



AGRICULTURAL INTEGRATED SURVEY (AGRIS)

GHANA PILOT SURVEY REPORT



September, 2018

Agricultural Integrated Survey (AGRIS) – Ghana

Report on the AGRIS-Ghana Pilot Survey

September 2018

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1 Introduction and objectives of the Pilot Survey

1.1 Introduction

The development of the agricultural sector is of vital importance in achieving the Sustainable Development Goals, particularly those related to food security, poverty reduction and environmental sustainability. The need to measure agricultural performance and the impact of agricultural investments has become an increasingly pressing priority, and the availability of agricultural and rural statistics of good quality is paramount to developing effective policies in the sector. As a consequence, in recent years, increasing efforts have been made towards better integration of agriculture into the national statistical systems of developing countries. Within this context, the Global Office (GO) of the Global Strategy to improve Agricultural and Rural Statistics (GSARS), hosted by the Food and Agriculture Organization of the United Nations (FAO), developed the Agricultural Integrated Survey (AGRIS). AGRIS, is the GSARS response to the widely recognized need for more, better, cheaper and more timely data on the agricultural, rural sector at the farm level. Indeed, while some progress on accessing existing information has been made in recent years; critical gaps on data production remain in many developing countries.

AGRIS is a farm-based ten-year integrated survey programme, designed as a cost-effective way for national statistical institutions to accelerate the production of quality disaggregated data on the technical, economic, environmental and social dimensions of agricultural holdings. Data generated through this survey programme are meant to inform policy design and implementation, as well as improve market efficiency and support research.

Given that AGRIS is based on a new methodology developed in the context of the GSARS, several components of the survey required field testing before finalization and adoption. Ghana was selected as the first country to test and adopt the AGRIS methodology. In this context, the GO, in collaboration with the Ghana Statistical Service (GSS) and the Ghana Ministry of Food and Agriculture (MoFA), conducted a series of field tests of different elements of AGRIS. More specifically, the following activities were implemented:

1. Cognitive tests of parts of the generic AGRIS questionnaires (October-November 2016);
2. Holistic field-testing of the entire generic AGRIS questionnaire (June-August 2017);
3. Field experiments on measuring yield, production and post-harvest losses (November 2016-January 2017);
4. Field experiments on the strategy for administering the Labour questionnaire (February-May 2017).

Following these activities, in October 2017 an LoA was signed between the GO and GSS to customize the generic AGRIS methodology and tools in the Ghanaian context and conduct a pilot survey in 4 districts of the Ashanti Region (Ahafo Ano South, Asante Akim North, Ejura Sekye Dumase, and Sekyere Afram Plains). A Technical Working Group (TWG) of experts from the GSS and MoFA was constituted to support the GO in the implementation of this pilot.

As preliminary activity to the Pilot, households in 37 enumeration areas (EAs) of the four selected districts were listed, in order to produce the sampling frame. Finally, the AGRIS-Ghana pilot was implemented in February 2018 to collect information on:

- Crop and livestock production as well as data on farm characteristics, diversification and structures;
- Farm revenues and expenses;
- Type of labour used by the agricultural holding;
- Farming practices and their linkages with the natural environment;
- Farm machinery, equipment and assets.

1.2 Objectives of the AGRIS Ghana Pilot Survey

The general objective of the pilot was to customize AGRIS instruments and methodologies for adoption as a standard tool to efficiently gather relevant and reliable agricultural data for policy making and monitoring the Sustainable Development Goals (SDGs).

The specific objectives of the AGRIS Ghana pilot were as follows:

- Elaborate the overall set up of AGRIS in Ghana;
- Customize the content of the AGRIS questionnaire to the Ghanaian context;
- Assess the overall efficiency of the customized, integrated questionnaires and their feasibility in terms of length, flow, use of Computer Assisted Personal Interviewing (CAPI), and integration of core and rotating modules;
- Assess the difficulty and relevance of each question, each section and each generic questionnaire for different types of holdings;
- Test the use of Survey Solutions software to implement CAPI data collection, and the current version of the CAPI questionnaires;
- Assess the relevance of the training material developed to train survey enumerators and supervisors.

2 Survey methodology, data collection, and data processing

2.1 Scope and coverage of the survey

The AGRIS Ghana-pilot covered agricultural holdings in the household sector and was intended to estimate indicators on agriculture at the district level. The pilot survey was carried out in four districts of the Ashanti Region, namely Ahafo Ano South, Asante Akim North, Ejura Sekye Dumase and Sekyere Afram Plains. In each district, the core module integrated with one of the rotation modules was administered. More specifically, the test of the questionnaires was organized as follows:

- The Core questionnaire integrated with the Economy (ECO) module was tested in Sekyere Afram Plains;
- The Core questionnaire integrated with the Labour (LABOUR) module was tested in Ejura Sekye Dumase;
- The Core questionnaire with the Production Method and Environment (PME) module was tested in Ahafo Ano South;
- The Core questionnaire integrated with the Machinery, Equipment and Assets (MEA) module was tested in Asante Akim North.

A total of 450 agricultural holdings (370 in the household sector and 80 in the non-household sector) were interviewed.

2.2 Sampling frame

The initial plan for the pilot survey was to consider as statistical units, agricultural holdings covering both the household and the non-household sectors, as proposed in the AGRIS methodology.

For holdings in the household sector, no updated list of agricultural households in the country was available, and therefore a sampling frame needed to be established. To do so, the 2010 Population and Housing Census (PHC) was used to build a frame of EAs which, as detailed in section 2.3, were the primary sampling units (PSUs) of the adopted sampling design. After selecting the sample of PSUs in the four districts of interest, a complete list of holdings in the selected EAs was built using a brief CAPI questionnaire developed with Survey Solutions software. The PAPI version of the listing questionnaire can be consulted in **Annex 1**.

The listing was performed by experienced enumerators and field operations were organized and carried out by GSS and MoFA with technical assistance from the GO. All households, agricultural or not, present in the selected EAs were listed, with the objective of improving the coverage of agricultural holdings.

Holdings in the non-household sector are by definition, economic units such as commercial farms and government institutions engaged in agricultural production. GSS and MoFA provided a list of these holdings to be used as sampling frame. Therefore, the plan was to use as the

overall sampling frame a multiple frame composed of the two lists described above (one for the household sector and one for the non-household sector). However, after further discussion and evaluation, it was determined that the list of holdings in the non-household sector could not be considered as a reliable sampling frame for the targeted units. As a consequence, the data collected for the 80 non-household units could not be analysed to represent holdings in the non-household sector.

2.3 Sample design

As recommended in the AGRIS sampling strategy, a stratified two-stage sampling design was used for the holdings in the household sector. The PSUs were the EAs and the secondary sampling units (SSU) were the agricultural households.

The initial plan for holdings in the non-household sector was to implement a stratified simple random sampling. However, as explained in section 2.4, given the absence of an appropriate sampling frame or secondary data to be used in identifying these holdings, the proposed probabilistic sampling strategy could not be implemented.

2.4 Sample size

2.4.1 Holdings in the household sector

For holdings in the household sector, the calculation of sample size was performed fixing the minimum degree of precision required for the final estimates of main variables of interest. The variable considered to determine the sample size was the area of the agricultural land owned by the households. This information had been collected during the 2012-2013 Ghana Living Standards Survey 6 (GLSS6). Therefore, data from this survey was used to estimate the coefficient of variation (CV) of the variable of interest in the chosen four districts.

It should be noted that the estimation domain of the GLSS6 was the region. For that survey, a two-stage sampling design was used and the PSUs (EAs) were selected in each region with the probability proportional to size (PPS). The measure of size was given by the number of individuals in each region, provided for the chosen districts for the AGRIS-Ghana pilot survey by the GLSS6. For the estimation of the CV of the households' agricultural land, it was assumed that the EAs sampled in GLSS6 and located in the target districts were selected in these districts with the same method of selection (PPS). Thus, the households included in the sample were supposed to have been selected with a two-stage sampling design.

The classical formula below is used for the calculation of sample size of households:

$$m_d = \tilde{D}_{eff} \times \frac{1}{g} \times \frac{CV_{yU_d}^2}{CV^2 + CV_{yU_d}^2 / N_d}$$

N_d is the total number of households in the district d from the 2010 PHC.

$CV_{yU_d}^2$ is the CV of the households' agricultural land (y) in the district d computed from GLSS6 data.

CV^{*2} is maximum relative error accepted for the survey (10%).

\tilde{D}_{eff} is an estimate of the design effect. According to Petterson and do Nascimento Silva (2005), in developing countries, the two-stage selection of households provides a design effect that can range from 2 to 6. The maximum value 6 has been used here.

g is the expected response rate calculated from the GLSS6 data for each district.

The number of households to be surveyed in each PSU is fixed to 10. Therefore, the size of the sample of PSU is the size of the sample of the households divided by 10.

District	Holdings in the household sector		
	SSU (Holdings)	PSU (EAs)	Final SSU sample
Ahafo Ano South	55	6	60
Asante Akim North	141	14	140
Ejura Sekye Dumase	71	7	70
Sekyere Afram Plains	104	10	100
Total	371	37	370

The number of EAs and households planned to be covered and actually covered during data collection are presented in **Annex 6**.

2.4.2 Holdings in the non-household sector

For holdings in the non-household sector, no existing frame or secondary data were available to calculate a sample size based on the precision of a variable of interest. Therefore, it was decided to interview 20 holdings per district, assuming that this number of observations would be sufficient to allow precision estimates for this category of holding.

District	Holdings in the non-household sector
Ahafo Ano South	20
Asante Akim North	20
Ejura Sekye Dumase	20
Sekyere Afram Plains	20
Total	80

2.5 Organization of the fieldwork and data collection

Field operations and data collection activities were coordinated by the GSS under technical assistance from the GO.

Field staff were organized in 6 teams, comprised of 19 enumerators and 6 supervisors. More specifically, the structure of teams used for data collection was as follows:

District	Module	Number of EAs visited	Number of households interviewed	Number of teams	Number of supervisors	Number of enumerators
Ahafo Ano South	CORE+PME	6	60	1	1	3
Asante Akim North	Core+MEA	14	140	2	2	7
Ejura Sekye Dumasi	CORE+LAVOUR	7	70	1	1	4
Sekyere Afram Plains	CORE+ECO	10	100	2	2	5
Total		37	370	6	6	19

2.6 Training of field staff

Before implementing data collection, a two-week training program was provided to supervisors and enumerators. GSS was responsible for organizing the training that took place from the 15th to the 27th of January in Apam, Central Region. The GO, in collaboration with the TWG, developed the PowerPoint training materials, while the TWG led the development of the Ghana pilot

methodological notes, based on the AGRIS generic methodological notes and in collaboration with the GO. The training was provided by the GO and people from within the TWG.

The training mainly covered the concepts and definitions used in the survey, introduced the CAPI through Survey Solutions, provided practice navigating the CAPI questionnaire and practical simulations (mock interviews) by the enumerators and supervisors in the classroom. In addition to class-based practice undertaken on administering the questionnaires in local languages, the trained enumerators and supervisors were given a chance to do a practical field exercise for two days by conducting interviews with households in Gomoa Denkyira and Gomoa Dawuramong villages in Gomoa West district. Additionally, the CAPI simulations during the training provided a level of user testing for the application, allowing adjustments to be made to the application prior to the launch of data collection.

2.7 Data collection and validation

GSS coordinated and led field operations for data collection activities, which lasted a total of 22 days. In cases where eligible respondents were absent, two or more call back visits were made on different days in order to minimize the non-response rate. Extensive field supervision took place throughout all field operations.

Data collection was performed using CAPI questionnaires developed with Survey Solutions by the GO. Questionnaires were tested before data collection, to assess the presence of bugs in the application and introduce enabling and validating conditions. GPS technology was also used for the geo-location of households.

The PAPI versions of questionnaires used for data collection are attached in **Annex 2**.

Information regarding the duration of interviews can be found in **Annex 7**.

Using CAPI, it was possible to validate each completed electronic questionnaire right after data collection. Once an interview was completed, the enumerator submitted the case to the supervisor, who, in turn, reviewed each case received and rejected those interviews presenting issues by returning the questionnaire to the enumerator for resolution. Once an interview was approved by the supervisor, the completed case was sent to the GO Headquarters, where further review was conducted and the final decision was made on approving or rejecting the case. This procedure was followed for each interview.

In order to facilitate and speed-up this process of validation, the GO developed a data validation code in STATA which served to run automatic checks of the intermediate results to indicate cases of inconsistency and responses outside of expected limits. In addition to supervisors, continuous monitoring was provided by members of the TWG to ensure completeness and consistency. Feedback mechanisms during collection included face-to-face meetings, mobile communication and emails.

