Basic Information Document

Agricultural Households Tracking Survey (AHTS)

Sierra Leone – 2010

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I. Introduction and Background

The Government of Sierra Leone has made agriculture its top priority. Yet, a lack of information about the status of the sector can inhibit effective policy formulation, planning, implementation and performance evaluation. In view of this, in August 2009, the Government of Sierra Leone requested and supported an independent exercise, the Agricultural Household Tracking Survey (AHTS), to obtain accurate and credible agricultural data that could serve as a baseline for longitudinal analyses of Sierra Leone's progress in agricultural development over the next several years.

The AHTS was commissioned and overseen by the Strategy and Policy Unit (SPU) at State House, and implemented collaboratively by the Ministry of Agriculture, Forestry and Food Security (MAFFS), Statistics Sierra Leone (SSL) and the Abdul Latif Jameel Poverty Action Lab (J-PAL) / Innovations for Poverty Action (IPA). The objectives of the survey were twofold: i) provide accurate and credible information about the agricultural sector in Sierra Leone at the level of the household; and ii) provide data on all aspects of cultivation from planting to harvest, access to services, technology, markets and infrastructure, in order to improve general knowledge on decision-making by farmers in Sierra Leone. In order to achieve these objectives, a Steering Committee was convened as well as a core Technical Team formed. The Steering Committee was chaired by SPU and was tasked to guide the survey process from the initial stage of mobilizing resources through to ensuring that the survey was completed and results were published in a timely manner. The Technical Team, comprising members from SSL, MAFFS, and J-PAL/IPA, was made responsible for all technical work and the day-to-day management of all ATS activities.

The AHTS focused on a subset of eight "core crops" comprised of five food crops (rice, cassava, maize, groundnut and sweet potato) and three tree cash crops (cacao, coffee and oil palm). Detailed data on these crops was collected in the eight "crop specific" sections of the AHTS and are provided as part of the AHTS datasets. In addition, some basic data was collected across all crops as well as data on household characteristics. The AHTS further collected data on revenues, access to seeds from the formal sector and other aspects of agriculture that is designed to allow the Government of Sierra Leone to track whether subsistence farmers are becoming more linked to commercial systems over time.

Agricultural production amounted to about 60% of Sierra Leone's GDP in 2007[1] and 69% of the labor force in 2008. Sierra Leone emerged from a decade of civil war in 2002, but political stability over the last several years has allowed the Government of Sierra Leone to focus on recovery and investment, more recently in the agricultural sector. In 2008, GDP in Sierra Leone was $4 billion at PPP, which amounts to a GDP per capita about of $700 (also PPP). Poverty

[1] All figures in this subsection are drawn from the World Development Indicators Online, accessed July 2011 except for the figure on agricultural production as a share of GDP that originates from Statistics Sierra Leone.

rates in Sierra Leone were also quite high, with about 53% of the population living on less than a dollar a day, and 76% living on less than two dollars a day in 2003.

Agriculture is now an important priority for the Government moving forward. In addition, Sierra Leone actively participates in international markets for agricultural commodities both as an exporter and as an importer - for example in 2007, agricultural exports totaled $25 million (current US $) and agricultural imports were $150 million.

II. Survey Instruments

Three survey instruments were used to collect information for the AHTS: a household questionnaire, a community questionnaire and a monitor questionnaire.

The **household questionnaire** was comprised of twenty modules covering all aspects of agricultural production at the household and at the farm level. This included a crop inventory (section C) and modules on farm characteristics and ownership (section D), use of inputs and machinery (section E), specific sections for each of the eight AHTS core crops (sections F through M), access to services, food security, livestock, household assets, and a post-interview assessment. Interviews were conducted with the head of the target households and any other household members involved in agriculture. Spatial data on the longitude and latitude of each respondent household was also collected using portable GPS devices.

The household questionnaire was designed to maximize the accuracy of the rice data. Rice is the most important crop and the main staple for the majority of rural households in Sierra Leone. The rice module of the AHTS (section F) provides detailed information on all aspects of rice cultivation, including planting practices, rice ecologies, harvest quantities in three different states (unthreshed, threshed and clean) at the **plot** level, disposition of harvest, processing and sales, and labor use. The household questionnaire also included a specific module on improved rice technology (NERICA).

