, describe the yield and income for any of the crops below harvested from communal/FBO land:

CROP CODE	What was the total quantity harvested per feddan.	UNIT	At what price did the FBO sell this crop most recently? (SSP)	UNIT	UNIT CODES
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1=Bags 2=Kilos 3=Other
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	

C13. Describe the post-harvest uses of any of the following crops harvested from communal/FBO land:

CROP	PRIMARY POST-HARVEST USE CODES (1)	PERCENT OF CROP USED FOR THIS PURPOSE (1)	SECONDARY POST-HARVEST USE CODES (2)	PERCENT OF CROP USED FOR THIS PURPOSE (2)	TERCIARY POST-HARVEST USE CODES (3)	PERCENT OF CROP USED FOR THIS PURPOSE (3)
Maize	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sorghum	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Groundnuts	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Cassava	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Tobacco	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Legumes	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Teak	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Bamboo	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Mahogany	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Rice	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sweet potatoes	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

POST HARVEST USE CODES

1=LOCAL CONSUMPTION	3=SELL IN REGIONAL MARKET	5=SOLD TO LOCAL BUYER	7=SOLD TO JUBA BUYER	9=BARTERING
2=SELL IN LOCAL MARKET	4=SELL IN JUBA	6=SOLD TO REGIONAL BUYER	8=SOLD TO INTERNAT. BUYER	10=OTHER: SPECIFY

OTHER POST HARVEST (SPECIFY)

C14. What percentage of the farmed land by FBO members, including individual and communal, in the area is:

RAINFED	<input type="text"/>	If 100%, go to Q C16	<input type="text"/>
IRRIGATED	<input type="text"/>		

C15. What are the differences between rainfed and irrigated farms in terms of:

Are yields higher for irrigated?

1. YES

2. NO

List types of crops on irrigated land

Who farms on irrigated land?

C16. Describe the rains over the last three years in terms of its impact on crops:

	Impact Code	IMPACT CODES
2010	<input type="text"/>	1=Very poor 2=Poor 3=Average 4=Good 5=Very good
2011	<input type="text"/>	
2012	<input type="text"/>	

C17. Describe the frequency of the following practices among members of the FBO:

	Individual land (Freq. Code)	Communal land (Freq. Code)	Frequency Codes	DISTANCE CODE
using improved, non-OPV seed	<input type="text"/>	<input type="text"/>	1=Always 2=Sometimes (often, but not always)	1=< 1 KM 2=1-5 KM 3=6-20 KM
using improved, OPV seed	<input type="text"/>	<input type="text"/>		

	using hybrid seed	<input type="checkbox"/>	<input type="checkbox"/>	3=Seldom (Not very often) 4=Never	4=20-50 KM 5=>50 KM 6=DON'T KNOW
	using harvested seed	<input type="checkbox"/>	<input type="checkbox"/>		
	broadcasting seed	<input type="checkbox"/>	<input type="checkbox"/>		
	planting seed in rows	<input type="checkbox"/>	<input type="checkbox"/>		
	applying fertilizer	<input type="checkbox"/>	<input type="checkbox"/>		
	using an ox plow	<input type="checkbox"/>	<input type="checkbox"/>		
<< C17 CONTINUATION		Individual land (Freq. Code)	Communal land (Freq. Code)	Frequency Codes	DISTANCE CODE
	using a tractor	<input type="checkbox"/>	<input type="checkbox"/>	1=Always 2=Sometimes (often, but not always) 3=Seldom (Not very often) 4=Never	1=< 1 KM 2=1-5 KM 3=6-20 KM 4=20-50 KM 5=>50 KM 6=DON'T KNOW
	using improved storage	<input type="checkbox"/>	<input type="checkbox"/>		
	selling to a commodity buyer	<input type="checkbox"/>	<input type="checkbox"/>		
	hiring labor	<input type="checkbox"/>	<input type="checkbox"/>		
	keeping written records	<input type="checkbox"/>	<input type="checkbox"/>		

C18. For the following items, indicate if and where they are available, and their approximate cost:

	SELLER CODE	DISTANCE CODE	UNIT	Unsubsidized COST AMOUNT	Subsidized COST AMOUNT	Compared to this time last year, is this amount an: 1=Increase 2=Decrease 3=Same
Improved seeds	<input type="checkbox"/>					
Hybrid seeds	<input type="checkbox"/>					
Locally harvested, OPV seeds	<input type="checkbox"/>					
Ox plow	<input type="checkbox"/>					
Tractor	<input type="checkbox"/>					
Fertilizers	<input type="checkbox"/>					
Milling	<input type="checkbox"/>					
Post-harvest storage rental	<input type="checkbox"/>					
Commercial transport	<input type="checkbox"/>					

SELLER CODES:
1=Business 2=Govt. 3=NGO 4=Neighbor 5=Not Available

C19. Of the following practices, indicate which are performed more by men, more by women, or equally by both. Indicate also which practices are commonly performed by boys or girls.

PRACTICE	ADULTS		CHILD (<14yo)		PRACTICE	ADULTS		CHILD (<14yo)	
	1=men 2=woman	3=equal 4= N/A	1=boys 2=girls	3=equal 4= N/A		1=men 2=woman	3=equal 4= N/A	1=boys 2=girls	3=equal 4= N/A
1. hoeing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. cooking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. plowing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14. building houses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. planting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15. selling crops in the local market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. weeding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16. selling crops in farther markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. harvesting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17. selling crops to bulk buyers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Crop shelling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	18. childcare	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. land clearing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	19. keeping sales records	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. applying fertilizer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20. teaching children how to farm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. buying farm supplies (seeds, etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	21. managing finances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. buying non-food household items (beds, pots, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22. meeting with extension agents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. buying food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	23. managing local civil disputes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. fetching water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24. caring for livestock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C20. Ask to see the FBO financial and other records. How are the FBO records kept?

1. Well organized, written records
 2. Not well organized, written records
 3. Combination of memory and written records
 4. Mostly by memory

C21. Who keeps the FBO records?

1. Designated treasurer
 2. Chair
 3. Other (Specify)

Other (Specify)

--

FBO QUESTIONNAIRE: ECONOMY (D)

D1. For how much is the FBO able to sell any of the following items in the following venues (not including vouchers or subsidized cost)?								
ITEM	LOCAL MARKET				REGIONAL MARKET (Town:)			
	COST	UNIT	Compared to this time last year, cost is 1=UP 2=DOWN 3=SAME	COST	UNIT	Compared to this time last year, cost is 1=UP 2=DOWN 3=SAME	UNIT CODES	
	AMOUNT	CODE		AMOUNT	CODE			
Firewood/charcoal	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1=Tonnes 2=Litre 3=Sack 4=Kilograms 5=Bunch 6=Bin	
Maize	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Sorghum	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Groundnuts	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Cassava	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Tobacco	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Legumes	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Dried Okra	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Rice	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Sweet Potatoes	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
ITEM	URBAN MARKET (Town:)				BULK BUYER (Town:)			
	COST	UNIT	Compared to this time last year, cost is 1=UP 2=DOWN 3=SAME	COST	UNIT	Compared to this time last year, cost is 1=UP 2=DOWN 3=SAME	UNIT CODES	
	AMOUNT	CODE		AMOUNT	CODE			
Firewood/charcoal	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1=Tonnes 2=Litre 3=Sack 4=Kilograms 5=Bunch 6=Bin	
Maize	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Sorghum	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
<<D1 CONTINUATION	URBAN MARKET (Town:)				BULK BUYER (Town:)			
	COST	UNIT	Compared to this time last year, cost is 1=UP 2=DOWN 3=SAME	COST	UNIT	Compared to this time last year, cost is 1=UP 2=DOWN 3=SAME	UNIT CODES	
	AMOUNT	CODE		AMOUNT	CODE			
Groundnuts	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1=Tonnes 2=Litre 3=Sack 4=Kilograms 5=Bunch 6=Bin	
Cassava	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Tobacco	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Legumes	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Dried Okra	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Rice	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Sweet Potatoes	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		

D2. What is the cost of the following items in the nearest market (not including vouchers or subsidized cost)? Add additional crops if needed?								
ITEM	A. Hybrid Seeds				B. Improved, Non-OPV Seeds			
	COST	UNIT	Compared to this time last year, cost is 1=UP 2=DOWN 3=SAME	COST	UNIT	Compared to this time last year, cost is 1=UP 2=DOWN 3=SAME	UNIT CODES	
	AMOUNT	CODE		AMOUNT	CODE			
Maize	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1=Tonnes 2=Litre 3=Sack 4=Kilograms 5=Bunch 6=Bin	
Sorghum	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Groundnuts	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Cassava	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Dura	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Okra	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		

EVENTS THAT MADE YEILDS AND INCOMES WORSE OFF	EVENT CODE	YEAR	% of community effected	EVENT CODES
	□□□	□□□□□	□□□□	1. Drought 2. Flood 3. Crop disease/pests 4. livestock disease
	□□□	□□□□□	□□□□	5. human epidemic disease
	□□□	□□□□□	□□□□	6. drop in commodity prices
	□□□	□□□□□	□□□□	7. loss of key social services 8. conflict
	□□□	□□□□□	□□□□	9. Famine 10. Improper use of technologies 11. lack of proper storage
	□□□	□□□□□	□□□□	12. theft 13. labor issues 14. lack of buyers
	□□□	□□□□□	□□□□	15. Other bad (specify)
EVENTS THAT MADE YEILDS AND INCOMES BETTER OFF				
	□□□	□□□□□	□□□□	16. better seeds 17. use of fertilizer
	□□□	□□□□□	□□□□	18. better planting techniques
	□□□	□□□□□	□□□□	19. New/improved Road
	□□□	□□□□□	□□□□	20. better harvesting techniques
	□□□	□□□□□	□□□□	21. better access to commercial transportation
	□□□	□□□□□	□□□□	22. improved storage
	□□□	□□□□□	□□□□	23. rise in commodity prices
	□□□	□□□□□	□□□□	24. good rain/weather 25. Other good (specify)

OTHER WORSE EVENTS (SPECIFY)

OTHER BETTER EVENTS (SPECIFY)

D6. Does the FBO receive (or has it applied to receive) financial assistance or credit from any local sources of credit:

1. Yes 2. No >> D8

IF YES, LIST THEM HERE:

Credit Source	Name	Amount of assistance	Interest rate/Fee
Banks		□□□□□	□□□□□□□□□□
NGOs		□□□□□	□□□□□□□□□□
Moneylenders		□□□□□	□□□□□□□□□□
Others		□□□□□	□□□□□□□□□□

D7. Does the FBO use deposit and saving groups in this village?

1. Yes 2. No >> E1

IF YES, LIST THEM HERE:

Name	Credit Source Code	Amount of deposit (for FBO)	Interest rate
	□□□	□□□□□	□□□□□□□□□□
	□□□	□□□□□	□□□□□□□□□□
	□□□	□□□□□	□□□□□□□□□□
	□□□	□□□□□	□□□□□□□□□□

DEPOSIT SOURCE CODES

1=Banks	3=Moneylenders	5=FBO scheme	7=Others, SPECIFY
2=NGOs	4=Group Saving/Lending	6=Moneylenders	

OTHER DEPOSIT SOURCE (SPECIFY)

FBO QUESTIONNAIRE: Projects and Services (E)

E1. Are there any NGO'S active in the area now conducting projects in any sector? (Code lists on next page)

1. Yes 2. No >> E2

+

NGO Name	Year of start	Sector Code	Population code for main target population
	_____	_____	_____
	_____	_____	_____

E2. Are there any government/public projects active in the area now? (Code lists on next page)

1. Yes 2. No >> E3

Project Name	Sponsor Code	Ministry Name	Year of start	Sector Code	Population code for main target population
	_____		_____	_____	_____
	_____		_____	_____	_____

E2. Are there any government/public projects active in the area now? (Code lists on next page)

1. Yes 2. No >> E3

E3. List all agriculture projects conducted in the area over the last 10 years, not including any projects listed above. (Code lists on next page)						
IF NO PROJECTS LEAVE BLANK						
Project Name	Start		End		Sponsor Code	Population code for main target population
	Year	Year	Year	Year		
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____

SECTOR CODES		SPONSOR CODES		POPULATION CODES	
1=Education	9=Power	1=National Gov.	1=Common	9=Pastoralists	
2=Health	10=Roads	2=State Gov.	2=Poor	10=OVC	
3=Family Planning	11=Soil Conservation	3=County Gov.	3=Landless	11=Farmers	
4=Nutrition	12=Child Protection	4=Political Party	4=Women	12=Businesses	
5=Drinking Water	13=HIV/AIDS	5=International NGO	5=Children	13=Elders	
6=Agriculture	14=Peace building	6=National NGO	6=Women & Children	14=Other	
7=Irrigation	15=Sanitation	7=CBO	7=Returnees		
8=Forestry	16=Other	8=Other	8=IDPs		

OTHER SECTOR (SPECIFY)

OTHER SPONSOR (SPECIFY)

OTHER POPULATION (SPECIFY)

THANK THE RESPONDENT AND CLOSE THE INTERVIEW

T2 Record time the interview ended; (HH MM - 24 hour time format Example 1005)

+

+

+

+

ANNEX IV: DATA COLLECTION INSTRUMENT – COMMUNITY QUESTIONNAIRE



COMMUNITY QUESTIONNAIRE: COVER PAGE (A)

Serial number:

--	--	--	--	--

Field Serial No:

--	--	--	--	--

LOCATION INFORMATION:				
	WRITE IN SPACE PROVIDED	CODE	TRACKING INFORMATION	WRITE IN SPACE PROVIDED
A1. NAME OF STATE		<input type="text"/>	NAME OF INTERVIEWER	
A2. NAME OF COUNTY		<input type="text"/>	NAME OF SUPERVISOR	
A3. NAME OF PAYAM		<input type="text"/>	DATE OF INTERVIEW [DD/MM/YYYY]	<input type="text"/>
A4. NAME OF BOMA		<input type="text"/>	DATA ENTRY CODE	<input type="text"/>
A5. NAME OF VILLAGE		<input type="text"/>	DATA VALIDATION CODE	<input type="text"/>
A6. GPS LOCATION	Latitude:	<input type="text"/>	Longitude:	<input type="text"/>
A7. DISTANCE TO COUNTY SEAT:			COUNTY SEAT NAME:	
A8. DISTANCE TO STATE CAPITOL:			STATE CAPITOL NAME	

RESPONDENT INFORMATION:			
A9. NAME:		A10. AGE:	<input type="text"/>
A11. GENDER		A12. PHONE NUMBER	<input type="text"/>
A13. PRIMARY OCCUPATION:		A14. SECONDARY OCCUPATION:	
A15. OTHER ROLES IN COMMUNITY		A16. DO YOU CONSIDER YOURSELF LITERATE (ABLE TO READ AND WRITE) IN ENGLISH? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No	

A17. LEVEL OF EDUCATION (CHECK HIGHEST ACHIVED AND INDICATE LOCATION):			
	INDICATE LOCATION:		INDICATE LOCATION:
<input type="checkbox"/> 1. Some Primary		<input type="checkbox"/> 5. Some Post-Secondary training	
<input type="checkbox"/> 2. Primary Certificate		<input type="checkbox"/> 6. Post-Secondary Training Certificate	
<input type="checkbox"/> 3. Some Secondary		<input type="checkbox"/> 7. Some University	
<input type="checkbox"/> 4. Secondary Certificate		<input type="checkbox"/> 8. University Degree	

COMMUNITY QUESTIONNAIRE: ECONOMY (C)

C1. List the different languages commonly spoken in this area (Boma) in order of frequency and the percent of the population:				C2. List the following livelihood activities in order of most common to least common for households in this boma or village?			
	LANGUAGE CODE	Approx.%	LANGUAGE CODES		ACTIVITY CODE	Approx.%	ACTIVITY CODES
1	<input type="text"/>	<input type="text"/>	1=Bari	1	<input type="text"/>	<input type="text"/>	1=Small-scale Farming (< 5 feddans)
2	<input type="text"/>	<input type="text"/>	2=Latuka	2	<input type="text"/>	<input type="text"/>	2=Medium-scale Farming (6-20 feddans)
3	<input type="text"/>	<input type="text"/>	3=Toposa	3	<input type="text"/>	<input type="text"/>	3=Large scale Farming (> 20 feddans)
4	<input type="text"/>	<input type="text"/>	4=Didinga	4	<input type="text"/>	<input type="text"/>	4=Small-scale Livestock (<200 head)
5	<input type="text"/>	<input type="text"/>	5=Acholi	5	<input type="text"/>	<input type="text"/>	5=Large-scale livestock (>201 head)
6	<input type="text"/>	<input type="text"/>	6=Zande	6	<input type="text"/>	<input type="text"/>	6=Fishing
7	<input type="text"/>	<input type="text"/>	7=Makakarka	7	<input type="text"/>	<input type="text"/>	7=Firewood, Charcoal Selling
8	<input type="text"/>	<input type="text"/>	8=Moru	8	<input type="text"/>	<input type="text"/>	8=Beer/Alcohol Brewing

C1. List the different languages commonly spoken in this area (Boma) in order of frequency and the percent of the population:				C2. List the following livelihood activities in order of most common to least common for households in this boma or village?			
9	[] [] []	[] [] []	9=Avokaia	9	[] [] []	[] [] []	9=Teaching
10	[] [] []	[] [] []	10=Arabic	10	[] [] []	[] [] []	10=Civil service/government jobs
11	[] [] []	[] [] []	11=Madi	11	[] [] []	[] [] []	11=Transport
12	[] [] []	[] [] []	12=English	12	[] [] []	[] [] []	12=Construction trades
				13	[] [] []	[] [] []	13=Retail products and services (dry goods, hardware, cell phones, etc.)
				14	[] [] []	[] [] []	14=Hotel and restaurant business
				15	[] [] []	[] [] []	15=Traditional (chiefs, song writers, spiritual guides, healers, etc.)
				16	[] [] []	[] [] []	16=Agricultural / livestock support services and products
				17	[] [] []	[] [] []	17=Beekeeping, honey production and selling
				18	[] [] []	[] [] []	18=Religious
				19	[] [] []	[] [] []	19=Other (specify)

OTHER ACTIVITY (SPECIFY)

C3. Do people in this village leave temporarily during certain times of the year to look for work elsewhere?