The reference period for which questions were asked spanned from 1 March 2017 to 28 February 2018.

2.8 Development of the tabulation and reporting plan

The tabulation plan to be used for analysing the data was developed by the GO and approved by the TWG. A stakeholder consultative workshop helped to refine data tabulation requirements. The final tabulation plan identified the main tables and indicators to be produced from the collected data.

Based on the tabulation plan, the TWG, in consultation with the GO, developed the outline for the final report of the pilot survey.

2.9 Data processing and analysis

The GO provided substantial technical assistance for cleaning and processing the collected data. Operations of data processing and analysis were performed using the software STATA. Data editing and cleaning included an extensive range of structural and internal consistency checks. Any encountered anomalies were discussed between the GO and the TWG, and statistical imputation was performed when needed.

The GO, with some support from the data processing experts from GSS and MoFA, produced all the statistical tables based on the established tabulation plan.

Estimation procedures of totals, ratios and sampling errors can be found in **Annex 4**. Standard errors and coefficients of variation can be found in **Annex 5**.

2.10 Report preparation

Once the final tables were received from the GO, the TWG analysed the pilot results and drafted the final report. The report was validated and reviewed by the GO.

3 Presentation of survey results

The present chapter illustrates the main results from the AGRIS-Ghana Pilot Survey in the four surveyed districts. Given the adopted sampling design and the limited scale of the pilot exercise, the results cannot be extrapolated at the national level and estimates can only be produced at the district level.

3.1 Basic characteristics of the agricultural holding

Collected data were used to estimate the total number of agricultural holdings in each district. Results showed 24,480 agricultural holdings in Ahafo Ano South, 10,779 in Asante Akim North, 16,094 in Ejura Sekye Dumasi, and 4,763 in Sekyere Afram Plains.

3.1.1 Legal status of the agricultural holding

As stated in the manual of the World Programme for the Census of Agriculture (FAO, 2015), an agricultural holding is defined as an economic unit of agricultural production under single management comprising all livestock and poultry kept, and all land used wholly or partly for agricultural production purposes, without regards to title, legal form, or size. Single management may be exercised by an individual or household, jointly by two or more individuals or households, by a clan or tribe, or by a juridical person such as a corporation, cooperative or government agency (FAO, 2015).

In the great majority of cases in all the four surveyed districts (100% in Ahafo Ano South and Sekyere Afram Plain, and more than 97% in the other two districts), the legal status of agricultural holdings was that of single-holding households. In Asante Akim North and Ejura Sekye Dumasi, the remaining holdings (the 0.3% and the 2.3% respectively) were partnerships of two or more households.

Legal status such as multiple-holding households, private corporations, farm-based organizations, institutional farms, and others were not recorded in any of the districts. It should be noted that for the purposes of reporting the pilot results, only respondents in the household sector were tabulated.

Table 3.1: Holdings by legal status and district

Holding legal status	Districts							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Single-holding household	24,480	100.0	10,742	99.7	15,719	97.7	4,763	100.00
Partnership of two or more households	-	0.0	37	0.3	375	2.3	-	0.0
Total	24,480	100.0	10,779	100.0	16,094	100.0	4,763	100.0

3.1.2 Agricultural focus

Table 3.2 and Figure 3.1 present the distribution of holdings by main agricultural focus, which has been classified into three broad categories, namely:

- Crop production;
- Livestock production; and
- Mix of crop and livestock production.

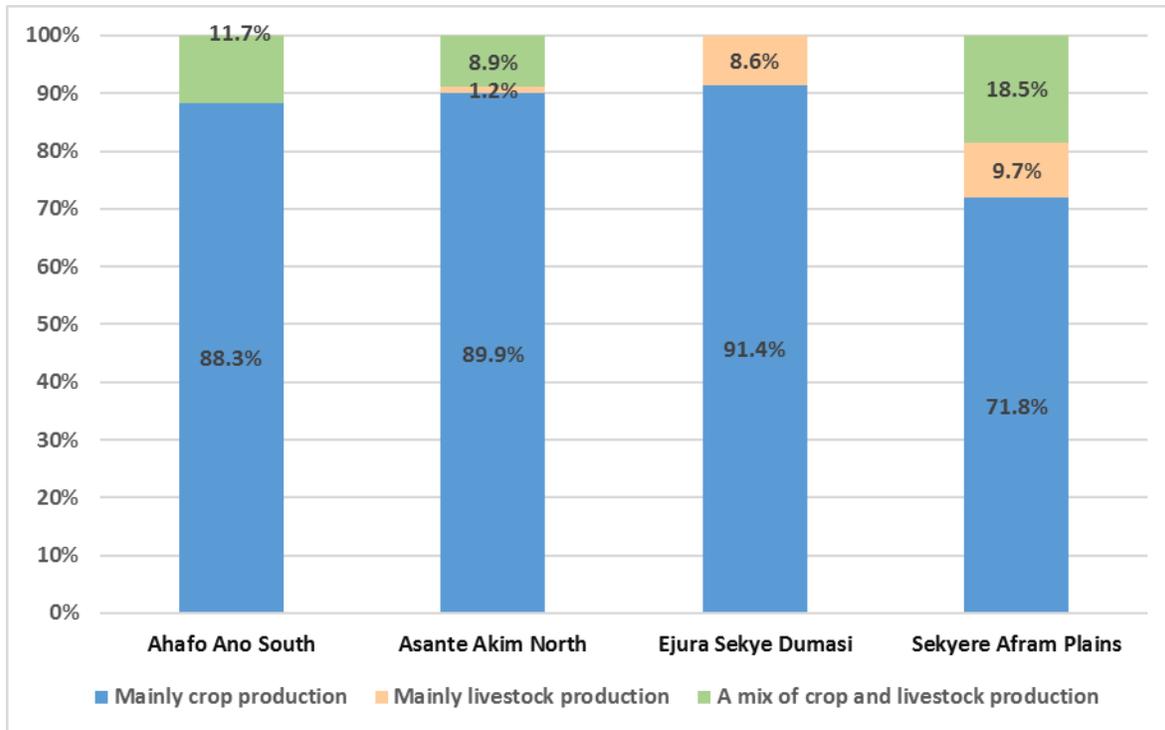
Data reflect respondents' reported opinions of the main agricultural activity of their holding.

Table 3.2: Holdings by main agricultural focus and district

Main agricultural focus	Ahafo Ano South	Asante Akim North	Ejura Sekye Dumasi	Sekyere Afram Plains
Mainly crop production	21,620	9,696	14,710	3,422
Mainly livestock production	-	125	1,383	461
A mix of crop and livestock production	2,860	959	-	880
Total	24,480	10,779	16,094	4,763

In all four districts, the main agricultural focus was crop production. In Ahafo Ano South, no holdings reported to be engaged mainly in livestock production, while in Ejura Sekye Dumasi, no holding reporting to have a mix of crop and livestock production activities.

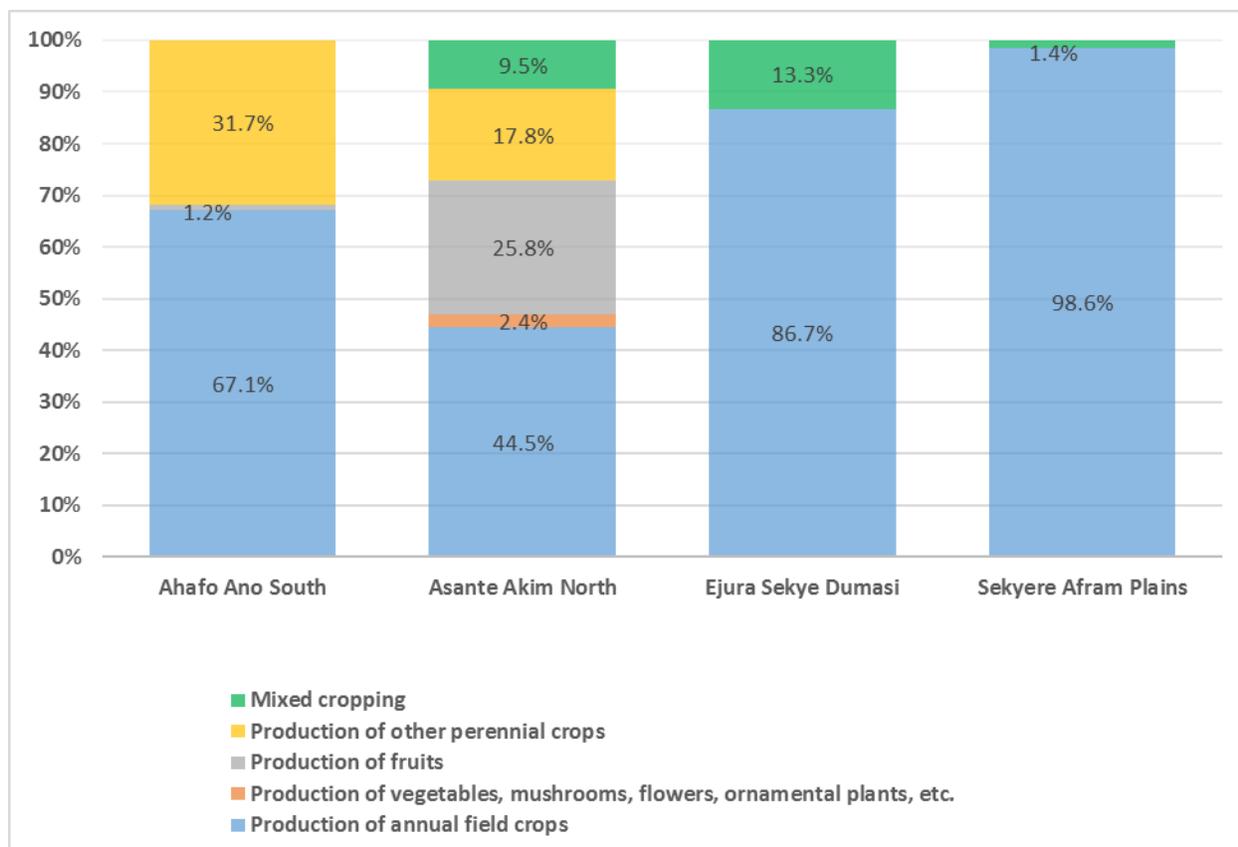
Figure 3.1: Holdings by main agricultural focus



Main cropping activities

The 2018 Ghana AGRIS pilot collected information on different cropping activities. Figure 3.2 presents the distribution of holdings engaged mainly in crop production, by main cropping activity. In all districts, production of annual field crops was the predominant cropping activity. This is particularly true in Sekyere Afram Plains and in Ejura Sekye Dumasi, where the percentages of holdings reporting were respectively 98.6% and 86.7% of holdings with a cropping focus. Asante Akim North showed the most diversity in main cropping activities, and was the only district with reporting in all five categories. Most crop focused holdings were rather specialized, as a mixed cropping focus was reported with a relatively low frequency across the four districts. This is a departure from traditional farming practice in most parts of Ghana, and reflects a move to the production of field crops on large scale basis where there are availability of ready markets.