The cassava section of the AHTS (section G) was designed to collect comprehensive information on cassava planting, harvesting and processing. Cassava is the main crop cultivated by households in some areas of Sierra Leone, and the second main staple of households overall. Cassava is a very different crop to rice with very different production attributes. It can be left in the ground for multiple seasons and does not need to be harvested the season or the year it is planted. This affords households a way of smoothing risk and using cassava as a lean season crop. It also means cassava can better withstand droughts. However, this attribute of cassava makes it complicated to compute areas under cultivation and yields based on household surveys.

The AHTS chose a particular approach to this. The ideal approach is to compute a rate of return measure of yield by looking at the harvests as a function of the planted material with some accounting for when it was planted. This is extremely difficult to do in practice as it involves collecting data on all the cassava in the ground and when it was planted, which farmers may not

remember. Instead, the AHTS focused on the cassava that was harvested in the last 12 months at the plot level.

The modules on the three other core food crops (maize, groundnut and sweet potato) are structured along a similar format (sections H-J). They include information on quantities planted and harvested at the **household** level, as well as cropping practices, purchase of inputs, and sales and processing (for groundnut). The modules on the three core tree crops (cacao, coffee and oil palm) provide information on the number of trees cultivated at the **plot** level, the cost of seedlings, plot-level production, processing and sales (sections K-M). Information on farm problems and replanting for all crops is included in section N. The module on access to services (section Q) provides detailed data on agricultural extension and training, financial services, drying and storage facilities, labor exchange and agricultural organizations.

Basic information on food availability was collected as part of section R. The AHTS was not designed to include a comprehensive food security section but rather to capture a few simple indicators of the ability of households to purchase and consume food, as well as some basic measures indicatingthe food security position of the households in the country. More extensive food security information for Sierra Leone can be found in the CFSVA 2011, as well as the USAID Sierra Leone food security country framework for 2009. Modules S, T and U provide information on livestock, agricultural assets, and households amenities respectively.

The **community questionnaire** included twelve modules focusing respectively on prices and units at the community level (section B), community facilities for drying and storage of cereals and mechanized farming (section C), general information on agricultural practices within the community (section D), community farms (section E), rice varieties and awareness of NERICA rice (section F), labour costs (section G), access to local markets (section H), routes and transportation costs to markets and district headquarter towns (section I), access to fertilizer (section J), community-based agricultural organizations and NGOs (section K), general community facilities such as radio coverage, mobile phone coverage, electricity supply and drinking water supply (section L), as well as a post-interview assessment.

As in the household questionnaire plot-level information for the community farms (section E) was collected for the eight AHTS core crops only. Section E of the community questionnaire provides information on ecologies, the gender composition of labor on the community farms, acreage under cultivation for each crop, irrigation and fertilizer use, planting practices, production and disposition of harvest by the community.

The community questionnaire was conducted by the AHTS field supervisors with focus groups composed of community members knowledgeable about agriculture within the community. Town chiefs, master farmers, representatives of community farms, women's leaders and youth leaders were especially encouraged to participate.

The **monitor questionnaire** was designed and conducted with the purpose of allowing robustness and quality checks on the household data. The monitor survey was therefore conducted with households who had recently responded to the AHTS household questionnaire. The survey instrument consisted of a shortened version of the household questionnaire, with specific attention devoted to the crop inventory and the rice section.

III. Sampling Design, Sampling Weights and Attrition

Sampling Design

The AHTS follows a two-level sampling methodology, which is the standard for household level surveys.

First, 920 Enumeration Areas (EAs) were sampled for the AHTS out of the 9,671 EAs from the 2004 census. The sampling was stratified by district to ensure representativeness of the results at this level, allowing presentation of district averages. The size of the sample was determined following power calculations performed on rice data from the SSL 2007 Core Welfare Indicators questionnaire.

