

Baseline Report of the Titukulane Resilience Food Security Activity in Malawi



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CONTACT INFORMATION

IMPEL Activity

c/o Save the Children

899 North Capitol Street NE, Suite #900

Washington, DC 20002

www.fsnnetwork.org/IMPEL

IMPEL@savechildren.org

PREPARED BY:



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ACRONYMS

BHA	Bureau for Humanitarian Assistance
CIM	CARE International in Malawi
CPI	Consumer Price Index
FCS	Food Consumption Score
FIES	Food Insecurity Experience Scale
FNM	Female No Male
GVH	Group Village Head
HAZ	Height-for-Age Z-score
HFCs	High-Frequency Checks
IFPRI	International Food Policy Research Institute
IMPEL	Implementer-Led Evaluation and Learning Associate Award
IPA	Innovations for Poverty Action
MAD	Minimum Acceptable Diet
M-TVET	Mobile Technical and Vocational Training
MWK	Malawi Kwacha
NASFAM	National Smallholder Farmers' Association of Malawi
NCT	Nutritional Cash Transfers
NRS	Malawi National Resilience Strategy
ORT	Oral Rehydration Therapy
PPP	Purchasing Power Parity
RCT	Randomized Controlled Trials
RFSA	Resilience Food Security Activity
TA	Traditional Authority
USAID	United States Agency for International Development
VSLA	Village Savings and Loan Associations
WASH	Water, Sanitation, and Hygiene
WHZ	Weight-for-Height Z-Score

EXECUTIVE SUMMARY

While Malawi is moving up on the Human Development Index, in 2017 it is still classified as a low human development country (171 of 189)¹. Despite decades of robust government and donor investments in livelihoods, food security, nutrition, and resilience, over 50% of the population lives below the poverty line². Previous activities have not sufficiently reduced the number of chronically food and nutrition insecure households nor effectively enhanced the capacity of local and government structures to implement resilience focused policies and actions. To address these issues, the Government of Malawi has developed a National Resilience Strategy (NRS) to guide investments in agriculture, reduce impacts and improve recovery from shocks, promote household resilience, strengthen the management of Malawi’s natural resources, and facilitate effective coordination between government institutions, civil society organizations and development partners. CARE and consortium partners have designed the Titukulane Resilience Food Security Activity (RFSA) which means “let us work together for development” in the local Chichewa language—to support implementation and ensure the effectiveness of the NRS. The Titukulane RFSA, implemented by CARE International in Malawi (CIM), aims to achieve sustainable, equitable, and resilient food and nutrition security for ultra-poor and chronically vulnerable households. Titukulane is implemented in Zomba and Mangochi districts of Malawi’s Southern Region.

Specifically, Titukulane is designed to increase households’ abilities to deal with shocks without experiencing food insecurity following a three-purpose approach:

1. Increased diversified, sustainable, and equitable incomes for ultra-poor, chronically vulnerable households, women, and youth.
2. Improved nutritional status among children under 5 years of age, adolescent girls, and women of reproductive age.
3. Increased institutional and local capacities to reduce risk and increase resilience among poor and very poor households in alignment with the Malawi NRS.

To meet these three purposes, the Titukulane RFSA provides households with a package of interventions, including:

- Care Groups with Nutritional Cash Transfers (NCT)
- Farmer Field Business Schools and crop marketing support
- Village Savings and Loan Associations
- Adolescent nutrition
- Irrigation farming
- Youth vocational training including start-up capital
- Gender dialogues

Innovations for Poverty Action (IPA) is conducting an impact evaluation of the Titukulane RFSA to assess Titukulane’s effectiveness at improving ultra-poor households’ food and nutrition security through the Theory of Change laid out in Titukulane’s three-purpose approach. To do so, the study will answer the following questions:

1. Does the Titukulane intervention package increase the households’ incomes?
2. Does the Titukulane intervention package increase households’ diversification of income sources?
3. Does the Titukulane intervention package improve the nutritional status of children under 5 years of age, adolescent girls, and women of reproductive age?

IPA is conducting a Randomized Controlled Trial (RCT) to rigorously attempt to answer these questions. The impacts of the intervention package will be measured by comparing households in villages that were randomly selected to receive the interventions (treatment villages) to households in villages that were not (control villages). Specifically, IPA will conduct data collection to measure impacts on outcomes such as child nutrition, food security, consumption, asset ownership, agricultural output and practices, household income and livelihood activities, and women’s empowerment.

This report summarizes the evaluation design, describes the sampling strategy and presents summary statistics based on data collected as part of the baseline survey.

The purpose of the baseline survey is to collect data that can be used to describe the study sample, to collect data necessary for subgroup analysis of impacts, to allow for the description of time trends in the data, and to increase statistical precision for impact estimation. Additionally, the data obtained in the baseline survey can help support CIM’s programming decisions and reporting requirements.

The baseline survey took place between August to November 2021 and included interviews with a total of 3,107 households in Mangochi and Zomba districts.

The report presents summary statistics for key baseline measures of interest, including information to describe the study sample such as demographics, sources of income and as well as the Bureau for Humanitarian Assistance (BHA) indicators. The following is a summary of the findings:

Demographics: Household heads are 42 years old on average, 37% are women, 66% are married, and 77% have not completed primary education. The average household has 2.7 children under the age of 16.

Livelihoods: The most frequently listed sources of income or food considered to be most important for households are farming (55%) and agricultural wage labor (18%), non-agricultural wage labor (8%) and non-agricultural self-employment (6%).

Consumption poverty: 56% of households live on less than US\$1.90 per day, with the average per capita consumption among surveyed households being US\$2.19 per day.

Food security: Based on the Food Consumption Score, 53% of households have adequate food consumption, 37% are borderline and 10% are categorized as having poor food consumption. Households report high levels of experience with food insecurity over the past 12 months according to Food Insecurity Experience Scale, with 97% classified as moderately or severely food insecure.

Farming:

- The vast majority of households engaged in farming in the 12 months prior to the interview (93%), and reported cultivating 1.04 acres on average. The three most commonly reported rainy season crops are maize (98%), pigeon peas (40%), and groundnuts (23%). Only 17% among those with any farming over the past 12 months reported cultivating any crop during the dry season.
- Many farmers used at least some modern inputs, with 67% reporting the use of inorganic fertilizer in the past rainy season and 48% reporting the use of packaged seeds. Among those households farming in the dry season, irrigation is essentially a requirement and 96% of those with any dry season farming used some form of irrigation. However, irrigation methods are basic, with the overwhelming majority watering by hand with small containers.
- The majority of farmers report some usage of some of the improved management practices targeted by the activity (86%). However, many individual practices are not widely used. For example, among those reporting the use of any improved practices, only 7% reported practicing weed control, 6% reported mulching and 5% reported employing crop rotation.
- Only a small minority of farming households are a member of any type of farmer group or cooperative (4%).
- Slightly less than half of the farming households sold any crop in the past rainy season, and only about a quarter sold more than half of their output of any one crop. The most common types of crop buyers that farmers sold to were local traders.

Business ownership: Only 17% of households operate an off-farm business, the majority of which are small, with only 25% of business-operating households reporting business inventory valued above Malawi Kwacha (MWK) 50,000 (purchasing power parity (PPP) \$163).

Agricultural and health services: Only 18% of households reported needing advice on agriculture. Among those who did, 28% report having access to advice from a government extension officer. Only 9% of households reported needing advice on animal health, which is partially explained by the limited rates of livestock ownership (38% of households owned any livestock in the past 12 months). Overall, a relatively high rate of households report receiving advice from either a community or a government health and nutrition extension worker (34%). Among those households with children under 5 years old, about half report their children were screened for malnutrition.

Children's health and nutrition: Overall, few children were found to be wasted (2% of children under 5 years old) though the rate is somewhat higher among poorer households (where 6% of children from the Tier-1 Care Group eligible stratum of households are considered wasted). However, 42% of children under 5 were measured as stunted. Based on survey responses, only 4% of children under 2 years old in the poorer Tier-1 Care Group stratum of households were calculated to be receiving a Minimum Acceptable Diet (MAD).

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1. INTRODUCTION

1.1 Activity Overview

The food and nutrition security of ultra-poor households around the world is vulnerable to negative shocks to households' sources of income. To address this issue in Malawi, the United States Agency for International Development's (USAID) Bureau for Humanitarian Assistance (BHA) awarded a consortium led by CARE International in Malawi (CIM) to provide Resilience Food Security Activities (RFSA) for 723,111 people in 290,413 households in Mangochi and Zomba districts in Malawi. The activity, Titukulane, aligns with the National Resilience Strategy (NRS) developed by the Government of Malawi. Titukulane is being implemented by CIM along with Save the Children, Emmanuel International, WaterAid, the National Smallholders Farmers' Association of Malawi (NASFAM), and the International Food Policy Research Institute (IFPRI).

The goal of Titukulane is to promote “sustainable, equitable, and resilient food and nutrition security for ultra-poor and chronically vulnerable households.” By the completion of the activity, targeted participants are expected to have “increased incomes from on and off-farm livelihoods, improved health, nutrition, and other behaviors equitable gender relations, expanded access to safe water and improved hygiene, and quality health and nutrition services, and will benefit from improved district-level systems for planning and resource mobilization around development, disaster risk management, and natural resource management.” To achieve this, Titukulane is employing a wide variety of interventions, including but not limited to Integrated Watershed Management, Village Savings and Loan Associations (VSLA), Gender Dialogues, Care Groups with Nutritional Cash Transfers (NCT), Disaster Risk Reduction training, Farmer Field and Business Schools, Youth Savings and Loan Associations, Mobile Technical and Vocation Training (M-TVET), and Youth Disaster Risk Management Clubs.

The Titukulane Theory of Change has three main objectives, or purposes:

1. **Purpose 1 (P1): Income.** Increased diversified, sustainable, and equitable incomes for ultra-poor, chronically vulnerable households, women, and youth.
2. **Purpose 2 (P2): Reproductive, Maternal, Newborn, Child and Adolescent Health, Nutrition, and WASH.** Improved nutritional status among children under 5 years of age, adolescent girls, and women of reproductive age.
3. **Purpose 3 (P3): Resilience Capabilities.** Increased institutional and local capacities to reduce risk and increase resilience among poor and very poor households in alignment with the NRS.

Each purpose has several sub-purposes with associated intermediate outcomes, indicators, and impact targets for improvement from baseline values. There are also four cross-cutting objectives: Gender Equality, Governance & Accountability, Youth Engagement, and Environmental Safeguarding.

The eligibility of households for the various interventions depends both on demographic characteristics and socioeconomic status. For example, Care Groups target pregnant and lactating women and caregivers with children under 2 years of age and M-TVET programming targets youths. Among those who are eligible for a Care Group, only participants from certain categories of poorer households will qualify for NCTs.

The categorizations of socioeconomic status of households Titukulane uses to determine eligibility is based on a community participatory listing exercise. With the help of community leader and other members, Titukulane staff categorized all households in all villages of the two districts where Titukulane is active into one of four categories: Tier 1 “Hanging in”, Tier 2 “Stepping up”, Tier 3 “Stepping out”, and Tier 4 “Well off”. Households in the well-off category are not eligible for any interventions. Table 1 describes each of the first three categories that are eligible for Titukulane interventions by socioeconomic status.

Table 1. Household categories

Tier	Description
Tier 1 (Hanging in)	Ultra-poor households with limited labor capacities and in need of direct support.
Tier 2 (Stepping up)	Ultra-poor households with some labor capacity but with resources too limited to enable them to become food self-sufficient.
Tier 3 (Stepping out)	Chronically vulnerable households that are beginning to step out of poverty as they acquire additional assets, but that are food insecure for at least part of the year, every year.

The listing data provided by Titukulane has the following distribution of household types—Tier 1: 27%; Tier 2: 59%; Tier 3: 12%; Tier 4: 4%.

1.2 Research Overview

Innovations for Poverty Action (IPA) is conducting an impact evaluation of the Titukulane RFSA in Mangochi and Zomba districts of Malawi’s Southern Region. The main objective of the impact evaluation is to assess Titukulane’s effectiveness at improving ultra-poor households’ food and nutrition security through the Theory of Change laid out in Titukulane’s three-purpose approach. To do so, the study will answer the following questions:

1. Does the Titukulane intervention package increase the households’ incomes?
2. Does the Titukulane intervention package increase households’ diversification of income sources?
3. Does the Titukulane intervention package improve the nutritional status of children under 5 years of age, adolescent girls, and women of reproductive age?

IPA is conducting a Randomized Controlled Trial (RCT) to rigorously attempt to answer these questions. The impacts of the intervention package will be measured by comparing households in villages that were randomly selected to receive all of Titukulane’s interventions (treatment villages) to households in villages that were not selected (control villages). Note that control villages will not receive services that are offered at the household or village level but may still benefit from services targeted at administrative units above the village level. These effects of these services will not be captured by the RCT’s impact estimates. Table 2 provides an overview of the list of “evaluation” interventions that only treatment villages will be subject to and other “non-evaluation” interventions that all villages in Titukulane’s implementation area may be subject to.

Table 2. List of Titukulane interventions provided in treatment and control villages

	Treatment	Control
Evaluation interventions		
Irrigation	x	
Marketing	x	
Farmer Field Business Schools	x	
Care groups	x	
Village Savings and Loan Associations	x	
Youth Savings and Loan Associations	x	
Adolescent nutrition (part 2*)	x	
Gender dialogues	x	
Vocational / Entrepreneurial Skills + Capital	x	
Non-evaluation activities		
Strengthening district government and community capacity	x	x
Improving supply chains for water, sanitation, and hygiene	x	x
Adolescent nutrition (part 1**)	x	x
Community scorecards	x	x
Capacity strengthening of service providers	x	x

* Only components where participation can be contained at village level

** Parts of the programming that is delivered such that control villages cannot be excluded will not be included in the evaluation

IPA estimate impacts of the activity by comparing outcomes measuring outcomes captured in an endline survey—such as child nutrition, food security, consumption, asset ownership, agricultural output and practices, household income and livelihood activities—and comparing outcomes between households in treatment and control villages.

The study's sampling strategy is designed to oversample households who are expected to be eligible for participation in Care Groups with NCTs, identified in the screening stage as those households with a pregnant woman or a child under 2 who are categorized as belonging to Tier 1. This sampling strategy reflects the importance of improving children's nutritional and growth outcomes for the activity and the importance of Care Group programming with NCTs in terms of the activity's overall budget and as well in terms of spending per participant.

1.3 Purpose of the Baseline Survey

As part of the RCT, impacts are measured primarily based on comparing data from follow-up rounds of surveying (e.g. from an endline survey) between experimental groups. The baseline survey in contrast, serves the following purpose:

1. **Basic description of the study sample.** Basic summary statistics from the baseline survey allow the description of the study sample including important demographic characteristics and key characteristics related to the interventions before the rollout of the Titukulane interventions take place.
2. **Heterogeneity of impacts by subgroups.** Baseline data allows testing for whether the Titukulane interventions impacted certain subgroups differently.
3. **Describing time trends.** Multiple rounds of data collection allow for a description of how key income and food security outcomes changed among households in the study areas over time, which can be valuable background information to interpret impact results measured at follow-up surveys.
4. **Statistical precision.** When estimating the impact of the Titukulane interventions using indicators collected at endline, controlling for the baseline value of the indicator in the regression analysis will improve the statistical precision of the estimate of impact.

Additionally, the data obtained in the baseline survey will help support CIM's programming decisions and reporting requirements. IPA collected data on certain USAID indicators, selected in consultation with BHA staff, to inform BHA on the resilience capacities of study sample households before the rollout of the activity.

The baseline indicators presented in this report were selected to provide a basic description of the sample and to present information relevant to some of the key interventions as identified by the implementer during the design phase. For this reason, this report focuses on the demographic characteristics of the study sample and indicators related to household income and livelihood activities, food security and nutrition.