1. YES 2. NO >> go to C4

(Indicate as a % of the total who migrate for work)			
1. Other farms: in %	[] [] []	3. Larger towns: in %	[] [] []
2. Other villages: in %	[] [] []	4. Juba: in %	[] [] []
3. Some Secondary	[] [] []	7. Some University	[] [] []

A3c. During which months do they typically leave?	[] [] []
A3d. To what areas/towns do they go?	
A3e. What jobs do they search for?	
A3f. What percent of the working population migrated for work over the last year?	[] [] []

	YES	NO
C4. Are there any industries or businesses within the Boma with more than 5 full-time employees?	<input type="checkbox"/>	<input type="checkbox"/>
C5. Are there any factories or other large businesses inside or outside the boma that employ people who live in the boma?	<input type="checkbox"/>	<input type="checkbox"/>

C6. List the local sources of money lending, credit, or savings deposit:		
SOURCE :	Number (inside Boma)	APPROXIMATE INTEREST RATE
Banks	[] [] []	[] [] []
NGOs	[] [] []	[] [] []
Moneylenders	[] [] []	[] [] []
Other:	[] [] []	[] [] []

OTHER SOURCE (SPECIFY)

C7. What is the prevailing daily wage for casual labor for the following jobs?							
	Male		Female		Child		
	AMOUNT	Unit Code	AMOUNT	Unit Code	AMOUNT	Unit Code	
Clearing land	[] [] [] [] [] []	[]	[] [] [] [] [] []	[]	[] [] [] [] [] []	[]	
Planting	[] [] [] [] [] []	[]	[] [] [] [] [] []	[]	[] [] [] [] [] []	[]	
Weeding	[] [] [] [] [] []	[]	[] [] [] [] [] []	[]	[] [] [] [] [] []	[]	
Harvesting	[] [] [] [] [] []	[]	[] [] [] [] [] []	[]	[] [] [] [] [] []	[]	
Shelling	[] [] [] [] [] []	[]	[] [] [] [] [] []	[]	[] [] [] [] [] []	[]	
Construction	[] [] [] [] [] []	[]	[] [] [] [] [] []	[]	[] [] [] [] [] []	[]	
Employment schemes	[] [] [] [] [] []	[]	[] [] [] [] [] []	[]	[] [] [] [] [] []	[]	
(e.g. Food for work, EAS).	[] [] [] [] [] []	[]	[] [] [] [] [] []	[]	[] [] [] [] [] []	[]	

UNIT CODES:

1=Hour	2=Feddan	3=Katara	4=Sack	5=Day	6=Other(sp.)
--------	----------	----------	--------	-------	--------------

OTHER UNITS (SPECIFY)

C8. List the typical forms of in-kind payment for agricultural work in order of most common to least common?

CODE	IN-KIND CODES
<input type="checkbox"/>	1=Clothes
<input type="checkbox"/>	2=Food stuffs
<input type="checkbox"/>	3=Animals
<input type="checkbox"/>	4=Soap
<input type="checkbox"/>	5=Other, specify:

OTHER IN-KIND (SPECIFY)

C9. What is the current cost of the following items in the nearest market (not including vouchers or subsidized cost)?

ITEM	UNIT	COST AMOUNT	UNIT CODES
Firewood/charcoal	<input type="text"/>	<input type="text"/>	1=KG
Cooking gas	<input type="text"/>	<input type="text"/>	2=LITER
Diesel	<input type="text"/>	<input type="text"/>	3=UNITS
Kerosene	<input type="text"/>	<input type="text"/>	4=CART LOAD
Maize	<input type="text"/>	<input type="text"/>	5=CYLINDER
Sorghum	<input type="text"/>	<input type="text"/>	6=SACK
Groundnuts	<input type="text"/>	<input type="text"/>	7=HEAD
Cassava	<input type="text"/>	<input type="text"/>	8=DOZEN
Cattle	<input type="text"/>	<input type="text"/>	9=MUGS
Goats/Sheep	<input type="text"/>	<input type="text"/>	10=BUNCH/BUNDLE
Chickens	<input type="text"/>	<input type="text"/>	11=STACK
Eggs	<input type="text"/>	<input type="text"/>	12=OTHER (SPECIFY)
Dried Fish	<input type="text"/>	<input type="text"/>	
Tobacco	<input type="text"/>	<input type="text"/>	
Legumes	<input type="text"/>	<input type="text"/>	
Dried Okra	<input type="text"/>	<input type="text"/>	

OTHER UNITS (SPECIFY)

C10. Did the village experience any of the following in the last two years that was bad for family livelihoods?

	YES	NO	If YES, indicate year and months:		
			Year	From month	to month
DROUGHT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
FLOOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
EPIDEMIC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
CONFLICT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
DISPLACEMENT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
OTHER (SPECIFY)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

C11. Compared to this time last year, how have the following conditions changed in your community?

CODE	CODE	CODE
1. Farm yeilds <input type="text"/>	6. Access to health serivces <input type="text"/>	11. Sanitation/latrines <input type="text"/>
2. Children's health <input type="text"/>	7. Labor availability <input type="text"/>	12. Police/public safety <input type="text"/>
3. Farmer incomes <input type="text"/>	8. Labor costs <input type="text"/>	13. Care of Elders <input type="text"/>
4. Food security <input type="text"/>	9. Vaccinations <input type="text"/>	14. Government services <input type="text"/>
5. Access to education <input type="text"/>	10. Malaria <input type="text"/>	15. Road conditions <input type="text"/>

CONDITIONS CODES

1. it is much worse	2. it is worse	3. it is about the same	4. it is better	5. it is much better
---------------------	----------------	-------------------------	-----------------	----------------------

11. buying food	<input type="checkbox"/>	<input type="checkbox"/>	23. managing local civil disputes	<input type="checkbox"/>	<input type="checkbox"/>
12. fetching water	<input type="checkbox"/>	<input type="checkbox"/>	24. caring for livestock	<input type="checkbox"/>	<input type="checkbox"/>

D9. Do any farmers or farm groups have their own improved crop storage facilities?

1. YES 2. NO >> go to D10

If YES, list them here and provide the following details:						
Name	Year Constructed	Capacity (in bags)	Crops stored	Is space rented to others?		
				1=Yes	2=No	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

D10. For the following items, indicate if and where they are available, and their approximate cost:						
	SELLER CODE	DISTANCE CODE	UNIT	COST AMOUNT	Change from this time last year: 1=Increase 2=Decrease 3=Same	
Improved seeds	<input type="checkbox"/>	<input type="checkbox"/>				
Hybrid seeds	<input type="checkbox"/>	<input type="checkbox"/>				
Ox plow	<input type="checkbox"/>	<input type="checkbox"/>				
Tractor	<input type="checkbox"/>	<input type="checkbox"/>				
Fertilizers	<input type="checkbox"/>	<input type="checkbox"/>				
Milling	<input type="checkbox"/>	<input type="checkbox"/>				
Post-harvest storage rental	<input type="checkbox"/>	<input type="checkbox"/>				
Commercial transport	<input type="checkbox"/>	<input type="checkbox"/>				

*UNSUBSIDIZED COST

SELLER CODES		DISTANCE CODE	
1=BUSINESS	4=individual/neighbor	1=IN VILLAGE (< 1 KM)	3=REGIONAL TOWN (5-20 KM)
2=GOVERNMENT	5=OTHER (SPECIFY)	2=NEIGHBORING VILLAGE (1-5 KM)	4=JUBA or >20 KM
3=NGO			

OTHER SELLER (SPECIFY)

COMMUNITY QUESTIONNAIRE: EXISTING PROJECTS (E)

E1. Are there any NGO'S active in the area now conducting projects in any sector? (Code lists on next page)					
NGO Name	Year of start	Sector Code	Sponsor code	Pop. Code	
	<input type="checkbox"/>				
	<input type="checkbox"/>				
	<input type="checkbox"/>				
	<input type="checkbox"/>				
	<input type="checkbox"/>				

E2. Are there any government/public projects active in the area now? (Code lists on next page)						
Project Name	Sponsor Code	Ministry Name	Year of start	Sector Code	Sponsor code	Pop. Code
	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

--	--	--	--	--	--	--	--

E3. List all agriculture projects conducted in the area over the last 10 years, not including the active projects listed above. (Code lists on next page)					
NAME OF PROJECT	YEAR	SPONSOR CODES	AMOUNT	POPULATION CODES	

SECTOR CODES		LEVEL CODES		POPULATION CODES	
1=Education	9=Power	1=National Gov.	1=Common	8=IDPs	
2=Health	10=Roads	2=State Gov.	2=Poor	9=Pastoralists	
3=Family Planning	11=Soil Conservation	3=County Gov.	3=Landless	10=OVC	
4=Nutrition	12=Child Protection	4=Political Party	4=Women	11=Farmers	
5=Drinking Water	13=HIV/AIDS	5=INGO	5=Children	12=Businesses	
6=Agriculture	14=Peace building	6=Local NGO	6=Women & Children	13=Elders	
7=Irrigation	15=Sanitation	7=FBO	7=Returnees	14=Other	
8=Forestry	16=Other	8=Other			

OTHER SECTOR (SPECIFY)

OTHER LEVEL (SPECIFY)

OTHER POPULATION (SPECIFY)

THANK THE RESPONDENT AND CLOSE THE INTERVIEW

12 Record time the interview ended; (HH MM - 24 hour time format Example 1005)

ANNEX V: DATA COLLECTION INSTRUMENT – HOUSEHOLD QUESTIONNAIRE



HOUSEHOLD QUESTIONNAIRE - IMPACT EVALUATION OF THE FARM PROJECT

Serial number:

--	--	--	--	--	--

Field Serial No:

--	--	--	--	--	--

TO BE PRE-FILLED BY SUPERVISOR			
	WRITE IN SPACE PROVIDED	TRACKING INFORMATION	WRITE IN SPACE PROVIDED
STATE:		Name of Head of household:	
COUNTY:		Name of Respondent (if different from HH head):	
BOMA:		Name of FBO member:	
PAYAM:		Phone number of respondent or HH head	
VILLAGE:		WRITE ANY HELPFUL IDENTIFYING FEATURES (E.G. LANDMARKS)	
Interviewer:			
Supervisor:			
		Date of interview: (Write in DD/MM/YYYY)	

Language of interview:

- | | | | |
|-------------------------------------|------------------------------------|----------------------------------|--|
| <input type="checkbox"/> 1. Acholi | <input type="checkbox"/> 4. Baka | <input type="checkbox"/> 7. Madi | <input type="checkbox"/> 10. Zande |
| <input type="checkbox"/> 2. Avukaya | <input type="checkbox"/> 5. Lotuho | <input type="checkbox"/> 8. Moru | <input type="checkbox"/> 11. Juba Arabic |
| <input type="checkbox"/> 3. Bari | <input type="checkbox"/> 6. Lukwa | <input type="checkbox"/> 9. Wadi | <input type="checkbox"/> 12. English |

Religion **ASK THE RESPONDENT:**

- | | | |
|---------------------------------------|------------------------------------|--|
| <input type="checkbox"/> 1. Christian | <input type="checkbox"/> 2. Muslim | <input type="checkbox"/> 3. Traditional African believes |
|---------------------------------------|------------------------------------|--|

Tribe **ASK THE RESPONDENT:**

- | | | | | |
|-------------------------------------|----------------------------------|------------------------------------|----------------------------------|------------------------------------|
| <input type="checkbox"/> 1. Acholi | <input type="checkbox"/> 3. Bari | <input type="checkbox"/> 5. Lotuho | <input type="checkbox"/> 7. Madi | <input type="checkbox"/> 9. Wadi |
| <input type="checkbox"/> 2. Avukaya | <input type="checkbox"/> 4. Baka | <input type="checkbox"/> 6. Lukwa | <input type="checkbox"/> 8. Moru | <input type="checkbox"/> 10. Zande |

Is there a continuation questionnaire?

- | | |
|---------------------------------|--------------------------------|
| <input type="checkbox"/> 1. Yes | <input type="checkbox"/> 2. No |
|---------------------------------|--------------------------------|

HOUSEHOLD ROSTER: INSTRUCTIONS

PERSON INTERVIEWED: PREFERABLY THE FBO MEMBER. IF HE/SHE IS NOT AVAILABLE, AND HE/SHE IS NOT THE HOUSEHOLD HEAD, FIND THE HOUSEHOLD HEAD OR ALTERNATIVELY A "MAIN RESPONDENT" TO ANSWER THE QUESTIONS IN HIS/HER PLACE. THE PERSON SELECTED MUST BE A MEMBER OF THE HOUSEHOLD WHO IS ABLE TO GIVE INFORMATION ON THE OTHER HOUSEHOLD MEMBERS AND ON AGRICULTURAL PRODUCTION. THE ID CODES ARE THOSE REPORTED IN THE FIRST COLUMN OF THE ROSTER SECTION (FOLLOWING PAGE)

"Who is the person who knows most about agricultural and livestock activities of the members of your household?" ID CODE:

--

1-3. I would like to make a complete list of all the people who normally live and eat their meals together in this dwelling. First, I would like to have the names of all the members. Start with the head of the household, wife/husband of household head, his/her children in order of age. Only include those persons who have lived here for some time in the last 12 months. Do not include married children living elsewhere for more than a year.

ALWAYS WRITE DOWN THE HEAD OF THE HOUSEHOLD FIRST, FOLLOWED BY HIS/HER SPOUSE AND THEIR CHILDREN IN ORDER OF AGE. FOR EACH PERSON WRITE IN CAPITAL LETTERS FAMILY NAME AND GIVEN NAME. THEN WRITE SEX AND RELATIONSHIP TO THE HEAD OF HOUSEHOLD.

Please give me the names of any other persons related to the head of the household or to his/her wife/husband, together with their families, who normally live and eat their meals here.

FOR EACH PERSON WRITE IN CAPITAL LETTERS FAMILY NAME AND GIVEN NAME. THEN WRITE SEX AND RELATIONSHIP TO THE HEAD OF HOUSEHOLD

FOR EACH PERSON LISTED IN QUESTION 1, ASK THE QUESTIONS 4-7 AND THEN CLASSIFY THE PERSON ACCORDINGLY IN Q.8.

ALL PERSONS ALIVE WHO HAVE LIVED IN THE HOUSEHOLD FOR AT LEAST 3 OF THE LAST 12 MONTHS ARE CLASSIFIED AS HOUSEHOLD MEMBERS. DECEASED INDIVIDUALS ARE NEVER CLASSIFIED AS HOUSEHOLD MEMBERS. LODGERS ARE NOT CLASSIFIED AS HOUSEHOLD MEMBERS. HIRED WORKERS AND SERVANTS ARE NOT CLASSIFIED AS HOUSEHOLD MEMBERS IF THEY STAY ELSEWHERE. GUESTS WHO HAVE COME TO VISIT FOR 3 OR MORE MONTHS ARE CLASSIFIED AS MEMBERS OF HOUSEHOLD (WHETHER RELATED TO THE HOUSEHOLD HEAD OR NOT).

PEOPLE SPENDING LESS THAN 3 OF THE LAST 12 MONTHS IN THE HOUSEHOLD ARE NOT HOUSEHOLD MEMBERS WITH THE FOLLOWING EXCEPTIONS : (1) THE HEAD OF HOUSEHOLD, AND (2) INFANTS LESS THAN 3 MONTHS OLD.

OCCUPATION CODES	CODES		CODES
AGRICULTURE:		SERVICE WORKERS	
Cultivators	11	Servants; Waiters	31
Farmers	12	Sweepers, Cleaners; Building Caretakers.	32
Cattle/Sheep/goat rearing (Livestock)	13	Barbers, Beauticians; Hair Dressers	33
Fishing	14	Launderers (Dhobi) Dry-cleaners and Pressers.	34
Lumbering	15	Petty Traders; Small Shop-owners (<10 employees)	35
Agricultural Laborers	16	Big Shop Owner (>10 employees)	36
Hunters	17	Transport Workers; Drivers; Tractor Owner; Auto Owner.	37
Dairying	18	Bicycle/motorcycle/auto mechanics.	38
Other agriculture	10	Priest/Religious Workers/Imam	39
PRODUCTION AND RELATED WORKERS, AND LABOURERS:		Other: Hotel and Restaurant Keepers; Money Lenders, Electrical Workers.	30
Stone Cutters and Carvers (Masons).	21	PROFESSIONAL, TECHNICAL AND RELATED WORKERS	
Brick producers, bricklayers, Carrying Mud and Other Constructions Workers.	22	Teacher/Lecturer/Headmaster	41
Tobacco Preparers (Saud makers) and Tobacco Product Makers	23	Health Professional; Doctor; Nurse, midwife, community health worker.	42
Charcoal producers	24	Other: Scientific, and Technical Persons, Poets, Authors, Journalists and Related Workers; Sculptors, Painters, Photographers and Related Creative Artists, Composers and Performing Artists	40
Tailors, Dress Makers, Sewers, Upholsterers, Spinners, Weavers, Knitters, Dyers and Related Workers	25	ADMINISTRATIVE/CLERICAL, EXECUTIVE AND MANAGERIAL AND POLITICAL WORKERS	
Cobbler; Shoe makers and Leather Goods Makers.	26	Boma administrator/chief	51
Carpenters, Cabinet and Related Wood Workers.	27	Clerk/Administrative: Private	52
Blacksmith; Goldsmith.	28	Clerk/Administrative: Government	53
Brewers (production of local brew)	29	Other: Elected and Legislative Officials; Working Proprietors.	50
Other: Miners, Quarrymen, Well Drillers; Wood/Paper Preparation; Chemical Processors and Related Workers; Tool Makers and Machine Tool Operators; Machinery Fitters, Machine Assemblers and Precision Instrument Makers, Jewellery and Precious Metal Workers and Metal Engravers (Except Printing); Glass Formers, Potters and Related Workers; Paper and Paper Board Products Makers; Printing and Related Workers; Other Production and Related Workers	20	OTHER/WORKERS NOT CLASSIFIED BY OCCUPATIONS	
		Housewife	61
		Student	62
		Work completed as part of project led by NGO or international organisation.	63
		Unemployed	64
		Other: anything that is not classified under divisions 1-5 (including military without other occupation speciality and police officers)	60

INFORMED CONSENT

"Hello, my name is: _____, and I am part of a team of researchers studying agriculture in South Sudan. Before we begin, I need to give you some information so you can decide if you want to participate in our study.

On this card (hand the person the Ipsos business card) is the contact information for the research Team Leader in case you have any questions or concerns after we are finished.

You have been selected at random to participate in our study on agriculture in South Sudan because of your experience and knowledge in these areas. We are interviewing farmers and their families, farmer-based organization chairpersons, and community leaders.

If you decide to participate in our study, you will be asked to participate in an interview now and then again one or two years in the future. Interviews will last approximately 3 hours per session. I will want to sit with you and ask questions and also ask you to show me some things like your farm land.

Your name will not be written or appear anywhere in my notes, interview forms, computers, or in any of the reports that will be published as a result of this research project. I hope this will make you more comfortable to answer my questions honestly and freely.

The benefits of this research will be to better understand the agricultural environment and common practices in your community, and also to better understand the challenges that farmers face. This information may be used by other organizations to improve their services to farmers.

It is very important for you to know that this study is NOT in any way part of services you currently receive or may receive in the future. It is NOT to determine if you will receive any services now or in the future. The way you answer my questions will NOT in any way be used to determine if you or your community will receive any kind of government or NGO assistance. There is no direct benefit to you or your community for your participation in this study, but only as I said, to help us better understand the needs and challenges of farmers in South Sudan.

You may ask questions at any time throughout our interview. If you have questions about the research after I leave today, you can contact the team leader; his contact information is on the card I gave you. Please know that your participation is completely voluntary. If you decide not to participate or to withdraw from the study, it will have no effect on you or your family, or any services you may be receiving or may receive in the future.

Do you have any questions?

OK, so by saying "yes," you are indicating that you have heard this consent script, had an opportunity to ask any questions about your participation and voluntarily consent to participate. Will you participate in this research study about agriculture in South Sudan? You may answer yes or no.