Figure 3.2: Main cropping activities for holdings reporting a crop production focus by district



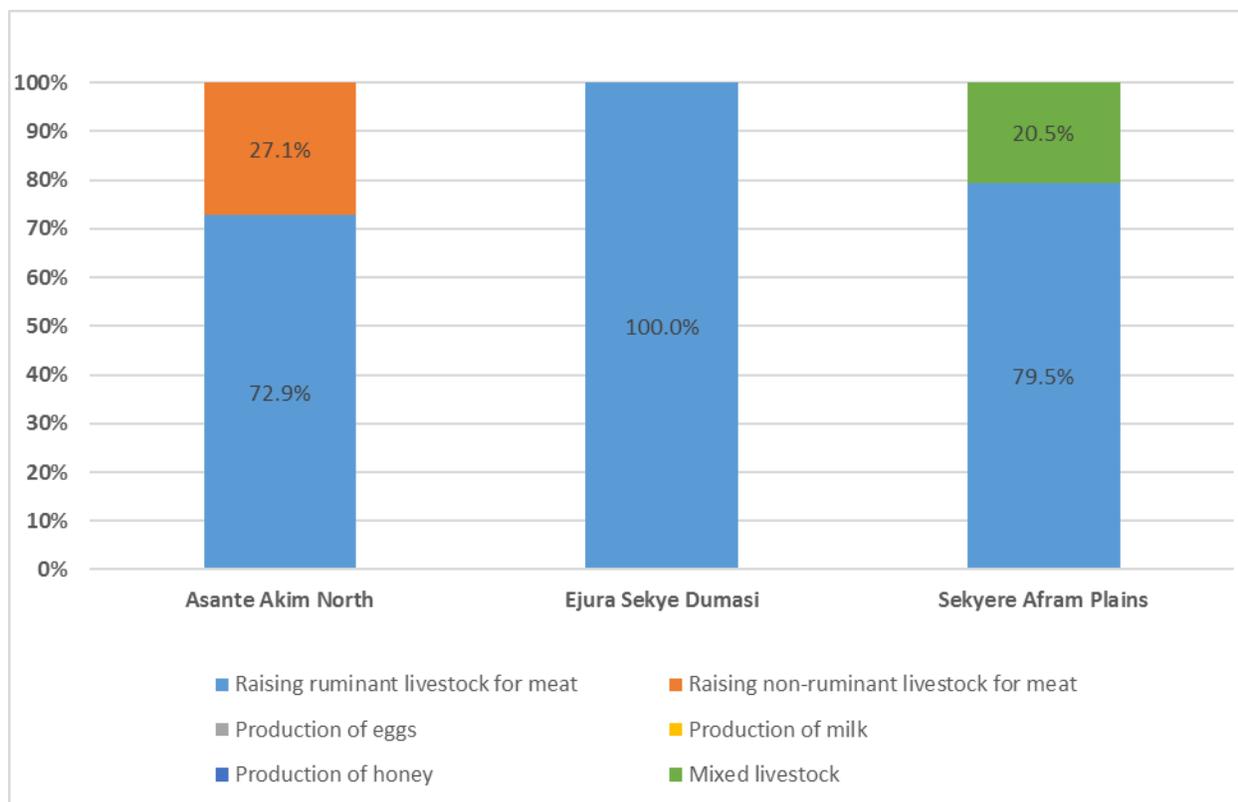
Main livestock activities

As seen in Table 3.2, very few holdings reported to be mainly specialized in livestock production. This aligns with the Ghanaian context, where livestock raising is normally practiced as secondary activity in parallel to crop production.

In the three districts where some holdings reported livestock production as the main agricultural focus, Figure 3.3 shows that the most practiced activity was raising ruminant livestock for meat production. In Asante Akim North, 27% of holdings also reported raising non-ruminant livestock for meat production, while in Sekyere Afram Plains, 20.5% of holdings also reported mixed livestock production.

No holdings reported the production of eggs, milk, or honey as their main livestock activity.

Figure 3.3: Main livestock activity for holdings reporting a livestock production focus by district



3.1.3 Intended destination of agricultural production

Agricultural households have options for the destination of their agricultural production. These options have been classified in the following categories:

- Mainly for sale; more than 90% of production sold;
- Mainly for sale, with some own consumption; more than 50% and up to 90% of production sold;
- Mainly for own consumption, with some sales; more than 10% and up to 50% of production sold;
- Primarily for own consumption; less than 10% of production sold.

The distribution of agricultural holdings in the household sector by intended destination of agricultural production is presented in Table 3.3.

In all districts except Asante Akim North, agricultural holdings predominantly produce primarily for sale (more than 90% of products for sale), while in Asante Akim North, most holdings intended to sell more than 50% and up to 90% of their production. In all four districts, very few holdings produce primarily for own consumption.

Table 3.3: Intended destination of holdings' agricultural production, by district

Intended destination of agricultural production	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Producing primarily for sale	14,046	57.4	2,740	25.4	10,794	67.1	3,377	70.9
Producing mainly for sale, with some own consumption	9,189	37.5	6,554	60.8	5,234	32.5	435	9.1
Producing mainly for own consumption, with some sales	1,245	5.1	1,042	9.7	66	0.4	753	15.8
Producing primarily for own consumption	0	0.0	443	4.1	0	0.0	199	4.2
Total	24,480	100.0	10,779	100.0	16,094	100.0	4,763	100.0

3.1.4 Record keeping

Record keeping is a key component of managing an efficient farm business. Records are needed not only for legal, financial and taxation purposes but also for maintaining a permanent record of the farm business, analysing the business, monitoring day-to-day activities, and future planning. Information on record keeping of holdings is presented in Table 3.4. Sekyere Afram Plains reported the highest proportion of holdings never recording agricultural activity (97.88%). This finding is in line with what is observed in the other districts, where the majority of holdings never record any agricultural activity. Ejura Sekye Dumasi had the highest share of holdings occasionally or partially recording agricultural activity, with 13.96% of holdings. Asante Akim North was the only district where holdings indicated that they systematically record their agricultural activities (1.7%).

Table 3.4: Holdings recording of agricultural activity in registers or logbooks by frequency

Frequency of recording information	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Never record agricultural activity	23,294	95.2	10,234	94.9	13,847	86.0	4,662	9.79
Occasionally or partially record agricultural activity	1,186	4.8	363	3.37	2,246	1.4	101	2.1
Systematically record agricultural activity	0	0.0	183	1.7	0	0.0	0	0.0
Total	24,480	100.0	10,779	100.0	16,094	100.0	4,763	100.00

3.2 Basic characteristics of the holder of the agricultural holding

The agricultural holder is defined as the civil person, group of civil persons or juridical person who makes the major decisions regarding resource use and exercises management control over the agricultural holding operation. The agricultural holder has technical and economic responsibility for the holding and may undertake all responsibilities directly, or delegate responsibilities related to day to day work management to a hired manager (FAO, 2015).

Table 3.5 presents the distribution of holdings by legal status of the holder in the four districts. Because only holdings in the household sector were tabulated for the pilot report, legal persons have not been included among the possible reporting options of the Table. In Ahafo Ano South and Sekyere Afram Plains, the holder was a civil/natural person in 100% of the cases. In the remaining two districts, this legal status was also the most common one, with holders being a group of civil/natural persons in 0.7% of holdings in Asante Akim North, and 2.3% in Ejura Sekye Dumasi.

Table 3.5: Holdings by type of holder and district

Type of holder	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Holder is a civil/natural person	24,480	100.0	10,702	99.3	15,719	97.7	4,763	100.0
Holder is a group of civil/natural persons	0	0.0	77	0.7	375	2.3	0	0.0
Total	24,480	100.0	10,779	100.0	16,094	100.0	4,763	100.0

3.2.1 Sex and age of the holder

Table 3.6 illustrates the distribution of holdings by sex of the holder in the four surveyed districts. The Table reveals that male holders were more numerous than females in all districts, but there were some differences in the representation between the sexes by district. Sekyere Afram Plains and Ejura Sekye Dumasi were more male-centric with at least three-quarters of holders being male (81.3% and 75.8% respectively). Female holders were more represented in the remaining two districts, with 47.8% of holders in Asante Akim North, and 40.8% in Ahafo Ano South being women.

Table 3.6: Holdings by sex of the holder and district

Sex of the holder	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Male	14,486	59.2	5,628	52.2	12,205	75.8	3,875	81.3
Female	9,994	40.8	5,151	47.8	3,888	24.2	888	18.7
Total	24,480	100.0	10,779	100.0	16,094	100.0	4,763	100.0

Table 3.7 provides information on the distribution of holdings by age class of the holders. Information on age of holders was collected in completed years, representing the age of the person at his or her last birthday.

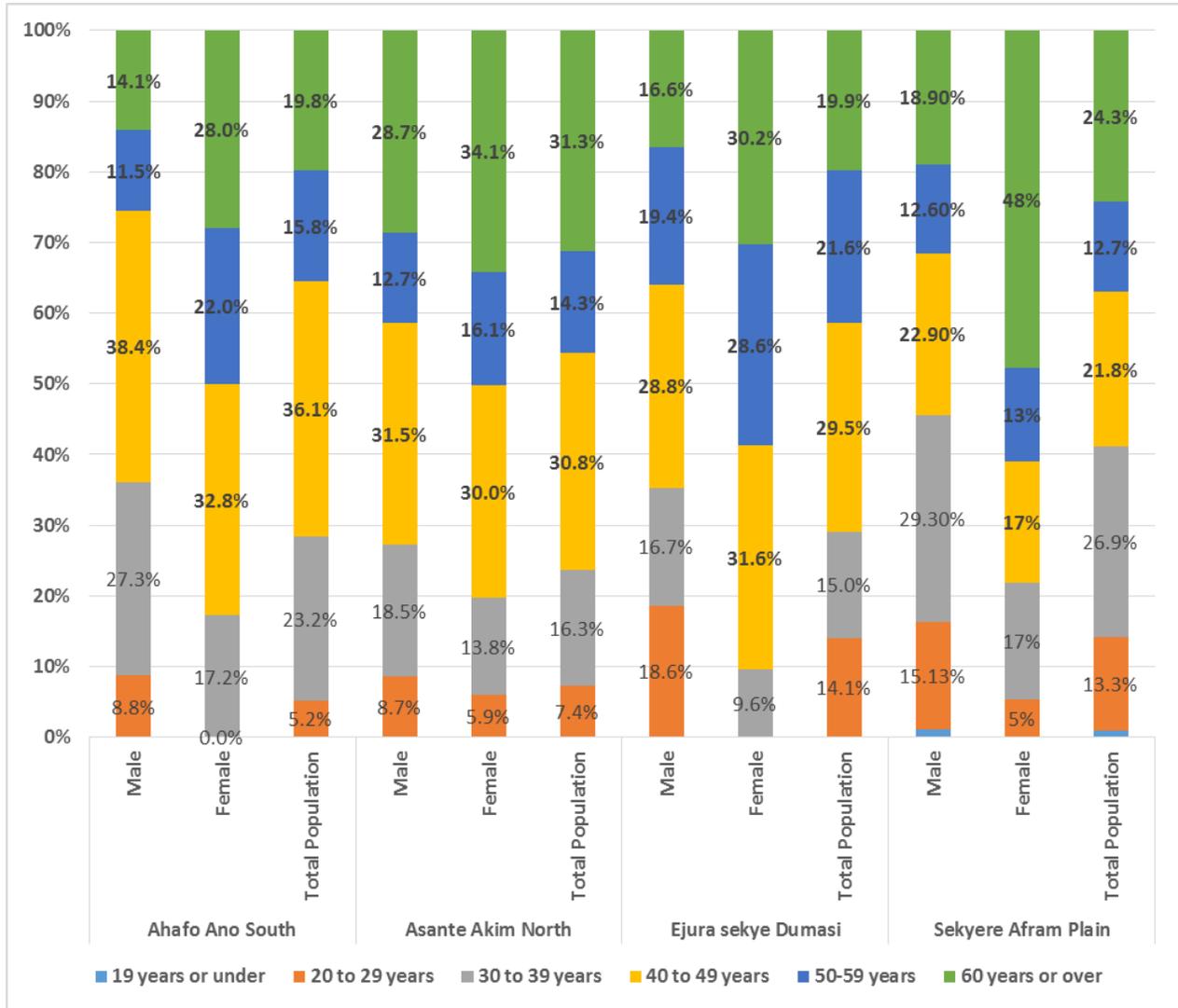
The average age of holders in the four districts, ranges from 45.0 years in Sekyere Afram Plains North district to 50.7 in Asante Akim North. While holders under 40 years made up 41.1% of the total in Skyere Afram Plains, they represented under 30% of holders in the other three districts. At least one in five holders was 60 years or older in all districts.

Table 3.7: Holdings by age of the holder and district

Total holders in the household sector	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Age								
19 years or under	0	0.0	0	0.0	0	0.0	45	0.9
20 to 29 years	1,269	5.2	769	7.2	2,267	14.4	634	13.3
30 to 39 years	5,682	23.2	1,753	16.4	2,418	15.4	1,283	26.9
40 to 49 years	8,831	36.1	3,298	30.8	4,740	27.8	1,040	21.8
50-59 years	3,861	15.8	1,544	14.4	3,473	22.1	605	12.7
60 years or over	4,837	19.8	3,337	31.2	3,195	20.3	1,157	24.3
Total	24,480	100.0	10,702	100.0	16,094	100.0	4,763	100.0
Average age	46.8		50.7		47.2		45.0	

Figure 3.4 compares the distribution of holdings by both the sex and the age of holders. What emerges clearly from the chart is that, in all districts, holdings with female holders are, more concentrated in older age categories than men. Indeed, in all districts, the percentage of holdings with female holders in the two age classes “50-59” and “60 years or over” was higher than that for males. The average age of female holders (found in **Annex 3**) ranged from 42.8 years in Ahafo Ano South to 54.6 years in both Ejura Sekye Dumasi and Sekyere Afram Plains. This compares with male holders whose average age varies from 42.8 years in Sekyere Afram Plains to 49.5 in Asante Akim North.