2. METHODOLOGY

2.1 Study Area

Titukulane’s implementation area consists of all villages of 19 Traditional Authorities (TAs) in Southern Malawi, nine in Mangochi and 10 in Zomba. The RCT focuses on a subset of 10 TAs in which interventions related to all three purposes, including Purpose 2, are taking place. In the remaining nine TAs, Purpose 2 interventions are not being carried out. We refer to the 10 TAs where Purpose 2 interventions *are* being carried out as “P2 TAs”.¹

The RCT focuses on P2 TAs to improve the study’s ability to accurately measure the programs full benefits and to capture specifically the impacts of P2 programming. The latter both represents a large share of the activity’s budget and targets key indicators of success of the activity, namely child growth and nutrition.

Since the focus of the study and related data collection is on P2 TAs only, the evaluation estimates the impact of the Titukulane interventions in TAs where all program components (from Purposes 1, 2, and 3) are being implemented and will not measure the impact in areas where Purpose 2 interventions are not being carried out (but Purpose 1 and Purpose 3 are).

2.2 Sampling Strategy

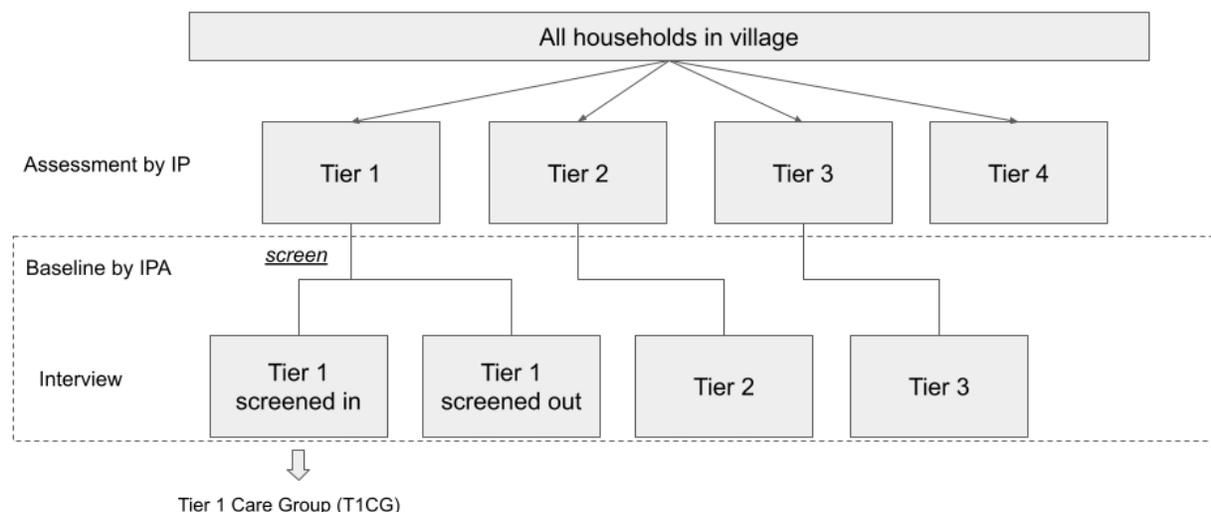
IPA sampled households for recruitment into the study from all 10 P2 TAs. First, 28 Group Village Heads (GVHs) were randomly sampled from each TA, with the number of GVHs sampled per TA proportional to the number of Tier 1 households in each TA (according to Titukulane listing data). All 358 villages from the 28 sampled GVHs were included in the study.

The sampling of households within sampled villages was designed as follows. IPA sampled a target number of households from Tiers 1, 2 and 3. Tier 4 was excluded because Tier 4 households are not eligible for any intervention under Titukulane. Tier 1 households were oversampled relative to Tier 2 and Tier 3 households. Households from the Tier 1 sample were then screened for whether they contained a pregnant woman or a child under 2. All households for which this was true were invited to participate in the baseline survey. We refer to these screened-in Tier 1 households as the Care Group stratum (“T1CG”). A random subset of those that were screened out—i.e. of the “Tier 1, screened-out”—was also selected for recruitment into the study, at a rate that in expectation was the same as that applied to Tier 2 and Tier 3 households (assuming a Tier-1 screen in rate of 40%). The sampling strategy is graphically summarized in Figure 1 below.

The strategy was designed to oversample households from the T1CG stratum relative to the other three strata (Tier 1 screened-out, Tier 2, and Tier 3). IPA sampled 6,949 households from Tier 1 (for further screening), 878 from Tier 2 and 172 from Tier 3 (for baseline interviews without further screening), for a total of 7,999 sampled households in 358 villages across 10 TAs and 28 GVHs.

¹ In Mangochi, these are Chilipa, Chiunda, Chowe, Namabvi and Ntonda; in Zomba, these are Chikowi, Kuntumanji, Malemia, Mlumbe and Mwambo.

Figure 1: Overview of sampling strategy



IPA optimized the research design, sampling strata and sample sizes within the evaluation budget and calculated the minimum detectable effect (MDE) to ensure it was sufficient based on previous literature. In particular, the 80%-power MDE on the Height-for-Age z-score for a two-sided test with a size of 5%, assuming an interclass correlation of 10% and a baseline R^2 of 68% (from a recent similar study in Rwanda) is about 0.15 standard deviations among the T1CG stratum.

2.3 Baseline Sample Size

IPA teams administered screenings and interviews to targeted households in the sampled villages between August and November 2021.² Out of the target number of 6,949 Tier 1 households to be screened, 6,263 were successfully screened. Out of the latter group, 29% ($N = 1,827$) were screened in and interviewed for the baseline survey. This group forms the T1CG stratum. In addition, 306 out of those that were screened *out* were interviewed. This group makes up the screened-out Tier 1 stratum of households. Finally, 821 Tier 2 and 153 Tier 3 households were interviewed. This information is summarized in Table 3. In total, the survey team interviewed 3,107 households, for an average of 8.7 households per village. Out of the total, 1963 households were interviewed in Zomba and 1171 in Mangochi.³

² Note that IPA interviewed additional households in areas that were dropped from the study after being informed that one of the TAs (Nkapita) where data collection had already started would no longer be receiving P2 interventions. These interviews are not included in the counts in this section, which focuses on areas where the study will take place. Initially, Titukulane provided a list of TAs that designated 12 of them as P2. During the first week of baseline data collection, Titukulane advised IPA to drop two TAs (Nkapita and Ntholowa) because the Malawi Government was implementing a program similar to Titukulane in these TAs. IPA dropped these two TAs and added additional sampling units in the remaining 10 P2 TAs. Fieldwork paused for three days after IPA finished interviews in the originally sampled areas while waiting for information about where to recruit additional households as replacements for the dropped TAs.

³ Note that the sampling plan had another 91 Tier-1 screened-out households scheduled to be interviewed in Mangochi as well as an additional 4 in Zomba. However, due to a programming mistake they were skipped. IPA will aim to recruit the missed households as part of future follow-up surveying.

Table 3. Sample

	Number of Surveys		
	Overall	Zomba	Mangochi
Total	3,107	1,936	1,171
Tier 1, screened in (“T1CG”)	1,827	1,080	747
Tier 1, screened-out	306	298	8
Tier 2	821	423	398
Tier 3	153	135	18

IPA’s field team also collected anthropometric measurements from 1,491 (from all T1CG households and from a 10% random subsample of all remaining survey strata), in which weight and height were taken from 1,921 and 1,812 children respectively.

2.4 Random Assignment and Balance

The unit of randomization was a “village group” which was either equal to a single village or group of villages (small villages of fewer than 13 households were grouped with other small villages in the same GVH to form a village group). The randomization of a total of 253 units was stratified by GVH and by above-median village share of Tier 1 households and resulted in 129 village groups assigned to Treatment, 124 to Control.

Appendix Table 19 confirms that households in treatment villages are comparable to control villages. Testing for differences of means between the two groups we find no substantively large or statistically significant differences across several groups of outcomes.

Responses provided during the baseline were not used in the assignment of villages to the treatment or the control group and did not influence the likelihood of households being assigned to treatment. Random assignment was not revealed to Titukulane before the completion of the baseline survey. Assignments were shared only after the completion of the baseline survey to avoid interactions with households starting prematurely, which could have influenced responses during the baseline survey.

2.5 Baseline Questionnaire Development

IPA developed the questionnaires for the baseline survey in consultation with BHA and CIM. IPA held meetings with BHA and Titukulane Project Management Unit where BHA indicators were discussed and the team agreed on modules to include in the baseline questionnaires. The baseline survey had two parts, a household survey and an anthropometric survey.

2.5.1 Household Survey

The household survey was carried out as an in-person interview administered with the household head (56%), their spouse (37%) or another household member knowledgeable about the household’s affairs (7%). Responses were collected using the SurveyCTO software. The household survey had two survey variations: a long and a short survey. The long survey was administered to the T1CG sample only since

the T1CG sample is a focal group for the evaluation. All other sampled households (Tier 1 and Tier 2) received the short survey. The short survey had fewer modules and focused on basic household information (e.g. demographics, household income sources) and covering certain BHA indicators (e.g. consumption poverty, food security, or farming practices) while the long survey had both basic modules and additional modules.

2.5.2 Baseline Anthropometric Survey

The anthropometric survey was administered to all children under 5 years in T1CG sample households and in a 10% random subsample of households from the remainder of the sample. IPA recorded the children's heights and weights using standard anthropometric equipment and the measurements were recorded in SurveyCTO. See annex materials for additional details on the protocol and anthropometric survey instrument.

3. FIELDWORK ORGANIZATION AND CHALLENGES

3.1 Field Organization

3.1.1 Team Composition

The Titukulane baseline fieldwork and data management was led by IPA's Research Associates, John Tengatenga and Aziz Bunyiza respectively. Three IPA Research Coordinators, Monica Shandal, Wiza Ng'ambi and Rafael Panlilio, worked on coordination of research activities. Emily Bream, Lasse Brune, Jessica Goldberg, Dean Karlan, and Craig McIntosh are the Principal Investigators for the evaluation.

A team of 32 surveyors, eight supervisors, eight anthropometric surveyors, three Field Managers, and eight backcheckers⁴ was recruited and trained for data collection. The team was divided into two groups, one based in Zomba and the other in Mangochi. Data collection took place from August 25th to November 19th, 2021. The baseline data was collected on Lenovo ThinkPad tablets using the SurveyCTO application and uploaded to the SurveyCTO server after every day of fieldwork.

3.1.2 Pilot Test Survey Training

Before training the enumerators, the survey instruments were bench tested and piloted to fine-tune them, to ensure that the questions flowed well, to ensure logic patterns were well implemented and to estimate the duration of the interviews. Two further pilot tests were conducted during the training that took place between August 17th and September 1st, 2021. The training introduced enumerators to the survey instruments and explained the survey questions and procedures using the training manual, anthropometric protocol, and survey replacement guidelines.

During training, the enumerators practiced administering the survey instruments through role-playing by interviewing each other. A pilot test was conducted in one village, not part of the study sample, to allow enumerators to practice administering the baseline and taking anthropometric measures in a real field setting and trouble-shoot any bugs in the programmed survey versions. Subsequently, a debriefing session was held in which enumerators shared their experiences and clarified issues that emerged during the pilot test. A few changes were made to the logical patterns and other sections of the survey based on the enumerators' observations and recommendations.

3.1.3 COVID-19 Protocol

To minimize the adverse effects of the COVID-19 pandemic on staff and respondents, IPA established a protocol for COVID-19. Each enumerator was equipped with a copy of this protocol. The protocol was applied from the first day of training and enforced throughout the baseline activities. Enumerators were encouraged to get vaccinated and IPA worked with the United Nations Health Malawi group to support their vaccination. Furthermore, all enumerators were tested for COVID-19 by officials from Zomba

⁴ Backcheckers are field auditors who visit a subsample of respondents a second time to re-administer a selection of questions from the original questionnaire. Those backcheck responses are then compared to the original responses. Backchecks allow the fieldwork team to identify discrepancies between answers, and thus to identify problems in the data collection process.

District Health Office on the first day of the training to ensure that only those who tested negative attended the training. The training sessions were conducted in a well-ventilated room.

3.1.4 Replacement Strategy

A replacement guideline was developed for enumerators to spell out how the field team were to go about replacing respondents who could not be surveyed. Enumerators were required to interview either the head of the household, spouse of the household head, or a knowledgeable person in the household. A household would be replaced after two unsuccessful attempts at finding the right person to interview. Each attempt would be documented and sent to the server. On the second failed attempt, the supervisor provided the replacement to the enumerator from a list of the replacements that each team supervisor was given. Replacements were taken from the same tier as the original respondents, going from the top of a replacement list that was randomly ordered.

3.1.5 Data Quality Checks

High-Frequency Checks (HFCs) were performed daily on incoming data using Stata, a statistical software. HFCs were performed to identify and resolve outliers in the data, logical inconsistencies, and missing data. Issues that were observed during HFCs were followed up with specific enumerators the morning after, before sending the teams to the field. In a few cases, follow-ups were conducted with respondents to ensure the correct information was captured. Besides addressing outliers and other issues with the particular enumerators who encountered them, all teams were briefed about the issues discovered from conducting the HFCs.

IPA also instituted backchecks on 10% of the households surveyed. Backcheckers had a survey that was used to ensure that sections were not skipped, questions were prompted correctly, and responses were not made up by enumerators. Each enumerator was backchecked at least every 3 days and any discrepancies in the responses were followed up and clarified.

Field teams were accompanied by field managers to ensure that enumerators were following the procedures and asking questions correctly. Field managers would randomly sit-in on any interview and perform spot checks in sampled areas to ensure that the target respondents were interviewed.

3.1.6 Survey Productivity

During field planning, IPA planned that each enumerator would complete between four and five of the longer interviews administered to the Tier-1 Care Group eligible group per day or six of the shorter surveys administered to the Everyone Else group. This estimation meant that IPA would be able to complete data collection within two and a half months (from mid-August to the end of October). Due to a number of factors outlined below, including difficulty locating target households and distances between respondents in a given village, field officers were able to do an average of only 2.63 interviews per day. IPA completed data collection in November instead of October, as planned.

3.2 Challenges

3.2.1 Names of Respondents Not Known in Sampled Villages

It was observed that in Mangochi some respondents were known by their informal names, which are different from the names on IPA's list of target respondents. This made it hard to track these respondents in their communities especially when the next of kin was not known. For example, Mlongoti village in TA Ntonda in Mangochi is a large village and about 30% of the target respondents were not known to the GVH and other community residents. To address this issue, CIM shared its sign-in sheets for some of the villages in Mangochi and Zomba with IPA. However, the sign-in sheets shared by CIM did not have all the target respondents in IPA's sample. Although this challenge did not have a significant impact on data collection, IPA teams spent more time in these villages inquiring about these respondents as they could not be identified easily.

3.2.2 Villages Placed on Wrong GVH List

Survey teams found that several villages listed as belonging to a particular GVH did not belong to that GVH. Some of these villages belonged to GVHs that were not in the sample. All these instances were brought to the attention of the CIM contact person. Some of the villages that faced this challenge were Kuminyanga and Gibbisani in GVH Kimu, Justin and Mjojo in GVH Chidothe, Nkapungwa in GVH Kaunde, and Kamwaza and Nkupe 1 in GVH Mkwapatira.

3.2.3 Respondents' Expectations

During the screening for Tier-1 households, some households reported that they had children under 2 years old even when they did not. The households presumably expected that there were monetary or other benefits related to having children and participating in the survey despite that the consent made clear that there were no benefits for taking part in the survey. These households failed to present their children for the anthropometric measurements. Survey backcheckers or anthropometric enumerators reported this issue after backchecking the households and several attempts to track the children who were not interviewed during the first visit. A total of 15 households did this and these interviews were dropped from the server.