TICK APPROPRIATE BOX

1. Yes 2. No

PART A1: HOUSEHOLD ROSTER

	1	2	3	4	5	6	7	8
	MAKE A COMPLETE LIST OF ALL CONCERNED BEFORE GOING TO QUESTIONS 4-8. THIS IS A LIST OF ALL PEOPLE WHO HAVE LIVED WITHIN THE HOUSEHOLD WITHIN THE LAST 12 MONTHS. IT SHOULD NOT INCLUDE FAMILY MEMBERS WHO LEFT THE HOUSEHOLD MORE THAN 12 MONTHS AGO.	SEX: 1. MALE 2. FEMALE	RELATIONSHIP TO HEAD:	"How old is [NAME]?" NUMBER OF COMPLETED YEARS	Is [NAME] attending school now? 1=YES 2=NO	"What was/is the highest school grade completed by [NAME]?"	For how many months during the past 12 months has [NAME] been away from this household? IF LESS THAN 1, WRITE 0. IF LESS THAN 1 go to Q8, THEN NEXT PERSON. IF 1 OR MORE go to Q8, THEN go to Q9	HOUSEHOLD MEMBER CHECK THE CRITERIA ON INSTRUCTION PAGE 1=YES 2=NO
	NAME	CODE	CODE	YEARS	CODE	CODE	MONTHS	CODE
1		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
4		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
5		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
6		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
7		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
8		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
9		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
10		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
11		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
12		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
13		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

RELATIONSHIP TO HEAD: CODE	HIGHEST SCHOOL GRADE: CODE
1=HEAD	1=NONE
2=WIFE/HUSBAND	2=LESS THAN PRIMARY
3=SON/DAUGHTER/ADOPTED CHILD	3=PRIMARY LEVEL
4=GRANDCHILD	4=LESS THAN SECONDARY
5=NIECE/NEPHEW	5=SECONDARY
6=FATHER/MOTHER	6=VOCATIONAL TRAINING
7=SISTER/BROTHER	7=UNIVERSITY UNDERGRADUATE
8=SON/DAUGHTER-IN-LAW	8=UNIVERSITY POST-GRADUATE
9=BROTHER/SISTER-IN-LAW	9=OTHER
10=GRANDFATHER/GRD.MOTHER	
11=FATHER/MOTHER-IN-LAW	
12=OTHER RELATIVE	
13=SERVANT	
14=OTHER NON-RELATIVE	

PART A2 - MIGRATION					
9		10		11	12
"Where has [NAME] been living? 1. OTHER BOMA IN SAME PAYAM 2. OTHER PAYAM 3. OTHER COUNTY 4. OTHER DISTRICT 5. OTHER STATE 6. JUBA 7. ABROAD		"What was/ is his/her main activity while living away from the household? USE 'OCCUPATION CODES'"		Has [NAME] sent any assistance to your household in the form of cash, food or other goods in the last 12 months? 1. YES 2. NO go to NEXT PERSON	What is the value of the assistance your household received from [NAME] in the last 12 months? go to NEXT PERSON ON HH ROSTER.
CODE	DESCRIPTION	CODE	CODE	CODE	AMOUNT
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Q7 PART B: LABOR INCOME TO BE COMPLETED FOR ALL HOUSEHOLD MEMBERS 6 YEARS OR OLDER

1	2		3	4	5	6	7	8		9	10
During the last 12 months, did [NAME] do any paid or unpaid work? INCLUDE FARMING ON OWN LAND BUT NOT HH WORK 1=YES 2=NO go to (NEXT PERSON)	Please describe [NAME]'s main work during the last 12 months? CODE USING THE 'OCCUPATION CODES'		Who is [NAME]'s employer for this work?	For how many months did [NAME] do this work?	For how many days per month did [NAME] do this work on the days s/he worked?	For how many hours per day did [NAME] do this work on the days s/he worked?	What kind of payment did [NAME] get for this work? 1. CASH 2. IN-KIND 3. NO PAY go to Q9	How much did [NAME] get for this work, including any in-kind payment? (INCLUDE VALUE OF IN-KIND PAYMENT) SKIP IF PERSON IS OPERATING OWN FARM OR OWN BUSINESS (QUESTION 3= 1 OR 3)" TIME UNIT CODES:	"Where did [NAME] do this work?	DID [NAME] do any other work in the last 12 months? INCLUDE FARMING ON OWN LAND BUT NOT HH WORK 1=YES go to Q11 2=NO go to NEXT PERSON	
CODE	WRITTEN DESCRIPTION	CODE	CODE	MONTHS	DAYS	HOURS	CODE	SSP	TIME UNIT	CODE	CODE
1											
2											
3											
4											
5											
6											
7											
8											
9											

<< CONTINUATION >> PART B: LABOR INCOME TO BE COMPLETED FOR ALL HOUSEHOLD MEMBERS 6 YEARS OR OLDER

1	2		3	4	5	6	7	8		9	10	
During the last 12 months, did [NAME] do any paid or unpaid work? INCLUDE FARMING ON OWN LAND BUT NOT HH WORK 1=YES 2=NO go to (NEXT PERSON)	Please describe [NAME]'s main work during the last 12 months? CODE USING THE 'OCCUPATION CODES'		Who is [NAME]'s employer for this work?	For how many months did [NAME] do this work?	For how many days per month did [NAME] do this work on the days s/he worked?	For how many hours per day did [NAME] do this work on the days s/he worked?	What kind of payment did [NAME] get for this work? 1. CASH 2. IN-KIND 3. NO PAY go to Q9	How much did [NAME] get for this work, including any in-kind payment? (INCLUDE VALUE OF IN-KIND PAYMENT) SKIP IF PERSON IS OPERATING OWN FARM OR OWN BUSINESS (QUESTION 3= 1 OR 3)" TIME UNIT CODES:	SSP	TIME UNIT	"Where did [NAME] do this work?"	DID [NAME] do <u>any other</u> work in the last 12 months? INCLUDE FARMING ON OWN LAND BUT NOT HH WORK 1=YES go to Q11 2=NO go to NEXT PERSON
CODE	WRITTEN DESCRIPTION	CODE	CODE	MONTHS	DAYS	HOURS	CODE	SSP	TIME UNIT	CODE	CODE	
10												
11												
12												
13												

3. Who is [NAME]'s employer for this work? CODE	8. TIME UNIT CODES:	9. "Where did [NAME] do this work? CODES
1=OWN FARM	1=DAY	1=THIS VILLAGE
2=COMMUNALLY FARMED LAND	2=WEEK	2=OTHER VILLAGE IN THIS BOMA
3=OWN BUSINESS	3=MONTH	3=OTHER BOMA
4=PRIVATE INDIVIDUAL	4=IN TOTAL	4=OTHER PAYAM
5=GOVERNMENT		5=LOCAL TOWN
6=PUBLIC WORK		6=OTHER TOWN
7=PRIVATE FIRM		7=ABROAD
8=OTHER		

PART B - CONTINUED

11	12	13	14	15	16	17		18	19	
Please describe [NAME]'s second work during the last 12 months? CODE USING THE 'OCCUPATION CODES'	Who is [NAME]'s employer for this work?	For how many months did [NAME] do this work?	For how many days per month did [NAME] do this work on the days s/he worked?	For how many hours per day did [NAME] do this work on the days s/he worked?	What kind of payment did [NAME] get for this work? 1. CASH 2. IN-KIND 3. NO PAY go to Q18	How much did [NAME] get for this work, including any in-kind payment? (INCLUDE VALUE OF IN-KIND PAYMENT) SKIP QUESTION IF PERSON IS OPERATING OWN FARM OR OWN BUSINESS (QUESTION 12= 1 OR 3)" TIME UNIT CODES:	SSP	TIME UNIT	"Where did [NAME] do this work?"	DID [NAME] do <u>any other</u> work in the last 12 months? INCLUDE FARMING ON OWN LAND BUT NOT HH WORK 1=YES go to Q20 2=NO go to NEXT PERSON
WRITTEN DESCRIPTION	CODE	CODE	MONTHS	DAYS	HOURS	CODE	SSP	TIME UNIT	CODE	CODE
1										
2										
3										
4										
5										
6										
7										
8										
9										

<<CONTINUATION>> PART B - CONTINUED

11		12	13	14	15	16	17		18	19
Please describe [NAME]'s second work during the last 12 months? CODE USING THE 'OCCUPATION CODES'		Who is [NAME]'s employer for this work?	For how many months did [NAME] do this work?	For how many days per month did [NAME] do this work on the days s/he worked?	For how many hours per day did [NAME] do this work on the days s/he worked?	What kind of payment did [NAME] get for this work? 1. CASH 2. IN-KIND 3. NO PAY go to Q18	How much did [NAME] get for this work, including any in-kind payment? (INCLUDE VALUE OF IN-KIND PAYMENT) SKIP QUESTION IF PERSON IS OPERATING OWN FARM OR OWN BUSINESS (QUESTION 12= 1 OR 3)" TIME UNIT CODES:	"Where did [NAME] do this work?"	DID [NAME] do any other work in the last 12 months? INCLUDE FARMING ON OWN LAND BUT NOT HH WORK 1=YES go to Q20 2=NO go to NEXT PERSON	
WRITTEN DESCRIPTION	CODE	CODE	MONTHS	DAYS	HOURS	CODE	SSP	TIME UNIT	CODE	CODE
10										
11										
12										
13										

Who is [NAME]'s employer for this work? CODES	TIME UNIT CODES:	"Where did [NAME] do this work? CODES
1=OWN FARM	1=DAY	1=THIS VILLAGE
2=COMMUNALLY FARMED LAND	2=WEEK	2=OTHER VILLAGE IN THIS BOMA
3=OWN BUSINESS	3=MONTH	3=OTHER BOMA
4=PRIVATE INDIVIDUAL	4=IN TOTAL	4=OTHER PAYAM
5=GOVERNMENT		5=LOCAL TOWN
6=PUBLIC WORK		6=OTHER TOWN
7=PRIVATE FIRM		7=ABROAD
8=NGO		
9=OTHER (SPECIFY)		

PART B - CONTINUED

20		21	22	23	24	25	26		27	28		
Please describe [NAME]'s third work during the last 12 months? CODE USING THE 'OCCUPATION CODES'		Who is [NAME]'s employer for this work?	For how many months did [NAME] do this work?	For how many days per month did [NAME] do this work on the days s/he worked?	For how many hours per day did [NAME] do this work on the days s/he worked?	What kind of payment did [NAME] get for this work? 1. CASH 2. IN-KIND 3. NO PAY go to Q27	How much did [NAME] get for this work, including any in-kind payment? (INCLUDE VALUE OF IN-KIND PAYMENT) SKIP QUESTION IF PERSON IS OPERATING OWN FARM OR OWN BUSINESS (QUESTION 21= 1 OR 3)" TIME UNIT CODES:	SSP [Write below]	TIME UNIT	"Where did [NAME] do this work?"	DID [NAME] do any other work in the last 12 months? INCLUDE FARMING ON OWN LAND BUT NOT HH WORK 1=YES 2=NO go to NEXT PERSON	How much did [NAME] get paid for this other work in total? (INCLUDE VALUE OF IN-KIND PAYMENT) WRITE 0 IF NO PAYMENT
WRITTEN DESCRIPTION	CODE	CODE	MONTHS	DAYS	HOURS	CODE	SSP [Write below]	TIME UNIT	CODE	CODE	SSP [Write below]	
1												
2												
3												
4												
5												
6												
7												
8												
9												

5 What is the main source of lighting in your house? <input type="checkbox"/> 1. ELECTRICITY <input type="checkbox"/> 7. TORCH <input type="checkbox"/> 2. KEROSENE/GAS <input type="checkbox"/> 8. CANDLE <input type="checkbox"/> 3. SOLAR <input type="checkbox"/> 9. BATTERY-LIT LIGHT BULBS <input type="checkbox"/> 4. BIOGAS <input type="checkbox"/> 10. NO LIGHTING <input type="checkbox"/> 5. FIREWOOD <input type="checkbox"/> 11. OTHER (SPECIFY) <input type="checkbox"/> 6. GRASS OTHER (SPECIFY) <input style="width: 100%; height: 20px;" type="text"/>	6 What kind of toilet does your household have? <input type="checkbox"/> 1. FLUSH TOILET <input type="checkbox"/> 4. NO FACILITY/BUSH/FIELD >> Q8 <input type="checkbox"/> 2. PIT TOILET/LATRINE <input type="checkbox"/> 5. OTHER (SPECIFY) <input type="checkbox"/> 3. BUCKET TOILET OTHER (SPECIFY) <input style="width: 100%; height: 20px;" type="text"/>
---	--

7 Is this toilet shared with other households? <input type="checkbox"/> 1. YES <input type="checkbox"/> 2. NO	8 What is the main kind of fuel you use for cooking? <input type="checkbox"/> 1. FIREWOOD <input type="checkbox"/> 4. KEROSENE / GAS <input type="checkbox"/> 2. CHARCOAL <input type="checkbox"/> 5. COW DUNG <input type="checkbox"/> 3. ELECTRICITY <input type="checkbox"/> 6. BIOGAS
---	---

9 What is the main source of drinking water for your household? <input type="checkbox"/> 1. PIPED INTO HOME/PLOT <input type="checkbox"/> 3. BOREHOLE <input type="checkbox"/> 5. RIVER/STREAM <input type="checkbox"/> 7. OTHER (SPECIFY) <input type="checkbox"/> 2. PUBLIC TAP <input type="checkbox"/> 4. WELL <input type="checkbox"/> 6. POND/LAKE/DAM OTHER (SPECIFY) <input style="width: 100%; height: 20px;" type="text"/>

10a	How do you usually travel to [SERVICE] or how would you travel there is you needed to? TWO CODES IF COMBINED MEANS OF TRAVEL.					
	1. BY FOOT	2. BICYCLE	3. MOTORCYCLE	4. CAR	5. BUS	6. OTHER
10b	How long does it or would it take you to get to this [SERVICE]?					
		10a		10b		
		CODE 1	CODE 2	HOURS	MIN	
	a Nearest drinking water source	□	□	□□□	□□□	
	b Firewood source	□	□	□□□	□□□	
	c Hospital/health unit	□	□	□□□	□□□	
	d Childrens school	□	□	□□□	□□□	
	e Drug store	□	□	□□□	□□□	
	f Agricult. Extension center	□	□	□□□	□□□	
	g Livestok extension center	□	□	□□□	□□□	
	h Shop/Food market	□	□	□□□	□□□	
	i Bank	□	□	□□□	□□□	
	j Feeder road	□	□	□□□	□□□	
	k Main road	□	□	□□□	□□□	
	l Local government office	□	□	□□□	□□□	
	m Post office	□	□	□□□	□□□	
	n Police station	□	□	□□□	□□□	
	o Petrol station	□	□	□□□	□□□	
	p Bus station/Bus stop	□	□	□□□	□□□	

PART D2: CROP PRODUCTION - INDIVIDUALLY FARMED LAND

I would like to ask you to list all of the crops you or members of your household have farmed during the during past year (12 months) on your individually farmed land. Please tell me about each crop grown in each season.

1. Could you please tell me about each crop you harvested on your individual land during the **1st season**? REFER TO SEASON DEFINED IN Q5 OF PART D1.

	A	B	C	D	E	F	G	H	I
	CROP CODE	What was the size of the area grown? (FEDANS)	What was the total quantity produced? IF NOT YET HARVESTED go to M	UNIT CODE	What was the quantity lost in field, during harvest or post harvest? (DUE TO FIRE, PESTS, MOULD, RAIN, ETC) IF NO LOSS WRITE 0 AND go to G	UNIT CODE	What was the total quantity sold or bartered away? IF NONE WRITE 0 AND go to K	UNIT CODE	SSP FOR TOTAL AMOUNT SOLD. INCLUDE IN KIND VALUE OF AMOUNT BARTERED AWAY
	CODE	FEDANS	QUANTITY	CODE	QUANTITY	CODE	QUANTITY	CODE	SSP [WRITE BELOW]
1									
2									
3									
4									
5									
6									
7									
8									

PART D2: << CONTINUATION >> CROP PRODUCTION - INDIVIDUALLY FARMED LAND

	A	J	K	L	M	N	O	P	Q
	CROP CODE	Was this crop processed to add value before selling? 1. YES 2. NO	What was the total quantity given away? IF NONE WRITE 0 AND go to M	UNIT CODE	What kind of seeds were used? 1. IMPROVED NON-OVC 2. IMPROVED OVC 3. HYBRID 4. HARVESTED	Was this crop broadcast or planted in rows? 1. BROADCAST go to P 2. ROWS 3. BOTH	How many seeds were planted per hole?	How was the crop stored after harvest? STORAGE CODES	Was any fertilizer applied on this crop? 1. YES ON ALL OF IT 2. YES ON PART OF IT 3. NO
	CODE	CODE	QUANTITY	CODE	CODE	CODE	NUMBER	CODE	CODE
1									
2									
3									
4									
5									
6									
7									
8									

CROP CODES			STORAGE CODES				UNIT CODES	
1. Maize	12. Rice	23. Okra	1. STORAGE IN THE HOUSE ON THE GROUND				1. TONNES	
2. Sorghum	13. Sweet potatoes	24. Greens	2. STORAGE IN THE HOUSE IN BAGS ON THE GROUND				2. KILOGRAMS	
3. Groundnuts	14. Yams	25. Onions	3. STORAGE IN THE HOUSE IN BAGS ON PALETTES				3. BAG/SACK 50KG	
4. Cassava	15. Sugarcane	26. Sunflower	4. STORAGE IN A TRADITIONAL STORAGE FACILITY OUTSIDE ON THE GROUND				4. BAG/SACK 90KG	
5. Sesame	16. Bananas	27. Mangoes	5. STORAGE IN A TRADITIONAL STORAGE FACILITY OUTSIDE BUT RAISED ABOVE THE GROUND				5. BAG/SACK 100KG	
6. Tobacco	17. Matoke	28. Potatos	6. STORAGE IN METAL SILOS				6. BUNCH BIG 30KG	
7. Legumes/beans	18. Casia	29. Cabbage	7. STORAGE IN WIRE MESH AND WOOD STORAGE BINS (OFF THE GROUND)				7. BUNCH SMALL 10KG	
8. Millet	19. Eggplant	30. Garlic	8. OTHER TYPE OF STORAGE FACILITY, SPECIFY _____				8. BASIN	
9. Teak	20. Peppers	31. Squash/Pumpkin					9. OTHER (SPECIFY)	
10. Bamboo	21. Tomatoes							
11. Mahogany	22. Pineapple							

PART D2 continued: CROP PRODUCTION - INDIVIDUALLY FARMED LAND

1. Could you please tell me about each crop you harvested on your individual land during the 2nd season? REFER TO SEASON DEFINED IN Q7 OF PART D1.