Second, within each sampled EA, a sample of up to 10 agricultural households (within one locality) was drawn using information collected during the AHTS Listing Exercise[2], conducted in October and November 2009. The total target sample size for the AHTS Survey was 9,030 agricultural households. For each EA, 5 additional replacement households were also drawn.

The AHTS sampling methodology did not include stratification by ecology. The reason for this is that a detailed and accurate breakdown of each enumeration area or chiefdom into ecologies was not available and such information would have been needed for stratification by ecology. However the AHTS now provides this information, which can be used to stratify future surveys by ecology.

Attrition

Attrition was moderate. The final AHTS sample has data on 8,803 households. As mentioned above, the target sample size was 9,030 households. Of these, 9,006 households were reached in 917 EAs (24 households were not reached and not replaced, over 3 different EAs).

In addition to this, another 10 EAs initially sampled to be surveyed were dropped from the final sample as GPS coordinates reported by the surveyors did not match geographic data available to the Technical Team (raising questions about the validity of these data). Individual decisions

[2] The listing questionnaire and de-identified data may also be provided upon request. The listing data contains location information and data on roads construction/rehabilitation for each EA listed (1044 Eas). Information at the household level includes gender of household heads, krio proficiency and other languages spoken by the household, whether the household did agricultural work and sold any of its agricultural produce in the past 12 months, and distance to the household's nearest farm.

concerning GPS coordinates outside the Target Enumeration Areas were fully documented in a specific report which can be made available by the Technical Team upon request. Listing and other questionnaire problems (also detailed in the field report) led to the Technical Team dropping a further 4 EAs. In total this meant an additional 203 households were dropped from the sample. This brings the final AHTS sample size to 8,803 households. Overall, this represents an attrition rate of 2.5% at the household level from the target sample.

The listing and sampling procedures were designed to ensure that all households sampled were involved in agriculture. However, in the final AHTS dataset 409 households are reported as not having been involved in agriculture in the past twelve months even though they had reported undertaking farming activities in the initial listing exercise. It may be that some of this inconsistency is due to enumeration error. The weighting procedure used in the analysis phase was designed to ensure that this issue did not affect the representativeness of the final AHTS sample.

Finally, it should be noted that of the final sample of 8,803 households, 8,614 households come from the original sample of targeted households and 189 were replacements. There were a number of EAs where the Listing exercise was not done correctly. Most of these EAs (except for the 3 described above that were dropped by the Technical Team) were re-listed during the course of the AHTS fieldwork and new samples were drawn.

Sampling Weights

Household and EA weights were created to be included in the AHTS datasets. The EA weights come from the sampling design described above and represent the inverse of the probability that the EA was sampled. The household weights multiple this by the probability that the given household was sampled in a given EA.

The sampling weights account for all the attrition (i.e. for both the attrition that was of 24 households due to EAs not being reached as well as the 203 households due to EAs where the data was not collected accurately). However, these weights assume that the attrition was random. In addition, the weights account for the 404 replacement households as well as the 402 re-listed households.

IV. Pilot Testing, Training, Organization and Fieldwork Procedures

Pilot Testing

A total of **six early pretests** were conducted by the AHTS Technical Team between September 2009 and February 2010. The main objectives of the field testing were to identify local crop and variety names, methods of farming, the average distance between respondent households and their farms, and the range of measurement units used throughout the country. The pretests

allowed the Technical Team to gather preliminary data on the duration of the each questionnaire and to identify and address issues with the survey instruments.

Training and Recruitment

All potential AHTS enumerators were trained for a period of **four weeks** and completed a final exam. Enumerators were selected on the basis of their performance on the final test. The issues emphasized during the training included, *inter alia*, how to approach respondent communities and households, how to interpret the more complex questions included in the questionnaires, translations of local crop and variety names, strategic responses (enumerators were taught to emphasized that answers would not have any effect on the amount of assistance received), and the lessons learned from field testing.

Fieldwork Procedures

The main data collection exercise was designed to include multiple levels of data collection and supervision, namely: Enumeration Teams, Field Monitors, District Coordinators, and the AHTS Technical Team. The structure as pertaining to each level is described in detail below.