3.2.4 Children Not Available for Anthropometric Measurement

The majority of parents agreed to have their children's anthropometric measures taken and even facilitated the recording of their measurements. However, in some households, eligible children were not available on the day of the interview. Even with two attempts, a total of 41 children were still not available and the parents indicated the children were away with other adults in household.

3.2.5 Handling Children during Anthropometric Measurements

In about 50 cases, children were afraid to step on the scale or height board to have their anthropometric measurements taken. Their guardians indicated that this was probably because the children thought the enumerators were from the local hospital and feared the prospect of an injection, common during vaccination. In almost all the cases, the guardians were able to convince the children to have their anthropometric measurements taken.

4. DESCRIPTIVE STATISTICS

The following tables present estimates of means and their 95% confidence intervals for a range of variables collected at baseline. Where the data is available, values are shown separately for two populations. First, we show estimates for the population of all households from Tiers 1, 2, 3 which represents the set of those households who could in principle qualify for some Titukulane intervention, labeled “All”. Second, we show estimates for the population of households in the Tier 1 Care Group stratum (see Sampling section for details), labeled “T1CG”. Mean estimates are computed using sampling weights that reflect the probability of a given household being sampled and as such are representative of the two populations just described. The “All” sample includes the “T1CG” sample and sample weights are used to appropriately account for the fact that the “T1CG” stratum was oversampled (by design).

4.1 Household Demographics

Table 4 shows descriptive statistics on household demographics. Overall 37% of households are headed by women and 66% of household heads are married. The average age among household heads is 42 years. Education levels among household heads are low: 19% have no formal education, 57% have some primary schooling, and only 4% completed secondary school. Additionally, 43% of households are Christian and 56% are Muslim. The Tier-1 Care Group eligible stratum has broadly similar household characteristics to the overall sample.

Table 4. Household demographics

Description	All				T1CG only			
	Mean	N	95% – C.I.		Mean	N	95% – C.I.	
			Lo	Hi			Lo	Hi
Female household head	37%	3,107	34%	41%	40%	1,827	35%	46%
Household (HH) head is married	66%	3,107	62%	69%	66%	1,827	61%	71%
Age of household head	41.66	3,107	40.68	42.65	40.40	1,827	38.76	42.04
Level of education of household head								
No formal schooling	19%	3,107	17%	22%	22%	1,827	18%	26%
Some primary schooling	57%	3,107	53%	61%	55%	1,827	50%	59%
Primary school completed	6%	3,107	4%	7%	6%	1,827	4%	8%
Some secondary school	11%	3,107	8%	13%	10%	1,827	8%	13%
Secondary school completed	4%	3,107	3%	5%	4%	1,827	3%	6%
Number of children under...								
16 years of age	2.67	3,107	2.52	2.83	2.93	1,827	2.78	3.08
5 years of age	0.92	3,107	0.85	0.99	1.24	1,827	1.15	1.33

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
2 years of age	0.39	3,107	0.36	0.42	0.79	1,827	0.73	0.85
Religion								
Christian	43%	3,050	33%	53%	51%	1,786	44%	59%
Muslim	56%	3,050	47%	66%	48%	1,786	40%	56%

4.2 Sources of Income

IPA collected data on household income sources over the previous 12 months, summarized in Table 5. Overall, the most frequently listed sources of income or food considered to be most important for households are farming (55%) and agricultural wage labor (18%), non-agricultural wage labor (8%) and non-agricultural self-employment (6%). In the T1CG sample, relative to the study sample overall, wage labor is relatively more important and farming relatively less important as an income sources.

Table 5. Household sources of income over the last 12 months

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
Sources of food/income								
Farming/crop production and sales	67%	3,107	61%	72%	65%	1,827	60%	70%
Agricultural wage labor	34%	3,107	29%	39%	46%	1,827	40%	52%
Non-agricultural wage labor	18%	3,107	15%	21%	24%	1,827	21%	28%
Other self-employment (non-agricultural)	9%	3,107	7%	11%	9%	1,827	6%	12%
Other self-employment (agricultural)	7%	3,107	5%	8%	5%	1,827	3%	6%
Other	14%	3,107	11%	17%	11%	1,827	8%	13%
Most important source of income/food								
Farming/crop production and sales	55%	3,107	48%	62%	50%	1,827	45%	55%
Agricultural wage labor	18%	3,107	14%	22%	26%	1,827	21%	30%
Non-agricultural wage labor	8%	3,107	6%	11%	11%	1,827	9%	14%
Other self-employment (non- agricultural)	6%	3,107	4%	7%	5%	1,827	3%	6%
Other	13%	3,107	10%	17%	9%	1,827	6%	11%
Second important source of income/food								
None	60%	3,107	55%	66%	53%	1,827	47%	59%

Description	All				T1CG only			
	Mean	N	95% – C.I.		Mean	N	95% – C.I.	
			Lo	Hi			Lo	Hi
Agricultural wage labor	14%	3,107	10%	17%	18%	1,827	12%	23%
Farming/crop production and sales	10%	3,107	8%	13%	12%	1,827	8%	15%
Non-agricultural wage labor	6%	3,107	5%	8%	9%	1,827	7%	11%
Other	9%	3,107	7%	11%	8%	1,827	6%	10%
Most important source of cash income								
Farming/crop production and sales	45%	3,107	40%	50%	39%	1,827	34%	44%
Agricultural wage labor	23%	3,107	20%	27%	32%	1,827	27%	38%
Non-agricultural wage labor	10%	3,107	7%	12%	13%	1,827	11%	16%
Other self-employment (non- agricultural)	5%	3,107	4%	7%	5%	1,827	3%	7%
None	1%	3,107	0%	3%	1%	1,827	0%	2%
Other	15%	3,107	11%	19%	9%	1,827	7%	11%

4.3 Consumption Poverty Measure

IPA collected data on consumption-based indicators to understand the prevalence of poverty among households in the sample. Table 6 reports on (1) percentage of people living on less than \$1.90 per day; (2) mean percent shortfall of the poor relative to the \$1.90 per day threshold⁵; and (3) consumption per capita per day. Overall, 68% of households live on less than \$1.90 per day, the mean percent shortfall of the poor relative to the \$1.90 per day threshold is 21%, and the average consumption per capita per day is \$2.19.⁶ The prevalence of poverty is only somewhat higher in the T1CG sample where 72% of households live on less than \$1.90 per capita per day and the mean percent shortfall relative to the \$1.90 per day threshold is 33%. Appendix Table 9 in the appendix provides consumption poverty details by household type.

⁵ The mean percent shortfall of the poor is an indicator that measures how far below the poverty threshold of \$1.90 per day poor households are on average. Households with per capita consumption greater than \$1.90 per day are not included in calculating this indicator. For more information on the construction of consumption poverty indicators, please see BHA's [Indicator Handbook, Part I: Indicators for Baseline and Endline Surveys for Resilience Food Security Activities](#).

⁶ Njira and UBALE Development Food Assistance Project (DFAP) final performance evaluations reported that 70% and 65% of the people, respectively, were living on less than \$1.90 per day.

Table 6. Consumption poverty

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
[BL01] HH living on less than \$1.90/day per capita (PC)	68%	3,089	65%	71%	72%	1,816	68%	76%
[BL02] Mean % shortfall of the poor	21%	2,052	20%	22%	33%	1,213	30%	36%
[BL40] Consumption PC per day (PPP \$)	2.19	3,089	2.12	2.26	2.03	1,816	1.92	2.13

Notes: The \$1.90 threshold is inflated from 2011 to 2021 using the U.S. Consumer Price Index (CPI), in order to match the year of the data collection. Mean % shortfall of the poor indicates the percent shortfall of the poor relative to the per capita \$1.90/day poverty line. The household consumption aggregate is a predicted value based on 7 (short survey) or 29 (long survey) items of food consumptions and information about household composition, which are weighted according to the results from a regression model based on the latest 2019/2020 round of Malawi's Integrated Household survey.

Furthermore, we calculated consumption poverty across main household sources of food or income by tier. Variations in poverty levels can be seen across sources of food or income and tiers. For households living on less than \$1.99 per day per capita, low level of poverty is observed in Tier 1 and Tier 3 households that depend on other sources of income or food while in Tier 2, low level of poverty is observed in households that depend on non-agricultural wage labor. See Appendix Table 14 for more details on consumption poverty across main sources of income by tiers.

4.4 Food Security

IPA collected data on household food security using the Food Consumption Score (FCS) and Food Insecurity Experience Scale (FIES) modules. The FCS is an indicator of food intake ranging from 0 to 112, with higher scores indicating a higher degree of food security. It is calculated by summing the weighted responses to questions asking respondents about the frequency of their household's consumption of eight food groups in the previous 7 days.⁷

As Table 7 indicates, the sample has an average FCS of 37.9 over a 7-day recall period, with 10% of households showing poor food consumption, 37% of households showing borderline food consumption, and 53% of households showing adequate food consumption.⁸ Furthermore, cereals, grains and cereals products, condiments, and vegetables are the most consumed food groups over a 7-day period, compared to other less consumed foods like fruits, roots, tubers and plantains, nuts and pulses, and milk. See Appendix Table 6 for specific foods consumed by the household in the past week. Households in the T1CG stratum are on average worse-off in terms of food security, with average FCS of 35.2. Refer to Appendix Table 10 for FCS details by household type. We also calculated FCS by main household income sources and this is shown in Appendix Table 12.

⁷ For more information on the FCS and FIES questionnaires and indicator construction, please see BHA's [Indicator Handbook, Part I: Indicators for Baseline and Endline Surveys for Resilience Food Security Activities](#).

⁸ Data collection was done between August and November, which is several months out from the last rainy season harvest but much before the peak of "lean season" right before harvest. The timing may matter especially for outcomes such as the FCS, which is based a 7-day recall period.

Table 7. Food Consumption Score and Food Insecurity Experience Scale

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
FCS score, 7 day recall	37.87	3,107	36.79	38.96	35.22	1,827	33.93	36.51
[BL10] FCS Categories:								
Poor	10%	3,107	8%	13%	15%	1,827	11%	20%
Borderline	37%	3,107	34%	40%	37%	1,827	33%	41%
Adequate	53%	3,107	49%	57%	48%	1,827	42%	53%
Over the past 7 days, no. of days consumed:								
Cereals, Grains and Cereal Products	6.39	3,107	6.29	6.50	6.29	1,827	6.19	6.39
Condiments	5.08	3,107	4.56	5.61	4.71	1,827	4.30	5.11
Vegetables	4.39	3,107	4.19	4.59	4.07	1,827	3.76	4.37
Oil	2.48	3,107	2.17	2.78	2.20	1,827	1.96	2.43
Meat, Fish and Animal Products	2.51	3,107	2.35	2.67	2.50	1,827	2.30	2.70
Fruits	1.92	3,107	1.63	2.21	1.72	1,827	1.45	1.99
Roots, Tubers and Plantains	1.43	3,107	1.29	1.58	1.24	1,827	1.09	1.40
Nuts and Pulses	1.83	3,107	1.65	2.02	1.44	1,827	1.28	1.61
Sugar	1.13	3,107	0.98	1.29	0.89	1,827	0.72	1.07
Milk	0.22	3,107	0.15	0.30	0.12	1,827	0.08	0.17
FIES: Prevalence of moderate or severe food insecurity in the last 12 months	97%	3,107	79%	100%	97%	1,827	74%	100%
[BL06] Raw FIES Score	7.08	3,107	6.95	7.21	7.32	1,827	7.23	7.42
During the past 12 months, because of a lack of money or other resources, you or others in your household...								
...worried you wouldn't have enough to eat	92%	3,107	90%	93%	93%	1,827	91%	95%
...unable to eat healthy and nutritious food	94%	3,107	93%	96%	95%	1,827	94%	97%
...ate only a few kinds of foods	94%	3,107	93%	96%	96%	1,827	95%	98%
...had to skip a meal	91%	3,107	89%	94%	94%	1,827	93%	96%
...ate less than you thought you should	94%	3,107	92%	96%	96%	1,827	95%	98%
...did not have food	90%	3,107	87%	94%	95%	1,827	93%	96%

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
...were hungry but did not eat	93%	3,107	91%	94%	95%	1,827	93%	96%
...went without eating for a whole day	59%	3,107	53%	65%	68%	1,827	63%	72%

Notes: FCS; < 21 = poor, 21.5–35 = borderline; > 35 = acceptable

The Raw FIES Score is a sum of the 8 FIES binary questions (higher = more food insecure)

The results of the FIES module show that there are high levels of experience with food insecurity among surveyed households. There is both a high prevalence of moderate or severe food insecurity and on average households experience most forms of food insecurity in the 12 months prior to the survey. Results from the eight FIES questions administered show that most households report being worried about not having enough food to eat, being unable to eat a healthy meal and nutritious food, only eating a few kinds of foods or having to skip a meal or eating less than they thought they should. The same high levels of food insecurity are present in the T1CG sample. Additionally, more Tier-1 Care Group households (65%) went without eating a whole day compared to the rest of the group (59%). Further disaggregation of FIES by household type is shown in Appendix Table 11. Appendix Table 13 and Appendix Figure 1 show that FCS and Household Food Insecurity Access Scale scores and their components are highly correlated.

4.5 Farming and Land Ownership

IPA collected household-level information about basic farming practices, land ownership besides the home, and crop cultivation. Overall, ownership of land is high among sampled households, with 80% of the sample owning any land other than where the home is located. On average, households own around 1.04 acres of land. A majority of households (93%) cultivated crops in the 12 months prior to the survey. Maize, pigeon peas, groundnuts and cassava are the four most common crops cultivated by households and maize is cultivated by almost every household that engages in farming (98%). Maize was also considered by 89% of farming households as the most important crop cultivated in the rainy season. Furthermore, 17% of farming households cultivated land in the dry season, with the most common crops cultivated in the dry season being tomatoes, maize, pumpkin leaves, sweet potatoes and vegetables. Among the T1CG sample, 75% own land, with households owning on average 1.02 acres of land. About 90% of the households cultivated crops in the 12 months prior to the survey. Similar to the rest of the sample, the majority of Tier-1 Care Group eligible households consider maize as the most important crop cultivated in the last rainy season, with almost all households cultivating maize in that season.

Table 8. Crops cultivated

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
HH owns land, not including plot with home	80%	3,107	77%	84%	75%	1,827	69%	81%
HH cultivated anything in the last 12 months	93%	3,107	90%	95%	90%	1,827	87%	93%
Total area of agricultural land (in acre)	1.04	2,427	0.99	1.09	1.02	1,374	0.99	1.05
During the last rainy season cultivation:								
Maize	98%	2,831	97%	99%	98%	1,639	97%	99%
Pigeon peas	40%	2,831	35%	45%	43%	1,639	38%	48%
Groundnuts	23%	2,831	13%	33%	12%	1,639	8%	15%
Cassava	10%	2,831	8%	12%	8%	1,639	6%	11%
Bean	8%	2,831	4%	12%	8%	1,639	4%	11%
Vegetables	4%	2,831	3%	6%	6%	1,639	4%	8%
Rice	7%	2,831	5%	9%	6%	1,639	4%	9%
Sorghum/millet	5%	2,831	3%	7%	5%	1,639	3%	7%
Sweet potatoes	4%	2,831	2%	5%	4%	1,639	2%	5%
Most important crop cultivated last rainy season:								
Maize	89%	2,831	87%	92%	89%	1,639	86%	92%
Rice	2%	2,831	1%	3%	2%	1,639	1%	3%
Pigeon peas	3%	2,831	1%	4%	3%	1,639	1%	4%
Other	6%	2,831	3%	8%	6%	1,639	4%	8%
Cultivated any land in this dry season	17%	2,831	15%	20%	16%	1,639	13%	19%
Crops cultivated in the dry season:								
Tomatoes	30%	579	21%	39%	31%	336	23%	39%
Maize	29%	579	20%	37%	28%	336	21%	36%
Pumpkin leaves	22%	579	13%	31%	19%	336	10%	29%
Sweet potatoes	10%	579	5%	14%	14%	336	9%	19%
Vegetables	8%	579	3%	13%	7%	336	3%	10%
Other	34%	579	26%	42%	28%	336	20%	36%

IPA collected data on households' use of farming inputs in the previous rainy season. Overall, 67% of households that grew something in the previous rainy season used inorganic fertilizer, 47% of them used

organic fertilizer, and 48% used packed seeds when cultivating crops. Few households used herbicides, hired any labor to help with farming tasks, or rented farming equipment or animals during the previous rainy season. Compared to the rest of the households, a smaller percentage of Tier-1 Care Group eligible households used organic fertilizer, inorganic fertilizer, and packaged seeds, as Table 9 indicates.