	A	B	C	D	E	F	G	H	I
	CROP CODE	What was the size of the area grown? (FEDANS)	What was the total quantity produced? IF NOT YET HARVESTED go to M	UNIT CODE	What was the quantity lost in field, during harvest or post harvest? (DUE TO FIRE, PESTS, MOULD, RAIN, ETC) IF NO LOSS WRITE 0 AND go to G	UNIT CODE	What was the total quantity sold or bartered away? IF NONE WRITE 0 AND go to K	UNIT CODE	SSP FOR TOTAL AMOUNT SOLD. INCLUDE IN KIND VALUE OF AMOUNT BARTERED AWAY
	CODE	FEDANS	QUANTITY	CODE	QUANTITY	CODE	QUANTITY	CODE	SSP [WRITE BELOW]
1									
2									
3									
4									
5									
6									
7									
8									

PART D2: << CONTINUATION >> CROP PRODUCTION - INDIVIDUALLY FARMED LAND

	A	J	K	L	M	N	O	P	Q
	CROP CODE	Was this crop processed to add value before selling? 1. YES 2. NO	What was the total quantity given away? IF NONE WRITE 0 AND go to M	UNIT CODE	What kind of seeds were used? 1. IMPROVED NON-OVC 2. IMPROVED OVC 3. HYBRID 4. HARVESTED	Was this crop broadcast or planted in rows? 1. BROADCAST go to P 2. ROWS 3. BOTH	How many seeds were planted per hole?	How was the crop stored after harvest? STORAGE CODES	Was any fertilizer applied on this crop? 1. YES ON ALL OF IT 2. YES ON PART OF IT 3. NO
	CODE	CODE	QUANTITY	CODE	CODE	CODE	NUMBER	CODE	CODE
1									
2									
3									
4									
5									
6									
7									
8									

CROP CODES			STORAGE CODES			UNIT CODES
1. Maize	12. Rice	23. Okra	1. STORAGE IN THE HOUSE ON THE GROUND			1. TONNES
2. Sorghum	13. Sweet potatoes	24. Greens	2. STORAGE IN THE HOUSE IN BAGS ON THE GROUND			2. KILOGRAMS
3. Groundnuts	14. Yams	25. Onions	3. STORAGE IN THE HOUSE IN BAGS ON PALETTES			3. BAG/SACK 50KG
4. Cassava	15. Sugarcane	26. Sunflower	4. STORAGE IN A TRADITIONAL STORAGE FACILITY OUTSIDE ON THE GROUND			4. BAG/SACK 90KG
5. Sesame	16. Bananas	27. Mangoes	5. STORAGE IN A TRADITIONAL STORAGE FACILITY OUTSIDE BUT RAISED ABOVE THE GROUND			5. BAG/SACK 100KG
6. Tobacco	17. Matoke	28. Potatos	6. STORAGE IN METAL SILOS			6. BUNCH BIG 30KG
7. Legumes/beans	18. Casia	29. Cabbage	7. STORAGE IN WIRE MESH AND WOOD STORAGE BINS (OFF THE GROUND)			7. BUNCH SMALL 10KG
8. Millet	19. Eggplant	30. Garlic	8. OTHER TYPE OF STORAGE FACILITY, SPECIFY _____			8. BASIN
9. Teak	20. Peppers	31. Squash/Pumpkin				9. BUCKET
10. Bamboo	21. Tomatoes					10. OTHER (SPECIFY)
11. Mahogany	22. Pineapple					

PART D2 continued: CROP PRODUCTION - INDIVIDUALLY FARMED LAND

I would like to ask you to list all of the crops you or members of your household have farmed during the last three cropping seasons (past one year) on your individually farmed land. Please tell me about each crop grown in each season.

1. Could you please tell me about each crop you harvested on your individual land during the **3rd season**? REFER TO SEASON DEFINED IN Q9 OF PART D1.

	A	B	C	D	E	F	G	H	I
	CROP CODE	What was the size of the area grown? (FEDANS)	What was the total quantity produced? IF NOT YET HARVESTED go to M	UNIT CODE	What was the quantity lost in field, during harvest or post harvest? (DUE TO FIRE, PESTS, MOULD, RAIN, ETC) IF NO LOSS WRITE 0 AND go to G	UNIT CODE	What was the total quantity sold or bartered away? IF NONE WRITE 0 AND go to K	UNIT CODE	SSP FOR TOTAL AMOUNT SOLD. INCLUDE IN KIND VALUE OF AMOUNT BARTERED AWAY
	CODE	FEDANS	QUANTITY	CODE	QUANTITY	CODE	QUANTITY	CODE	SSP [WRITE BELOW]
1									
2									
3									
4									
5									
6									
7									
8									

PART D2 continued: CROP PRODUCTION - INDIVIDUALLY FARMED LAND

	A	J	K	L	M	N	O	P	Q
	CROP CODE	Was this crop processed to add value before selling? 1. YES 2. NO	What was the total quantity given away? IF NONE WRITE 0 AND go to M	UNIT CODE	What kind of seeds were used? 1. IMPROVED NON-OVC 2. IMPROVED OVC 3. HYBRID 4. HARVESTED	Was this crop broadcast or planted in rows? 1. BROADCAST go to P 2. ROWS 3. BOTH	How many seeds were planted per hole?	How was the crop stored after harvest? STORAGE CODES	Was any fertilizer applied on this crop? 1. YES ON ALL OF IT 2. YES ON PART OF IT 3. NO
	CODE	CODE	QUANTITY	CODE	CODE	CODE	NUMBER	CODE	CODE
1									
2									
3									
4									
5									
6									
7									
8									

CROP CODES			STORAGE CODES		UNIT CODES
1. Maize	12. Rice	23. Okra	1. STORAGE IN THE HOUSE ON THE GROUND		1. TONNES
2. Sorghum	13. Sweet potatoes	24. Greens	2. STORAGE IN THE HOUSE IN BAGS ON THE GROUND		2. KILOGRAMS
3. Groundnuts	14. Yams	25. Onions	3. STORAGE IN THE HOUSE IN BAGS ON PALETTES		3. BAG/SACK 50KG
4. Cassava	15. Sugarcane	26. Sunflower	4. STORAGE IN A TRADITIONAL STORAGE FACILITY OUTSIDE ON THE GROUND		4. BAG/SACK 90KG
5. Sesame	16. Bananas	27. Mangoes	5. STORAGE IN A TRADITIONAL STORAGE FACILITY OUTSIDE BUT RAISED ABOVE THE GROUND		5. BAG/SACK 100KG
6. Tobacco	17. Matoke	28. Potatos	6. STORAGE IN METAL SILOS		6. BUNCH BIG 30KG
7. Legumes/beans	18. Casia	29. Cabbage	7. STORAGE IN WIRE MESH AND WOOD STORAGE BINS (OFF THE GROUND)		7. BUNCH SMALL 10KG
8. Millet	19. Eggplant	30. Garlic	8. OTHER TYPE OF STORAGE FACILITY, SPECIFY _____		8. BASIN
9. Teak	20. Peppers	31. Squash/Pumpkin			9. BUCKET
10. Bamboo	21. Tomatoes				10. OTHER (SPECIFY)
11. Mahogany	22. Pineapple				

PART D3: CROP PRODUCTION - COMMUNALLY FARMED LAND

I would like to ask you to list all of the crops you or members of your household have farmed during the during the last past year (12 months) on any communally farmed land you farm. Please tell me about each crop grown in each season. **IF NO COMMUNAL FARMING GO TO PART E1**

1. Could you please tell me about each crop you harvested on your communal land during the 1st season? **REFER TO SEASON DEFINED IN Q5 OF PART D1**

	A	B	C	D	E	F	G	H	I	J	K
	CROP CODE	What was the size of the area grown by the group for this crop? (FEDANS)	What was the total quantity of this crop produced by the group on this land? IF NOT YET HARVESTED go to NEXT CROP	UNIT CODE	Did your household receive any of this crop for itself? 1=YES 2=NO go to G	How much did your household receive for itself?	UNIT CODE	How much of this crop did the group sell?	UNIT CODE	Did your household receive any cash from the group from the communal sale of this crop? 1=YES 2=NO go to NEXT CROP	How much did you receive?
	CODE	FEDANS	QUANTITY	CODE	CODE	QUANTITY	CODE	QUANTITY	CODE	CODE	SSP
1											
2											
3											
4											
5											
6											
7											
8											

<<CONTINUATION>> PART D3: CROP PRODUCTION - COMMUNALLY FARMED LAND

2. Could you please tell me about each crop you harvested on your communal land during the 2nd season? **REFER TO SEASON DEFINED IN Q7 OF PART D1**

	A	B	C	D	E	F	G	H	I	J	K
	CROP CODE	What was the size of the area grown by the group for this crop? (FEDANS)	What was the total quantity of this crop produced by the group on this land? IF NOT YET HARVESTED go to NEXT CROP	UNIT CODE	Did your household receive any of this crop for itself? 1=YES 2=NO go to H	How much did your household receive for itself?	UNIT CODE	How much of this crop did the group sell?	UNIT CODE	Did your household receive any cash from the group from the communal sale of this crop? 1=YES 2=NO go to NEXT CROP	How much did you receive?
	CODE	FEDANS	QUANTITY	CODE	CODE	QUANTITY	CODE	QUANTITY	CODE	CODE	SSP
1											
2											
3											
4											
5											
6											

CROP CODES			STORAGE CODES				UNIT CODES	
1. Maize	12. Rice	23. Okra	1. STORAGE IN THE HOUSE ON THE GROUND				1=TONNES	
2. Sorghum	13. Sweet potatoes	24. Greens	2. STORAGE IN THE HOUSE IN BAGS ON THE GROUND				2=KILOGRAMS	
3. Groundnuts	14. Yams	25. Onions	3. STORAGE IN THE HOUSE IN BAGS ON PALETTES				3=BAG/SACK 50KG	
4. Cassava	15. Sugarcane	26. Sunflower	4. STORAGE IN A TRADITIONAL STORAGE FACILITY OUTSIDE ON THE GROUND				4=BAG/SACK 90KG	
5. Sesame	16. Bananas	27. Mangoes	5. STORAGE IN A TRADITIONAL STORAGE FACILITY OUTSIDE BUT RAISED ABOVE THE GROUND				5=BAG/SACK 100KG	
6. Tobacco	17. Matoke	28. Potatos	6. STORAGE IN METAL SILOS				6=BUNCH BIG 30KG	
7. Legumes/beans	18. Casia	29. Cabbage	7. STORAGE IN WIRE MESH AND WOOD STORAGE BINS (OFF THE GROUND)				7=BUNCH SMALL 10KG	
8. Millet	19. Eggplant	30. Garlic	8. OTHER TYPE OF STORAGE FACILITY, SPECIFY				8=BASIN	
9. Teak	20. Peppers	31. Squash/Pumpkin					9=BUCKET	
10. Bamboo	21. Tomatoes						10=OTHER (SPECIFY)	
11. Mahogany	22. Pineapple							

PART D3: CROP PRODUCTION - COMMUNALLY FARMED LAND

I would like to ask you to list all of the crops you or members of your household have farmed during the during the last past year (12 months) on any communally farmed land you farm. Please tell me about each crop grown in each season. **IF NO COMMUNAL FARMING GO TO PART E1**

1. Could you please tell me about each crop you harvested on your communal land during the 3rd season? **REFER TO SEASON DEFINED IN Q9 OF PART D1**

	A	B	C	D	E	F	G	H	I	J	K
	CROP CODE	What was the size of the area grown by the group for this crop? (FEDANS)	What was the total quantity of this crop produced by the group on this land?	UNIT CODE	Did your household receive any of this crop for itself? 1=YES 2=NO go to H	How much did your household receive for itself?	UNIT CODE	How much of this crop did the group sell?	UNIT CODE	Did your household receive any cash from the group from the communal sale of this crop? 1=YES 2=NO go to NEXT CROP	How much did you receive?
	CODE	FEDANS	QUANTITY	CODE	CODE	QUANTITY	CODE	QUANTITY	CODE	CODE	SSP
1											
2											
3											
4											
5											
6											
7											

CROP CODES			STORAGE CODES				UNIT CODES	
1. Maize	12. Rice	23. Okra	1. STORAGE IN THE HOUSE ON THE GROUND				1=TONNES	
2. Sorghum	13. Sweet potatoes	24. Greens	2. STORAGE IN THE HOUSE IN BAGS ON THE GROUND				2=KILOGRAMS	
3. Groundnuts	14. Yams	25. Onions	3. STORAGE IN THE HOUSE IN BAGS ON PALETTES				3=BAG/SACK 50KG	
4. Cassava	15. Sugarcane	26. Sunflower	4. STORAGE IN A TRADITIONAL STORAGE FACILITY OUTSIDE ON THE GROUND				4=BAG/SACK 90KG	
5. Sesame	16. Bananas	27. Mangoes	5. STORAGE IN A TRADITIONAL STORAGE FACILITY OUTSIDE BUT RAISED ABOVE THE GROUND				5=BAG/SACK 100KG	
6. Tobacco	17. Matoke	28. Potatos	6. STORAGE IN METAL SILOS				6=BUNCH BIG 30KG	
7. Legumes/beans	18. Casia	29. Cabbage	7. STORAGE IN WIRE MESH AND WOOD STORAGE BINS (OFF THE GROUND)				7=BUNCH SMALL 10KG	
8. Millet	19. Eggplant	30. Garlic	8. OTHER TYPE OF STORAGE FACILITY, SPECIFY _____				8=BASIN	
9. Teak	20. Peppers	31. Squash/Pumpkin					9=BUCKET	
10. Bamboo	21. Tomatoes						10=OTHER (SPECIFY)	
11. Mahogany	22. Pineapple							

PART D4 FARMING PRACTICES

1. During the last year (12 months) did you apply any of the following [PRACTICES]?			2. Why do you not use this practice?	Q2 CODES
	1=YES GO TO NEXT [PRACTICE]	2=NO		
a. Use improved, non-opv seed	<input type="checkbox"/>	<input type="checkbox"/>	[[]]	1=HAVE NOT HEARD ABOUT IT 2=NOT USEFUL 3=TOO TIME CONSUMING 4=NO NEED 5=NOT AVAILABLE 6=TOO EXPENSIVE 7=NO TRANSPORT 8=INSUFFICIENT PRODUCE TO SELL 9=FEAR OF LOW GERMINATION RATE 10=LACK OF SKILLS/KNOW-HOW 11=OTHER (specify) OTHER (SPECIFY)
b. Use improved, opv seed	<input type="checkbox"/>	<input type="checkbox"/>	[[]]	
c. Use hybrid seed	<input type="checkbox"/>	<input type="checkbox"/>	[[]]	
d. Planting seed in rows	<input type="checkbox"/>	<input type="checkbox"/>	[[]]	
e. Planting one seed per hole	<input type="checkbox"/>	<input type="checkbox"/>	[[]]	
f. Weeding	<input type="checkbox"/>	<input type="checkbox"/>	[[]]	
g. Apply fertilizer	<input type="checkbox"/>	<input type="checkbox"/>	[[]]	
h. Use an ox plow	<input type="checkbox"/>	<input type="checkbox"/>	[[]]	
i. Use a two wheeled tractor	<input type="checkbox"/>	<input type="checkbox"/>	[[]]	
j. Use improved storage*	<input type="checkbox"/>	<input type="checkbox"/>	[[]]	
k. Sell farm products in the local market	<input type="checkbox"/>	<input type="checkbox"/>	[[]]	
l. Sell farm products in farther markets	<input type="checkbox"/>	<input type="checkbox"/>	[[]]	
m. Sell to a commodity buyer	<input type="checkbox"/>	<input type="checkbox"/>	[[]]	
n. Hire labor	<input type="checkbox"/>	<input type="checkbox"/>	[[]]	
o. Keep written records of farming activities	<input type="checkbox"/>	<input type="checkbox"/>	[[]]	
p. Keep farm income in a bank	<input type="checkbox"/>	<input type="checkbox"/>	[[]]	

* IMPROVED STORAGE INCLUDES IN-HOME, BAGGED AND STACKED ON PALLETS; BRICK STORE, BAGGED AND STACKED ON PALLETS, METAL CRIB OR SILO

PART E1 FARM INPUTS

1. Did your household use any [INPUT] during the last two cropping seasons? ASK QUESTION 1 FOR ALL INPUTS BEFORE GOING ON TO QUESTION 2			2. How much [INPUT] did you use in the last 12 months?		3. How much did you pay for this [INPUT] in total in the last 12 months?	
INPUT TYPE	1=YES S	2=NO GO TO NEXT ITEM	QUANTITY	UNIT CODE	SSP	
a. OPV seeds	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	
b. Hybrid seeds	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	
c. Improved (certified) seeds	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	
d. Fertiliser	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	
e. Manure	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	
f. Pesticides and herbicides	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	
g. Diesel	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	
h. Petrol	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	
i. Electricity	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	
j. Interest on agric. Loans	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	
k. Other costs (Specify)	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	

UNIT CODES:

1=KILOGRAMS	2=LITERS	3=GALLONS	4=CARTLOADS	5=KILOWATT HR	6=OTHER (Specify)
OTHER (SPECIFY) _____					
4. Did you lease any draft animals during the last 12 months? <input type="checkbox"/> 1. YES <input type="checkbox"/> 2. NO go to 8					
5. How many did you lease? NUMBER: _____			6. For how many days? DAYS: _____		
7. How much did you spend on this in total in the last 12 months? SSP: _____					

8. Did you employ any casual labor in the last year (12 months)? 1. YES 2. NO go to PART E2

	9	10
Season USE DEFINITIONS FROM PART D1, QUESTIONS 5, 7 AND 9.	How many male workers did you employ?	How much did you pay for this in total?
a. First	_____	_____
b. Second	_____	_____
c. Third	_____	_____

	11	12
Season USE DEFINITIONS FROM PART D1, QUESTIONS 5, 7 AND 9.	How many female workers did you employ?	How much did you pay for this in total?
a. First	_____	_____
b. Second	_____	_____
c. Third	_____	_____

	13	14
Season USE DEFINITIONS FROM PART D1, QUESTIONS 5, 7 AND 9.	How many children under 15 did you employ?	How much did you pay for this in total?
a. First	_____	_____
b. Second	_____	_____
c. Third	_____	_____

PART E2 CAPITAL INPUTS

1				2	3	4	5	6	7
Does your household own any [...]? FIRST ASK QUESTION 1 FOR ALL ITEMS. THEN ASK QUESTIONS 2-7 FOR EACH ITEM BEFORE GOING TO THE NEXT ITEM.				How many [...] does your household own?	In what year did you acquire this [INPUT]? IF MORE THAN ONE ITEM, ASK FOR THE MOST RECENT	How much did you pay for this [INPUT]? IF NO PAYMENT WRITE 0.	"If you sold one of those [...] today, how much money could you get for it?" IF MORE THAN ONE ITEM, ASK FOR AVERAGE VALUE.	Did you lease/rent out any of these [ITEMS] during the last 12 months? 1=YES 2=NO GO TO NEXT INPUT	7. How much did you obtain from leasing out this (these) item(s) in the last 12 months?
TYPE OF FARM EQUIPMENT CODE	1=YES	2=NO GO TO NEXT ITEM	NUMBER	YEAR	SSP	SSP	CODE	SSP	
a. Two wheeled tractor	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
b. Four wheeled tractor	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
c. Machine plow	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
d. Ox plow	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
e. Hand pump	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
f. Diesel water pump	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
g. Electrical water pump	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
h. Thresher	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
i. Rice winnower	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
j. Motorized insecticide pump	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	

<< PART E2 CONTINUATION >>

1				2	3	4	5	6	7
1. Does your household own any [...]? FIRST ASK QUESTION 1 FOR ALL ITEMS. THEN ASK QUESTIONS 2-7 FOR EACH ITEM BEFORE GOING TO THE NEXT ITEM.				2. How many [...] does your household own?	3. In what year did you acquire this [INPUT]? IF MORE THAN ONE ITEM, ASK FOR THE MOST RECENT	4. How much did you pay for this [INPUT]? IF NO PAYMENT WRITE 0.	5. "If you sold one of those [...] today, how much money could you get for it?" IF MORE THAN ONE ITEM, ASK FOR AVERAGE VALUE.	6. Did you lease/rent out any of these [ITEMS] during the last 12 months? 1=YES 2=NO GO TO NEXT INPUT	7. How much did you obtain from leasing out this (these) item(s) in the last 12 months?
TYPE OF FARM EQUIPMENT CODE	1=YES	2=NO GO TO NEXT ITEM	NUMBER	YEAR	SSP	SSP	CODE	SSP	
k. Ox cart	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
l. Groundnut decorticator	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
m. Duster	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
n. Sprinkler	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
o. Grinding mill	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
p. Maize mill	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
q. Rice mill	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	