Figure 3.4: Holdings by age and sex of the holder and district



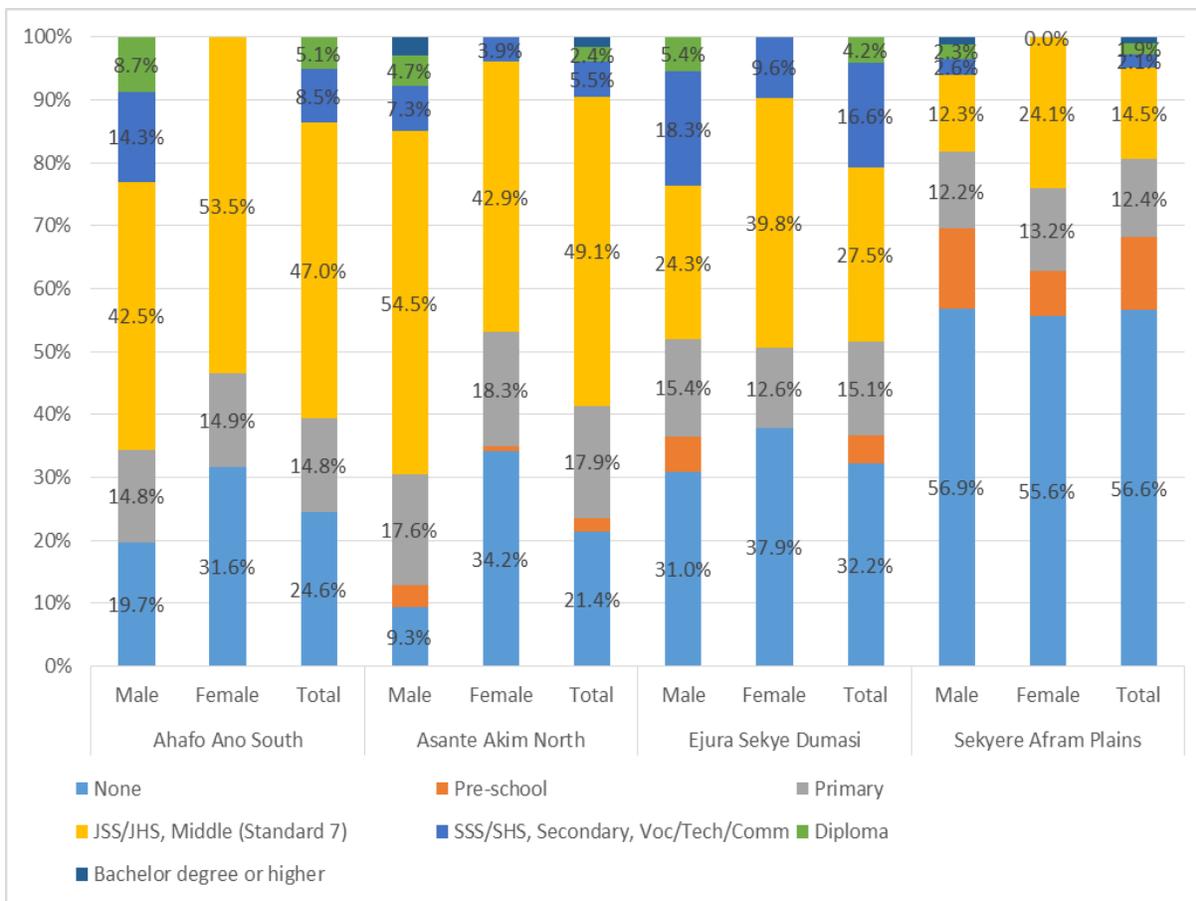
Related data from the pilot show that, all female holders within the four districts surveyed were Ghanaian nationals, along with all male holders in Ahafo Ano South and Asante Akim North (see **Annex 3**). Even though there were holdings whose holders had nationalities from other ECOWAS or African countries in Ejura Sekye Dumasi and Sekyere Afram Plains, the proportions were negligible.

3.2.2 Education level of holders

The pilot survey collected information on the highest level of education completed by holders. From a gender perspective, Figure 3.5 shows that, in all districts, male holders have a relatively higher level of formal education than their female counterparts. In Asante Akim North this difference was most pronounced, with 70% of males versus a 47% of female holders having an education level above the primary level. A small share of male holders in Asante Akim North (3.0%) and Sekyere Afram Plains (1.2%) reported completion of a Bachelor degree or higher, and males in the other two districts reported a diploma as their highest level of education. There

were no female holders in any of the four districts reporting a diploma, or Bachelor degree or higher. In Ahafo Ano South and Sekyere Afram Plains, no women holders reported completion of the SSS, SHS, Secondary, Voc/Tech/Comm level, making JSS/JHS, Middle the highest level of education reported by women holders in these districts.

Figure 3.5: Holdings by highest level of education attained and sex of the holder

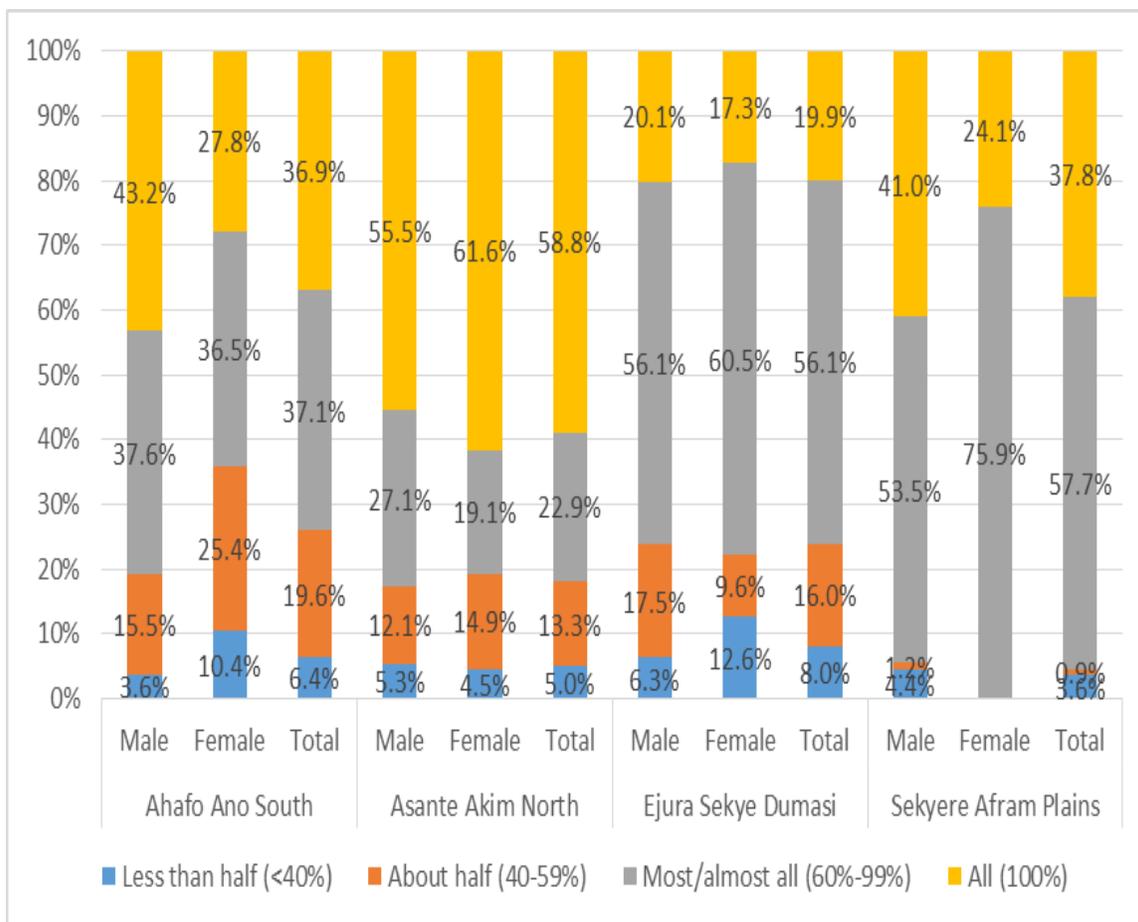


3.2.3 Time spent working on the holding by the holder

Figure 3.6 presents information on the share of working time spent working on the holding by holders. In all four districts, irrespective of sex, most holders spent almost all or all of their working time on the holding. Indeed, especially in Sekyere Afram Plains, percentages of holders spending half or less than or half of their time working on their holdings was minimal (less than 5%).

From a gender perspective, in all districts except Asante Akim North, the share of males spending all their working time on the holding was higher than that for female holders. Asante Akim North was the only district where over half of holders spend all of their working time working on the holding.

Figure 3.6: Share of holder's working time spent working on the holding by sex and district



Related to Figure 3.6 is the information presented in Table 3.8 below. More than half of holders in all districts do not engage in any economic activities outside their holdings. However, there was some variation among the districts. For example, 87.0% of the holders in Sekyere Afram Plains and 72.1% in Asante Akim North do not engage in any other economic activities aside from their holdings. By comparison, in the remaining two districts, 48.9% of holders in Ejura Sekye Dumasi and 35.5% of those in Ahafo Ano South engaged in other economic activities outside their holdings.

Table 3.8: Presence of economic activities outside of the holding by district

Economic activity of holder outside of holding	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Holder has no economic activity outside of the holding	15,782	64.5	7,768	72.1	8,228	51.1	4,143	87.0
Holder has an economic activity outside of the holding	8,698	35.5	3,011	27.9	7,866	48.9	620	13.0
Total	24,480	100.0	10,779	100.0	16,094	100.0	4,763	100.0

3.2.4 Management of the holding

As shown in Table 3.9, in the four surveyed districts, the holder was also the manager of the holding in the vast majority of cases. Holdings with managers other than the holder range from 1.0% in Ahafo Ano South, to 9.2% in Ejura Sekye Dumasi.

Table 3.9: Holdings, by whether the holder is also the manager of the holding

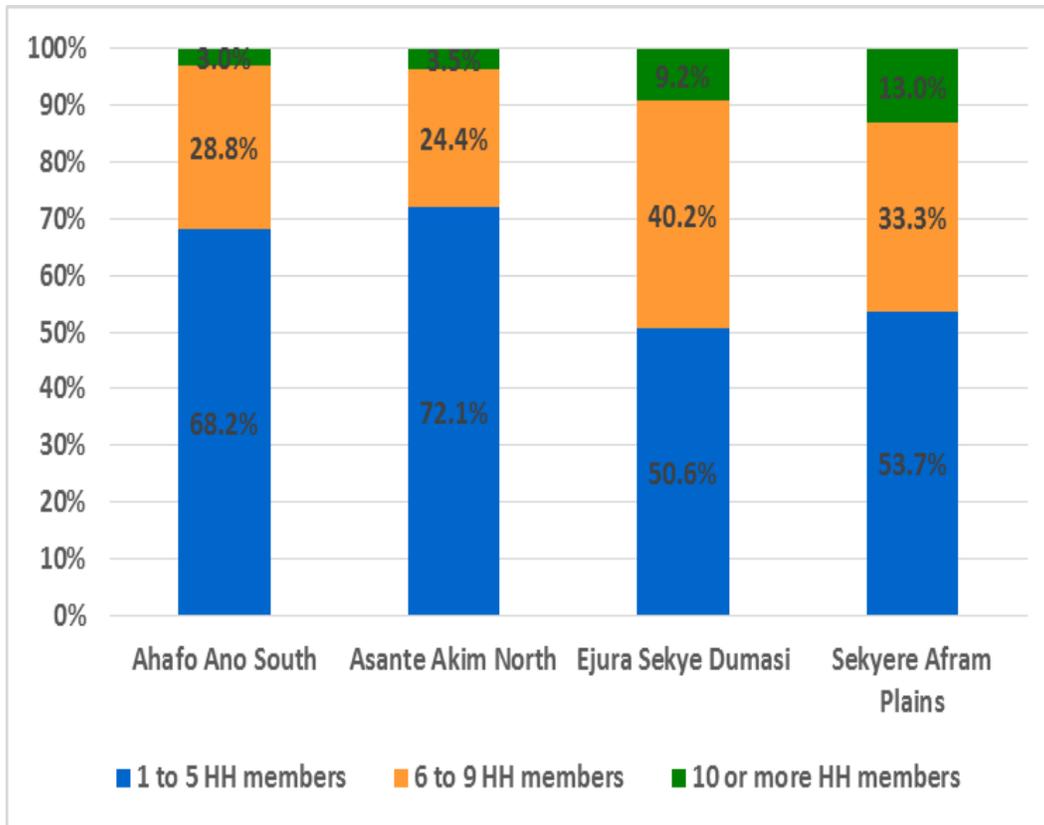
Holder and manager of the holding	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
The holder is also the manager of the holding	24224	99.0	10,692	99.2	14,611	90.8	4,458	93.6
The holder is not the manager of the holding	256	1.0	87	0.8	1,483	9.2	306	6.4
Total	24480	100.0	10,779	100.0	16,094	100.0	4,763	100.0

3.3 Demographic characteristics of the members of holder households

3.3.1 Agricultural household size

Information on all usual members of agricultural households was collected during the survey. Figure 3.7 shows that in over half of agricultural households in all four districts (from 50.6% to 72.1%) there were fewer than 6 household members. The greatest concentration of larger households (with 10 or more members) was in Sekyere Afram Plains, where they accounted for 13.0% of all agricultural households.