Table 9. Farming inputs

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
In the last rainy season...								
Used any organic fertilizer	47%	2,831	43%	51%	41%	1,639	36%	45%
Used any inorganic fertilizer	67%	2,831	62%	72%	62%	1,639	56%	68%
Used any packed seeds	48%	2,831	43%	52%	45%	1,639	40%	51%
Used any pesticides or herbicides	8%	2,831	6%	10%	7%	1,639	5%	8%
Hired any labor to help with farming tasks	9%	2,831	7%	12%	4%	1,639	3%	5%
Rented any farming equipment	2%	2,831	1%	3%	2%	1,639	1%	3%
Rented any farming animals	0%	2,831	0%	1%	0%	1,639	0%	1%
Used any irrigation last dry season	96%	579	93%	99%	98%	336	96%	99%
Type of irrigation used last dry season:								
Water can, pail or bucket	81%	560	74%	88%	75%	327	67%	83%
Other	9%	560	4%	13%	13%	327	6%	20%
Flooding	4%	560	2%	6%	4%	327	2%	7%
Treadle pump	2%	560	1%	3%	3%	327	1%	4%
Drip irrigation	1%	560	0%	2%	1%	327	0%	2%
Hose pipe	1%	560	0%	1%	0%	327	0%	0%
Sprinkler	4%	560	2%	7%	5%	327	2%	8%

Notes: This section was administered only to HH who cultivated anything in the last rainy season or in the last dry season.

IPA also collected information on the types of irrigation used by the households that cultivated crops in the dry season. Table 9 shows that 96% of the households that cultivated something in the dry season used some form of irrigation. Of those, 81% of these households used water cans, pails, or buckets to irrigate crops.

4.6 Farming Practices

This section focuses on sample households' use of crop improvement management practices or technologies and natural resources management practices 12 months prior to the survey. Table 10 shows that 86% of the households applied improved farming management practices or technologies in

the 12 months before the survey. Some of the improved practices most used include early planting or planning with first rains, regular monitoring of crops for pests, application of manure, intercropping, modern crop varieties and physically removing pests. Practices such as weed control, mulching and crop rotation are the least used practices. Adoption of improved farming practices is slightly lower among T1CG households compared to the overall sample, with 81% of Tier-1 Care Group eligible households adopting any crop improvement practices. Appendix Table 8 provides additional details on farming practices and their application to different crops.

Table 10. Farming practices

Description	All				T1CG only			
	Mean	N	95% – C.I.		Mean	N	95% – C.I.	
			Lo	Hi			Lo	Hi
[BL21] Applied targeted improved mgmt. practices or tech. (A or B below)	88%	3,107	84%	91%	82%	1,827	76%	88%
A. Has applied any improved mgmt. practices or tech. in the past 12 months	86%	3,107	83%	90%	81%	1,827	75%	87%
Type of improved management practices or technologies used:								
Early planting or planting with first rains	71%	2,653	67%	75%	68%	1,534	64%	73%
Regular monitoring of crop for pests	54%	2,653	48%	60%	54%	1,534	49%	60%
Manure	49%	2,653	45%	53%	43%	1,534	39%	48%
Intercropping	46%	2,653	40%	52%	44%	1,534	39%	48%
Modern (hybrid/improved) crop varieties	45%	2,653	41%	49%	41%	1,534	37%	45%
Physically removing pests	33%	2,653	29%	37%	33%	1,534	29%	37%
Application of locally-made pesticides	8%	2,653	6%	11%	10%	1,534	7%	13%
Weed control	7%	2,653	6%	9%	6%	1,534	4%	7%
Mulching	6%	2,653	4%	7%	6%	1,534	3%	8%
Crop rotation	5%	2,653	2%	8%	3%	1,534	1%	4%
Introducing insects to remove pests	0%	2,653	0%	0%	0%	1,534	0%	0%
B. Has applied any natural resource mgmt. practices in the past 12 months	27%	3,101	23%	31%	23%	1,822	19%	27%
Type of natural resource management practices used:								
Management of forest plantation	59%	819	52%	65%	66%	432	58%	74%
Regeneration of natural landscapes	49%	819	42%	55%	50%	432	42%	57%
Agro-forestry	37%	819	31%	44%	32%	432	25%	39%
Management/protection of watersheds/ water catchments	30%	819	23%	36%	39%	432	31%	47%

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
Other	10%	819	5%	14%	14%	432	8%	19%

Notes: Mgmt. = management. Tech. = technologies.

Besides collecting information on crop farming practices, IPA also collected information on livestock management practices. This includes types of livestock and livestock structures owned by households, and livestock management practices such as vaccination and use of services from an animal health worker. Summary statistics for livestock assets and livestock practices are in Appendix Table 4 and Appendix Table 5, respectively.

4.7 Farmer Groups

IPA collected information on membership in farmer groups and cooperatives and on group activities among households that cultivated crops in the 12 months prior to the survey. Households were asked if they are a member of farmer group or cooperative. As Table 11 indicates, a very small group of households (4%) are members of farmer groups or cooperatives. Among that small group of households, 31% of them met in the previous rainy season to organize the sale of farm products as a group. The activities that members of farmer groups engage in to organize their sales include finding markets or buyers with good prices as a group, sharing crop transportation and calling buyers to pick up crops as a group.

Table 11. Farmer groups

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
HH is member of a farmer group/coop.	4%	2,831	2%	5%	3%	1,639	2%	5%
Met with other farmers last rainy season to organize some sales as a group	31%	140	15%	46%	22%	68	9%	34%
Activities performed to organize sales as a group:								
Find markets or buyers with good prices	69%	30	34%	100%	68%	15	34%	100%
Share transport to market	64%	30	38%	91%	24%	15	0%	53%
Call buyer to pick up crop	15%	30	0%	35%	9%	15	0%	24%

Notes: This section was administered to HH who cultivated anything in the last 12 months only. Confidence intervals for binary indicators are based on Normal approximations; for very small samples and indicator values near 0 or 1, these confidence intervals can exceed 0 or 1 and in this table confidence interval bounds are censored at 0 from below and 1 from above. Coop. = cooperative.

4.8 Agricultural Sales

Besides collecting information on crops cultivated, farming practices and farmer groups, IPA asked the households whether they sold any of the crops cultivated in the rainy season. Table 12 shows that 44% of the households that cultivated any crop in the rainy season sold any of the crops. More households sell maize and pigeon peas than those that sell crops like rice groundnuts, beans and sweet potatoes. The most common buyers of crops are local traders (either at the market or not) and out-of-town mobile traders. A smaller share of households sells their crops to their friends and relatives or at regional markets and agricultural cooperatives.

Table 12. Agricultural sales

Description	All				T1CG only			
	Mean	N	95% – C.I.		Mean	N	95% – C.I.	
			Lo	Hi			Lo	Hi
HH sold crops from last rainy season	44%	2,831	38%	50%	39%	1,639	34%	44%
Rice	62%	286	47%	76%	70%	139	57%	84%
Pigeon peas	50%	1,306	43%	56%	49%	735	42%	56%
Groundnuts	56%	317	44%	69%	47%	151	30%	65%
Sweet potatoes	57%	154	43%	71%	44%	84	19%	69%
Cassava	24%	377	14%	34%	26%	198	12%	39%
Bean	22%	149	12%	33%	22%	78	9%	35%
Vegetables	12%	229	6%	18%	10%	139	3%	17%
Maize	13%	2,747	11%	15%	10%	1,594	8%	13%
Sorghum millet	4%	224	1%	7%	6%	111	0%	14%
HH sold more than half of total output (of any crop)	26%	2,831	21%	31%	24%	1,639	20%	29%
Rice	49%	286	36%	62%	60%	139	45%	76%
Groundnuts	32%	317	18%	46%	39%	151	21%	56%
Pigeon peas	34%	1,306	27%	40%	30%	735	24%	35%
Sweet potatoes	41%	154	27%	56%	17%	84	5%	28%
Cassava	14%	377	9%	20%	14%	198	7%	21%
Bean	12%	149	4%	19%	10%	78	2%	17%
Vegetables	11%	229	5%	17%	9%	139	2%	15%
Maize	2%	2,747	1%	3%	2%	1,594	1%	4%
Sorghum millet	2%	224	0%	4%	0%	111	0%	1%
Main buyers across crops (1 main buyer per crop sold):								

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
Local trader at market	44%	1,191	39%	50%	38%	647	32%	44%
Local trader not at market	36%	1,191	30%	41%	40%	647	34%	47%
Out-of-town mobile trader	18%	1,191	14%	23%	16%	647	11%	21%
Relative/Friend	5%	1,191	3%	8%	6%	647	3%	9%
Regional market	2%	1,191	1%	4%	5%	647	1%	9%
Agricultural Cooperative	1%	1,191	0%	1%	1%	647	0%	2%
Other	1%	1,191	0%	2%	1%	647	0%	1%

Notes: This section was administered to HH who cultivated anything in the last 12 months only. Confidence intervals for binary indicators are based on Normal approximations; for very small samples and indicator values near 0 or 1, these confidence intervals can exceed 0 or 1 and in this table confidence interval bounds are censored at 0 from below and 1 from above.

4.9 Off-Farm Business

In the off-farm business module, IPA asked households about their experiences with owning a business. Off-farm business refers to non-agricultural income-generating activities including those that produce or trade goods or services, such as owning a shop or operating a trading business, no matter how small. As Table 13 indicates, business ownership was low (17%). Among those with a business, the average number of years that households have operated their main business is 4 years. A quarter of households operating a business had inventories worth more than MWK 50,000, indicating that most of the households operate small businesses.

Table 13. Off-farm business

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
HH operates a business	17%	3,107	14%	20%	14%	1,827	11%	16%
HH operates more than one business	14%	526	10%	19%	16%	281	9%	24%
No. of years operating main business	4.03	526	3.39	4.67	4.67	281	3.54	5.79
Value of business inventory is > MWK 50,000	25%	526	18%	32%	18%	281	10%	27%
HH owns place it operates the business from	33%	526	24%	43%	28%	281	18%	37%

4.10 Access to Targeted Public Services

This section focused on the need and access to targeted public services such as agricultural extension and animal and human health advice from government or community workers in the 12 months prior to the baseline survey. Starting with agriculture, 18% of households report needing agricultural advice and among these households 28% were able to access advice from a government extension worker. Regarding advice on animal health, 9% report needing advice and 42% of these households were able to access it. About 10% of households received advice from government agricultural extension workers in areas such as handling crops after harvest, farming practices, climate-smart agriculture, soil conservation and where to buy inputs.

Table 14 further shows that 34% of households report receiving any advice from community or government health or nutritional extension workers. These households mostly receive advice on family planning, maternal nutrition during pregnancy, and feeding young children and infants. Furthermore, 14% of households indicate participating in a cooking demonstration.

Table 14. Access to extension services (past 12 months)

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
HH needed advice on agricultural	18%	3,107	15%	21%	16%	1,827	13%	20%
Accessed advice from gov. ext. worker	28%	605	21%	36%	35%	305	27%	43%
HH needed advice on animal health	9%	3,107	6%	11%	7%	1,827	4%	9%
Accessed advice from gov. or community animal health extension worker	42%	269	32%	53%	25%	142	12%	37%
HH needed advice on human health/nutrition	17%	3,107	14%	20%	16%	1,827	12%	19%
Able to access advice from a government or a community health worker	58%	567	47%	70%	65%	324	56%	75%
HH received advice from government agricultural extension officer	10%	3,107	7%	12%	8%	1,827	6%	10%
Kind of advice received from government extension worker:								
Handling of crop after harvest	86%	289	76%	97%	84%	156	76%	92%
Farming practices	82%	289	71%	93%	77%	156	64%	89%
Climate smart agriculture	79%	289	69%	88%	64%	156	49%	80%
Soil and water conservation	83%	289	75%	90%	65%	156	50%	79%
Where to buy inputs	71%	289	59%	82%	66%	156	52%	80%
Prevention of pests/diseases without applying chemicals	58%	289	45%	71%	52%	156	39%	66%

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
Where to sell output	53%	289	40%	66%	59%	156	43%	74%
Prices for output	46%	289	33%	60%	43%	156	28%	58%
HH received any advice from a comm./gov. health/nutrition ext. worker	34%	3,107	30%	39%	38%	1,827	33%	44%
From gov. health and nutrition worker	23%	3,107	19%	28%	27%	1,827	23%	32%
From community health and nutrition extension worker	28%	3,107	24%	33%	30%	1,827	25%	35%
Received advice on:								
Family planning methods	85%	1,153	81%	90%	86%	718	80%	92%
Maternal nutrition during pregnancy	82%	1,153	77%	86%	85%	718	78%	91%
Feeding of young children	78%	1,153	71%	85%	83%	718	77%	89%
Infant feeding	76%	1,153	69%	83%	81%	718	75%	87%
Participated in the cooking demonstration	14%	3,107	12%	17%	15%	1,827	12%	18%
Children < 5 screened for malnutrition *	52%	2,125	46%	58%	42%	1,453	37%	46%

Notes: Gov. = government. Ext. = extension. Ag. = agricultural. Comm. = community. *Data for this indicator was only collected from HH with children under 5 years old.

4.11 Financial Health

The financial health section of the baseline survey was included to allow us to understand whether households would be able to access financial resources to deal with emergencies (like a medical emergency) within 30 days. IPA asked the households how difficult it could be to come up with MWK 10,000 in 30 days, as well as the source where they would get this money from.

Slightly over a quarter of households indicate that they would not be able to raise the money, two-thirds said it would be difficult or somewhat difficult to come up with the money, and only 4% of households report that it would not be difficult to come up with the money. Among households that would be able to come up with the money, regardless of difficulty, 50% report they would obtain the money from engaging in informal or piece work; 17% would borrow it from a bank, their employer, or a private lender; 20% would sell assets to obtain the money; 9% of households would turn to family, relatives or friends to obtain the money; and an additional 3% indicated they would obtain the money through other means.

Table 15. Financial health

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
Difficulty coming up with MWK 10,000 in next 30 days								
Could not come up with funds	28%	3,104	24%	32%	29%	1,825	25%	33%
Difficult	47%	3,104	43%	51%	52%	1,825	47%	56%
Somewhat difficult	20%	3,104	17%	24%	17%	1,825	14%	21%
Not difficult	4%	3,104	3%	6%	2%	1,825	1%	3%
Main source of funds if could come up with funds								
Money from informal or piece work	50%	2,142	46%	55%	61%	1,276	55%	66%
Bank/employer/priv. lender (borrow)	17%	2,142	13%	20%	16%	1,276	13%	19%
Selling assets	20%	2,142	16%	24%	13%	1,276	9%	17%
Family, relatives, or friends	9%	2,142	7%	12%	9%	1,276	6%	11%
Other	3%	2,142	2%	5%	2%	1,276	1%	4%

Notes: Priv. = private.