PART F ASSETS

1		2		3		4		5	
1. Does your household own any [...]? FIRST ASK QUESTION 1 FOR ALL ITEMS. THEN ASK QUESTIONS 2-5 FOR EACH ITEM BEFORE GOING TO THE NEXT ITEM.		2. How many [...] does your household own?		3. In what year did you acquire this [ITEM]? IF MORE THAN ONE ITEM, ASK FOR THE MOST RECENT		4. How much did you pay for this [ITEM]? IF NO PAYMENT WRITE 0.		5. "If you sold one of those [ITEMS] today, how much money could you get for it? " IF MORE THAN ONE ITEM, ASK FOR AVERAGE VALUE.	
TYPE OF ASSET	1=YES	2=NO GO TO NEXT ITEM	NUMBER	YEAR	SSP	SSP	SSP	SSP	
a. Radio	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
b. TV	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
c. Refrigerator	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
d. Bicycle	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
e. Motorbike	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
f. Car	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
g. Cell phone	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
h. Charcoal iron	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
i. Electric iron	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
j. Electric fan	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
k. Sewing machine	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
l. Water boiler/electric kettle	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
† m. 20 L Jerry can	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____†	†_____	_____	_____	_____	

<< PART F CONTINUATION >>

1		2		3		4		5	
1. Does your household own any [...]? FIRST ASK QUESTION 1 FOR ALL ITEMS. THEN ASK QUESTIONS 2-5 FOR EACH ITEM BEFORE GOING TO THE NEXT ITEM.		2. How many [...] does your household own?		3. In what year did you acquire this [ITEM]? IF MORE THAN ONE ITEM, ASK FOR THE MOST RECENT		4. How much did you pay for this [ITEM]? IF NO PAYMENT WRITE 0.		5. "If you sold one of those [ITEMS] today, how much money could you get for it? " IF MORE THAN ONE ITEM, ASK FOR AVERAGE VALUE.	
TYPE OF ASSET	1=YES	2=NO GO TO NEXT ITEM	NUMBER	YEAR	SSP	SSP	SSP	SSP	
n. Bed	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
o. Cupboard	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
p. Glassware	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
q. Shoes (DO NOT COUNT SLIPPERS)	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
r. Blanket	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
s. Mosquito net	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
t. Jewellery (gold/silver)	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	
u. Thermo bottle	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	_____	_____	

PART G: LIVESTOCK

1. Has any member of your household raised or owned livestock or poultry during the last twelve months? 1. YES 2. NO GO TO PART H

2			3	4	5	6
During the last 12 months, has any member of your household raised any [ANIMAL]? FIRST ASK QUESTION 2 FOR ALL ANIMALS, THEN ASK QUESTIONS 3-6 FOR EACH ANIMAL BEFORE GOING TO THE NEXT ONE.			How many [ANIMAL] do you have now?	When did you obtain this [ANIMAL]? (MOST RECENT)	How did you acquire this [ANIMAL]?	If you sold one of these [ANIMAL] today, how much money could you get for it?
ANIMAL	1=YES	2=NO GO TO NEXT ANIMAL	NUMBER OF ANIMALS	YEAR	CODE	SSP
1. Cows	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____
2. Pigs	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____
3. Sheep	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____
4. Goats	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____
5. Poultry	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____
6. Equine/horses/donkeys	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____
7. Ox/bull	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____
8. Other	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____

Q5. How did you acquire this [ANIMAL] CODES

1=PURCHASED	4=RECEIVED FOR FREE FROM OTHERS	7=OTHER (SPECIFY)
2=RECEIVED FOR FREE FROM NGO	5=RECEIVED AS DOWRY	
3=RECEIVED FOR FREE FROM GOVERNMENT	6=OFFSPRING FROM OTHER ANIMAL	

OTHER ANIMAL (SPECIFY)

--

OTHER WAY OF ACQUIRING (SPECIFY)

--

PART H: INCOME

I would like to ask you about your income during the last year. How much did you earn from [SOURCE]?			
Income source	SSP (INCLUDE VALUE OF IN-KIND PAYMENT)		SSP (INCLUDE VALUE OF IN-KIND PAYMENT)
1. Handicrafts	_____	9. Sale of assets	_____
2. Rental of farming equipment	_____	10. Pensions	_____
3. Rental of animals	_____	11. Income from inheritance	_____
4. Transport i.e. porter/pony	_____	12. Livestock raising and animal products	_____
5. Transport lorry/vehicle	_____	13. Gifts/charity	_____
6. Religious duties	_____	14. Dowry	_____
7. Cash from relatives in South Sudan (remittances)	_____	15. Other (specify)	_____
8. Cash from from relatives abroad (remittances)	_____		

OTHER INCOME SOURCE (SPECIFY)

--

16. To whom did you mainly sell/barter your agricultural output? Please tell me who your two most important buyers were.

- | | | |
|--|---|--|
| <input type="checkbox"/> 1. Private households/individuals | <input type="checkbox"/> 3. Cooperative | <input type="checkbox"/> 5. International organisation |
| <input type="checkbox"/> 2. Private trader/enterprise | <input type="checkbox"/> 4. NGO | <input type="checkbox"/> 6. Other (specify) |

OTHER (SPECIFY)

--

PART J - CONSUMPTION & EXPENDITURE								
	1	2	3	4	5	6	7	
ITEM	In the past 30 days did your hh consume the following 1=Yes 2=No go to NEXT ITEM)	In the last 30 days did you consume any [ITEM] from own production? 1=YES 2=NO go to Q4	What was the quantity of [ITEM] consumed from own production? (QUANTITY)	In the last 30 days did you purchase or barter any [ITEM]? 1=YES 2=NO go to Q6	What was the quantity of [ITEM] purchased or bartered? (QUANTITY)	In the last 30 days did you receive any [ITEM] as a gift? 1=YES 2=NO go to NEXT [ITEM]	In the last 30 days what was the quantity of ITEM received as gift? go to NEXT ITEM (QUANTITY)	UNIT CODES
1 - FOOD AND DRINK								
a. Maize	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
b. Sorghum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
c. Beans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
d. Bread	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
e. Rice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
f. Fruits and vegetables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
g. Fish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
h. Meat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
i. Eggs/Poultry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
j. Oil, fat, butter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
k. Milk and dairy products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
l. Sugar/salt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
m. Millet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
n. Drinks - soda & tea	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>

<< PART J CONTINUATION >>								
	1	2	3	4	5	6	7	
ITEM	In the past 30 days did your hh consume the following 1=Yes 2=No go to NEXT ITEM)	In the last 30 days did you consume any [ITEM] from own production? 1=YES 2=NO go to Q4	What was the quantity of [ITEM] consumed from own production? (QUANTITY)	In the last 30 days did you purchase or barter any [ITEM]? 1=YES 2=NO go to Q6	What was the quantity of [ITEM] purchased or bartered? (QUANTITY)	In the last 30 days did you receive any [ITEM] as a gift? 1=YES 2=NO go to NEXT [ITEM]	In the last 30 days what was the quantity of ITEM received as gift? go to NEXT ITEM (QUANTITY)	UNIT CODES
2 - OTHER COMMON ITEMS								
o. Alcohol & Tobacco	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
p. Household items (soap, batteries, etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
q. Transport & fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
r. Cooking & lighting (wood, paraffin, etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
	1	2	3	4	5	6		
ITEM	In the past 12 months did your hh consume the following 1=YES 2=NO GO TO NEXT [ITEM]	Did you pay for this [ITEM] in cash or in kind? 1=CASH 2=KIND GO TO Q4	In the last 12 months how much did you spend on this [ITEM]? (QUANTITY)	In the last 12 months what was the value of in-kind payments made for this [ITEM]? (SSP)	In the last 12 months did you receive any [ITEM] as a gift or for free? 1=YES 2=NO	What was the value of [ITEM] received as gift? (SSP) GO TO NEXT ITEM	UNIT CODES	
ANNUAL EXPENSES								

s. Medical expenses/ health care	<input type="checkbox"/>						
t. Education (books, fees, uniform)	<input type="checkbox"/>						
u. Clothing/shoes (not including school uniform)	<input type="checkbox"/>						

<< PART J CONTINUATION >>

	1	2	3	4	5	6	
ITEM	In the past 12 months did your hh consume the following 1=YES 2=NO GO TO NEXT [ITEM]	Did you pay for this [ITEM] in cash or in kind? 1=CASH 2=KIND GO TO Q4	In the last 12 months how much did you spend on this [ITEM]? (QUANTITY)	In the last 12 months what was the value of in-kind payments made for this [ITEM]? (SSP)	In the last 12 months did you receive any [ITEM] as a gift or for free? 1=YES 2=NO	What was the value of [ITEM] received as gift? (SSP) GO TO NEXT ITEM	UNIT CODES
ANNUAL EXPENSES							
w. Equipment/tools (incl for agriculture)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v. Construction/ house repair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
x. Debt repayment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
y. Celebrations/ social events (weddings, funerals, etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
z. Remittances/ gifts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
zz. Dowry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

UNIT CODES

1=TONNES	2=KILOGRAMS	3=BAG/SACK 50KG	4=BAG/SACK 90KG	5=BAG/SACK 100KG	6=BUNCH BIG 30KG
7=BUNCH SMALL 10KG	8=BASIN	9=OTHER (SPECIFY)			

OTHER UNITS (SPECIFY)

PART K: FARMING KNOWLEDGE							
ITEM	1	2			3	4	
	1. During the last 12 months did you receive information on, or discuss [PRACTICE] with anyone? 1=YES 2=NO GO TO NEXT [PRACTICE]	From whom did you receive information on this [PRACTICE]? CAN ENTER UP TO THREE RESPONSES SO PROMPT "And from anyone else?" IF RESPONSES INCLUDE "TRAINING" GO TO Q3, IF NOT GO TO NEXT PRACTICE			Where did the training take place?	What institution provided the training on this topic?	
	CODE	CODE 1	CODE 2	CODE 3	CODE	CODE	
a. Use improved, non-opv seed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. Use improved, opv seed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c. Use hybrid seed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Use harvested seed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e. Broadcast seed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f. Planting seed in rows	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
g. Planting one seed per hole	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
h. Planting multiple seeds per hole	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
i. Apply fertilizer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
j. Use an ox plow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
k. Use a two wheeled tractor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
l. Use improved storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<< CONTINUATION PART K FARMING KNOWLEDGE >>							
ITEM	1	2			3	4	
	1. During the last 12 months did you receive information on, or discuss [PRACTICE] with anyone? 1=YES 2=NO GO TO NEXT [PRACTICE]	From whom did you receive information on this [PRACTICE]? CAN ENTER UP TO THREE RESPONSES SO PROMPT "And from anyone else?" IF RESPONSES INCLUDE "TRAINING" GO TO Q3, IF NOT GO TO NEXT PRACTICE			Where did the training take place?	What institution provided the training on this topic?	
	CODE	CODE 1	CODE 2	CODE 3	CODE	CODE	
m. Sell farm products in the local market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
n. Sell farm products in farther markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o. Sell to a commodity buyer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
p. Hire labor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
q. Keep written records of farming activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
r. Keep farm income in a bank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Q2 CODES	Q3 CODES	Q4 CODES
1=TRAINING	1=THIS BOMA	1=NGO
2=FARMER IN SAME BOMA, FBO MEMBER	2=THIS PAYAM	2=GOVERNMENT
3=FARMER IN SAME BOMA, NOT FBO MEMBER	3=THIS COUNTY	3=FARM PROJECT
4=FARMER IN OTHER BOMA, FBO MEMBER	4=JUBA	4=AGRODEALER
5=FARMER IN OTHER BOMA, NOT FBO MEMBER	5=ABROAD	5=OTHER (Specify)
6=GOVT EXTENSION OFFICER		
7=NGO EXTENSION OFFICER		
8=RADIO/TV/NEWSPAPER		
9=AGRODEALER		
10=OTHER (SPECIFY)		

Q2. OTHER SOURCES OF INFORMATION (SPECIFY)

Q4. OTHER INSTITUTIONS (SPECIFY)

PART L DECISION & WORK

		1	2	3	4
	ASK Q1 AND Q2 FOR EACH [ACTIVITY] BEFORE GOING TO NEXT [ACTIVITY]. THEN ASK Q3 AND Q4 FOR EACH [ACTIVITY] BEFORE GOING TO NEXT [ACTIVITY].	Who is the primary decision-maker on [ACTIVITY]?	Who is the secondary decision-maker on [ACTIVITY]?	Who is the primary person to engage in the following [ACTIVITY]?	Who is the second person to engage in the following [ACTIVITY]?
	DESCRIPTION	CODE	CODE	CODE	CODE
A	Choice of crops to plant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B	Method of planting (rows, broadcast, number of seeds per hole)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C	Type of seeds to use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D	Timing of planting and harvesting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E	Whether to use fertilizer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F	How to store crops after harvest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	Where to sell crops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H	Plowing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I	Planting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J	Weeding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K	Harvesting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L	Shelling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M	Taking farm products to the local market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N	Taking farm products to farther market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PART L CONTINUATION

		1	2	3	4
	ASK Q1 AND Q2 FOR EACH [ACTIVITY] BEFORE GOING TO NEXT [ACTIVITY]. THEN ASK Q3 AND Q4 FOR EACH [ACTIVITY] BEFORE GOING TO NEXT [ACTIVITY].	Who is the primary decision-maker on [ACTIVITY]?	Who is the secondary decision-maker on [ACTIVITY]?	Who is the primary person to engage in the following [ACTIVITY]?	Who is the second person to engage in the following [ACTIVITY]?
	DESCRIPTION	CODE	CODE	CODE	CODE
O	Buying farm supplies (seeds, etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P	Keep written records of farming activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q1 CODES	Q2 CODES	Q3 CODES	Q4 CODES
1=HH HEAD	1=HH HEAD	1=HH HEAD	1=HH HEAD
2=SPOUSE	2=SPOUSE	2=SPOUSE	2=SPOUSE
3=MALE ADULTS (AGE 15+)			
4=FEMALE ADULTS (AGE 15+)			
5=MALE CHILDREN AGE 0-15			
6=FEMALE CHILDREN AGE 0-15			
7=OTHER (SPECIFY)	7=OTHER (SPECIFY)	7=OTHER (SPECIFY)	7=OTHER (SPECIFY)

Q1. OTHER (SPECIFY)

Q2. OTHER (SPECIFY)

Q3. OTHER (SPECIFY)

Q4. OTHER (SPECIFY)

PART M: FAMILY BUSINESS

1. Over the past 12 months, has anyone in your household operated any non-agricultural enterprise which produces goods or services (for example, artisan, tailoring, repair work) or has anyone in your household owned a shop or operated a trading business?

1. YES 2. NO GO TO PART N

BUSINESS ID	2		3	4	5	6
	DESCRIPTION	CODE	YEAR	NUMBER	SSP	SSP
1						
2						
3						
4						
5						
6						

PART N: CREDIT AND TRANSFERS

1. During the last 12 months have you or any household member ask for credit in form of money or goods from any source?

1. YES 2. NO GO TO PART O

CREDIT SOURCE	2	3	4		5	6	7	8
	CODE	AMOUNT	CODE 1	CODE 2	AMOUNT	MONTHS	CODE	CODE
1. BANK								
2. NGO								
3. MONEYLENDER								
4. FRIEND OR RELATIVE								
5. LANDLORD								
6. MICROFINANCE INSTITUTION								
7. LOCAL TRADERS								
8. GRAIN MILLERS								
9. CONTRACTOR /SUPPLIER								

10. OTHER (SPECIFY)	<input type="checkbox"/>							
---------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Q4 CODES			
1=FARM INPUTS	5=PURCHASE/REPAIR OF DWELLING	9=RELIGIOUS/SOCIAL CEREMONY	13=OTHER
2=PURCHASE OF ANIMALS	6=CONSUMER DURABLES	10=EDUCATION	
3=PURCHASE OF LAND	7=MEDICAL EXPENSES	11=TO REPAY OTHER LOAN	
4=NONFARM BUSINESS	8=FOOD	12=HIRE LABOR	

OTHER CREDIT SOURCES (SPECIFY)

OTHER (SPECIFY)

PART O SHOCKS

	1	2	3		4		
	Did your household experience any of the following in the last 12 months? 1=YES 2=NO GO TO NEXT EVENT	Did this seriously affect your normal living conditions? 1=YES 2=NO	THIS QUESTION IS FOR CROP FAILURE ONLY What was the reason for the crop failure? LIST UP TO TWO REASONS		What, if anything, did you do in response such as like borrow money, sell animals etc.? LIST UP TO 3 OPTIONS		
	CODE	CODE	CODE 1	CODE 2	a	b	c
a. Crop failure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Inability to plant crop due to lack of seeds, lack of plowing services, insecurity, etc	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Livestock died	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Lost regular job	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Fire, theft or loss of property	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Severe illness or injury	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Death of a household member	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Victim of violence/crime	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Any other event?	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q3. CODES FOR REASONS FOR CROP FAILURE		Q4. CODES FOR RESPONSE TO SHOCK	
1=DROUGHT/NO WATER	6=FLOOD/HEAVY RAINS	1=NOTHING	6=STARTED NEW JOB
2=PESTS	7=INSECURITY	2=SELL ANIMALS	7=MIGRATED
3=PROBLEMS WITH SEEDS	8=MONKEYS/WILD LIFE	3=SELL JEWELLERY OR OTHER ASSETS	8=ASKED HELP FROM RELATIVES/FRIENDS
4=PROBLEMS WITH FERTILIZER	9=OTHER (SPECIFY)	4=BORROW MONEY	9=OTHER (SPECIFY)
5=DELAY FROM SERVICE PROVIDERS		5=WORKED MORE	

OTHER REASONS FOR CROP FAILURE (SPECIFY)

OTHER RESPONSE TO SHOCK (SPECIFY)

PART P NUTRITION

THIS SECTION TO BE ANSWERED BY THE PERSON RESPONSIBLE FOR COOKING FOR THE HOUSEHOLD. PLEASE PROVIDE RESPONDENT ID FROM HOUSEHOLD ROSTER _____

I would like to ask some questions about the food you and your household members consumed during the last 24 hours. Please respond for all children under five years of age.

LIST ALL CHILDREN AGED 0-59 MONTHS BY THEIR HH ID CODE. THEN ASK ALL OF THE FOLLOWING FOR EACH CHILD BEFORE GOING TO NEXT CHILD.

(i) Please describe everything that [CHILD] had to eat yesterday during the day or the night, whether at home or outside the home. Think about when [CHILD] first woke up yesterday. Did [CHILD] eat anything at that time? IF NO >> (ii) IF YES: Please tell me everything that [CHILD] ate at that time. THEN PROBE: And anything else? UNTIL RESPONDENTSAYS NO. THEN >> (ii).

(ii) When did [CHILD] next eat anything? What did [CHILD] eat at that time? THEN PROBE: And anything else? UNTIL RESPONDENT SAYS NO.

REPEAT (ii) UNTIL RESPONDENT SAYS [CHILD] WENT TO SLEEP UNTIL THE NEXT DAY

IF RESPONDENT MENTIONS MIXED DISHES LIKE A PORRIDGE, SAUCE OR STEW, PROBE: What ingredients were in that [MIXED DISH]? THEN PROBE: And anything else? UNTIL RESPONDENT SAYS NO.