Level 1: 20 Enumeration Teams (each comprising one Enumeration Team Supervisor, four Enumerators, and one Driver)

The 920 EAs were divided across the 20 Enumeration Teams along geographic and linguistic lines such that each team was responsible for between 45 and 47 EAs. Each team was allotted 8 weeks to enumerate its designated EAs. Teams were instructed to cover one EA per day for six days every week, with the seventh day reserved for editing questionnaires, communicating progress and work schedules, and submitting edited questionnaires. This schedule was designed to allow Team Supervisors to edit questionnaires on a regular basis, in order to identify potential inconsistencies, mistakes and other problems and correct them with enumerators, as well as to ensure a steady stream of edited questionnaires to District Coordinators and, ultimately, the Technical Team.

Level 2: 13 Field Monitors

Of the 920 EAs covered by Enumeration Teams, 616 were randomly selected for Field Monitoring. These 616 EAs were divided geographically across 13 Field Monitors, who were all MAFFS field staff. All monitors were assigned 48 EAs, with the exception of the monitor for Koinadugu District, who was assigned 40 EAs due to the difficulty of the terrain. Each Field Monitor was based in a different district, although some Monitors' areas of operations extended across district boundaries.

Level 3: District Coordinators

MAFFS and SSL district-level staff were responsible for jointly coordinating AHTS field activities. Each MAFFS District Agricultural Officer (DAO) and SSL District Statistician was responsible for overseeing the fieldwork in 70-75 EAs, with the exception of the District Coordinators for Koinadugu District, who oversaw work in 56 EAs. As with Field Monitors, each set of District Coordinators was based in a different district, although the areas of responsibility of some District Coordinators extended across district boundaries. However, because some Enumeration Teams worked across the areas of responsibility of multiple District Coordinators, these teams reported to different District Coordinators for different portions of their work. Each set of District Coordinators were therefore responsible for the work of between 2 and 6 Enumeration Teams.

Level 4: the AHTS Technical Team

The Technical Team consisted of members from each of the implementing partners of the AHTS (the Ministry of Agriculture, Forestry and Food Security (MAFFS), Statistics Sierra Leone (SSL) and the Abdul Latif Jameel Poverty Action Lab/Innovations for Poverty Action (J-PAL/IPA)) and was headed by J-PAL/IPA as set out in the Memorandum of Understanding.

The role of the Technical Team was to design and implement the survey. During fieldwork the Team monitored the progress of fieldwork and resolved any issues arising. Monitoring was conducted through three country-wide supervisions. Supervision Teams were made up of members of the AHTS Technical Team.

Findings from fieldwork

The findings from AHTS fieldwork have been fully documented in a separate AHTS field report, a summary of which is presented in the Annex of the final AHTS Report. The purpose of the field report is to provide detailed information on all relevant aspects of the AHTS fieldwork and in particular:

(1) all issues relevant to the **quality of the information collected** as part of the AHTS, so as to inform users of the data about what types of information are more and less reliable, and why;

(2) the experiences of the AHTS, so that **lessons learned** during the AHTS can inform plans for future collection of high-quality (agricultural) data in Sierra Leone.

The report is divided into 3 sections: 1) a discussion of the intended structure of the fieldwork, and how successfully these plans were implemented in the field; 2) a discussion of issues potentially affecting the quality of information collected, including the selection and identification of Target Households, problems with the survey instruments themselves, and problems encountered during the administration of the survey instruments to respondents; 3) suggestions for future surveys.

V. Data Entry and Cleaning

Following the completion of fieldwork, data entry was conducted at SSL for the Household, the Community and the Monitor questionnaires and was completed on July, 29, 2010. Each questionnaire was entered independently by two different operators in order to minimize the risk of individual error and to maximize the reliability of the final dataset. Processing of the AHTS data was a three-stage process involving: (1) double entry reconciliation, (2) logical consistency checks and (3) other cleaning activities.