4.12 Savings and Loans

IPA collected data on households' saving and borrowing practices. Starting with loans, 88% of households did not take out a loan in the 12 months prior to the baseline survey, 10% took out a loan from a microfinance institution, 2% obtained a loan from a bank, and no one in the sample took out a loan from Sacco. Half of households saved money in the 6 months prior to the survey and these households mostly kept the money in their pockets or clothes, a secret place at home, or in VSLAs. Compared to these other forms of saving, a smaller percentage of households save using mobile money, using a box in the household, or with a family member outside the household. Although half of households save money, only 11% of all households save cash regularly.

Table 16 shows that a smaller share of Tier-1 Care Group eligible households took out loans, compared to the overall study population. About 91% did not take out a loan, 8% took out a loan from a microfinance institution and only 1% took out a loan from a bank. We also find that 44% of Tier-1 Care Group eligible households had kept any savings in the 6 months prior to the survey and that, like the rest of the study population, Tier-1 Care Group eligible households mostly keep their savings in their pockets or clothes, in secret places in the household, and in VSLAs. Only 9% of Tier-1 Care Group eligible households save cash regularly.

Table 16. Savings and loans

Description	All				T1CG only			
	Mean	N	95% – C.I.		Mean	N	95% – C.I.	
			Lo	Hi			Lo	Hi
In last 12 months, obtained loan from:								
None	88%	3,107	85%	91%	91%	1,827	89%	93%
Microfinance institution	10%	3,107	7%	13%	8%	1,827	7%	10%
Banks	2%	3,107	0%	3%	1%	1,827	0%	1%
Sacco	0%	3,107	0%	0%	0%	1,827	0%	1%
Has kept any savings in past 6 months	50%	3,107	46%	54%	44%	1,827	38%	49%
In pocket/clothes/bag that you carry	37%	1,415	31%	43%	44%	811	36%	52%
A secret place in your home	37%	1,415	30%	43%	38%	811	31%	46%
VSLA	33%	1,415	28%	39%	24%	811	18%	30%
Mobile money	13%	1,415	8%	17%	9%	811	6%	13%
With family member outside the HH	6%	1,415	4%	8%	13%	811	1%	24%
Box in the household	9%	1,415	6%	12%	5%	811	3%	7%
Other place	8%	1,415	6%	11%	4%	811	3%	6%
HH saves cash regularly	11%	3,107	8%	13%	9%	1,827	6%	12%

4.13 Children's Anthropometric Measures

IPA's anthropometric surveyors measured and recorded the weights and heights of children under the age of 5 in the T1CG sample as well as of 10% of children under the age of 5 from the remainder of sampled households. Weight and height measurements were used to calculate the prevalence of wasted, stunted, and healthy weight children under 5.

Table 17 provides a breakdown of these three anthropometric measures by age and gender of the children. The prevalence of wasted children is 2% in the sampled households. Disaggregated by gender and age, we see that wasting among female children is equal to 4% for those 0–23 months old and 2% for those 24–59 months old. Among male children, the percentage of wasting is equal to 6% for those 0–23 months old and wasting among male children 24–59 months old is very rare. The prevalence of wasting among children is higher in the Tier-1 Care Group eligible households compared to the overall sample.

The prevalence of stunted children is 41% for the sampled households. The prevalence of stunted children is 31% among female children between 0–23 months old, while it is 56% among male children

of the same age category. Among children 24–59 months old, 42% of females and 36% of males were stunted.

Furthermore, the prevalence of healthy weight children was 89%. When disaggregated by gender and age, 83% and 86% of female and male children 0–23 months old, respectively, had a healthy weight. Table 17 shows that healthy weight is also high among female and male children of 24–59 months. Appendix Table 15 further breaks down anthropometric measures by age.

Table 17. Anthropometric indicators for children under 5 years old, by gender and age

Description	All				T1CG only			
	Mean	N	95% – C.I.		Mean	N	95% – C.I.	
			Lo	Hi			Lo	Hi
[BL03] Wasted (Weight-for-height Z-score (WHZ) < -2)	2%	1,772	0%	4%	6%	1,679	1%	11%
Female								
0–23 months	4%	526	2%	5%	5%	516	3%	8%
24–59 months	2%	345	0%	4%	8%	313	0%	20%
Male								
0–23 months	6%	559	0%	12%	7%	553	0%	14%
24–59 months	0%	342	0%	0%	1%	297	0%	1%
[BL04] Stunted (Height-for-age Z-score (HAZ) < -2)	41%	1,727	31%	51%	37%	1,634	33%	42%
Female								
0–23 months	31%	513	17%	46%	25%	503	20%	30%
24–59 months	42%	331	22%	61%	40%	299	31%	48%
Male								
0–23 months	56%	552	46%	66%	45%	546	37%	53%
24–59 months	36%	331	17%	55%	40%	286	31%	50%
[BL05] Healthy weight (-2 < WHZ < 2)	89%	1,772	82%	95%	89%	1,679	85%	94%
Female								
0–23 months	83%	526	70%	95%	90%	516	87%	93%
24–59 months	91%	345	76%	100%	91%	313	79%	100%
Male								
0–23 months	86%	559	78%	94%	86%	553	79%	93%
24–59 months	92%	342	84%	100%	94%	297	90%	98%

Notes: Confidence intervals for binary indicators are based on Normal approximations; for very small samples and indicator values near 0 or 1, these confidence intervals can exceed 0 or 1 and in this table confidence interval bounds are censored at 0

from below and 1 from above. The number of observations higher for weight measurements than for height measurements since in a few cases, parents did not allow the height for very small children to be taken given the procedure they were using to take height (making the kids lie on the height board) while the weight for these small children could be recorded.

4.14 Children's Nutrition

IPA collected child-level nutrition data from the Tier-1 Care Group eligible sample. Among households in this group with children under 5 years old, 4% were receiving a minimum acceptable diet (MAD). Table 18 below shows that receiving a MAD is similar among male and female children. Furthermore, 66% of children are exclusively breastfed, with no differences between female and male children in terms of exclusive breastfeeding⁹. On average, 17% of children under the age of 5 suffered diarrhea in the 2 weeks prior to the survey and 56% of children with diarrhea were treated with Oral Rehydration Therapy (ORT). Female and male children under the age of 5 suffer from diarrhea at similar rates, around 16-17%, but a higher percentage of male children with diarrhea are treated with oral rehydration therapy (ORT) (61% for male children vs. 52% for female children). See Appendix Table 16 for further details on children's diet and health. For nutrition knowledge among T1CG households, see Appendix Table 1.

Table 18. Small children: diet and health

Description	T1CG only			
			95% – C.I.	
	Mean	N	Lo	Hi
[BL12] Children 6–23 months receiving a minimum acceptable diet (MAD)	4%	1148	3%	6%
Female	4%	584	2%	6%
Male	5%	564	3%	7%
Breastfed	5%	995	3%	7%
Non-breastfed	0%	153	0%	0%
Children 6–23 months with minimum dietary diversity (as defined under MAD)	19%	1,149	15%	23%
Breastfed (> = 4 of any food group below)	22%	996	17%	26%
Non-breastfed (> = 4 of any food group below excl. dairy; > = 2 milk feedings)	1%	153	0%	2%
Children 6–23 consuming any of [food group]:				
Grain, roots, and tubers	63%	1,406	59%	67%
Legumes and nuts	21%	1,406	18%	24%
Dairy products (milk, yogurt, cheese)	8%	1,406	5%	10%
Flesh foods (meat, fish, poultry, and liver/organ meats)	38%	1,406	34%	42%

⁹ Njira and UBALE DFAP final performance evaluations reported that 76.6% and 76.4% of children under 6 months old, respectively, were exclusively breastfed. On MAD, Njira reported that 6% of children 6–23 months old received MAD while UBALE found 5.2% of children were receiving MAD.

Description	T1CG only			
			95% – C.I.	
	Mean	N	Lo	Hi
Eggs	6%	1,405	4%	7%
Vitamin A-rich fruits and vegetables	39%	1,406	35%	43%
Other fruits and vegetables	26%	1,406	22%	30%
Children 6–23 months with minimum meal frequency	14%	1,148	11%	17%
Breastfed (> = 2 non-liquid feedings if age 6-8m; > = 3 non-liquid feedings if age 9–23m)	16%	995	13%	19%
Non-breastfed (> = 4 non-liquid feedings + > = 2 milk feedings)	0%	153	0%	1%
[BL13] Children under 6 months of age with exclusive breastfeeding	66%	254	56%	77%
Female	66%	126	53%	78%
Male	67%	128	51%	82%
[BL39] Diet of Minimum Diversity, children 6–23 months	20%	1,150	16%	24%
Female	23%	584	17%	28%
Male	18%	566	13%	22%
[BL14] Children under 5 had diarrhea in the prior 2 weeks	17%	1,403	14%	19%
Female	17%	711	13%	21%
Male	16%	692	12%	20%
[BL15] Children under 5 with diarrhea treated with Oral Rehydration Therapy	56%	257	46%	66%
Female	52%	115	39%	65%
Male	61%	142	45%	76%

4.15 Water, Sanitation, and Hygiene

Household-level data was collected on water, sanitation, and hygiene (WASH) indicators from the Tier-1 Care Group eligible households. IPA collected data on access to soap and water, to a handwashing station and to basic sanitation services like toilets.

Overall, 7% of the households have soap and water at a handwashing station on the household's premises.¹⁰ We find that 27% of the households have a handwashing station and among these households, 51% have water, 28% have soap, ash, or detergent, and 5% have mud or sand at the handwashing station.

Table 19 shows that 20% of the Tier-1 Care Group eligible households have access to a basic sanitation service. Regarding the kinds of toilets used by households, we find that 41% of households use an

¹⁰ Njira and UBALÉ DFAP final performance evaluations found 9.9% and 4.2% of its population, respectively, had water and soap at the handwashing station.

uncovered pit latrine without a slab, 35% use covered pit latrines without a slab, 13% use covered latrines with a slab, 6% use uncovered pit latrines with a slab and 3% do not have a toilet. Furthermore, Appendix Table 17 breaks down WASH indicators by household type.

Table 19. Water, sanitation, and hygiene of Tier-1 Care Group eligible

Description	T1CG only			
	Mean	N	95% – C.I.	
			Lo	Hi
[BL17] HH has soap and water at handwashing station on premises	7%	1,761	4%	10%
Surveyor observed a handwashing station on the premises	27%	1,761	23%	31%
Handwashing station has water	51%	450	41%	60%
Cleansing agent at the handwashing station:				
Soap, ash, or detergent (bar, liquid, power, paste)	28%	450	18%	37%
Mud or sand	5%	450	2%	8%
Other cleansing agent	0%	450	0%	1%
[BL27] HH with access to a basic sanitation service	20%	1,761	16%	24%
Kind of toilet the HH uses:				
Uncovered pit latrine without slab/open pit	41%	1,761	36%	46%
Covered Pit latrine without slab/open pit	35%	1,761	31%	40%
Covered Pit latrine with slab	13%	1,761	10%	16%
Uncovered pit latrine with slab	6%	1,761	4%	8%
No facility/bush/field	3%	1,761	2%	4%
Other	2%	1,761	1%	3%

Notes: Confidence intervals for binary indicators are based on Normal approximations; for very small samples and indicator values near 0 or 1, these confidence intervals can exceed 0 or 1 and in this table confidence interval bounds are censored at 0 from below and 1 from above.

4.16 Mental Health

Mental health is an indicator of well-being and can be an important determinant for individuals' income generating capacity. In the mental health section of the survey, IPA collected information on respondents' levels of distress in the previous 30 days using the Kessler Psychological Distress Scale (K6). The K6 score, which we compute using the responses from this section, ranges from 0 to 24, with higher scores indicating higher levels of psychological distress, such as anxiety and depression.¹¹

Table 20 shows summary statistics for data from the mental health module (only collected in the long survey from the T1CG sample). Respondents score an average Kessler 6 score of 11 (a score of 13, which about 45% of respondents reported, is often considered the threshold for serious mental illness). About

¹¹ Prochaska JJ, Sung HY, Max W, Shi Y, Ong M. Validity study of the K6 scale as a measure of moderate mental distress based on mental health treatment need and utilization. *Int J Methods Psychiatr Res.* 2012;21(2):88-97. doi:10.1002/mpr.1349

45% of households reported going through a period of worry, tension, or anxiety lasting 30 days or longer. Among these households, 87% indicated that said period was still ongoing, 6% reported the period was still ongoing but that their distress had reduced, and another 6% reported that the period had already ended. A large percentage of households also reported that these worries interfered with their ability to carry out normal activities. Food shortage was the most common source of households' worries, followed by employment, living situation, loan or debt, and health. A smaller percentage of households reported conflict with others, domestic issues, children's education, or clothing as sources of their worries. Furthermore, 11% of these households visited a health center or consulted a health provider for reasons related to their worries.

Table 20. Mental health

Description	T1CG only			
			95% – C.I.	
	Mean	N	Lo	Hi
Kessler 6 (0-24)	11.18	1,719	10.49	11.87
Had a period lasting 30 days or longer when felt worried, tense or anxious most of the time, in the last 12 months	45%	1,827	40%	51%
The period is it still going on	87%	897	84%	91%
The period is it still going on, but reduced	6%	897	4%	9%
The period ended	6%	897	4%	9%
Kessler 6 (0-24)	11.18	1,719	10.49	11.87
These worries interfered with their ability to carry out normal activities				
A lot	74%	897	69%	79%
Some	14%	897	10%	18%
A little	10%	897	7%	13%
Not at all	2%	897	1%	3%
Source of these worries:				
Food shortage	82%	897	78%	86%
Employment	37%	897	30%	44%
Living space/Living situation	19%	897	15%	24%
Health	16%	897	11%	20%
Loan/Debt	18%	897	14%	22%
Conflict with other	13%	897	9%	18%
Domestic issues	8%	897	6%	11%
Children's education	5%	897	3%	8%
Clothing	6%	897	3%	8%
Other	4%	897	2%	5%

Description	T1CG only			
			95% – C.I.	
	Mean	N	Lo	Hi
HH have visited a health center or have consulted a health provider for reasons related to their concerns	11%	897	8%	15%
Type of health facility/provider visited				
Government hospital	69%	120	56%	82%
Government health post	12%	120	4%	21%
Private hospital	12%	120	2%	22%
Other	11%	120	1%	20%
Visited any traditional healer for reasons related to your worries	2%	1,827	2%	3%
Visited any religious authority for reasons related to your worries	12%	1,827	10%	14%
Issues that sometimes are reasons of concern				
Food shortage	76%	1,827	71%	81%
Living situation	44%	1,827	39%	50%
Domestic issues	20%	1,827	17%	23%
Clothing	21%	1,827	17%	25%
Health	17%	1,827	14%	21%
Children's education	11%	1,827	9%	13%
Conflict with other	8%	1,827	6%	10%
Employment	5%	1,827	4%	7%

5. CONCLUSION

In this baseline survey report, we have provided an overview of the Titukulane RFSA in Malawi, including a description of the sampled households at baseline. We report on a variety of demographic characteristics of the households in the sampled areas, as well as on indicators that are relevant to Titukulane's purposes of improving the incomes, nutrition, and resilience capabilities of participating households. The baseline survey revealed that 66% of the households are headed by a married head of household and that 37% of the households are headed by females. The average age of the household heads is 42 and the levels of education among household heads are very low, as only 5% of them have completed secondary school. The average household has 2.7 children under the age of 16.