Figure 3.7: Agricultural Households by size category, average size and district



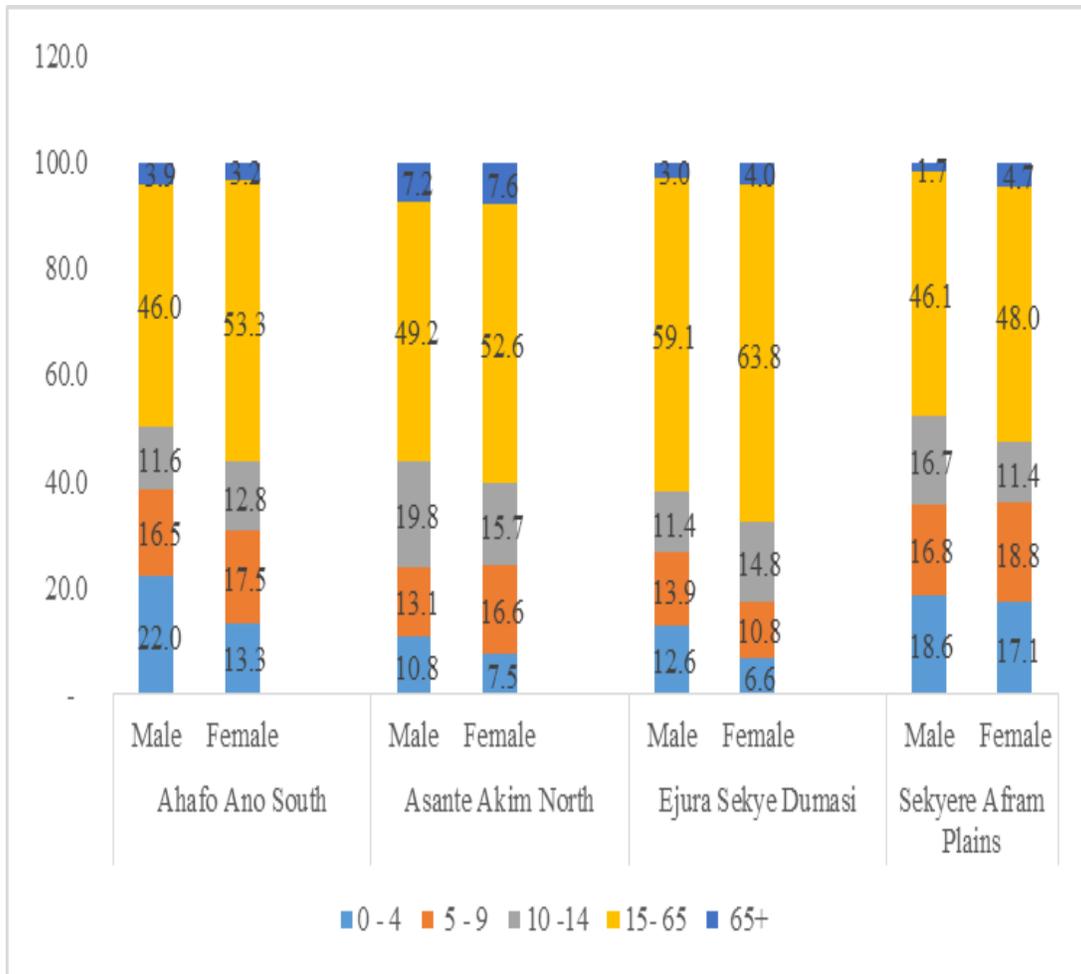
3.3.2 Age structure of household members

Figure 3.8 shows the distribution of household members by age class. In all districts and irrespective of gender, a high proportion of the population was within the working age (15- 64 years of age). This proportion goes from 47.1% in Sekyere Afram Plains, to 61.4 % in Ejura Sekye Dumasi. Sekyere Afram Plains was the only district where children (under 15 years of age) outnumber those of working age.

Figure 3.8 shows the distribution of household members by age group. In all districts and irrespective of gender, a high proportion of the population was within the working age (15- 64 years of age). This proportion goes from 46.0% in Ahafo Ano South, to 63.8 % in Ejura Sekye

Dumasi. Sekyere Afram Plains and Ahafo Ano South were the two districts where in total children (under 15 years of age) outnumber those of working age.

Figure 3.8: Age structure of households Members by sex and district

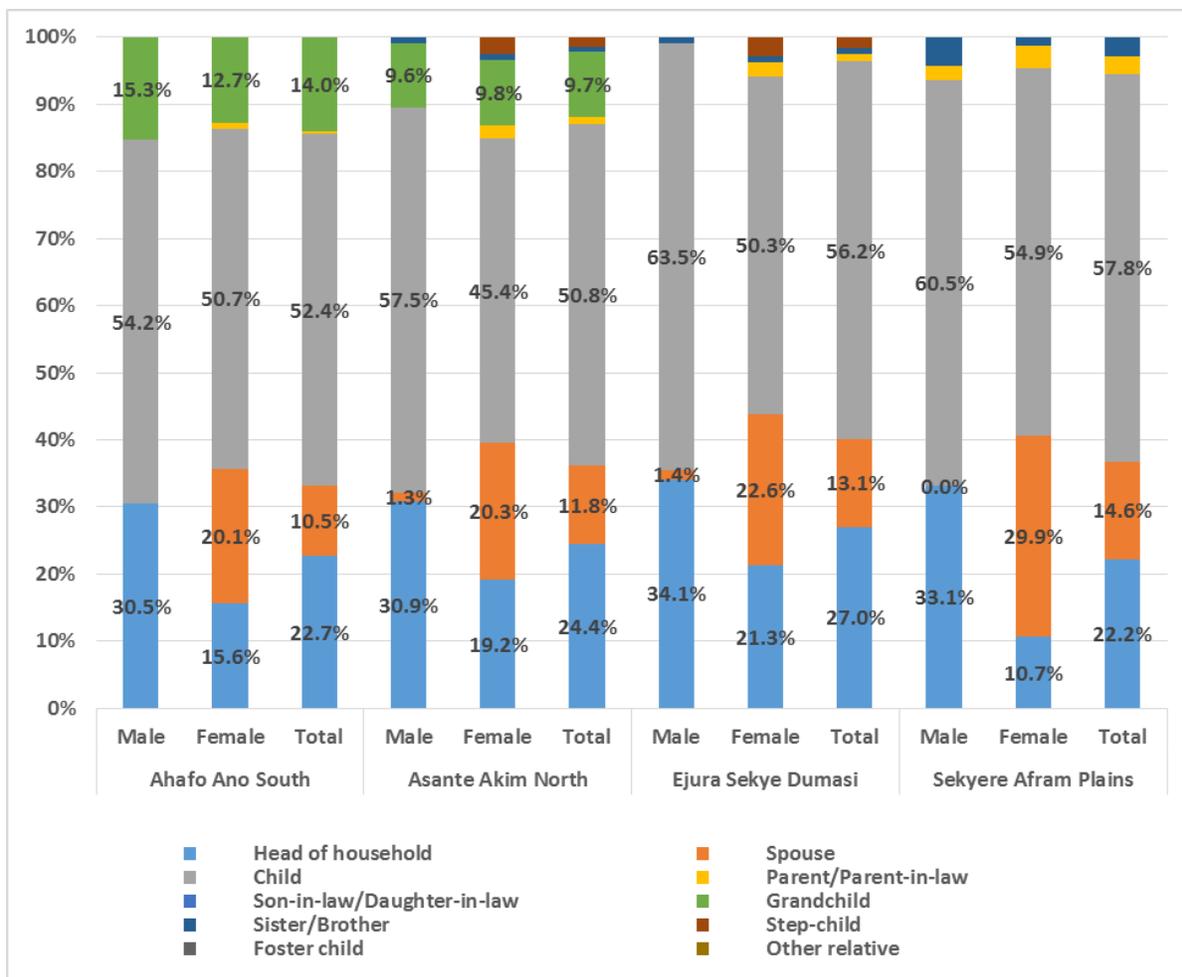


3.3.3 Household composition

Figure 3.9 illustrates the composition of households in the four surveyed districts, by categorizing members by sex, as well as by their position as the head of the household, or their position in relation to the head of the household. In all districts, males were more likely than females to be reported as the head of the household, and women were more likely to be reported as the spouse of the household head. In Ahafo Ano South and Sekyere Afram Plains, the two districts with the smallest share of female heads of households, no males were reported as spouses. This implies that these female household heads were either widows or single women.

In all cases, children of the heads of households made up the largest share of household members.

Figure 3.9: Members of holder households by relationship to the head of the household, by sex and district



3.3.4 Age of the head of the household

Table 3.10 presents information on the age of the head of the household. In all four districts, most household heads (between 59.0% and 69.9%) were 35 to 64 years old. Furthermore, while the percentage of household heads under 20 years of age was negligible, the share of those 65 years of age or older was above 10% in all districts, and highest in Asante Akim North, where it was about one-quarter (24.7%).

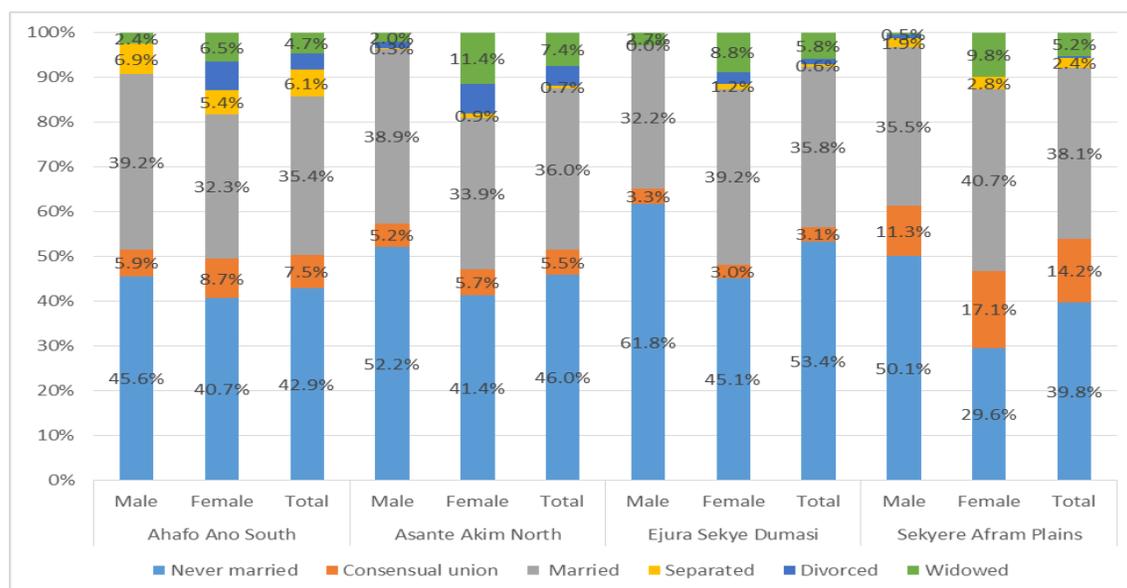
Table 3.10: Head of the household by age and district

Age class	Ahafo Ano South	Asante Akim North	Ejura Sekye Dumase	Sekyere Afram Plains North
	% of household heads			
19 years or under	0.00	0.00	0.00	1.70
20 to 34 years	16.40	9.50	26.80	26.90
35 to 64 years	69.90	65.80	63.10	59.00
65 years or over	13.70	24.70	10.10	12.40
Total	24,480	10,779	16,094	4,763

3.3.5 Marital status of household members

The marital status of household members older than 12 years of age is illustrated in Figure 3.10. In all districts, the most common marital status for both men and women was “never married”, except for women in Sekyere Afram Plains, where there was a larger share reporting “married”. In all districts, there was a higher share of women household members than men reported as “widowed”. Contributing factors to this may be a longer life expectancy for women and a greater tendency for men to remarry after being widowed.