Double Entry Reconciliation involved identifying discrepancies between the two rounds of data entry for each questionnaire, and checking these entries against the physical questionnaires in order to obtain the correct data. Logical checks verified the consistency of answers given by each household across different sections of the questionnaire. The other cleaning activities involved 1) converting local measurement units into standardized units for the sake of aggregate analysis, and 2) setting rational value bounds for important variables and dealing with outliers – extreme or implausible values gathered in the process of data collection. The cleaning work was conducted collaboratively by J-PAL/IPA, MAFFS and SSL.

In general hte outlier routines consisted of setting to missing observations that (at the household level) had more than five times the standard deviation greater harvests than the mean. For example, for cassava, this would mean setting observations to missing where the total harvest of cassava was greater than five standard deviations times the average harvest. A specific procedure was adopted for rice in order to account for the potentially large producers included in the AHTS sample. Observations in the rice data were considered outliers when the seeding rate was greater than 10 bushels per acre (the modal rate was 1 bushel per acre before conversions are run: 75% of observations were at the modal rate and 90% of observations were at or below the modal rate). The outlier routines were run separately for each crop and in all cases, they only resulted in very few observations being set to missing for each crop.

VI. Notes on Dataset Structure and Use

The AHTS data in STATA is divided into two main folders: the Household data folder and the Community data folder.

The Household data is divided into 17 separate datasets. The main dataset is ATS_HH_SINGLES containing information for all modules of the household questionnaire where responses were collected at the household level. The unit of observation in this dataset is therefore the household denoted by the variable **serial_num**. The AHTS singles dataset contains a total of 8,803 observations with serial numbers comprised between 1 and 9015.

The other 16 datasets for the Household questionnaire are in multiple (long) format. Twelve of the sixteen multiples datasets contain information collected at the farm level (sections D2, D3, E1, E3, F2, G3, K3, L3, M3 and N2). The unit of observation is the farm, identified by a farm

identifier. Section B1 is the household roster in which each observation corresponds to a household member. The labor sections (F9 and F10) for the upland and the lowland rice farms comprise information divided by activity. Section Q13 contains information divided by agricultural organizations operating in the community.

The Community data is divided into four separate datasets. The main dataset is Comm_SINGLES containing information for all modules of the questionnaire where responses were collected at the community level. The unit of observation is therefore the community denoted by the variable **serial_num**. The AHTS singles dataset contains a total of 903 observations with serial numbers comprised between 1 and 921.

The other three datasets for the Community questionnaire are in multiple (long) format at the farm level. The unit of observation is the farm, identified by a farm identifier.

TABLES

Table 1 – Content of the AHTS Household Questionnaire and Corresponding Datasets

Module and sub-modules	Broad description of the information collected	Datasets
Cover page	Metadata: location, enumerator, target household and data processing information.	ATS_HH_SINGLE
Household roster	Names of all household members over the age of 4, age, sex, relation to the head of household, highest form of education completed and main economic activity of all household members over the age of 4. Number of children under the age of 5. Religion and ethnicity of the head of household. Household contact information.	ATS_HH_B1_HH_ROSTER
Crop inventory	Information on whether the household cultivated, harvested and sold a variety of crops.	ATS_HH_SINGLE
Farm characteristics	Listing of all farms cultivated by the household in the past 12 months. For each farm, includes information on ecology, main crops cultivated, household member responsible for the farm, farm size, distance to the main household dwelling, irrigation and the number of crop cycles.	ATS_HH_D2_FARM_CHARACTERISTICS
Farm ownership	Includes information on the household's right to sell the land for each farm, payment arrangements and amounts paid by the household to cultivate each of its farms.	ATS_HH_D3_FARM_OWNERSHIP
Farm inputs	Type, quantity and cost of all inputs (fertilizers, pesticides, other chemicals and other organic matters) used on each farm.	ATS_HH_E1_INPUTS
Farm machinery	Information on any animal traction or machinery used on the household's farms in the past 12 months.	ATS_HH_E3_ANIMAL_TRACTION_OR_MACHINERY