In the baseline survey, we find that farming, crop production and sales, and agricultural wage labor are the main sources of food or income for most surveyed households, which is common among rural households in Malawi. On the other hand, a small percentage of households engage in non-agricultural wage labor or business. In line with this observation, we find that 93% of households cultivated crops in the 12 months prior to the survey and that 98% of these households cultivated maize, which is also considered the most important crop cultivated in the rainy season. We find that 17% of the households cultivated any land in the dry season and among them, 96% used some form of irrigation. The majority of households (81%) that cultivated crops in the dry season use basic irrigation methods, such as water cans, pails, or buckets. Furthermore, baseline survey results show that majority of households use some form of improved management practices although many individual practices are not widely used.

We find low business ownership among the households. Only 17% of households operate an off-farm business, with only 25% having an inventory valued above MWK 50, 000.00 (PPP \$163.00). This indicates that the majority of the businesses are small.

The baseline survey included the FCS module for a 7-day recall period and the FIES module. These survey modules to help understand households' food consumption levels and experience with food insecurity. For FCS, we find that the average score among the sample is 37.9 (out of a maximum of 112). Additionally, we find that 10% of households have an FCS that qualifies their food consumption as poor, 37% have borderline food consumption, and 53% of households have an adequate food consumption. On the other hand, the FIES survey module results showed that 97% of households experience moderate or severe food insecurity within a period of 12 months. This was further highlighted by the large percentage of households that were worried about not having enough food to eat, that experienced being unable to eat a healthy or nutritious meal, that ate few kinds of meals, or that had to skip a meal because of a lack of money or other resources.

The baseline survey has also provides insights into children's nutrition and key anthropometric indicators among the sampled households. Among children under 5 years old, 2% of children are wasted, 41% of children are stunted, and 89% of children have a healthy weight. We also find that 14% of 5 children under five years old had diarrhea 2 weeks prior to the study and that among these children, 56% of them were treated with ORT. On children's nutrition and health, we find that 4% of children under 2 years old received a minimum acceptable diet and that 66% of children under 6 months old are exclusively breastfed.

Lastly, the survey used the Kessler 6 survey module to understand the mental health status of household heads. For the Tier-1 Care Group eligible households, the average K-6 score was 11 (out of a maximum of 24, indicating highest psychological distress). We also find that 45% of respondents experienced a period lasting 30 days or longer in which they felt worried, tense, or anxious, in the 12 months prior to the survey. The most common sources of worries among these households are food shortage, employment, health, loan or debt, conflicts with other people and living situation.

APPENDIX

Additional Descriptive Statistics

Table 21. Appendix: Nutrition knowledge

Description	T1CG only			
	95% – C.I.			
	Mean	N	Lo	Hi
HH considers that:				
Iron is an important nutritional supplement during pregnancy	36%	257	27%	45%
Folic acid is an important nutritional supplement during pregnancy	10%	257	4%	16%
Children under 6 months should be fed normally with breastmilk	93%	242	89%	98%
ORT/Oral Rehydration Solution/Thanzi is an important treatment for diarrhea	98%	233	96%	100%

Notes: This section was administered to HH with children under 2 years of age who had diarrhea in the last 2 weeks.

Table 22. Appendix: Resilience

Description	All				T1CG only			
	95% – C.I.				95% – C.I.			
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
[BL24] HH believes local government will respond effectively to future shocks and stresses*	75%	1,747	70%	79%	81%	481	75%	87%

Notes: * This question was administered to a random subsample of respondents.

Table 23. Appendix: Women’s dietary diversity among Tier-1 Care Group eligible households, by age

Description	T1CG only			
	95% – C.I.			
	Mean	N	Lo	Hi
Women of reproductive age consuming a diet of minimum diversity (RiA)	13%	1,411	11%	16%
Women less than 19 years of age	15%	117	6%	25%
Women older than 19 years	13%	1,234	10%	16%

Notes: This section was administered to HH with at least one woman of reproductive age. The ages of 60 women are unknown.

Table 24. Appendix: Livestock assets in the last 12 months

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
HH owned livestock in last 12 months	38%	3,107	35%	42%	30%	1,827	25%	34%
HH owned (animals):								
Chickens	74%	1,047	70%	78%	74%	542	68%	80%
Goats	32%	1,047	28%	37%	26%	542	20%	32%
Ducks	7%	1,047	5%	9%	8%	542	4%	13%
Pigeons	8%	1,047	5%	12%	6%	542	3%	9%
Pigs	4%	1,047	2%	6%	2%	542	0%	4%
Rabbits	2%	1,047	0%	4%	3%	542	1%	4%
Sheep	1%	1,047	0%	1%	2%	542	0%	4%
Cows/heifers/calves	1%	1,047	0%	2%	1%	542	0%	2%
Oxen/bullocks	1%	1,047	0%	1%	0%	542	0%	0%
Guinea fowl	1%	1,047	0%	3%	1%	542	0%	3%
HH owned (livestock structures):								
Bird Pen/Coop	15%	3,107	11%	19%	11%	1,827	9%	14%
Goat house/goat pen	10%	3,107	8%	12%	7%	1,827	5%	9%
Other	5%	3,107	4%	7%	2%	1,827	1%	3%
None	75%	3,107	71%	79%	83%	1,827	80%	86%

Notes: Confidence intervals for binary indicators are based on Normal approximations; for very small samples and indicator values near 0 or 1, these confidence intervals can exceed 0 or 1 and in this table confidence interval bounds are censored at 0 from below and 1 from above.

Table 25. Appendix: Livestock practices in the past 12 months

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
HH owned livestock	38%	3,107	35%	42%	30%	1,827	25%	34%
Randomly selected for follow-up questions	16%	1,047	13%	20%	19%	542	14%	24%
HH used the following practices:								
Homemade animal feeds *	33%	213	21%	45%	44%	118	29%	59%
Vaccinations	21%	213	13%	28%	20%	118	9%	30%

Description	All				T1CG only			
	Mean	N	95% – C.I.		Mean	N	95% – C.I.	
			Lo	Hi			Lo	Hi
Services of comm. animal health worker	5%	213	2%	8%	9%	118	1%	17%
Services of ag. ext. development officer	8%	213	2%	14%	6%	118	1%	12%
HH owned chickens	28%	3,107	25%	32%	22%	1,827	18%	26%
Randomly selected for follow-up questions	16%	759	12%	21%	16%	402	11%	22%
HH used the following practices:								
Homemade animal feeds *	28%	150	12%	44%	37%	87	23%	51%
Vaccinations	12%	150	4%	21%	21%	87	9%	34%
Services of comm. animal health worker	6%	150	1%	12%	12%	87	1%	23%
Services of government animal health extension worker	1%	150	0%	2%	3%	87	0%	7%
HH owned goats	13%	3,107	11%	14%	8%	1,827	6%	10%
Randomly selected for follow-up questions	14%	309	8%	19%	22%	140	13%	32%
HH used the following practices:								
Services of comm. animal health worker	9%	69	1%	16%	12%	34	0%	26%
Services of ag. ext. development officer	7%	69	0%	14%	6%	34	0%	13%

Notes: This section was administered to HH who owns livestock and were randomly selected for follow-up questions. Confidence intervals for binary indicators are based on Normal approximations; for very small samples and indicator values near 0 or 1, these confidence intervals can exceed 0 or 1 and in this table confidence interval bounds are censored at 0 from below and 1 from above. *Homemade animal feeds made of locally available products. Comm. = community. Ag. = agricultural. Ext. = extension.

Table 26. Appendix: Consumption

Description	All				T1CG only			
	Mean	N	95% – C.I.		Mean	N	95% – C.I.	
			Lo	Hi			Lo	Hi
Maize flour	100%	3,107	100%	100%	100%	1,827	99%	100%
Cooking oil	63%	3,107	58%	67%	60%	1,827	55%	65%
Rice	26%	3,107	22%	29%	23%	1,827	19%	27%
Sugar (not incl. sugar cane)	22%	3,107	19%	25%	16%	1,827	13%	20%
Eggs	14%	3,107	12%	17%	10%	1,827	8%	12%
Tea	6%	3,107	5%	8%	3%	1,827	2%	4%

Table 27. Appendix: Gender (cash)

Description	All				T1CG only			
	Mean	N	95% – C.I.		Mean	N	95% – C.I.	
			Lo	Hi			Lo	Hi
[BL32] Earned cash in the past 12 months	22%	627	15%	30%	27%	403	20%	34%
[BL33] Women report part. in decisions about the use of self-earned cash	50%	112	31%	69%	65%	80	48%	83%
[BL34] Women report part. in decisions about the use of spouse's/partner's self-earned cash	44%	79	29%	60%	44%	79	29%	60%
[BL35] Men report spouse/partner part. in decisions about the use of self-earned cash	63%	63	37%	88%	65%	44	47%	84%

Notes: This section was administered to randomly subsampled households only. Part. = participation.

Table 28. Appendix: Farming practices and area of application

Description	All				T1CG only			
	Mean	N	95% – C.I.		Mean	N	95% – C.I.	
			Lo	Hi			Lo	Hi
Early planting or planting with first rains	61%	3,107	56%	66%	55%	1,827	49%	60%
Rand. selec. for follow-up questions	16%	1,803	14%	18%	17%	1,030	14%	20%
Grew rice	11%	323	4%	17%	10%	187	4%	16%
Applied practice to rice	22%	38	2%	42%	—	19	—	—
Area (acre)	—	10	—	—	—	5	—	—
Grew beans	10%	323	3%	17%	6%	187	1%	12%
Applied practice to beans	—	19	—	—	—	9	—	—
Area (acre)	—	10	—	—	—	5	—	—
Grew maize	98%	323	96%	100%	98%	187	94%	100%
Applied practice to maize	99%	317	97%	100%	98%	184	95%	100%
Area (acre)	1.2	309	0.9	1.5	1.1	179	0.8	1.5
Grew pigeon peas	50%	323	38%	63%	53%	187	41%	65%
Applied practice to pigeon peas	43%	177	30%	56%	57%	96	40%	74%
Area (acre)	1.0	90	0.7	1.4	0.6	55	0.3	0.8
Regular monitoring of crops for pests	46%	3,107	40%	53%	44%	1,827	38%	50%
Rand. selec. for follow-up questions	15%	1,459	12%	17%	18%	837	14%	22%
Grew rice	9%	261	3%	14%	11%	157	4%	18%

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
Applied practice to rice	27%	33	4%	49%	—	18	—	—
Area (acre)	—	11	—	—	—	7	—	—
Grew beans	12%	261	3%	20%	11%	157	2%	19%
Applied practice to beans	—	18	—	—	—	10	—	—
Area (acre)	—	12	—	—	—	6	—	—
Grew maize	99%	261	98%	100%	100%	157	100%	100%
Applied practice to maize	100%	259	99%	100%	99%	156	97%	100%
Area (acre)	1.0	257	0.8	1.1	0.9	154	0.7	1.2
Grew pigeon peas	53%	261	38%	67%	69%	157	57%	81%
Applied practice to pigeon peas	61%	163	47%	75%	65%	99	49%	81%
Area (acre)	0.8	92	0.5	1.0	0.6	57	0.4	0.9
Manure	42%	3,107	38%	47%	35%	1,827	30%	39%
Rand. selec. for follow-up questions	19%	1,247	16%	21%	18%	704	13%	22%
Grew rice	11%	240	3%	19%	10%	134	2%	18%
Applied practice to rice	—	25	—	—	—	12	—	—
Area (acre)	—	5	—	—	—	3	—	—
Grew beans	10%	240	2%	18%	8%	134	0%	16%
Applied practice to beans	—	15	—	—	—	7	—	—
Area (acre)	—	5	—	—	—	3	—	—
Grew maize	97%	240	94%	100%	94%	134	86%	100%
Applied practice to maize	100%	231	99%	100%	99%	129	98%	100%
Area (acre)	1.1	228	0.8	1.5	1.1	127	0.6	1.5
Grew pigeon peas	46%	240	33%	60%	60%	134	46%	74%
Applied practice to pigeon peas	24%	139	13%	35%	40%	76	17%	63%
Area (acre)	1.3	42	0.5	2.0	—	26	—	—
Intercropping	40%	3,107	34%	46%	35%	1,827	31%	40%
Rand. selec. for follow-up questions	17%	1,261	13%	21%	17%	698	13%	21%
Grew rice	7%	233	2%	11%	6%	125	2%	11%
Applied practice to rice	—	25	—	—	—	12	—	—
Area (acre)	—	1	—	—	—	0	—	—
Grew beans	21%	233	11%	32%	16%	125	4%	28%

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
Applied practice to beans	—	27	—	—	—	12	—	—
Area (acre)	—	25	—	—	—	12	—	—
Grew maize	99%	233	96%	100%	100%	125	100%	100%
Applied practice to maize	98%	231	95%	100%	99%	124	98%	100%
Area (acre)	1.2	226	0.8	1.6	0.9	121	0.6	1.1
Grew pigeon peas	77%	233	66%	88%	86%	125	76%	95%
Applied practice to pigeon peas	89%	193	81%	98%	93%	103	86%	100%
Area (acre)	1.0	179	0.8	1.2	0.8	97	0.5	1.1
Use modern (hybrid/improved) crop varieties	39%	3,107	34%	43%	33%	1,827	29%	37%
Rand. selec. for follow-up questions	18%	1,117	14%	21%	19%	602	14%	25%
Grew rice	6%	217	2%	9%	10%	123	3%	17%
Applied practice to rice	—	25	—	—	—	16	—	—
Area (acre)	—	8	—	—	—	8	—	—
Grew beans	13%	217	4%	22%	6%	123	0%	11%
Applied practice to beans	—	14	—	—	—	6	—	—
Area (acre)	—	2	—	—	—	0	—	—
Grew maize	100%	217	100%	100%	99%	123	98%	100%
Applied practice to maize	99%	214	98%	100%	98%	120	94%	100%
Area (acre)	1.2	210	0.9	1.6	1.1	117	0.7	1.5
Grew pigeon peas	48%	217	35%	62%	58%	123	43%	73%
Applied practice to pigeon peas	17%	117	6%	28%	16%	67	5%	27%
Area (acre)	—	25	—	—	—	14	—	—
Physically removing pests	28%	3,107	24%	33%	27%	1,827	23%	31%
Rand. selec. for follow-up questions	17%	945	12%	21%	18%	533	12%	23%
Grew rice	18%	173	6%	30%	16%	101	5%	27%
Applied practice to rice	—	26	—	—	—	14	—	—
Area (acre)	—	1	—	—	—	1	—	—
Grew beans	10%	173	2%	18%	7%	101	0%	14%
Applied practice to beans	—	11	—	—	—	5	—	—
Area (acre)	—	1	—	—	—	0	—	—
Grew maize	99%	173	98%	100%	100%	101	99%	100%

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
Applied practice to maize	98%	171	96%	100%	100%	100	99%	100%
Area (acre)	0.9	168	0.7	1.0	0.9	98	0.6	1.2
Grew pigeon peas	67%	173	52%	81%	63%	101	48%	78%
Applied practice to pigeon peas	10%	110	3%	17%	17%	59	3%	31%
Area (acre)	—	19	—	—	—	12	—	—
Application of locally-made pesticides	7%	3,107	5%	9%	8%	1,827	5%	10%
Rand. selec. for follow-up questions	18%	251	9%	26%	17%	145	9%	24%
Grew rice	18%	50	0%	37%	24%	31	0%	50%
Applied practice to rice	—	9	—	—	—	6	—	—
Area (acre)	—	1	—	—	—	1	—	—
Grew beans	16%	50	0%	33%	18%	31	0%	49%
Applied practice to beans	—	3	—	—	—	1	—	—
Area (acre)	—	1	—	—	—	0	—	—
Grew maize	100%	50	100%	100%	100%	31	100%	100%
Applied practice to maize	94%	50	86%	100%	86%	31	71%	100%
Area (acre)	0.6	44	0.4	0.9	—	26	—	—
Grew pigeon peas	58%	50	24%	92%	70%	31	44%	96%
Applied practice to pigeon peas	12%	38	0%	25%	—	24	—	—
Area (acre)	—	6	—	—	—	4	—	—
Weed control	6%	3,107	5%	8%	5%	1,827	3%	6%
Rand. selec. for follow-up questions	12%	213	6%	19%	12%	112	5%	20%
Grew rice	25%	34	2%	48%	—	15	—	—
Applied practice to rice	—	6	—	—	—	1	—	—
Area (acre)	—	1	—	—	—	0	—	—
Grew beans	17%	34	0%	38%	—	15	—	—
Applied practice to beans	—	3	—	—	—	0	—	—
Area (acre)	—	1	—	—	—	0	—	—
Grew maize	100%	34	100%	100%	—	15	—	—
Applied practice to maize	85%	34	65%	100%	—	15	—	—
Area (acre)	0.8	30	0.4	1.2	—	13	—	—
Grew pigeon peas	59%	34	31%	87%	—	15	—	—