AS THE RESPONDENT RECALLS FOOD, UNDERLINE THE CORRESPONDING FOOD AND ENTER 1 IN THE COLUMN NEXT TO THE FOOD GROUP. IF FOODS ARE USED IN SMALL AMOUNTS FOR SEASONING OR AS A CONDIMENT, INCLUDE THEM UNDER THE CONDIMENTS FOOD GROUP.

ONCE THE RESPONDENT FINISHES RECALLING FOODS EATEN, READ EACH FOOD GROUP WHERE 1 WAS NOT ENTERED, ASK THE FOLLOWING QUESTION

(iii) Yesterday, during the day or night, did [CHILD] drink/eat any [FOOD GROUP ITEMS]? YES.....1 NO.....2

		CHILDREN 0-59 MONTHS							
	RESPONSE CODE 1. YES 2. NO	ID CODE							
FOOD TYPE		<input type="checkbox"/>							
1. Food made from grains, such as posho, kiseru, chiapati, bread, rice, porridge or other grain food		<input type="checkbox"/>							
2. Pumpkin, carrots, suguma, or sweet potatoes that are yellow or orange inside, or other local yellow/orange foods		<input type="checkbox"/>							

		CHILDREN 0-59 MONTHS							
	RESPONSE CODE	ID CODE	ID CODE	ID CODE	ID CODE	ID CODE	ID CODE	ID CODE	ID CODE
FOOD TYPE		<input type="checkbox"/>							
3. White potatoes, white yams, cassava, other local root crops or other foods made from roots.		<input type="checkbox"/>							
4. Any dark green leafy vegetable such as cowbean leaves (korfolubia), pumpkin leaves (korfubonjo), cassava leaves (gadia), kodura.		<input type="checkbox"/>							
5. Ripe mangoes, ripe papayas or other local vitamin A rich food		<input type="checkbox"/>							
6. Any other fruits or vegetables		<input type="checkbox"/>							
7. Liver, kidney, heart, or other organ meats		<input type="checkbox"/>							
8. Any meat such as beef, pork, lamb, goat, chicken or duck		<input type="checkbox"/>							
9. Eggs		<input type="checkbox"/>							
10. Fresh or dried fish, shellfish, or seafood		<input type="checkbox"/>							
11. Any foods made from beans, peas, lentils, nuts or seeds		<input type="checkbox"/>							
12. Cheese, yoghurt, or other milk products		<input type="checkbox"/>							
13. Any oil, fats, or butter, or foods made with any of these		<input type="checkbox"/>							
14. Any sugary foods such as chocolates, sweets, candies, pastries, cakes or biscuits		<input type="checkbox"/>							
15. Condiments for flavor such as chilies, spices, herbs, or fish powder		<input type="checkbox"/>							
16. Foods made with red palm oil (zedbiro), red palm nut, or red palm nut pulp sauce		<input type="checkbox"/>							

THANK THE RESPONDENT AND CLOSE THE INTERVIEW

T2 Record time the interview ended; (HH MM - 24 hour time format Example 1005)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

PART Q - HUNGER					
Read out questions 1 - 9 and allow respondent to choose best answer:					
		0	1	2	3
		No	Rarely (once or twice)	Sometimes (3 to 10 times)	Often (more than 10 times)
	1. In the past 4 weeks, did you worry that your household would not have enough food?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. In the past 4 weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. In the past 4 weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. In the past 4 weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. In the past 4 weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. In the past 4 weeks, did you or any household member have to eat fewer meals in a day because there was not enough food?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. In the past 4 weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. In the past 4 weeks, did you or any household member go to sleep at night hungry because there was not enough food?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	9. In the past 4 weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	10. How do the last 30 days compare to the rest of the year in terms of food availability for your household?	1=BETTER 2=WORSE 3=SAME	□	□	□
	11. During the last 12 months, in which months was the food shortage most acute?	MONTH (NUMBER) - LIST UP TO THREE	□ □	□ □	□ □
	12. In which month was the food shortage most acute?	MONTH (NUMBER)	□ □	□ □	□ □

+

+

ANNEX VI: BASELINE SAMPLE CHARACTERISTICS OVERVIEW

Variable	Treatment	Control	Difference	t_stat	p_value	Significance
Household characteristics						
Gender of household head	1.1 0.3 418	1.1 0.3 412	- 0.0 0.0 830	0.51	0.611	
Age of household head	39.7 12.7 417	40.2 12.2 410	- 0.6 0.9 827	0.65	0.518	
Education of household head	2.6 1.5 418	2.3 1.5 412	0.3 0.1 830	- 3.01	0.003	***
Household size	6.3 2.7 441	6.2 2.5 438	0.1 0.2 879	- 0.34	0.732	
Income						
Agricultural income	1129.6 1895.4 204	1011.7 1531.6 240	117.8 162.6 444	0.72	0.469	
Labor income	1976.2 3373.29 106	1726.0 1890.3 99	250.1 2754.8 205	0.64	0.51	
Other income	2403.2 13254.1 243	1502.9 2223.7 228	900.3 889.3 471	1.01	0.31	
Net total income w/ other	2663.7 13465.4 311	1959.03 2907.4 321	704.6 769.4 632	0.91	0.36	
Net total income w/o other	997.7 7050.8 249	1103.4 1919.0 272	-105.6 444.4 521	-0.23	0.81	**
Asset ownership	0.14 0.09 441	- 0.22 0.09 438	- 0.36 0.12 879	- 2.87	0.00	***
Own Livestock (%)	0.76 0.43 431	0.76 0.43 428	- 0.01 0.03 859	0.18	0.86	
Earn income from other* sources (%)	0.26 0.44 431	0.27 0.45 428	- 0.01 0.03 859	0.37	0.71	
Work for pay (%)	0.39 0.49 431	0.41 0.49 428	- 0.02 0.03 859	0.57	0.57	
Total HH non ag labor income	3,163.67 3,339.88 60	4,125.11 3,960.16 80	- 961.44 633.21 140	1.52	0.13	
Hired labor (%)	0.35 0.48 431	0.33 0.47 428	0.02 0.03 859	- 0.57	0.57	
Access to services and infrastructure						
Walking distance to clinic (minutes)	88.3 98.9 346	69.6 74.2 355	18.8 6.6 701	-2.85	0.004	***
Walking distance to school (minutes)	43.1 46.2 383	39.5 43.5 399	3.6 3.2 782	-1.13	0.259	
Walking distance to agricultural extension center (minutes)	126.1 173.2 273	182.4 454.5 250	-56.2 29.6 523	1.90	0.058	*
Walking distance to market (minutes)	94.9 152.5 364	126.7 390.9 351	-31.8 22.0 715	1.44	0.149	
Walking distance to feeder road (minutes)	22.4 52.0 387	27.0 78.6 389	-4.6 4.8 776	0.97	0.334	
Walking distance to hospital (minutes)	62.3 100.9 359	68.1 89.6 357	-5.8 7.1 716	0.81	0.416	
Agricultural production						

Size of individual land farmed (feddans)	4.5 8.0 441	5.3 10.8 438	-0.8 .64 864	-1.29 864	0.19	*
Size of communal land farmed (feddans)	8.6 14.0 211	9.1 15.9 228	-0.4 1.4 439	-0.3 439	0.73	
Maize production (kg)	670.2 896.0 326	659.9 1128.5 298	10.3 81.2 624	-0.13 624	0.899	
Maize yield individual land (kg/feddan)	118.2 191.6 329	113.8 183.5 292	4.4 15.1 621	-0.29 621	0.769	
Maize yield communal land (kg/feddan)	388.5 975.3 111	541.1 2234.2 88	-152.6 236.1 199	0.65 199	0.519	
Groundnut production (kg)	806.5 932.7 307	725.7 997.2 275	80.8 80.0 582	-1.01 582	0.313	
Groundnut yield (kg/feddan)	274.1 442.7 271	277.2 416.4 317	-3.0 35.4 540	--0.08 540	0.93	
Sorghum production (kg)	461.8 349.4 285	486.3 263.5 249	22.7 27.0 534	0.83 534	0.713	
Sorghum yield (kg/feddan)	188.7 150.5 202	166.0 233.4 234	-11.9 19.1 436	0.62 436	0.40	
Cassava production (kg)	910.2 825.6 27	1067.9 822.7 14	-157.7 271.6 41	0.58 41	0.565	
Cassava yield (kg/feddan)	247.1 155.3 16	266.8 227.3 29	-19.6 63.8 45	-0.30 45	0.7	
Sesame production (kg)	129.5 172.8 100	125.9 208.1 111	3.6 26.5 211	-0.14 211	0.893	
Sesame yield (kg/feddan)	31.9 39.2 50	19.0 28.8 52	12.9 6.8 102	-1.89 102	0.061	*
Legumes/bean production (kg)	164.9 247.2 103	193.9 346.4 108	-29.0 41.6 211	0.70 211	0.486	
Legumes/bean yield (kg/feddan)	61.8 119.3 105	62.7 112.3 105	3.6 43.8 210	-0.05 210	0.9	
Amount of maize lost (kg)	365.0 761.8 297	249.4 392.7 268	115.6 51.8 565	-2.2 565	0.0	
Amount of sorghum lost (kg)	262.2 401.2 218	363.7 1882.2 261	-101.5 129.9 479	0.8 479	0.4	
Amount of groundnut lost (kg)	270.7 353.2 278	225.3 319.6 253	45.4 29.3 531	-1.5 531	0.1	
Amount of millet lost (kg)	311.1 1134.2 50	178.1 208.2 59	133.0 150.4 109	-0.9 109	0.4	
Amount of sesame lost (kg)	126.8 197.3 75	45.8 95.9 88	81.1 23.8 163	-3.41 163	0.0	
Produce maize (% of HHs)	0.77 0.42 431	0.71 0.45 428	0.05 0.03 859	-1.77 859	0.08	

Produce groundnut (% of HHs)	0.75	0.68	0.06	-2.11	0.03	
	0.43	0.47	0.03			
	431	428	859	859		
Produce sorghum (% of HHs)	0.60	0.70	-0.10	3.09	0.00	
	0.49	0.46	0.03			
	431	428	859	859		
Produce legumes/beans (% of HHs)	0.25	0.29	-0.04	1.36	0.17	
	0.44	0.46	0.03			
	431	428	859	859		
Produce sesame (% of HHs)	0.22	0.27	-0.05	1.81	0.07	
	0.41	0.45	0.03			
	431	428	859	859		
Produce millet (% of HHs)	0.16	0.18	-0.02	0.96	0.34	
	0.36	0.38	0.03			
	431	428	859	859		
Agricultural practices						
Use of fertilizer	0.08	0.03	0.04	-2.80	0.005	***
	0.27	0.18	0.02			
	431	431	862			
Broadcasting of seeds	0.78	0.83	-0.05	1.81	0.070	*
	0.41	0.38	0.03			
	431	431	862			
Planting in rows	0.80	0.69	0.11	-3.69	0.000	***
	0.40	0.46	0.03			
	431	431	862			
Use of improved OVC seeds	0.21	0.18	0.03	-1.13	0.260	
	0.41	0.38	0.03			
	431	431	862			
Use of improved non-OVC seeds	0.80	0.69	0.11	-3.69	0.000	***
	0.40	0.46	0.03			
	431	431	862			

* First row is mean value, second row standard error, third row number of observations. *, ** and *** indicates significant at 10%, 5%, and 1% respectively. All yields reported are for season 1.

Household Characteristics

Type of house	Freq.	Percent
Mud wall/tukul	1083.00	90.10
Stone wall	3.00	0.25
Stone and wood wall	2.00	0.17
Bamboo wall	12.00	1.00
Wooden wall	34.00	2.80
Concrete wall	50.00	4.16
Other (specify)	18.00	1.50
Total	1202.00	100.00

Floor material	Freq.	Percent
Earth/mud	1140.00	95.80
Concrete/stone/cement	46.00	3.87
Tile/bricks	2.00	0.17
Wood	1.00	0.08
Other	1.00	0.08
Total	1190.00	100.00

Roof material	Freq.	Percent
Tile	1	0.08
Wood	53	4.44
Corrugated metal	75	6.28
Plastic sheeting	5	0.42
Thatched/sticks	1,035	86.60
Other (specify)	26	2.18
Total	1,195	100.00

Main source of household lighting	Freq.	Percent
Electricity	7	0.59
Kerosene/gas	96	8.08
Solar	8	0.67
Biogas	2	0.17
Firewood	190	15.99
Grass	173	14.56
Torch	501	42.17
Candle	36	3.03
Battery-lit light bulbs	129	10.86
No lighting	16	1.35
Other (specify)	30	2.53
Total	1,188	100

Type of toilet used in household	Freq.	Percent
Flush	2	0.17
Pit	855	70.9
Bucket	2	0.17
No facility/bush/field	347	28.77
Total	1,206	100

Toilet is shared with other households	Freq.	Percent
Yes	233	27.12
No	626	72.88

Main kind of fuel used for cooking	Freq.	Percent
Firewood	1,163	96.43
Charcoal	42	3.48
Electricity	1	0.08

Main source of drinking water for household	Freq.	Percent
Piped into home/plot	4	0.33
Public tap	42	3.48
Borehole	557	46.19
Well	218	18.08
River/stream	374	31.01
Pond/lake/dam	11	0.91
Total	1,206	100

Gender and Agriculture

Primary Decision Maker on Choice of Crops to Plant				
Treatment	Male	Female	Unknown	Total
Cross	222	41	1	264
	84,09	15,53	0,38	100,00
Control	341	87	0	428
	79,67	20,33	0,00	100,00
Treatment	363	65	0	428
	84,81	15,19	0,00	100,00
Total	926	193	1	1120
	82,68	17,76	0,09	100,00

Primary Person to Engage in Choice of Crops to Plant				
Treatment	Male	Female	Unknown	Total
Cross	190	68	2	260
	73,08%	26,15%	0,77%	100%
Control	288	130	1	419
	68,74%	31,03%	0,24%	100%
Treatment	315	102	2	419
	75,18%	24,34%	0,48%	100%
Total	793	300	5	1098
	72,22%	27,32%	0,46%	100%

Primary Decision Maker on Method of Planting (rows/broadcast)				
Treatment	Male	Female	Unknown	Total
Cross	220	42	2	264
	83,33	15,91	0,76	100,00
Control	343	82	2	428
	80,33	19,20	0,47	100,00
Treatment	368	59	1	428
	85,98	13,79	0,23	100,00
Total	931	183	5	1120
	83,20	16,35	0,45	100,00

Primary Person to Engage in Planting (rows/broadcast)				
Treatment	Male	Female	Unknown	Total
Cross	201	59	0	260
	77,31%	22,69%	0,00%	100%
Control	302	117	1	420
	71,90%	27,86%	0,24%	100%
Treatment	337	82	2	421
	80,05%	19,48%	0,48%	100%
Total	840	258	3	1101
	76,29%	23,43%	0,27%	100%

Primary Decision Maker for Types of Seeds to Use				
Treatment	Male	Female	Unknown	Total
Cross	216	45	2	263
	82,13%	17,11%	0,76%	100%
Control	338	88	1	427
	79,16%	20,61%	0,23%	100%
Treatment	349	79	0	428
	81,54%	18,46%	0,00%	100%
Total	903	212	3	1118
	80,77%	18,96%	0,27%	100,00%

Primary Person to Engage in Types of Seeds to Use				
Treatment	Male	Female	Unknown	Total
Cross	194	64	2	260
	74,62%	24,62%	0,77%	100%
Control	301	116	1	418
	72,01%	27,75%	0,24%	100%
Treatment	333	87	0	420
	79,29%	20,71%	0,00%	100%
Total	828	267	3	1098
	75,41%	24,32%	0,27%	100%

Primary Decision Maker for whether to Use Fertilizer				
Treatment	Male	Female	Unknown	Total
Cross	204	39	1	244
	83,61%	15,98%	0,41%	100%
Control	302	68	4	374
	80,75%	18,18%	1,07%	100%
Treatment	321	53	0	374
	85,83%	14,17%	0,00%	100%
Total	827	160	5	992
	83,37%	16,13%	0,50%	100%

Primary person to engage in whether to Use Fertilizer				
Treatment	Male	Female	Unknown	Total
Cross	189	48	0	237
	79,75%	20,25%	0,00%	100%
Control	276	84	5	365
	75,62%	23,01%	1,37%	100%
Treatment	301	65	0	366
	82,24%	17,76%	0,00%	100%
Total	766	197	5	968
	79,13%	20,35%	0,52%	100%

Primary Decision Maker on How to Store Crops after Harvest				
Treatment	Male	Female	Unknown	Total
Cross	201	62	1	264
	76,14%	23,48%	0,38%	100,00%
Control	309	116	2	427
	72,37%	27,17%	0,47%	100,00%
Treatment	321	106	1	428
	75,00%	24,77%	0,23%	100,00%
Total	831	284	4	1119
	74,26%	25,38%	0,36%	100,00%

Primary Person to Engage in How to Store Crops after Harvest				
Treatment	Male	Female	Unknown	Total
Cross	169	87	2	258
	65,50%	33,72%	0,78%	100,00%
Control	264	154	2	420
	62,86%	36,67%	0,48%	100,00%
Treatment	288	132	1	421
	68,41%	31,35%	0,24%	100,00%
Total	721	373	5	1099
	65,61%	33,94%	0,45%	100,00%

Primary Decision Maker on Where to Sell Crops				
Treatment	Male	Female	Unknown	Total
Cross	207	55	1	263
	78,71%	20,91%	0,38%	100,00%
Control	307	118	0	425
	72,24%	27,76%	0,00%	100,00%
Treatment	314	110	1	425
	73,88%	25,88%	0,24%	100,00%
Total	828	283	2	1113
	74,39%	25,43%	0,18%	100,00%

Primary Person to Engage in Where to Sell Crops				
Treatment	Male	Female	Unknown	Total
Cross	165	91	1	257
	64,20%	35,41%	0,39%	100,00%
Control	274	142	0	416
	65,87%	34,13%	0,00%	100,00%
Treatment	281	135	1	417
	67,39%	32,37%	0,24%	100,00%
Total	720	368	2	1090
	66,06%	33,76%	0,18%	100,00%

Primary Decision Maker on Plowing				
Treatment	Male	Female	Unknown	Total
Cross	208	43	1	252
	82,54%	17,06%	0,40%	100,00%
Control	334	82	2	418
	79,90%	19,62%	0,48%	100,00%
Treatment	340	67	0	407
	83,54%	16,46%	0,00%	100,00%
Total	882	192	3	1077
	81,89%	17,83%	0,28%	100,00%

Primary Person to Engage in Plowing				
Treatment	Male	Female	Unknown	Total
Cross	195	51	0	246
	79,27%	20,73%	0,00%	100,00%
Control	299	106	4	409
	73,11%	25,92%	0,98%	100,00%
Treatment	314	82	0	396
	79,29%	20,71%	0,00%	100,00%
Total	808	239	4	1051
	76,88%	22,74%	0,38%	100,00%

Primary Decision Maker on Planting				
Treatment	Male	Female	Unknown	Total
Cross	204	59	1	264
	77,27%	22,35%	0,38%	100,00%
Control	315	111	0	426
	73,94%	26,06%	0,00%	100,00%
Treatment	331	94	3	428
	77,34%	21,96%	0,70%	100,00%
Total	850	264	4	1118
	76,03%	23,61%	0,36%	100,00%

Primary Person to Engage in Planting				
Treatment	Male	Female	Unknown	Total
Cross	187	73	0	260
	71,92%	28,08%	0,00%	100,00%
Control	278	140	1	419
	66,35%	33,41%	0,24%	100,00%
Treatment	290	127	2	419
	69,21%	30,31%	0,48%	100,00%
Total	755	340	3	1098
	68,76%	30,97%	0,27%	100,00%