Rice planting	Timing of rice planting, quantities planted, cropping practices, varieties planted and source and cost of seeding material on each farm.	ATS_HH_F2_RICE_PROD_PLANTING
Rice harvesting	Timing of rice harvest and quantities harvested in different states (unthreshed, threshed, clean) on each farm.	ATS_HH_F2_RICE_PROD_HARVESTING
Rice processing	Cost of machinery for rice milling and quantities processed and received after milling.	ATS_HH_SINGLE
Disposition of rice harvest	Provides details on how the household used its rice harvest from the past 12 months (how much was used for self-consumption, how much was sold, etc.)	ATS_HH_SINGLE
Rice sales	Quantities and price of rice sold in different harvest states. Also includes information on husk rice use and on sales from the harvest season before the last.	ATS_HH_SINGLE
Labor on the upland rice farm	Includes information on household, exchange and external labor for 17 different activities (time spent by males, females and children on each activity, cost of hired labor, etc.). The data was collected for one for the household's upland farms only (randomly selected).	ATS_HH_F10_UPLAND_LABOUR_ACTIVITY
Labor on the lowland rice farm	Includes information on household, exchange and external labor for 17 different activities (time spent by males, females and children on each activity, cost of hired labor, etc.). The data was collected for one for the household's lowland farms only (randomly selected).	ATS_HH_F9_LOWLAND_LABOUR_ACTIVITY
Cassava planting	Timing of cassava planting, quantities planted, cropping practices, varieties planted and source and cost of seeding material on each farm.	ATS_HH_G3_CASSAVA_PROD_PLANTING
Cassava harvesting	Timing of cassava harvest and quantities harvested for various purposes on each farm.	ATS_HH_G3_CASSAVA_PROD_HARVESTING

Cassava processing	Processing of cassava into garri, fufu and flour; use and cost of machinery to process cassava into garri.	ATS_HH_SINGLE
Cassava sales	Provides details on quantities and price of cassava sold in different states (unprocessed, garri, fufu, flour). Also includes information on buyer type and primary/secondary sale location.	ATS_HH_SINGLE
Sweet potato	Includes information on sweet potato cultivation by the household, quantities planted and harvested, cropping practices and cost of planting material.	ATS_HH_SINGLE
Groundnut	Includes information on groundnut cultivation by the household, quantities planted and harvested, cropping practices and cost of planting material.	ATS_HH_SINGLE
Maize	Includes information on maize cultivation by the household, quantities planted and harvested, cropping practices and cost of planting material.	ATS_HH_SINGLE
Cacao production	Number of trees cultivated on each farm, age of trees, amount paid for new seedlings, and quantities harvested.	ATS_HH_K3_CACAO_PRODUCTION
Cacao processing and sales	Methods for fermenting, drying and bagging the cacao harvest, quantities sold, revenue from sales, main buyer type and sale location.	ATS_HH_SINGLE
Coffee production	Number of trees cultivated on each farm, age of trees, amount paid for new seedlings, and quantities harvested.	ATS_HH_L3_COFFEE_PRODUCTION
Coffee processing and sales	Use of machinery to hull the coffee harvest, quantities sold, revenue from sales, main buyer type and sale location.	ATS_HH_SINGLE
Oil palm production	Number of trees cultivated on each farm, age of trees, amount paid for new seedlings, and quantities harvested.	ATS_HH_M3_OIL_PALM_PRODUCTION
Oil palm processing and sales	Oil palm processing, machinery use, quantities sold in different states (raw, palm oil and nut oil), revenue from sales, main buyer type and sale	ATS_HH_SINGLE