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
Applied practice to pigeon peas	—	20	—	—	—	8	—	—
Area (acre)	—	3	—	—	—	2	—	—
Mulching	5%	3,107	3%	6%	4%	1,827	3%	6%
Rand. selec. for follow-up questions	13%	151	5%	21%	21%	70	8%	33%
Grew rice	—	23	—	—	—	14	—	—
Applied practice to rice	—	4	—	—	—	1	—	—
Area (acre)	—	0	—	—	—	0	—	—
Grew beans	—	23	—	—	—	14	—	—
Applied practice to beans	—	2	—	—	—	1	—	—
Area (acre)	—	0	—	—	—	0	—	—
Grew maize	—	23	—	—	—	14	—	—
Applied practice to maize	—	23	—	—	—	14	—	—
Area (acre)	—	22	—	—	—	14	—	—
Grew pigeon peas	—	23	—	—	—	14	—	—
Applied practice to pigeon peas	—	12	—	—	—	7	—	—
Area (acre)	—	5	—	—	—	3	—	—
Crop rotation	4%	3,107	2%	7%	2%	1,827	1%	3%
Rand. selec. for follow-up questions	8%	99	1%	16%	20%	46	6%	35%
Grew rice	—	19	—	—	—	11	—	—
Applied practice to rice	—	3	—	—	—	2	—	—
Area (acre)	—	2	—	—	—	1	—	—
Grew beans	—	19	—	—	—	11	—	—
Applied practice to beans	—	1	—	—	—	1	—	—
Area (acre)	—	0	—	—	—	0	—	—
Grew maize	—	19	—	—	—	11	—	—
Applied practice to maize	—	18	—	—	—	10	—	—
Area (acre)	—	14	—	—	—	6	—	—
Grew pigeon peas	—	19	—	—	—	11	—	—
Applied practice to pigeon peas	—	9	—	—	—	7	—	—
Area (acre)	—	5	—	—	—	4	—	—
Introducing insects to remove pests	0%	3,107	0%	0%	0%	1,827	0%	0%

Description	All				T1CG only			
			95% – C.I.				95% – C.I.	
	Mean	N	Lo	Hi	Mean	N	Lo	Hi
Rand. selec. for follow-up questions	—	13	—	—	—	8	—	—
Grew rice	—	3	—	—	—	3	—	—
Applied practice to rice	—	0	—	—	—	0	—	—
Area (acre)	—	0	—	—	—	0	—	—
Grew beans	—	3	—	—	—	3	—	—
Applied practice to beans	—	0	—	—	—	0	—	—
Area (acre)	—	0	—	—	—	0	—	—
Grew maize	—	3	—	—	—	3	—	—
Applied practice to maize	—	2	—	—	—	2	—	—
Area (acre)	—	2	—	—	—	2	—	—
Grew pigeon peas	—	3	—	—	—	3	—	—
Applied practice to pigeon peas	—	1	—	—	—	1	—	—
Area (acre)	—	0	—	—	—	0	—	—

Notes: Confidence intervals for binary indicators are based on Normal approximations; for very small samples and indicator values near 0 or 1, these confidence intervals can exceed 0 or 1 and in this table, confidence interval bounds are censored at 0 from below and 1 from above. Rand. selec. = randomly selected. — Not available, cell has less than 30 observations.

Table 29. Appendix: Consumption poverty, by household gender composition

Description			95% – C.I.	
	Mean	N	Lo	Hi
[BL01] HH living on less than \$1.90/day PC	68%	3,089	65%	71%
Tier-1 Care Group Eligible	72%	1,816	68%	76%
Female and Male Adults (F&M)	72%	1,327	68%	76%
Adult Female No Adult Male (FNM)	73%	466	65%	81%
[BL02] Shortfall of the poor relative to the \$1.90/day PC	21%	2,052	20%	22%
Tier-1 Care Group Eligible	33%	1,213	30%	36%
Female and Male Adults (F&M)	38%	892	35%	40%
Adult Female No Adult Male (FNM)	23%	310	17%	30%
[BL40] Consumption PC per day (2021 PPP\$)	2.19	3,089	2.12	2.26
Tier-1 Care Group Eligible	2.03	1,816	1.92	2.13
Female and Male Adults (F&M)	2.01	1,327	1.87	2.14
Adult Female No Adult Male (FNM)	2.07	466	1.95	2.19

Notes: The \$1.90 threshold is inflated from 2011 to 2021 to match the year of the data collection using the US CPL. Household composition information sufficient to compute indicator values separately by household type with respect to male and female

members was only collected in the Tier-1 Care Group Eligible sample. Household type “Child No Adults” and “Adult Male No Adult Female” are not shown, since they have less than 30 observations.

Table 30. Appendix: Food Consumption Score, by household gender composition

Description	Mean	N	95% - C.I.	
			Lo	Hi
[BL10] FCS score, 7-day recall	37.87	3,107	36.79	38.96
Tier-1 Care Group Eligible	35.22	1,827	33.93	36.51
Female and Male Adults (F&M)	35.82	1,333	34.41	37.24
Adult Female No Adult Male (FNM)	33.76	471	31.58	35.95
Everyone else	38.50	1,280	37.32	39.68
[BL10] Poor food consumption score (FCS)	10%	3,107	8%	13%
Tier-1 Care Group Eligible	15%	1,827	11%	20%
Female and Male Adults (F&M)	15%	1,333	11%	19%
Adult Female No Adult Male (FNM)	16%	471	8%	25%
Everyone else	9%	1,280	7%	11%
[BL10] Borderline food consumption score (FCS)	37%	3,107	34%	40%
Tier-1 Care Group Eligible	37%	1,827	33%	41%
Female and Male Adults (F&M)	36%	1,333	32%	40%
Adult Female No Adult Male (FNM)	38%	471	28%	49%
Everyone else	37%	1,280	33%	40%
[BL10] Adequate food consumption score (FCS)	53%	3,107	49%	57%
Tier-1 Care Group Eligible	48%	1,827	42%	53%
Female and Male Adults (F&M)	49%	1,333	44%	53%
Adult Female No Adult Male (FNM)	45%	471	32%	59%
Everyone else	54%	1,280	50%	58%
Over the past 7 days, number of days consumed [...]:				
Cereals, Grains and Cereal Products	6.39	3,107	6.29	6.50
Tier-1 Care Group Eligible	6.29	1,827	6.19	6.39
Everyone else	6.42	1,280	6.30	6.54
Condiments	5.08	3,107	4.56	5.61
Tier-1 Care Group Eligible	4.71	1,827	4.30	5.11
Everyone else	5.17	1,280	4.55	5.79
Vegetables	4.39	3,107	4.19	4.59
Tier-1 Care Group Eligible	4.07	1,827	3.76	4.37
Everyone else	4.47	1,280	4.25	4.69

Description	Mean	N	95% - C.I.	
			Lo	Hi
Oil	2.48	3,107	2.17	2.78
Tier-1 Care Group Eligible	2.20	1,827	1.96	2.43
Everyone else	2.54	1,280	2.17	2.92
Meat, Fish and Animal Products	2.51	3,107	2.35	2.67
Tier-1 Care Group Eligible	2.50	1,827	2.30	2.70
Everyone else	2.51	1,280	2.35	2.68
Fruits	1.92	3,107	1.63	2.21
Tier-1 Care Group Eligible	1.72	1,827	1.45	1.99
Everyone else	1.97	1,280	1.65	2.28
Roots, Tubers and Plantains	1.43	3,107	1.29	1.58
Tier-1 Care Group Eligible	1.24	1,827	1.09	1.40
Everyone else	1.48	1,280	1.32	1.64
Nuts and Pulses	1.83	3,107	1.65	2.02
Tier-1 Care Group Eligible	1.44	1,827	1.28	1.61
Everyone else	1.93	1,280	1.72	2.13
Sugar	1.13	3,107	0.98	1.29
Tier-1 Care Group Eligible	0.89	1,827	0.72	1.07
Everyone else	1.19	1,280	1.01	1.37
Milk	0.22	3,107	0.15	0.30
Tier-1 Care Group Eligible	0.12	1,827	0.08	0.17
Everyone else	0.25	1,280	0.16	0.34

Notes: Household composition information sufficient to compute indicator values separately by household type with respect to male and female members was only collected in the Tier-1 Care Group Eligible sample. Household type “Child No Adults” and “Adult Male No Adult Female” are not shown, since they have less than 30 observations.

Table 31. Appendix: Food Insecurity Experience Scale, additional

Description	Mean	N	95% – C.I.	
			Lo	Hi
Prevalence of moderate or severe food insecurity in last 12 months	97%	3,107	79%	100%
[BL06] Raw Food Insecurity Score (0-8)*	7.08	3,107	6.95	7.21
Tier-1 Care Group Eligible	7.26	1,333	7.15	7.38
Female and Male Adults (F&M)	7.47	471	7.31	7.62
Adult Female No Adult Male (FNM)	7.02	1,280	6.87	7.17
During last 12 months, because of a lack of money or resources, you or others in your HH...				

Description	Mean	N	95% – C.I.	
			Lo	Hi
FIES1: Were worried you would not have enough food to eat	92%	3,107	90%	93%
Tier-1 Care Group Eligible	93%	1,827	91%	95%
Everyone else	91%	1,280	89%	93%
FIES2: Were unable to eat healthy and nutritious food	94%	3,107	93%	96%
Tier-1 Care Group Eligible	95%	1,827	94%	97%
Everyone else	94%	1,280	92%	96%
FIES3: Ate only a few kinds of foods	94%	3,107	93%	96%
Tier-1 Care Group Eligible	96%	1,827	95%	98%
Everyone else	94%	1,280	92%	96%
FIES4: Had to skip a meal	91%	3,107	89%	94%
Tier-1 Care Group Eligible	94%	1,827	93%	96%
Everyone else	91%	1,280	88%	93%
FIES5: Ate less than you thought you should	94%	3,107	92%	96%
Tier-1 Care Group Eligible	96%	1,827	95%	98%
Everyone else	94%	1,280	91%	96%
FIES6: Did not have food	90%	3,107	87%	94%
Tier-1 Care Group Eligible	95%	1,827	93%	96%
Everyone else	89%	1,280	85%	93%
FIES7: Were hungry but did not eat	93%	3,107	91%	94%
Tier-1 Care Group Eligible	95%	1,827	93%	96%
Everyone else	92%	1,280	90%	94%
FIES8: Went without eating for a whole day	59%	3,107	53%	65%
Tier-1 Care Group Eligible	68%	1,827	63%	72%
Everyone else	57%	1,280	50%	64%
FIES1: Were worried you would not have enough food to eat	92%	3,107	90%	93%

Notes: *Based on the FIES (0–8); sum of 8 FIES binary questions (higher = more food insecure). Household composition information sufficient to compute indicator values separately by household type with respect to male and female members was only collected in the Tier-1 Care Group Eligible sample. Household type “Child No Adults” and “Adult Male No Adult Female” are not shown, since they have less than 30 observations.

Table 32. Appendix: Average Food Consumption Score by main household incomes

Main source of income or food	Mean FCS	N
Farming/crop production and sales	38.72	1,447
Agricultural wage labor	35.41	766
Non-agricultural wage labor	36.31	344

Main source of income or food	Mean FCS	N
Other self-employment (non-agr.)	42.70	178
Other	36.65	372

Table 33. Appendix: Correlation Food Consumption Score components vs. Food Insecurity Experience Scale components

FIES components, binary indicators: In the past 12m, because of a lack of money or other resources, was there a time when you or others in your household...								
FCS components, number of days consumed out of past 7	were worried you would not have enough food to eat	were unable to eat healthy and nutritious food	ate only a few kinds of foods	had to skip a meal	ate less than you thought you should	did not have food	were hungry but did not eat	went without eating for a whole day
Main staples	-0.05	-0.03	-0.05	-0.05	-0.06	-0.05	-0.04	-0.13
Nuts and Pulses	-0.05	-0.03	-0.03	-0.06	-0.04	-0.03	-0.06	-0.09
Vegetables	-0.05	-0.03	-0.04	-0.04	-0.03	-0.06	-0.04	-0.13
Meat, Fish and Animal Products	-0.09	-0.08	-0.09	-0.08	-0.10	-0.12	-0.09	-0.15
Fruits	-0.02	-0.04	-0.02	-0.04	-0.05	-0.07	-0.04	-0.12
Milk Products	-0.17	-0.15	-0.16	-0.19	-0.15	-0.16	-0.13	-0.12
Fats/Oil	-0.16	-0.14	-0.16	-0.17	-0.16	-0.18	-0.15	-0.20
Sugar	-0.14	-0.13	-0.15	-0.19	-0.15	-0.17	-0.14	-0.15
Spices/Condiments	-0.04	-0.04	-0.05	-0.04	-0.04	-0.05	-0.02	-0.04

Table 34. Appendix: Consumption poverty across main source of income or food, by tier

	Tier 1		Tier 2		Tier 3	
	Mean	N	Mean	N	Mean	N
[BL01] HH living on less than \$1.90/day per capita	72%	2,122	68%	815	48%	152
Farming/crop production and sales	74%	930	69%	426	47%	88
Agricultural wage labor	75%	567	82%	175	84%	21
Non-agricultural wage labor	73%	273	44%	61	96%	9
Other self-employment (non-ag.)	73%	105	51%	53	23%	19
Other	62%	247	66%	100	6%	15
[BL02] Shortfall of the poor relative to the \$1.90/day PC	29%	1,438	18%	549	12%	65
Farming/crop production and sales	30%	620	18%	283	10%	33

	Tier 1		Tier 2		Tier 3	
	Mean	N	Mean	N	Mean	N
Agricultural wage labor	28%	410	18%	146	18%	16
Non-agricultural wage labor	31%	196	17%	36	11%	8
Other self-employment (non-ag.)	36%	57	16%	24	11%	6
Other	27%	155	21%	60	6%	2
[BL40] Consumption per capita per day (2021 PPP\$)	2.07	2,122	2.15	815	3.00	152
Farming/crop production and sales	2.03	930	2.10	426	2.74	88
Agricultural wage labor	1.92	567	1.98	175	1.89	21
Non-agricultural wage labor	2.11	273	2.28	61	1.96	9
Other self-employment (non-ag.)	1.93	105	2.86	53	6.49	19
Other	2.66	247	2.20	100	3.99	15
[BL01] HH living on less than \$1.90/day per capita	72%	2,122	68%	815	48%	152

Notes: The \$1.90 threshold is inflated to 2011 to 2021 to match the year of the data collection using the US CPI.