Figure 3.10: Persons over the age of 12 by marital status, sex, and district

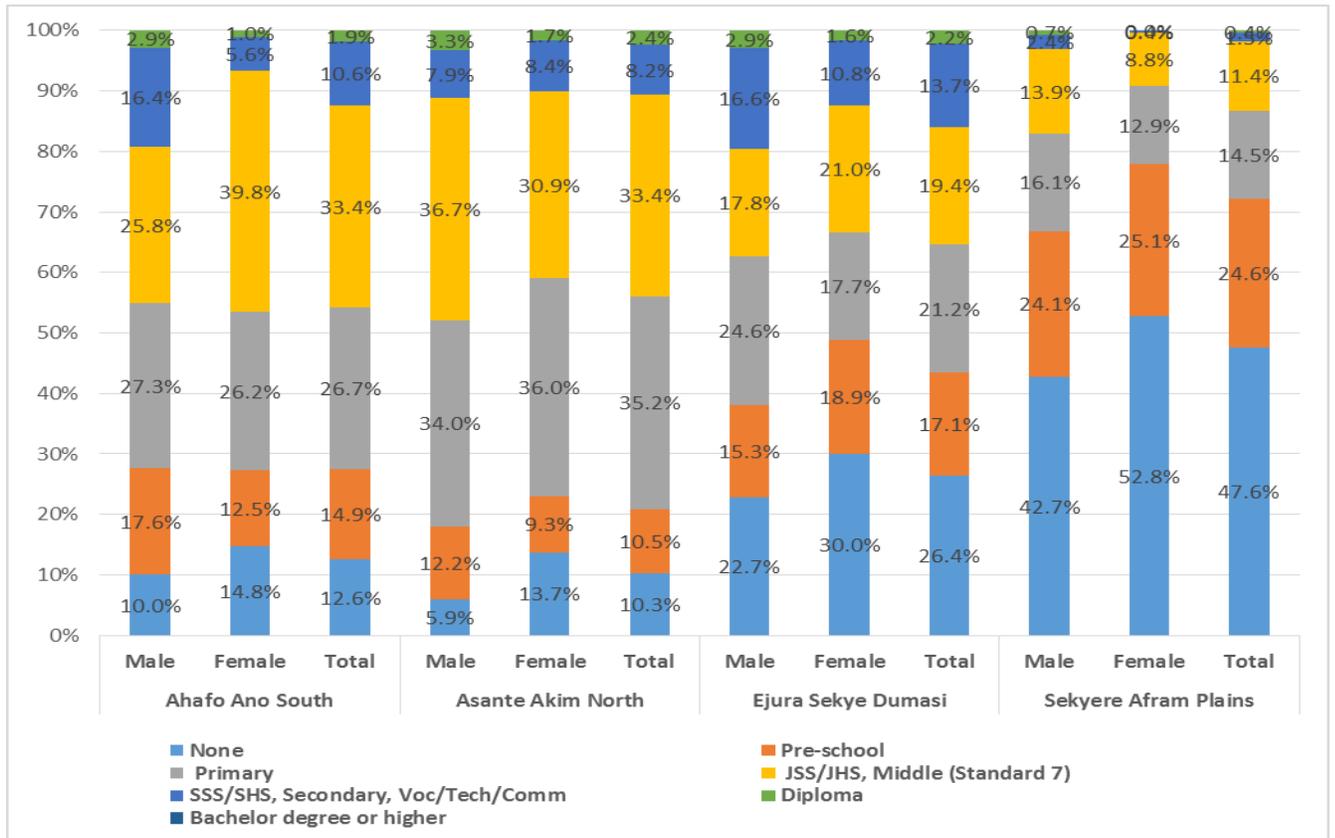


3.3.6 Education level of household members

Figure 3.11 illustrates the distribution of household members 3 years of age or older by completed education level. In all districts, more than 50% of the population has not completed above primary education. This was particularly true in Sekyere Afram Plains, where 13.3% of individuals completed an education level equal or above Middle School.

While there were household members in all four districts reporting the completion of a Bachelor degree or higher, they make up a small share of members, and in all districts, males were more likely to have attained this level of education than females. At the other end of the spectrum, a higher share of females report no formal education, than men in all districts.

Figure 3.11: Persons 3 years and older by highest level of education attained, sex and district

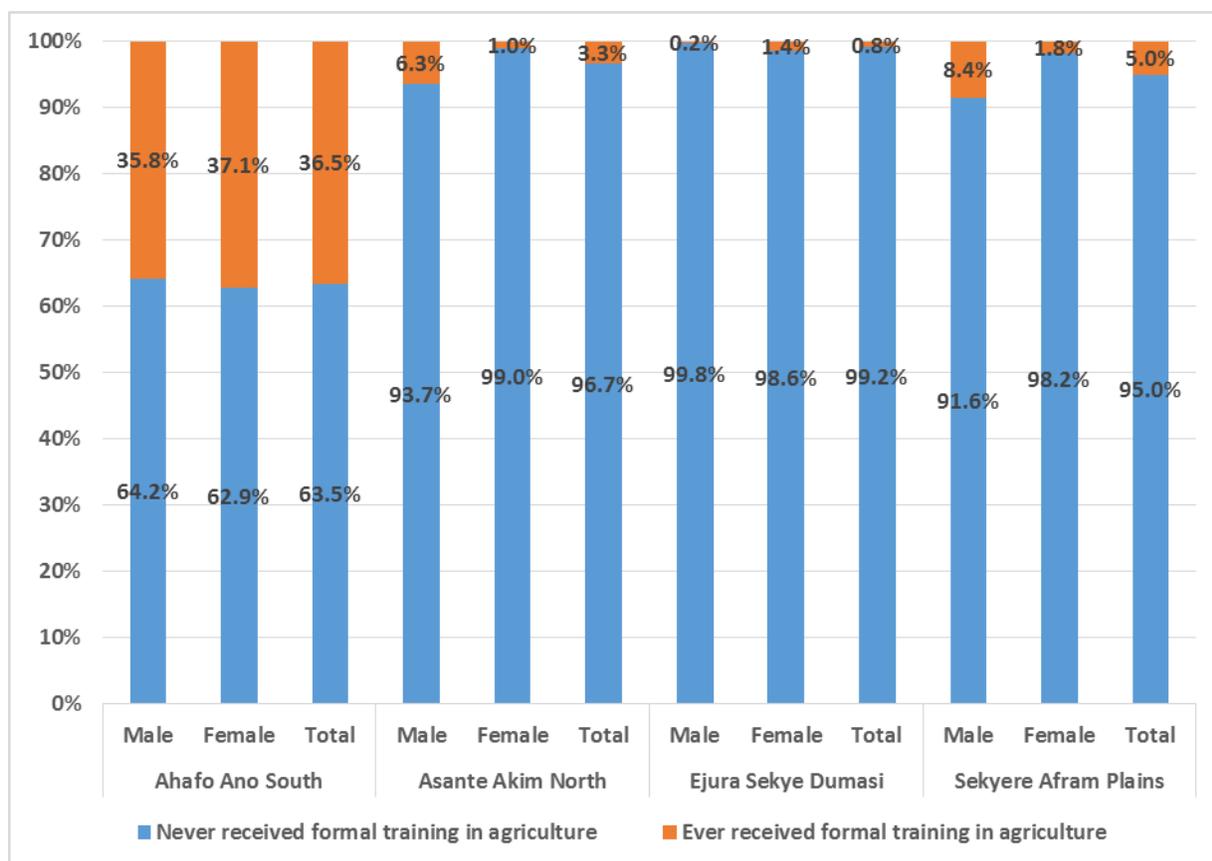


Related data on household members from 3 to 24 years of age attending school at the time of the pilot survey has been included in **Annex 3** (Table A3.22). This table shows that in all districts except Sekyere Afram Plains, the great majority of household members in this age range were attending school (from 73.7% to 87.0%). Further, it shows that there was a higher share of females in school than males in each of the three districts. Again, the exception was in Sekyere Afram Plains where the share of males and females attending school at the time of the survey was the same (3.8%).

3.3.7 Household members with formal training in agriculture

Figure 3.12 illustrates the distribution of individuals aged 15 or older by whether they received formal training in agriculture. More than one-third of those in Ahafo Ano South have received formal agricultural training, a very different pattern compared to the other districts, where those reporting training range from 0.2% to 8.4% of household members 15 years of age or older. Similar percentages were observed in each district for males and females.

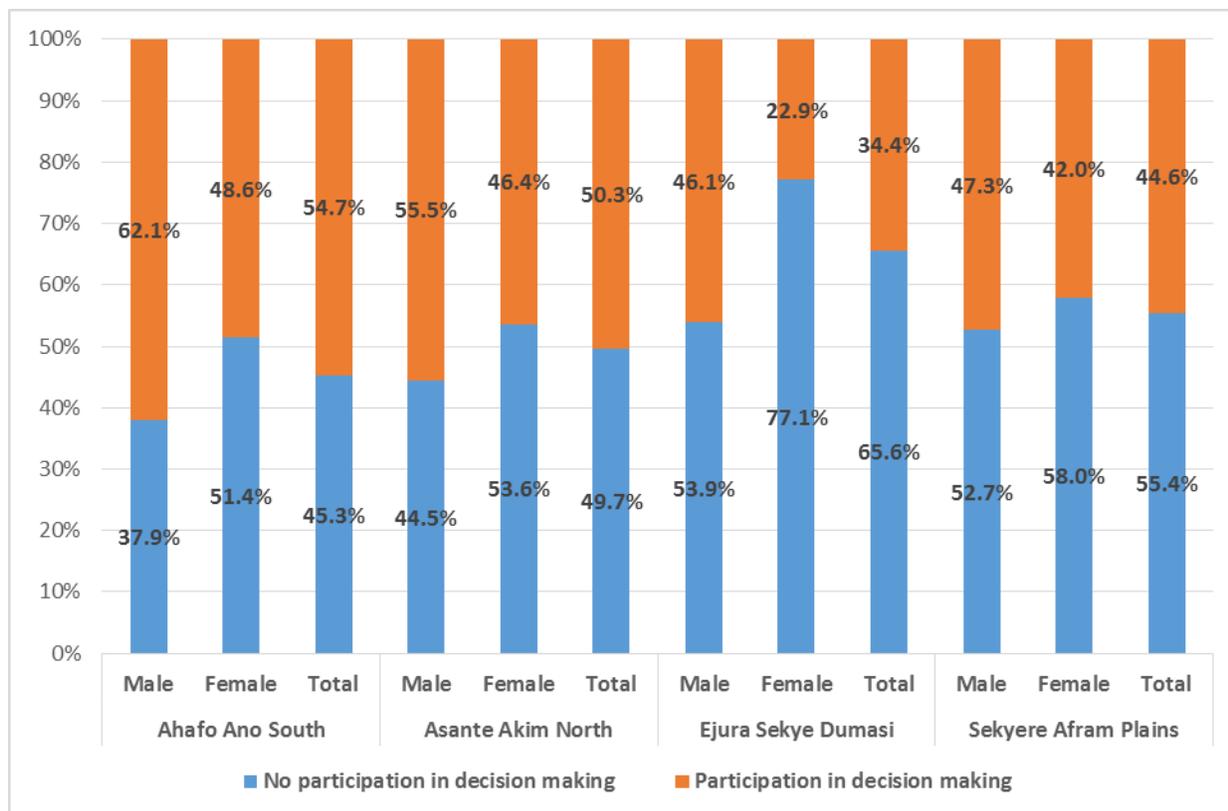
Figure 3.12: Persons 15 years of age and older by formal training in agriculture, sex and district



3.3.8 Participation of household members in decision making

The survey collected information on the participation of household members 15 years of age or older in decision making concerning crop and livestock production. Figure 3.13 indicates that overall, between one-third (34.4%) and one-half (54.7%) of household members 15 or older were involved in agricultural decision making. In all districts, males were more likely than females to report this participation.

Figure 3.13: Persons 15 years of age and older by participation in decisions concerning crops and livestock, sex and district



3.4 Land area

3.4.1 Land area by classification

Land area on agricultural holdings can be classified by distinguishing between agricultural and non-agricultural uses, and this represents a key indicator in agricultural statistics.