	location.	
Pre-harvest farm problems	Includes information on the occurrence and severity of problems encountered with insects, animal pests, too much or too little rain, and theft for each crop cultivated by the household.	ATS_HH_SINGLE
Replanting due to crop failure	Timing of replanting and amount replanted because of crop failure for each AHTS core crop.	ATS_HH_N2_REPLANTING
NERICA rice	Includes information on the awareness and use of NERICA rice by the household, the main advantages and the main downsides of NERICA, NERICA storage conditions and the type of NERICA rice cultivated.	ATS_HH_SINGLE
Access to services	Household's access to agricultural extension, training, farmer field schools, rural finance, drying and storage infrastructure, and labor exchange.	ATS_HH_SINGLE
Agricultural organizations	Includes information on any agriculture-related organization operating in the community and household membership in such organizations.	ATS_HH_Q13_AGRIC_ORGANIZATIONS
Food security	Includes information on the household's most important staple, use of staple food stocks, hunger periods and coping strategies.	ATS_HH_SINGLE
Livestock and other poultry services	Lists any livestock owned by the household, as well as livestock that has been vaccinated and treated by a veterinary officer.	ATS_HH_SINGLE
Agricultural assets	Lists agricultural assets owned by the household.	ATS_HH_SINGLE
Household assets & amenities	Lists other assets owned by the household and the quality of household amenities (floor, walls, roof, cooking material, source of water, toilet facility).	ATS_HH_SINGLE
Post-interview assessment	Includes georeferencing, survey duration data, identity of primary respondents, translation and language issues, problems encountered with survey administration and enumerators' assessment of survey accuracy.	ATS_HH_SINGLE

Table 2 – Content of the AHTS Community Questionnaire and Corresponding Datasets

Module and sub-modules	Broad description of the information collected	Datasets
Cover page	Metadata: location, supervisor, target community and interview information.	Comm_SINGLE
General Prices & Units	Includes information on local measurement units for rice and cassava and on the highest price and the lowest price recorded in the past 12 months for a variety of crops (groundnut, rice, palm oil, cassava).	Comm_SINGLE
Community Facilities	Availability and quality of a grain store, drying floor and machinery in the community.	Comm_SINGLE
General Agricultural Information	Proportion of community members who cultivated and sold any of the 8 AHTS core crops. Proportion of people who bought rice to eat. Proportion of rice purchased that is imported in the dry and the rainy season.	Comm_SINGLE
Community Farm Characteristics	Listing of all community farms cultivated by the community in the past 12 months. For each farm, includes information on ecology, main crops cultivated, gender composition of labor on the farm, farm size, irrigation, fertilizer use, seed cost and record keeping about purchases and sales from the farm.	Comm_E1_COMM_FARM_CHARACTERISTICS
Production of annual crops on community farms	Includes information on the planting, harvesting and disposition of harvest of all AHTS core annual crops (rice, cassava, groundnut, maize, sweet potato) on each community farm.	Comm_E2_PROD_ANNUAL_CROPS
Production of permanent crops on community farms	Planting, harvesting and disposition of harvest of all AHTS core permanent crops (cacao, coffee, palm oil) on each community farm.	Comm_E3_PROD_PERMANENT_CROPS
Rice information	Information on how many rice varieties were used	Comm_SINGLE

	in the community and on the awareness, use and cost of NERICA rice.	
External labor & Labor prices	Provides details on standard wages (daily and hourly) for general and specialized agricultural labor).	Comm_SINGLE
Access to markets	Accessibility of and distance to the nearest permanent and nearest non-permanent market.	Comm_SINGLE
Routes & Transportation costs	Distance to the district headquarter town, the market and the permanent market nearest to the community. Type and cost of different modes of transport to these places.	Comm_SINGLE
Access to fertilizers	Distance to the closest town where community members can buy fertilizer, cost of purchasing and transporting organic and inorganic fertilizer.	Comm_SINGLE
Agricultural organizations & NGOs	Type and names of agricultural organizations operating in the community, proportion of community members participating in these organizations.	Comm_SINGLE
General community facilities	Information on community facilities such as radio coverage, mobile phone coverage, electricity supply and drinking water supply.	Comm_SINGLE
Post-interview assessment	Composition of the focus group and supervisor's review of the interview.	Comm_SINGLE