Table 35. Appendix: Anthropometric indicators for children under 5 years old, by gender and age

	Overall				T1CG only				Everyone else			
	Mean	N	95% – C.I.		Mean	N	95% – C.I.		Mean	N	95% – C.I.	
			Lo	Hi			Lo	Hi			Lo	Hi
[BL03] Wasted	2%	1,772	0%	4%	6%	1,679	1%	11%	0%	93	0%	0%
Female												
0–5 months	5%	37	0%	12%	5%	37	0%	12%	—	—	—	—
6–11 months	4%	148	0%	9%	6%	145	1%	12%	—	3	—	—
12–23 months	3%	341	1%	5%	5%	334	2%	8%	—	7	—	—
23–59 months	2%	345	0%	4%	8%	313	0%	20%	0%	32	0%	0%
Male												
0–5 months	19%	49	0%	44%	26%	48	0%	55%	—	1	—	—
6–11 months	10%	140	0%	22%	14%	138	0%	29%	—	2	—	—
12–23 months	2%	370	0%	4%	3%	367	0%	5%	—	3	—	—
23–59 months	0%	342	0%	0%	1%	297	0%	1%	0%	45	0%	0%

	Overall				T1CG only				Everyone else			
	Mean	N	95% – C.I.		Mean	N	95% – C.I.		Mean	N	95% – C.I.	
			Lo	Hi			Lo	Hi			Lo	Hi
[BL04] Stunted	41%	1,727	31%	51%	37%	1,634	33%	42%	43%	93	27%	59%
Female												
0–5 months	17%	30	0%	44%	17%	30	0%	44%	—	—	—	—
6–11 months	34%	144	0%	69%	12%	141	5%	19%	—	3	—	—
12–23 months	31%	339	15%	47%	31%	332	24%	38%	—	7	—	—
23–59 months	42%	331	22%	61%	40%	299	31%	48%	42%	32	17%	68%
Male												
0–5 months	38%	45	0%	79%	12%	44	1%	24%	—	1	—	—
6–11 months	67%	138	49%	84%	51%	136	36%	65%	—	2	—	—
12–23 months	54%	369	42%	66%	47%	366	38%	57%	—	3	—	—
23–59 months	36%	331	17%	55%	40%	286	31%	50%	34%	45	8%	61%
[BL05] Healthy weight	89%	1,772	82%	95%	89%	1,679	85%	94%	88%	93	78%	99%
Female												
0–5 months	90%	37	79%	100%	90%	37	79%	100%	—	—	—	—
6–11 months	59%	148	27%	90%	86%	145	79%	93%	—	3	—	—
12–23 months	91%	341	83%	99%	91%	334	87%	95%	—	7	—	—
23–59 months	91%	345	76%	100%	91%	313	79%	100%	91%	32	72%	100%
Male												
0–5 months	48%	49	16%	79%	64%	48	36%	92%	—	1	—	—
6–11 months	81%	140	67%	95%	72%	138	57%	87%	—	2	—	—

	Overall				T1CG only				Everyone else			
	Mean	N	95% – C.I.		Mean	N	95% – C.I.		Mean	N	95% – C.I.	
			Lo	Hi			Lo	Hi			Lo	Hi
12–23 months	95%	370	91%	98%	94%	367	90%	98%	—	3	—	—
24–59 months	92%	342	84%	100%	94%	297	90%	98%	92%	45	79%	100%

Notes: Confidence intervals for binary indicators are based on Normal approximations; for very small samples and indicator values near 0 or 1, these confidence intervals can exceed 0 or 1 and in this table confidence interval bounds are censored at 0 from below and 1 from above.

— Not available, cell has less than 30 observations. Wt = weight. Wasted is defined as having WHZ less than -2. Stunted is defined as having a HAZ less than -2. Healthy weight is defined as having a WHZ greater than -2 and less than 2.

Table 36. Appendix: Small children: diet and health, additional details

Description	T1CG only			
	Mean	N	95% – C.I.	
			Lo	Hi
Children 6–23 months receiving minimum acceptable diet (MAD)	4%	1,148	3%	6%
MAD components:				
Yesterday, during the day and night, child ate any:				
Grain, roots, and tubers	63%	1,406	59%	67%
Legumes and nuts	21%	1,406	18%	24%
Dairy products (milk, yogurt, cheese)	8%	1,406	5%	10%
Flesh foods (meat, fish, poultry, and liver/organ meats)	38%	1,406	34%	42%
Eggs	6%	1,405	4%	7%
Vitamin A-rich fruits and vegetables	39%	1,406	35%	43%
Other fruits and vegetables	26%	1,406	22%	30%
Times child ate [food type] yesterday during the day or at night:				
Solid, semi-solid, or soft foods other than liquids	1.08	1,405	0.98	1.17
Any milk	0.14	1,406	0.10	0.18
Child breastfed yesterday during the day or at night	89%	1,407	86%	92%

Table 37. Appendix: Water, sanitation, and hygiene of Tier-1 Care Group eligible, additional details

Description	T1CG only			
	Mean	N	95% – C.I.	
			Lo	Hi
[BL17] HH with soap and water at a handwashing station on premises	7%	1,761	4%	10%
Female and Male Adults (F&M)	8%	1,285	4%	12%
Adult Female No Adult Male (FNM)	5%	455	2%	8%
HH where a handwashing station was observed on the premises	27%	1,761	23%	31%
Water at the place for handwashing	51%	450	41%	60%
Cleansing agent at the place for handwashing				
Soap, ash, or detergent (bar, liquid, power, paste)	28%	450	18%	37%
Mud or sand	5%	450	2%	8%
Other cleansing agent	0%	450	0%	1%
[BL27] HH with access to a basic sanitation service	20%	1,761	16%	24%
Female and Male Adults (F&M)	21%	1,285	17%	25%
Adult Female No Adult Male (FNM)	17%	455	10%	24%
Kind of toilet the HH uses:				
Uncovered pit latrine without slab/open pit	41%	1,761	36%	46%
Covered Pit latrine without slab/open pit	35%	1,761	31%	40%
Covered Pit latrine with slab	13%	1,761	10%	16%
Uncovered pit latrine with slab	6%	1,761	4%	8%
No facility/bush/field	3%	1,761	2%	4%
Other	2%	1,761	1%	3%

Notes: Household composition information sufficient to compute indicator values separately by household type with respect to male and female members was only collected in the Tier-1 Care Group Eligible sample. Household type “Child No Adults” and “Adult Male No Adult Female” are not shown, since they have less than 30 observations.

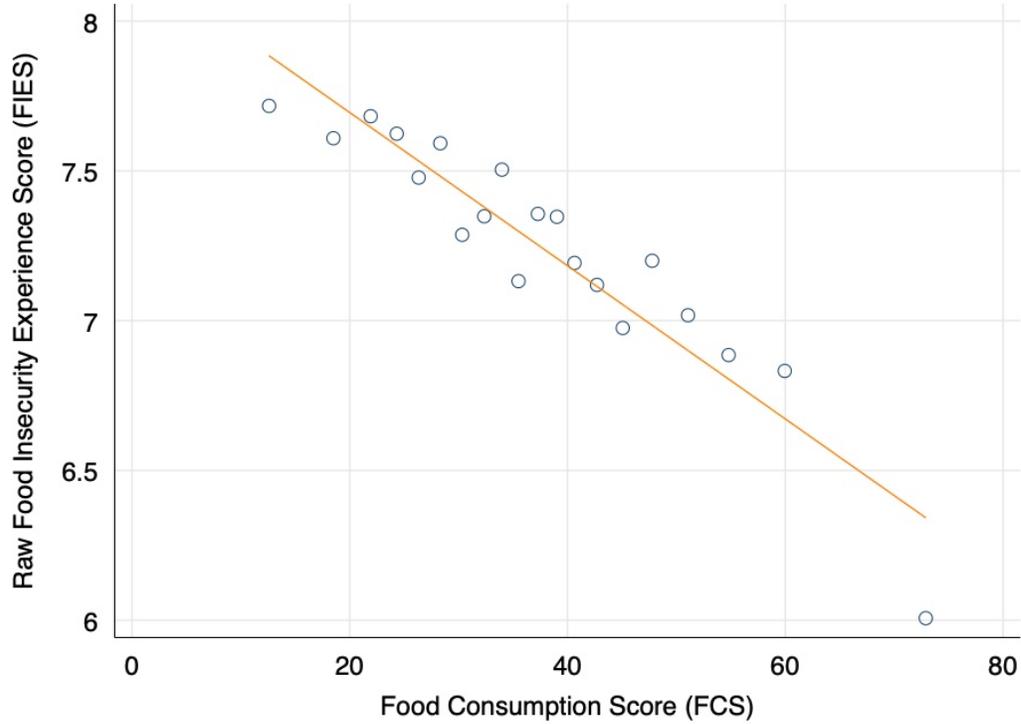
Table 38. Appendix: Resilience, by household gender composition

Description	Mean	N	95% – C.I.	
			Lo	Hi
[BL24] HH believes local government will respond effectively to future shocks and stresses*	75%	1,747	70%	79%
Tier-1 Care Group Eligible	81%	481	75%	87%
Female and Male Adults (F&M)	80%	348	72%	87%
Adult Female No Adult Male (FNM)	83%	124	70%	95%
Everyone else	74%	1,266	70%	79%

Notes: *This question was administered to random subsample of respondents. Household composition information sufficient to compute indicator values separately by household type with respect to male and female members was only collected in the Tier-

1 Care Group Eligible sample. Household type "Child No Adults" and "Adult Male No Adult Female" are not shown, since they have less than 30 observations.

Figure 2. Appendix: Binned scatter plot showing strong alignment of Food Consumption Score vs Food Insecurity Experience Scale scores



Balance

Table 39. Appendix: Balance

Variable	Control		Treatment		F-test for joint orth.
	N	Mean/SE	N	Mean/SE	
Demographics					
Gender of household head	1,495	0.369 [0.016]	1,612	0.370 [0.017]	0.879
Age of household head	1,495	41.016 [0.588]	1,612	40.298 [0.683]	0.244
Christian	1,443	0.525 [0.046]	1,607	0.597 [0.039]	0.285
Muslim	1,443	0.470 [0.047]	1,607	0.400 [0.040]	0.361
Household head is married	1,495	0.672 [0.015]	1,612	0.656 [0.017]	0.848
No formal schooling	1,495	0.227 [0.016]	1,612	0.203 [0.013]	0.606
Some primary schooling	1,495	0.530 [0.016]	1,612	0.542 [0.017]	0.933
Primary school completed	1,495	0.068 [0.008]	1,612	0.068 [0.008]	0.963
Some secondary school	1,495	0.097 [0.011]	1,612	0.110 [0.013]	0.672
Secondary school / high school completed	1,495	0.045 [0.008]	1,612	0.053 [0.007]	0.547
Number of children under 16 in household	1,495	2.738 [0.070]	1,612	2.705 [0.056]	0.698
Number of children under 5 in household	1,495	1.045 [0.030]	1,612	1.038 [0.032]	0.389
Number of children under 2 in household	1,495	0.567 [0.018]	1,612	0.549 [0.021]	0.575
Number of separate rooms	1,495	2.111 [0.033]	1,612	2.105 [0.037]	0.901
<i>Joint Test p-value: 0.74</i>					
Income: Sources of food or income over the last 12 months					
Farming/crop production and sales	1,495	0.615 [0.022]	1,612	0.610 [0.016]	0.751
Agricultural wage labor	1,495	0.431 [0.025]	1,612	0.449 [0.029]	0.994

Variable	Control		Treatment		F-test for joint orth.
	N	Mean/SE	N	Mean/SE	
Non-agricultural wage labor	1,495	0.232 [0.019]	1,612	0.261 [0.020]	0.411
Other self-employment (non-agricultural)	1,495	0.098 [0.009]	1,612	0.111 [0.012]	0.307
Other self-employment (agricultural)	1,495	0.072 [0.007]	1,612	0.073 [0.008]	0.971
<i>Joint Test p-value: 0.92</i>					
Consumption poverty					
[BL01] HH living on less than \$1.90/day PC	1,487	0.664 [0.015]	1,602	0.664 [0.018]	0.791
[BL02] Shortfall of the poor relative	988	0.283 [0.011]	1,064	0.261 [0.007]	0.257
[BL40] Consumption PC per day (2021 PPP\$)	1,487	2.371 [0.230]	1,602	2.218 [0.051]	0.314
<i>Joint Test p-value: 0.20</i>					
Food security					
Food Consumption Score (FCS)	1,495	37.638 [0.551]	1,612	37.282 [0.837]	0.886
[BL10] Adequate FCS	1,495	0.537 [0.017]	1,612	0.509 [0.024]	0.642
[BL10] Borderline FCS	1,495	0.332 [0.012]	1,612	0.372 [0.016]	0.125
[BL10] Poor FCS	1,495	0.131 [0.012]	1,612	0.119 [0.013]	0.374
[BL06] Raw FIES score	1,495	7.258 [0.043]	1,612	7.240 [0.058]	0.855
<i>Joint Test p-value: 0.17</i>					
Household assets					
Index of Assets	1,495	0.000 [0.014]	1,612	0.021 [0.018]	0.242
<i>Joint Test p-value: 0.35</i>					
Livestock					
HH that owns any livestock	1,495	0.332 [0.016]	1,612	0.341 [0.017]	0.568
Index of Livestock ownership	1,495	0.000 [0.012]	1,612	0.021 [0.012]	0.134

Variable	Control		Treatment		F-test for joint orth.
	N	Mean/SE	N	Mean/SE	
Index of Livestock structures ownership	1,495	-0.000 [0.017]	1,612	0.014 [0.017]	0.479
<i>Joint Test p-value: 0.56</i>					
Farming					
HH that own agricultural land at time of survey	1,495	0.779 [0.018]	1,612	0.783 [0.021]	0.996
Total area of agricultural land (in acre)	1,495	0.818 [0.025]	1,612	0.794 [0.026]	0.184
HH cultivated anything in the last 12 months	1,495	0.909 [0.009]	1,612	0.913 [0.010]	0.840
Number of crops cultivated in the last rainy season	1,495	1.886 [0.063]	1,612	1.937 [0.062]	0.486
No. maize bags harvested in the last rainy season	1,495	3.645 [0.991]	1,612	4.087 [0.676]	0.886
HH sold some crops cultivated in last rainy season	1,359	0.432 [0.018]	1,472	0.410 [0.017]	0.167
HH cultivated anything in this dry season	1,495	0.185 [0.013]	1,612	0.188 [0.016]	0.905
Number of crops cultivated in this dry season	1,495	0.207 [0.016]	1,612	0.223 [0.021]	0.442
Has used any irrigation in last dry season	1,495	0.179 [0.013]	1,612	0.181 [0.015]	0.992
HH operates a business	1,495	0.166 [0.012]	1,612	0.172 [0.013]	0.845
HH is member of a farmer group/cooperative	1,495	0.047 [0.007]	1,612	0.043 [0.006]	0.925
[BL21] Applied improved management practices/technologies	1,495	0.860 [0.012]	1,612	0.881 [0.011]	0.098*
<i>Joint Test p-value: 0.34</i>					
Wash					
[BL17] HH with soap and water at handwashing station on premises	862	0.060 [0.010]	899	0.059 [0.010]	0.371
[BL27] HH with access to a basic sanitation service	862	0.211 [0.019]	899	0.195 [0.021]	0.991
<i>Joint Test p-value: 0.85</i>					
Savings and loans					
HH saves cash regularly	1,495	0.102 [0.009]	1,612	0.103 [0.012]	0.545

Variable	Control		Treatment		F-test for joint orth.
	N	Mean/SE	N	Mean/SE	
HH taken out a loan from a bank/Microfinance institution/Sacco	1,495	0.104 [0.010]	1,612	0.102 [0.011]	0.903
<i>Joint Test p-value: 0.99</i>					

Notes: The value displayed for t-tests are the differences in the means across the groups.

Standard errors are clustered at variable vgp_uniqid.

Fixed effects using variable strat_cell are included in all estimation regressions.

****, **, and * indicate significance at the 1, 5, and 10% critical level.*