Primary Decision Maker on Weeding				
Treatment	Male	Female	Unknown	Total
Cross	119	142	3	264
	45,08%	53,79%	1,14%	100,00%
Control	179	247	1	427
	41,92%	57,85%	0,23%	100,00%
Treatment	191	235	2	428
	44,63%	54,91%	0,47%	100,00%
Total	489	624	6	1119
	43,70%	55,76%	0,54%	100,00%

Primary Person to Engage in Weeding				
Treatment	Male	Female	Unknown	Total
Cross	113	147	0	260
	43,46%	56,54%	0,00%	100,00%
Control	164	255	0	419
	39,14%	60,86%	0,00%	100,00%
Treatment	171	246	3	420
	40,71%	58,57%	0,71%	100,00%
Total	448	648	3	1099
	40,76%	58,96%	0,27%	100,00%

Primary Decision Maker on Harvesting				
Treatment	Male	Female	Unknown	Total
Cross	127	136	1	264
	48,11%	51,52%	0,38%	100,00%
Control	216	209	2	427
	50,59%	48,95%	0,47%	100,00%
Treatment	220	205	3	428
	51,40%	47,90%	0,70%	100,00%
Total	563	550	6	1119
	50,31%	49,15%	0,54%	100,00%

Primary Person to Engage in Harvesting				
Treatment	Male	Female	Unknown	Total
Cross	107	151	1	259
	41,31%	58,30%	0,39%	100,00%
Control	186	232	2	420
	44,29%	55,24%	0,48%	100,00%
Treatment	196	220	4	420
	46,67%	52,38%	0,95%	100,00%
Total	489	603	7	1099
	44,49%	54,87%	0,64%	100,00%

Primary Decision Maker on Shelling				
Treatment	Male	Female	Unknown	Total
Cross	178	77	2	257
	69,26%	29,96%	0,78%	100,00%
Control	262	156	0	418
	62,68%	37,32%	0,00%	100,00%
Treatment	263	155	1	419
	62,77%	36,99%	0,24%	100,00%
Total	703	388	3	1094
	64,26%	35,47%	0,27%	100,00%

Primary Person to Engage in Shelling				
Treatment	Male	Female	Unknown	Total
Cross	153	98	0	251
	60,96%	39,04%	0,00%	100,00%
Control	225	184	0	409
	55,01%	44,99%	0,00%	100,00%
Treatment	235	170	4	409
	57,46%	41,56%	0,98%	100,00%
Total	613	452	4	1069
	57,34%	42,28%	0,37%	100,00%

Primary Decision Maker on Taking Farm Products to the Local Market				
Treatment	Male	Female	Unknown	Total
Cross	178	82	1	261
	68,20%	31,42%	0,38%	100,00%
Control	264	156	1	421
	62,71%	37,05%	0,24%	100,00%
Treatment	287	132	0	419
	68,50%	31,50%	0,00%	100,00%
Total	729	370	2	1101
	66,21%	33,61%	0,18%	100,00%

Primary Person to Engage in Taking Farm Products to the Local Market				
Treatment	Male	Female	Unknown	Total
Cross	139	118	0	257
	54,09%	45,91%	0,00%	100,00%
Control	222	188	1	411
	54,01%	45,74%	0,24%	100,00%
Treatment	255	156	0	411
	62,04%	37,96%	0,00%	100,00%
Total	616	462	1	1079
	57,09%	42,82%	0,09%	100,00%

Primary Decision Maker on Taking Farm Products to a Farther Market				
Treatment	Male	Female	Unknown	Total
Cross	200	51	0	251
	79,68%	20,32%	0,00%	100,00%
Control	297	105	2	404
	73,51%	25,99%	0,50%	100,00%
Treatment	313	85	0	398
	78,64%	21,36%	0,00%	100,00%
Total	810	241	2	1053
	76,92%	22,89%	0,19%	100,00%

Primary Person to Engage in Taking Farm Products to a Further Market				
Treatment	Male	Female	Unknown	Total
Cross	175	69	1	245
	71,43%	28,16%	0,41%	100,00%
Control	281	113	2	396
	70,96%	28,54%	0,51%	100,00%
Treatment	290	100	0	390
	74,36%	25,64%	0,00%	100,00%
Total	746	282	3	1031
	72,36%	27,35%	0,29%	100,00%

Primary Decision Maker on Buying Farm Supplies				
Treatment	Male	Female	Unknown	Total
Cross	223	39	2	264
	84,47%	14,77%	0,76%	100,00%
Control	336	89	2	427
	78,69%	20,84%	0,47%	100,00%
Treatment	358	65	2	425
	84,24%	15,29%	0,47%	100,00%
Total	917	193	6	1116
	82,17%	17,29%	0,54%	100,00%

Primary Person to Engage in Buying Farm Supplies				
Treatment	Male	Female	Unknown	Total
Cross	193	65	2	260
	74,23%	25,00%	0,77%	100,00%
Control	315	102	2	419
	75,18%	24,34%	0,48%	100,00%
Treatment	333	81	4	418
	79,67%	19,38%	0,96%	100,00%
Total	841	248	8	1097
	76,66%	22,61%	0,73%	100,00%

Primary Decision Maker on Keeping Written Records of Farming Activities				
Treatment	Male	Female	Unknown	Total
Cross	204	36	6	246
	82,93%	14,63%	2,44%	100,00%
Control	305	73	12	390
	78,21%	18,72%	3,08%	100,00%
Treatment	334	55	9	398
	83,92%	13,82%	2,26%	100,00%
Total	843	164	27	1034
	81,53%	15,86%	2,61%	100,00%

Primary Person to Engage in Keeping Written Records of Farming Activities				
Treatment	Male	Female	Unknown	Total
Cross	184	52	6	242
	76,03%	21,49%	2,48%	100,00%
Control	288	84	9	381
	75,59%	22,05%	2,36%	100,00%
Treatment	313	66	10	389
	80,46%	16,97%	2,57%	100,00%
Total	785	202	25	1012
	77,57%	19,96%	2,47%	100,00%

ANNEX VII: EVALUATION DESIGN

EXPERIMENTAL DESIGN

An experimental design refers to an approach where an intervention is randomly allocated among eligible beneficiaries. Given a sufficiently large sample size there is no selection bias because the control groups function as a perfect counterfactual.

Impact is simply measured as the difference between the mean value of the outcome variable between the treatment and control groups at the endline. Mathematically:

$$D = E[Y_i^T - Y_i^C | T]$$

where D is the treatment effect, Y is the outcome indicator, T denotes the treatment group, and C the control group. The same thing can be expressed in a simple regression framework:

$$Y_i = \alpha + \beta T + \epsilon_i$$

where Y is the outcome indicator, T a dummy variable for the treatment group, β the treatment effect, and ϵ an error term.

Whilst this implies that we need only to measure outcomes at the endline, the randomization by definition needs to be carried out before program implementation begins. In practice a baseline survey is always carried out to ensure that the randomization was successful – i.e. that there are no statistically significant differences between treatment and control groups at the baseline.

A randomized, or experimental design can take several forms such as:

- *Full or partial randomization*: Evaluators can choose to randomize the full intervention, or a subset of components.
- *Within-group randomization*: Randomization takes place amongst a specific beneficiary group.
- *Oversubscription*: Potential beneficiaries subscribe to receive a treatment, such as a training program, but the number of people subscribing is greater than the number of spaces available. Participants are randomly chosen among all subscribers, and those who do not get to participate constitute the control group.
- *Randomized phase-in*: The treatment population has been defined prior to evaluation design but not all areas/beneficiaries will be targeted at the same time. This allows evaluators to randomize the order of roll-out/phase-in of the program. Those beneficiaries randomly chosen to receive the program last will constitute the control group during the first phase.
- *Encouragement design*: It is not the program itself which is being randomized, rather a random selection of people are encouraged to enroll in the program and the measured effect thus becomes that of encouraging participation rather than participation itself.

QUASI-EXPERIMENTAL DESIGN

A quasi or non-experimental approach can be used when randomization is not possible. Essentially this group of approaches attempts to mimic an experiment as closely as possible by constructing a control group that is as similar as possible to the treatment group. Some of the most commonly applied approaches are:

- Regression discontinuity
- Difference-in-differences
- Propensity score matching
- Instrumental variables
- Combinations of the above

The difference-in-differences method, which will be used for this evaluation is described in more detail below.

THE DIFFERENCE-IN-DIFFERENCES APPROACH

The difference-in-difference methodology estimates the Average Treatment Effect (ATE) by comparing treatment and comparison groups (first difference) over time (second difference). This is done by carrying out identical household surveys just prior to project start (baseline) and after project end (endline). In doing so, this technique eliminates selection-bias since what matters is not whether treatment and comparison groups start out exactly at the same level of income, for example, but rather the size of the change in this indicator over time for the two groups

The difference-in-differences estimator can be expressed using an OLS regression framework as follows, where T2 is a time dummy variable, D the treatment dummy, and the coefficient of interest is β_2 :

$$y = \beta_0 + \beta_1 D + \beta_2 T2 + \beta_3 D * T2 + u$$

The impact estimates obtained from this approach are only valid however, if the *parallel trend assumption* holds true. This is the assumption that the two groups would have developed at the same speed in the absence of the project. This may not be the case if change over time is determined by unobserved characteristics of either group. An example would be if particularly profit-oriented businesses are located, or open up, in the project affected area. It may also not be true if non-project related development plans and trajectories for the two areas are entirely different.

Figure A1.1 illustrates the difference-in-differences approach and shows how selection bias is eliminated if the parallel trend assumption holds true: What matters for an unbiased impact estimate is not the starting point, as long as the two groups grow at the same trend. This is because our impact estimate is the difference between the treatment group (indicated by a red dot) and the comparison group (blue dot), over time.

Figure A1.2 on the other hand, illustrates how failure of the parallel trend assumption may lead to an under- or over estimate of impact. If the comparison group would have grown at a faster rate than the treatment group in the absence of the project, we will underestimate impact, and may even obtain negative impact estimates. Similarly, if the comparison group would have grown at a slower speed than the treatment group in the absence of the project, we will overestimate impact.

Figure A1.1 – Difference in difference with valid parallel trend assumption

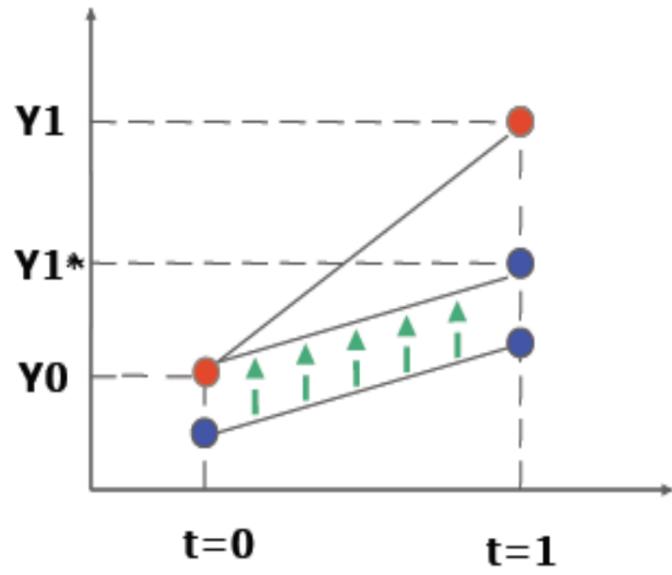
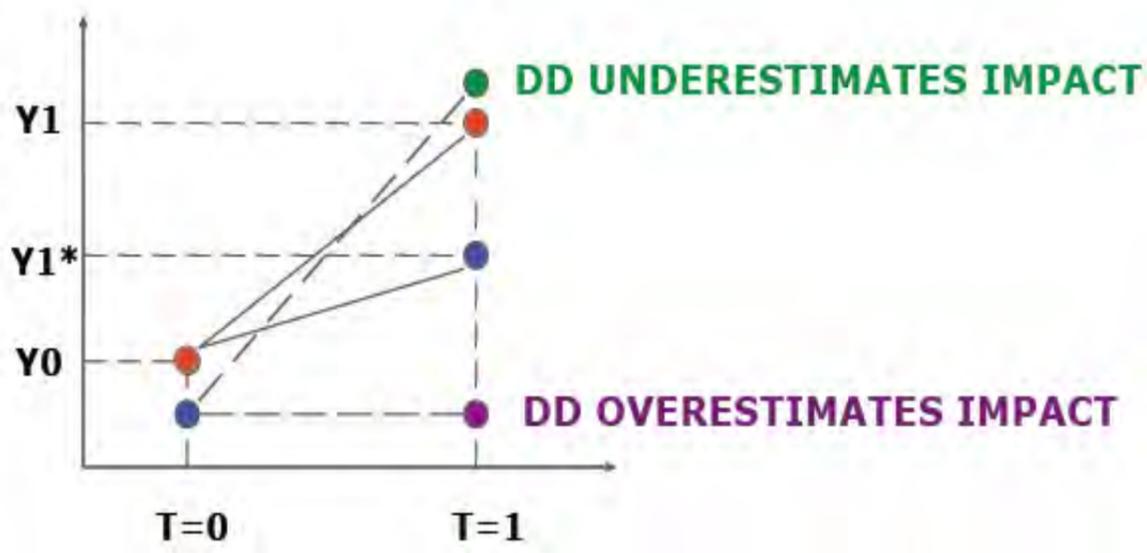


Figure A1.2 – Difference in difference with invalid parallel trend assumption



ANNEX VIII: SAMPLE SELECTION AND POWER ANALYSIS

SAMPLING METHODOLOGY

Several approaches to sampling and impact measurement were discussed and explored. Whilst this exercise is primarily intended to be a baseline survey, USAID wished also to obtain a preliminary idea of FARM's success to date through the collection and analysis of information on some FBOs that have already received services. It was, thus, decided to carry out two separate analyses for "past receivers" and "new receivers" of FARM services. The former will take the form of a smaller cross-sectional survey to take place only in 2013, whilst the latter will constitute the majority of the sample and will be matched with a comparison group as discussed below. For those groups, the current survey will act as a baseline, to be followed up by an endline survey in 2014 or 2015.

In close consultation with USAID, a stratified two-stage cluster sampling approach was chosen for both groups. Stratifying by state and county, FBOs were chosen as the primary sampling unit and households as the second. The choice of using FBOs as the primary sampling unit, rather than using bomas or villages was made in order to allow evaluators to estimate the Treatment Effect on the Treated (TOT), rather than Average Treatment Effect (ATE). The former measures the effect of the project on those farmers who received the services, whereas the latter would measure the effect of the project on residents in the boma more generally.

To select the actual sample of cross-sectional (FARM FBOs that have been receiving FARM support for at least one year) and treatment FBOs, the evaluation team obtained lists of all prior-FARM beneficiary FBOs and all newly selected FBOs that will begin to receive benefits in 2013. The team then took the total number of FBOs that have received support by FARM prior to 2013 (310) and looked at the percentage of those that fell within each state. Based on this information, the 30 cross-sectional FBOs were allocated between the states proportionately, resulting in the selection of 10 FBOs in each state. The team then looked at the percentage of FBOs located in each county within the states and determined what proportion of the sample 10 FBOs should be selected from each county. To select these FBOs, the team assigned each FBO a number and then plugged these numbers into list randomization software. Finally, the team selected the first several numbers that came up (based on the number required for each county) to determine the final sample, taking a few extras from each county as sample alternates. The sample of 45 treatment FBOs was selected in the same manner.

To select the control FBOs, the team visited each of the counties and applied the criteria specified in Table A3.

Table A2.1 - Control FBO Identification Protocol

1. FARM Documents

- a. Photocopy or photograph all the FBO identification forms on file, including those that have been receiving services over the last year or two. Be sure to indicate which are:
 - FBOs already receiving services
 - New FBOs selected to receive services
 - FBOs not selected to receive services
 - FBOs selected to be included in the treatment sample
- b. For each FBO that was not selected for the new round of services, establish why, in conversation with FARM staff. Reasons could include:
 - Proximity to urban area or road
 - Accessibility
 - Already exceeded FARM service capacity/unable to take on more FBOs
 - Not suitable due to lack of cohesiveness, size, location, or activity.

2. County Office

- a. Meet with the Agricultural commissioner and do the following:
 - Ask to see a county map, especially one that shows payam locations. Obtain and copy or photograph.
 - Identify the payams in which FARM is currently working
 - Identify up to three non-FARM payams that are the most suitable control areas. To do this, discuss with the Ag Commissioner (and any other staff who he/she thinks is knowledgeable—especially those who have spent time in the field) about which non-FARM payams are the most appropriate controls. The following criteria, listed in order of importance, should be taken into account when establishing similarities:
 1. Similar types of crops and amount of land farmed.
 2. Similar proximity to roads and market centers
 3. Agricultural services from other NGOs. Preferably, we want payams receiving NO or the LEAST amount of agricultural services of any type.
 4. Other services especially in the education and health sectors. Selected payams should be SIMILAR to FARM payams in amount of these services. This includes similarity in numbers/access to schools and health facilities.
 5. Same language and ethnic groups.
 6. Similar population size.
 7. Similar returnee population numbers.
- b. After identifying the most similar payams, obtain a list of all FBOs in those payams and the following information for each FBO:
 - If it is registered with the county and year established.
 - Number of members, aggregated by gender
 - Proximity to viable feeder roads
 - Amount of land farmed and if there is land into which to expand
 - If the FBO is, and has been, "active" over its lifetime. "Active" means that it has been growing, harvesting, and selling crops with relative regularity.

3. FBO Site Check

- a. If time allows, choose a minimum of two FBOs from the lists obtained in part 2b that appear to qualify as potential control FBOs, and visit their locations to determine the accuracy of the county information.

**Qualifying FBOs meet the following minimum criteria:

- Registered with the county
- Have a minimum of 10 members

- Already started working together
- Enough land to expand
- Accessible by road

POWER CALCULATIONS

The original scope of work for this study specified a sample size of approximately 1,200 households, and the budget was planned accordingly. In order to make sure that this sample size would allow us to detect a given impact for a study with the desired power, the evaluation team carried out a number of power calculations.

Power calculations are carried out using existing data – when available a pilot or previous round of the same survey, or alternatively a different dataset from a similar setting and with similar data. The best such data the evaluation team was able to identify was the National Baseline Household Survey carried out by the South Sudan Bureau of Statistics in 2009. Whilst this did not include information on agricultural production, it did contain demographic information and expenditure data for a representative sample of 5280 households from all 10 South Sudanese states, including the state, county, payam, and cluster within which those households are located. Clusters were identical to the Enumeration Areas defined and used for the 2008 census.

In order to conduct power calculations the following factors must be specified:

- Minimal Detectable Effect (MDE) – ie. the size of the effect we want to be able to measure (the difference in means between project and comparison group)
- The significance level – i.e. the certainty with which we want to be able to rely on the results
- The power of the test – i.e. the probability that we will detect a statistically significant result and hence that our test will correctly lead to the rejection of a false hypothesis
- A good estimate of the standard deviation of the variable we want to test – in this case based on the standard deviations of the 2009 NBHS expenditure data.
- The intra-cluster correlation coefficient – defined as the variance (in expenditure) between clusters, divided by (variance between clusters + variance within clusters). This was again based on the 2009 NBHS expenditure data. Clusters in this case were the 2008 census Enumeration Areas as used in the survey.