In order to precisely estimate the total area of the holding, AGRIS respondents were asked to report the size of the following land categories:

- Land under temporary crops;
- Land under temporary fallow;
- Land under temporary meadow and pastures;
- Land under kitchen gardens and backyards;
- Land under permanent crops

The sum of these categories of land provides a measure of the total amount of agricultural area utilized (AAU). By adding the unutilized agricultural area to the AAU, the total agricultural area can be estimated. Finally, the total area of the holding can be obtained as the sum of the agricultural area and the total size of area for non-agricultural uses. Tables from 3.11 to 3.14 show each of the land components and the total area of holdings in the four surveyed districts.

In Ahafo Ano South, 98.6% of the total area of agricultural holdings was agricultural area. In turn, 98.3% of the total agricultural area in the district was constituted by the total AAU. On the other hand, 1.7% of the total agricultural area in Ahafo Ano South was left unutilized. The share of the total area on holdings that was devoted to uses other than agriculture was minimal (1.4%).

Table 3.11: Land area by classification, Ahafo Ano South

	Total area (acres)	% of total area	# of holdings reporting	Average area (acres)
<i>TOTAL AREA ON HOLDINGS</i>	304,675	100.0%	24,480	12.9
<i>Total agricultural area</i>	300,395	98.6%	24,480	12.6
<i>Agricultural area utilized (AAU)</i>	295,289	98.3%	24,480	12.3
<i>Agricultural area unutilized</i>	5,106	1.7%	781	6.7
<i>Total other area</i>	4,280	1.4%	1,710	0.3

Table 3.12 shows a comparable situation in Asante Akim North, where 99.8% of the total land area was reserved for agricultural purposes, of which 97.5% represented agricultural area utilized.

Table 3.12: Land area by classification, Asante Akim North

	Total area (acres)	% of total area	# of holdings reporting	Average area (acres)
TOTAL AREA ON HOLDINGS	113,919	100.0%	10,524	11.2
Total agricultural area	113,647	99.8%	10,524	11.1
<i>Agricultural area utilized (AAU)</i>	110,839	97.5%	10,524	10.6
<i>Agricultural area unutilized</i>	2,807	2.5%	269	9.9
Total other area	272	0.1%	594	0.0

Table 3.13 and Table 3.14 illustrate a similar trend in Ejura Sekye Dumasi and Sekyere Afram Plains.

Table 3.13: Land area by classification, Ejura Sekye Dumasi

	Total area (acres)	% of total area	# of holdings reporting	Average area (acres)
TOTAL AREA ON HOLDINGS	218,353	100.0%	15,230	12.0
<i>Total agricultural area</i>	<i>215,490</i>	<i>98.7%</i>	<i>15,230</i>	<i>11.9</i>
Agricultural area (AAU) utilized	209,904	97.4%	15,230	11.6
Agricultural area unutilized	5,586	2.6%	1,291	4.3
<i>Total other area</i>	<i>2,863</i>	<i>1.3%</i>	<i>869</i>	<i>0.1</i>

Table 3.14: Land area by classification, Sekyere Afram Plains

	Total area (acres)	% of total area	# of holdings reporting	Average area (acres)
TOTAL AREA ON HOLDINGS	62,297	100.0%	4,302	13.8
<i>Total agricultural area</i>	<i>61,494</i>	<i>98.7%</i>	<i>4,302</i>	<i>13.6</i>
Agricultural area (AAU) utilized	57,278	93.1%	4,302	12.7
Agricultural area unutilized	4,216	6.9%	822	5.3
<i>Total other area</i>	<i>803</i>	<i>1.3%</i>	<i>351</i>	<i>0.2</i>

3.4.2 Agricultural area

Tables from 3.15 to 3.18 illustrate the various components of the total AAU in the four districts.

In Ahafo Ano South, the greatest share of AAU was represented by area devoted to permanent crops (50.6%), while the area under temporary crops represented only 34.9%. As in the other districts, the shares of area for temporary meadow and pastures, under kitchen garden, and left temporarily fallow were relatively low.

In the other three districts, the land under temporary crops represents the greatest share of the total AAU, with percentages varying from 65.5% in Asante Akim North to 87.9% in Sekyere Afram Plains.

The average area per holding, in the four districts were very similar, with the average AAU per holding ranging from 10.6 acres in Asante Akim North, to 12.7 acres in Sekyere Afram Plains. Again, in all districts except Ahafo Ano South, the average area of land under temporary crops per holding was the largest component of average AAU.

Table 3.15: Agricultural area by classification, Ahafo Ano South

Components of Agricultural area utilized (AAU)	Area (acres)	% of total agricultural area utilized	# of holdings reporting	Average area (acres)
Agricultural area utilized (AAU)	295,289	100.0%	24,480	12.3
Temporary crops	102,993	34.9%	24,224	4.7
Temporary fallow	40,543	13.7%	9,007	2.1
Temporary meadows and pastures	30	0.0%	734	0.0
Kitchen gardens and backyards	2,217	0.8%	1,981	0.1
Permanent crops	149,506	50.6%	19,116	6.5

Table 3.16: Agricultural area by classification, Asante Akim North

Components of Agricultural area utilized (AAU)	Area (acres)	% of total agricultural area utilized	# of holdings reporting	Average area (acres)
Agricultural area utilized (AAU)	110,839	100.0%	10,524	10.6
Temporary crops	72,635	65.5%	10,219	6.9
Temporary fallow	8,355	7.5%	1,687	1.3
Temporary meadows and pastures	667	0.6%	107	0.1
Kitchen gardens and backyards	29	0.0%	114	0.0
Permanent crops	29,154	26.3%	3,931	2.8

Table 3.17: Agricultural area by classification, Ejura Sekye Dumasi

Components of Agricultural area utilized (AAU)	Area (acres)	% of total agricultural area utilized	# of holdings reporting	Average area (acres)
Agricultural area utilized (AAU)	209,904	100.0%	15,230	11.6
Temporary crops	175,151	83.4%	15,230	10.6
Temporary fallow	19,742	9.4%	4,406	1.2
Temporary meadows and pastures	0	0.0%	0	0.0
Kitchen gardens and backyards	148	0.1%	476	0.0
Permanent crops	14,863	7.1%	1,990	0.6

Table 3.18: Agricultural area by classification, Sekyere Afram Plains

Components of Agricultural area utilized (AAU)	Area (acres)	% of total agricultural area utilized	# of holdings reporting	Average area (acres)
Agricultural area utilized (AAU)	57,278	100.0%	4,302	12.7
Temporary crops	50,329	87.9%	4,302	12.3
Temporary fallow	4,407	7.7%	904	1.0
Temporary meadows and pastures	0	0.0%	0	0.0
Kitchen gardens and backyards	253	0.4%	127	0.1
Permanent crops	2,288	4.0%	168	0.4

Agricultural area describes the area already used for farming, or that could be brought back into cultivation using the resources normally available on an agricultural holding. Figure 3.15 shows that in all districts, more than 90% of holdings had some agricultural area. Furthermore, as illustrated in Figure 3.16, more than 75% of holdings in all districts had less than 20 acres of agricultural land.

Figure 3.15: Holdings by presence of agricultural area and district

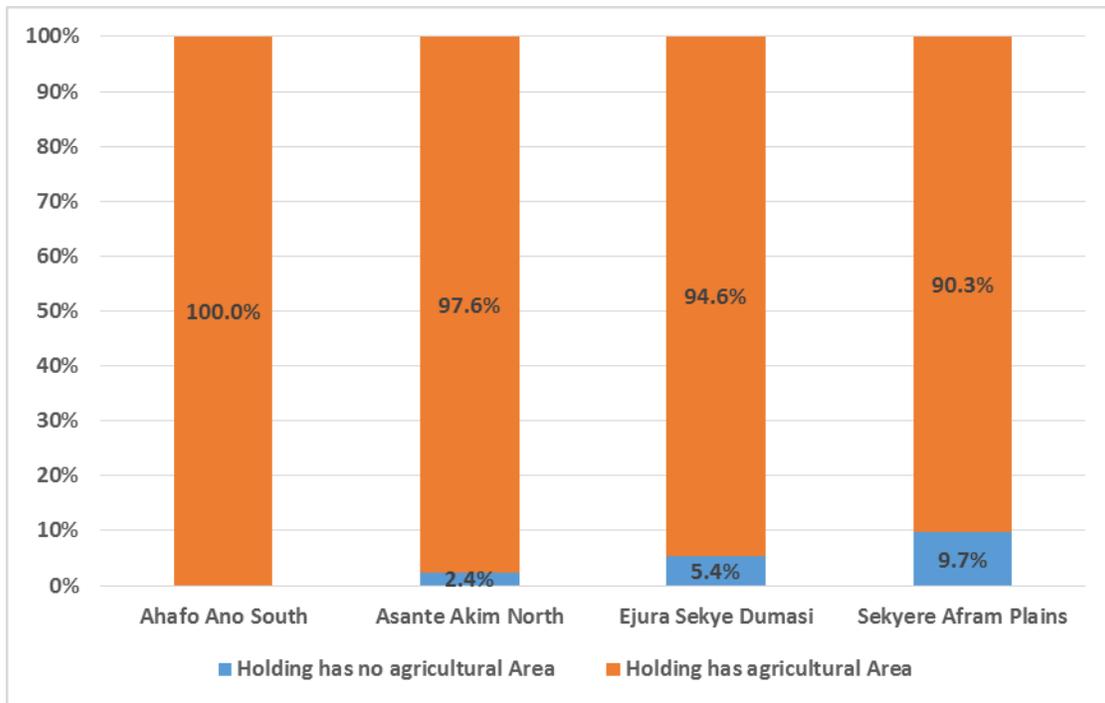
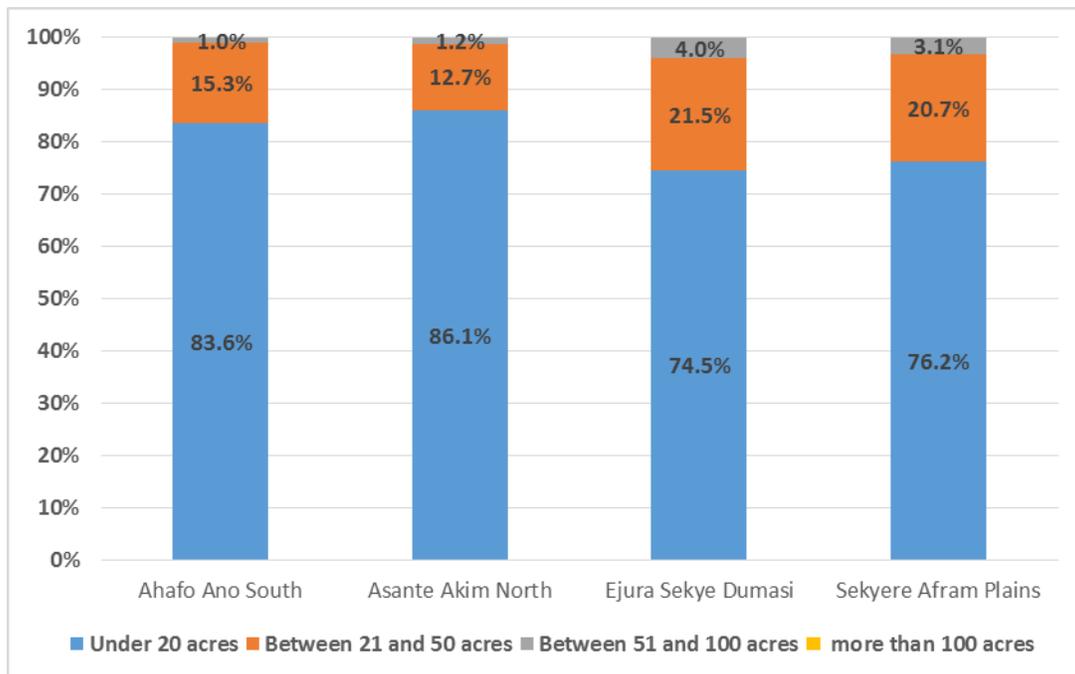