Table 3 – Data format for the AHTS Household Questionnaire

Dataset	Data format	Unit of observation	Identifying variable	Variable names
ATS_HH_SINGLE	Wide	Household	*serial_num*	Metadata; *a*; b2-b11; c*; d2_a; e1; e2; e3; f1; f3*; f4*; f5*; f6*; f7*; f9; f9_18_specify; f10 f10_16_specify; f11; g1; g2; g3_specify; g4; g5*; g6*; g7; g8; h*; i*; j*; k1; k2; k4-k9h_unit; l1; l2; l4-l6h_unit_hulled; m1; m2; m4a- m6h_unit_nut_oil; n1*; n2*; o*; q1-q13a; q14*; r*; s*; t*; u*; v**
ATS_HH_B1_HH_ROSTER	Long	Household member	*row_number*	*row_number; b1b-b1f*
ATS_HH_D2_FARM_CHARACTERISTICS	Long	Farm	*farm_id*	*farm_id; d2a-d2g*
ATS_HH_D3_FARM_OWNERSHIP	Long	Farm	*d3a*	*d3a-d3h*
ATS_HH_E1_INPUTS	Long	Farm	*e1a*	*e1a-e1k*
ATS_HH_E3_ANIMAL_TRACTION_OR_MACHINERY	Long	Farm	*e3a*	*e3a-e3g*
ATS_HH_F2_RICE_PROD_PLANTING	Long	Farm	*f2a*	*f2a-f2m*
ATS_HH_F2_RICE_PROD_HARVESTING	Long	Farm	*f2a2*	*f2a2-f2q2*
ATS_HH_F9_LOWLAND_LABOUR_ACTIVITY	Long	Activity	*f9_id*	*f9_id, f9a-f9h*
ATS_HH_F10_UPLAND_LABOUR_ACTIVITY	Long	Activity	*f10_id*	*f10_id, f10a-f10h*
ATS_HH_G3_CASSAVA_PROD_PLANTING	Long	Farm	*g3a*	*g3a-g3m*
ATS_HH_G3_CASSAVA_PROD_HARVESTING	Long	Farm	*g3a2*	*g3a2-g3u*
ATS_HH_K3_CACAO_PRODUCTION	Long	Farm	*k3a*	*k3a-k3m*

ATS_HH_L3_COFFEE_PRODUCTION	Long	Farm	*l3a*	*l3a-l3m*
ATS_HH_M3_OIL_PALM_PRODUCTION	Long	Farm	*m3a*	*m3a-m3m*
ATS_HH_N2_REPLANTING	Long	Farm	*n2a*	*n2a-n2g*
ATS_HH_Q13_AGRIC_ORGANIZATIONS	Long	Organization	*row_number*	*row_number; q13b-q13m*

Table 4 – Data format for the AHTS Community Questionnaire

Dataset	Data format	Unit of observation	Identifying variable	Variable names
Comm_SINGLE	Wide	Household	*serial_num*	Metadata; *a*; b*; c*; d*; e1; f*; g*; h*; i*; j*; k*; l*; m**
Comm_E1_COMM_FARM_CHARACTERISTICS	Long	Farm	*e1_farm_id*	*e1a_farm_id; e1a-e1j*
Comm_E2_PROD_ANNUAL_CROPS	Long	Farm	*e2_farm_id*	*e2a_farm_id; e2b-e2n_specify*
Comm_E3_PROD_PERMANENT_CROPS	Long	Farm	*e3_farm_id*	*e3a_farm_id; e3b-e3m_specify*

Table 5 – Distribution of EAs and Sample Size by Province

Province	Total number of EAs (2004 Census)	Total number of EAs in the AHTS sample	Total number of households in the AHTS sample
Western Area	1,525	48	371
Western Area Rural	176	17	170
Western Area Urban	1,349	31	201
Eastern Province	2,312	249	2,420
Kailahun	704	82	812
Kenema	1,003	91	872
Kono	605	76	736
Northern Province	3,541	368	3,652
Bombali	810	66	660
Kambia	506	77	766
Koinadugu	509	51	486
Port Loko	891	106	1,060
Tonkolili	825	68	680
Southern Province	2,293	238	2,360
Bo	837	70	699
Bonthe	363	60	600
Moyamba	616	50	492
Pujehun	477	58	569
TOTAL	9,671 EAs	903 EAs	8,803 households