For this study the desired level of power was set at 80 percent, and the significance level to 5 percent. Discussions with USAID revealed an expected yield increase for participating farmers at up to 300 percent - but the team wished to be able to detect a smaller effect also, and set a more conservative minimal detected effect at between 20 – 30 percent increase in expenditure. In addition, in a cluster survey, given a certain sample size, power is usually increased by surveying a greater number of clusters with fewer households in each rather than vice versa. The team thus decided to maximize the number of FBOs vs. the number of households in each. As the FARM Project works with FBOs that have between 10 and 25 members, 10 was chosen as a reasonable number of households per FBO and this number was used in completing the power calculations.

The calculations were done using the Optimal Design software and were carried out on the expenditure data from the survey just mentioned. The team conducted power calculations for all three Greater Equatoria states combined, each of the states individually, for those with all sources of income, and for those with only farming as the main source of income. Finally, the team also considered whether excluding outliers would make a difference. See Table A3.2 for more details of this analysis.

Ultimately, the team found that excluding major outliers (expenditures of more than \$300/month) and considering only those households in which farming is the main source of income, the team should be able to detect increases or decreases in expenses greater than approximately 18 percent. With average expenses of about \$95 per month (as determined by analysis of the NBHS 2009 data), this means, the team will be able to attribute an increase of a FARM beneficiary's household expenses from \$95 to \$112 to FARM, assuming no other interventions. Given the fact that this was substantially less than the expected impact, and also less than the desired MDE determined by the evaluation team, it was decided that the budgeted sample size of 900 for the baseline survey was reasonable. Overall, the sample thus consists of 120 FBOs with 10 households in each.

Table A2.2: Power calculations, baseline survey

State	All income types					Farming as Main income				
	ICC	Standard Deviations	Mean Expenditures	Effect Size (MDE)	% Increase in Expenses over a measure	ICC	Standard Deviations	Mean Expenditures	Effect Size (MDE)	% Increase in Expenses over a measure
All	0,148	115,08	117,99	0,29	28,3%	0,18	102,59	112,86	0,31	28,2%
CES	0,22	125,7	111,62	0,33	37,2%	0,29	117,15	107,14	0,36	39,4%
EES	0,15	95,52	125,36	0,29	22,1%	0,22	89,01	119,62	0,33	24,6%
WES	0,05	123,14	120,27	0,23	23,5%	0,039	99,4	110,33	0,22	19,8%

State	Excluding Outliers, All income types					Excluding Outliers, Farming as Main income				
	ICC	Standard Deviations	Mean Expenditures	Effect Size (MDE)	% Increase in Expenses over a measure	ICC	Standard Deviations	Mean Expenditures	Effect Size (MDE)	% Increase in Expenses over a measure
All	0,13	64,35	94,81	0,28	19,0%	0,12	61,7	94,15	0,27	17,7%
CES	0,248	55,78	85,98	0,34	22,1%	0,25	53,82	84,76	0,34	21,6%
EES	0,111	64,41	105,13	0,27	16,5%	0,126	64,45	104,76	0,28	17,2%
WES	0,017	74,41	93,85	0,21	16,7%	0,017	66	90,83	0,21	15,3%

LITERATURE REVIEW

1. A number of impact evaluations of agricultural sector projects and programs have been carried out during recent years. Mendiratta (2010) collated information on impact evaluations in Sub-Saharan Africa from key sources such as the UN, World Bank, major bi-lateral institutions and international research institutes and produced a database to highlight key trends in the evolution of impact evaluations. A surge in the number of impact evaluations was described starting in 2004. In terms of the thematic composition, 27% of the evaluations are health oriented followed by education, agriculture and microfinance as the key sectors. A table of agricultural sector impact evaluations in Sub-Saharan Africa over the last 20 years is included below.

Only a few impact evaluations of Farmer Based Organizations (FBOs) appear to have been carried out, however. One case in point is an evaluation of the MCA Ghana program “FBO and starter pack component” (ISSER, 2012), which much like the FARM project introduced farmers to three thematic modules during the training – a Business Capacity Building Module, a Technical Training Module and a Sales Maximization Module. Every farmer who was trained received a starter pack to pilot the knowledge and skills acquired during the training. The content of the starter pack included fertilizer, seeds for an acre,

protective clothing and some cash amount for land preparation, all valued at US\$230. The program and hence the evaluation was designed using a randomized phase-in approach where farmers were put into early treatment and late treatment categories to enable for the estimation of program impact between 2008 and 2011. Approximately 6000 farmers in 1200 FBOs were interviewed as part of this evaluation, and each farmer was interviewed twice – at baseline and follow-up.

Interestingly, the evaluation found no evidence of impact of intervention on crop yields and crop incomes, and although an increase in the use of improved seeds and fertilizers by farmers was measured, that was mainly driven by the starter pack. It was found however, that training increases farmers' use of more formal sources for loans.

A group of similar evaluations look not at FBOs but at Farmer Field Schools (FFS), which in many ways are similar though many of them are concerned with Pest Management specifically rather than training more broadly. Davis et al (2010) evaluated the impact of FFS in East Africa. Using a difference-in-difference approach, the study found that participation in such training programs to increased production, productivity, and income in nearly all cases. In Kenya the evaluation found an 80 percent increase in crop production, and in Tanzania there was a large increase in agricultural income.

Pananurak, 2010, looked at cotton farmers in China, India and Pakistan and found that participants used less pesticide and chose those with lower toxicity after a training program in integrated pest management. In China, participants performed better in terms of both cotton yield and financial gain but there was no economic impact in India. In all three countries, there was no diffusion effect from trained farmers to their neighbors.

2. The bulk of agricultural sector impact evaluations in Sub-Saharan Africa are designed around the hypothesis that farmers who participate directly in project inputs are likely to be more productive, resilient, and/or have better incomes than other farmers with equivalent land. Inputs have typically included cash grants and microfinance, savings and loan programs, loan indemnity and crop insurance schemes, training and demonstration farms, and time-limited discounts/subsidies/vouchers for and/or direct distribution of improved seeds, fertilizers, and post-harvest storage supplies. For example, Duflo, Kramer and Robinson (2011) examined the impact of time-limited discounts on fertilizer adoption among farmers in Western Kenya. In this study, farmers were randomly selected from lists of parents at local schools, who were then provided with fertilizer, seeds, and materials to use on a treatment plot set aside on their land. The selected farmers were then divided into four groups, each with a different approach to fertilizer use. Surveys, observations, and crop yield analysis methods were used. The study found that all fertilizer treatments led to increases in yield, though in different amounts. One of the approaches in particular was found to have highest rate of return.

Karlan et. al. (2012) examined the impact of cash grants and indemnification insurance on farmer investment patterns in Ghana. In this study, a local bank offered credit to local farmers to invest in their farms. The applicants were randomly divided into two groups; the treatment group was offered the insurance along with the loans at no additional cost, which met that if crop prices fell below a certain level, the loans would be forgiven. The control group was offered the loans without the insurance. Researchers found that crop price insurance changed farmers' investment behavior, but not overwhelmingly. Farmers offered the insurance spent more on chemicals than those who had not been offered the product. There was also a trend towards growing more eggplants and less maize among these farmers. Farmers offered the insurance were also between 15 and 25 percent more likely to bring their produce to markets rather than sell to brokers who come to pick up the crop.

Beaman et. al. (2012) are currently evaluating a project in Mali to measure the impact of an agricultural microfinance scheme designed improve the incomes of women involved in the growing and production of shea butter. In this study, four different treatment groups were randomly selected from 200 villages, each provided with a different kind of microfinance product. Findings have yet to be reported. Similarly, Carter, Laajaj, and Yang (2013) are investigating the impact of a combination subsidy and savings product on the adoption of fertilizers in Mozambique. In this study, the research sample consists of three treatment groups which received different combinations of interventions, and a comparison group which did not receive any intervention. Follow-up surveys are planned for 2013 where researchers will collect data on per-capita income and expenditures, maize yields and use of seed varieties and fertilizers, and the creation and use of savings accounts. These studies also employed surveys, observations, and crop yield analysis methods for data collection.

Duflo, Keniston and Suri (2012) are examining agricultural extension trainings in Rwanda. The training evaluation sample was composed of 1600 farmers from 27 villages who signed up for the training. Because the NGO providing the training had limited resources, half of those who signed up were randomly selected to be provided the training while the other half were assigned as the control group. Villages in the treatment areas were then randomly assigned to different intensity levels of intervention: in some villages, 25% of registered households received treatment, while in others, 50% and 75% received treatment respectively. Results are forthcoming.

While many of the communities in these and similar studies across Sub-Saharan Africa are characterized by conflict-affected populations whose livelihoods consist mainly of subsistence farming, there does not appear to be any evaluations specifically looking at the transition from subsistence to market agriculture, or on the particular challenges faced by conflict- and displacement-affected communities, all of which are conditions germane to the Equatoria regions of South Sudan

There has been only one impact evaluation that overlaps with the agricultural sector in South Sudan, and this was Baseline Report on Food Distribution, Skill Development, and Financial Services: An Evaluation of BRAC South Sudan's FFTIG Program (BRAC, 2008). The Food for Training and Income Generation (FFTIG) aims to offer an integrated package of food distribution, skill development and savings & credit opportunities. The baseline survey was conducted to record benchmark information regarding key livelihood patterns of beneficiaries and non-beneficiaries and help the program to craft an intervention which can successfully create sustainable livelihoods for vulnerable women in southern Sudan, including smallholder agribusinesses. BRAC field staffs determine a list of 1058 potential beneficiaries in and around Juba. A four item household poverty scoring criteria (female headship, housing structure, ownership of a house, and dependency) were utilized to select eligible beneficiaries. Randomization was done at individual level, where 500 households were randomly selected to be treatment and the rest 558 to be control households. There is currently no evidence that an end-line survey was conducted.

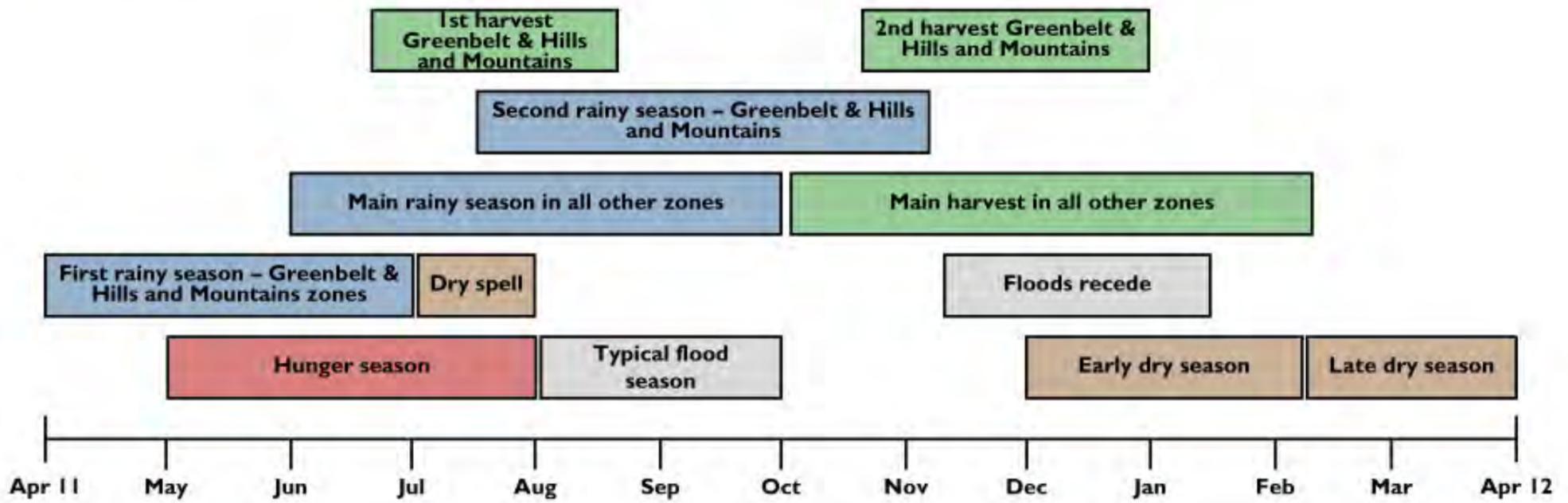
3. A number of impact evaluations of agricultural projects outside Africa have also been carried out – the largest number of which are from Asia. In India for example, researchers examined the impact of offering cotton farmers toll-free access to agricultural information via mobile phone on their agricultural knowledge and practices. From a sample of 1,200 cotton farming households, researchers randomly assigned 400 to receive access to agricultural advice via mobile phone, 400 to receive both traditional extension and access to mobile phone advice, and 400 to serve as the comparison group. In the study, farmers in the treatment group were 22 percentage points more likely to use mobile phone-based information as their main source of information for cotton fertilizer decisions, and 30 percentage points more likely for cotton pesticide decisions relative to comparison households. These effects were larger among more educated farmers.

In Indonesia, researchers randomly selected 117 seaweed from a group of 232 to participate in an experimental trial to determine the optimal pod size for seaweed cultivation on their plots. Farmers in the treatment group assisted an agricultural extension worker to vary the seaweed production methods on one of their plots and received the trial results afterwards. The remaining 115 farmers served as the comparison group and received no new services. Researchers found that farmers neglect certain dimensions of seaweed cultivation and fail to use the optimal level of inputs along those neglected dimensions. For instance, while most farmers are attentive to the optimal distance between seaweed pods, very few farmers had consciously experimented with pod size prior to the trial.

In Honduras, the Millennium Challenge Corporation (MCC) compact made a five-year investment (2005-2010) of \$205 million in two projects: transportation and rural development. The Rural Development Project included four activities: (i) farmer training and development, (ii) farmer access to credit, (iii) farm to market roads, and (iv) agricultural public goods grant facility. MCC used multiple sources to measure results. Monitoring data was used during compact implementation. Independent evaluations were completed in 2011. Monitoring data was generated by the program implementers and specifically covered the “treatment” group of farmers who received training and inputs under the compact. However, monitoring data was limited in that it could not predict what these farmers would have done in the absence of the MCC-financed training. For example, when implementers reported that farmers had exceeded targets around the adoption of new techniques, it was not known if these farmers adopted because of the training or would have adopted without the training. This is why MCC invested in an independent impact evaluation, which estimated a counterfactual to assess what would have happened in the absence of the investment. Although, most output and outcome targets for the project were met or exceeded, the independent evaluation was unable to estimate the causal impacts of the investment on outcomes because the evaluation team could not identify a valid counterfactual as a basis for estimating the results. The evaluation report documented that the treatment and control groups of farmers had substantially different characteristics, making it impossible to use the control group as a valid counterfactual in the evaluation. The evaluation report makes a compelling case for 1) The need to plan impact evaluations from the very beginning of project design and implementation, and 2) the use of alternative evaluation approaches should be considered where counterfactuals cannot be established.

ANNEX IX: SOUTH SUDAN AGRICULTURAL AND FOOD SECURITY INFORMATION FROM FEWSNET

Seasonal Calendar and Critical Events Timeline



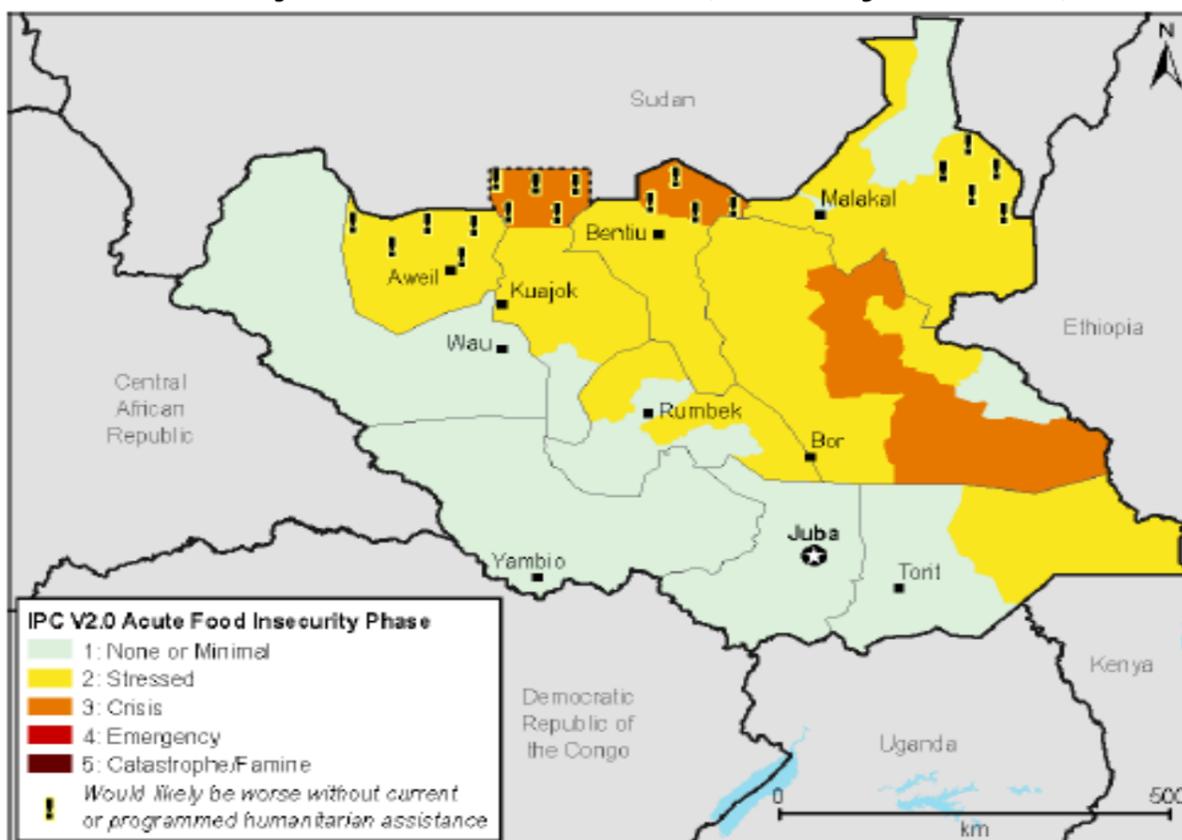
Source: FEWSNET, Accessed July 10, 2013

IPC Acute Food Insecurity Reference Table for Household Groups

	Phase 1: No Acute Food Insecurity	Phase 2: Stressed	Phase 3: Crisis	Phase 4: Emergency	Phase 5: Catastrophe
Summary Description	Household groups do not experience short term instability; -OR- Household groups experience short term instability but are able to meet basic food needs without atypical coping strategies	Household group experiences short term instability; -AND- Household group food consumption is reduced but minimally adequate without having to engage in irreversible coping strategies	Household group experiences short term instability; -AND- Household group has significant food consumption gaps with high or above usual acute malnutrition; -OR- Household group is marginally able to meet minimum food needs only with irreversible coping strategies such as liquidating livelihood assets or diverting expenses from essential nonfood items	Household group experiences short term instability; -AND- Household group has extreme food consumption gaps resulting in very high acute malnutrition or excess mortality; -OR- Household group has extreme loss of livelihood assets that will likely lead to food consumption gaps	Household group experiences short term instability; -AND- Household group has near complete lack of food and/or other basic needs where starvation, death, and destitution are evident

Source: FEWSNET, Accessed July 10, 2013

FEWSNET Projected Food Outcomes, January to March, 2013



Source: FEWSNET, Accessed July 10, 2013

U.S. Agency for International Development
1300 Pennsylvania Avenue, NW
Washington, DC 20523