Figure 3.16: Holdings by size of agricultural land and district



3.5 Crop production and destination

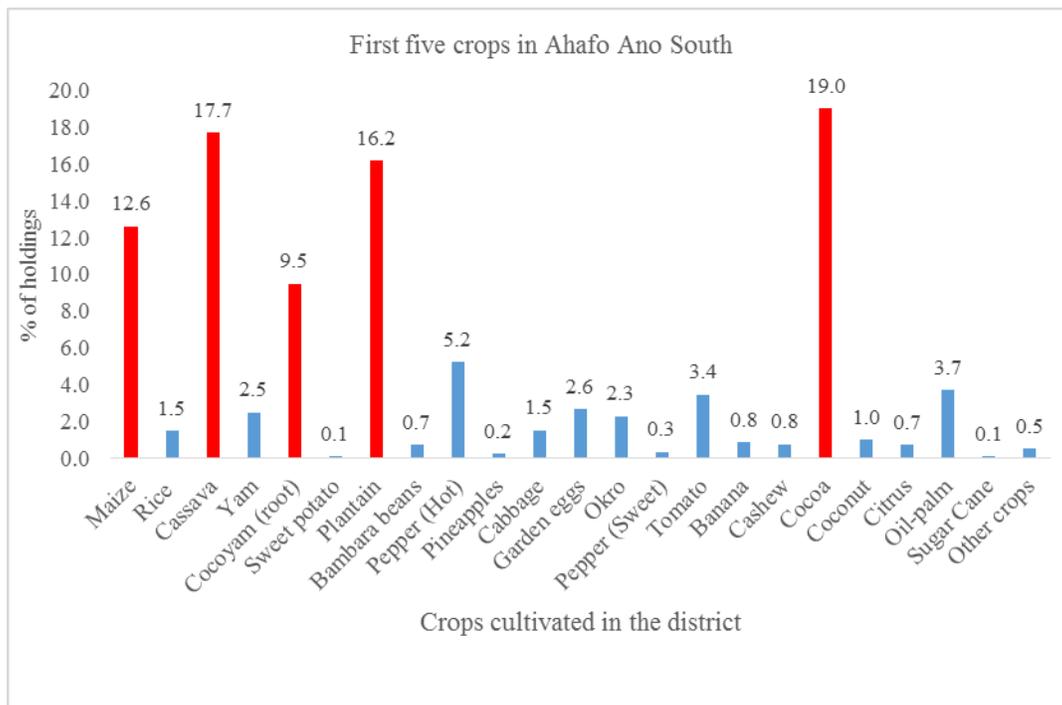
One of the main components of the AGRIS core questionnaire is the module on crop production and destination. Besides providing information on area of each crop planted and harvested, it allows the total quantity produced and the average yield per crop to be estimated. Furthermore, information on the final uses of crop production are also collected, in order to offer a complete picture of the main intended destination of crop products.

3.5.1 Crops grown

As shown in **Annex 3**, nearly all holdings in the four districts cultivate crops.

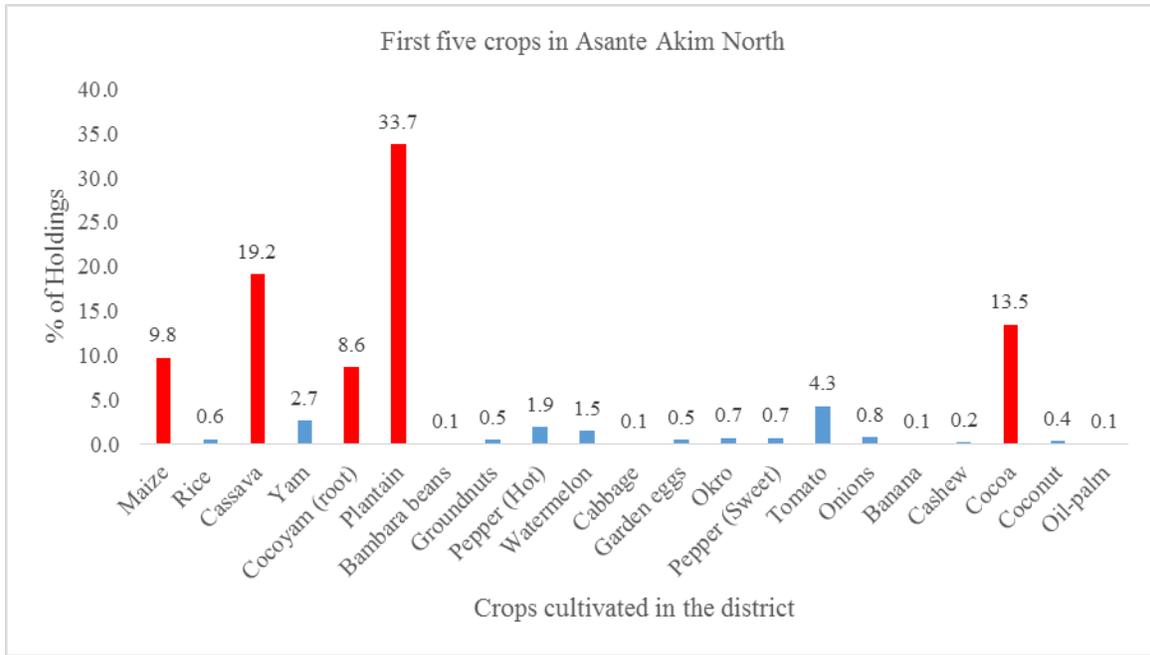
In Ahafo Ano South, 100% of holdings engaged in some crop production activities. The major crops cultivated were plantain, cassava, cocoa, maize and cocoyam. Other crops that seemed to be cultivated by a considerable number of holdings were hot-pepper, tomato, oil-palm, garden eggs, okro and yam.

Figure 3.17: Main crops in Ahafo Ano South, percent of holdings reporting



In Asante Akim North, the top five crops were the same as in Ahafo Ano South. A notable difference however, was whereas the top three crops in Ahafo Ano South were relatively equally common (on about 80% of holdings), in Asante Akim North, plantain was more dominant, being reported by over 85% of holdings. The next most common crop, cassava, was reported by about 55% of holdings.

Figure 3.18: Main crops in Asante Akim North, percent of holdings reporting



In Ejura Sekye Dumasi maize was cultivated by over 90% of holdings. Cassava remains in the top five, however, cultivated by relatively fewer holdings (just under 30%). Cowpeas were grown by just over half of holdings, followed by yam (about 45%) and groundnuts (about 35%)

Finally, in Sekyere Afram Plains, maize, yam and cassava were grown by the highest share of holdings, with groundnuts and plantain rounding out the top five.

Figure 3.19: Main crops in Ejura Sekye Dumasi, percent of holdings reporting

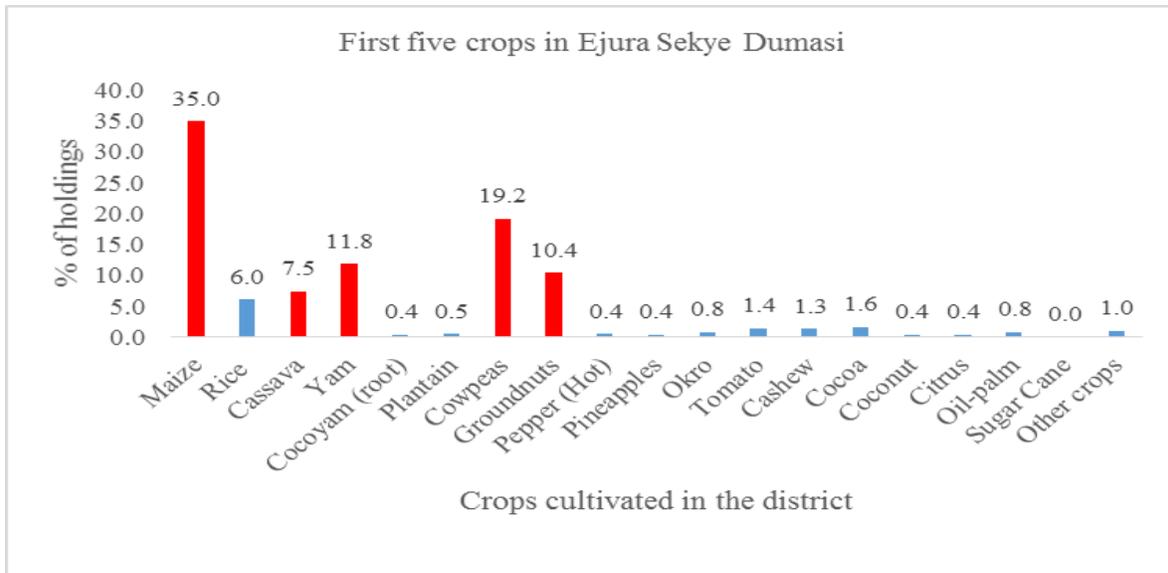
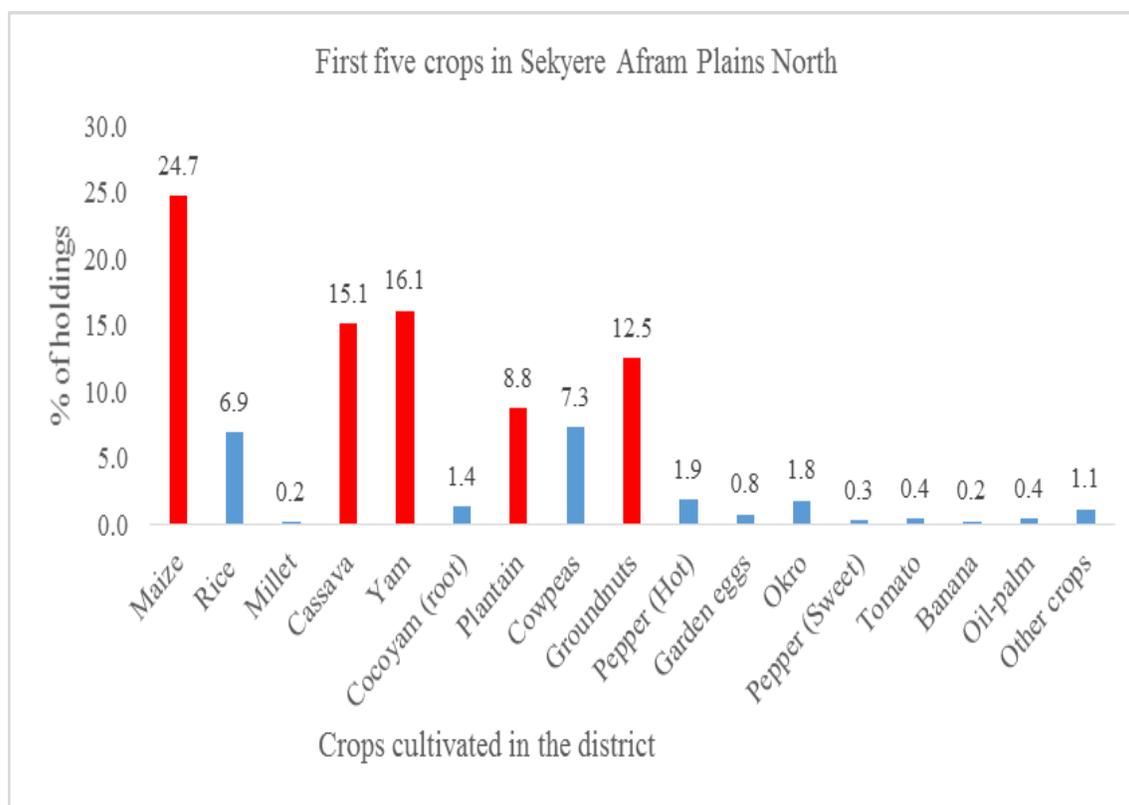


Figure 3.20: Main crops in Sekyere Afram Plains, percent of holdings reporting



3.5.2 Use of fertilizers, plant protection products and irrigation on holdings

Tables 3.19 to 3.22 present the practices used by agricultural holdings in terms of the use of fertilizers, plant protection products (PPPs) and irrigation on crops. In general, a larger share of crop producing holdings in all districts, reported using PPPs on their crops than using fertilizers or irrigation. In all districts, irrigation was used by less than 5% of the holdings practicing crop production activities.

In Table 3.19, nearly one-half (49.3%) of cocoa-producing holdings in Ahafo Ano South district used fertilizers for cocoa production, while 80.1% used PPPs. Of rice producers, 63.0% used PPPs.

Some crops require water throughout their production stages and therefore, the use of irrigation can be important at certain times of the year, particularly during the dry season. One-third (33.5%) of holdings cultivating tomatoes and 20.1% of those cultivating rice used irrigation.

Table 3.19: Percentage of holdings by crops, use of Fertilizers, PPPs and Irrigation, Ahafo Ano South

	Total # of holdings reporting crop	Fertilizers used on crop	Plant protection products used on crop	Irrigation of crop⁽¹⁾
		% of total holdings cultivating the crop	% of total holdings cultivating the crop	% of total holdings cultivating the crop
Holdings reporting at least one crop	24,480	12.6	33.3	4.7
Cassava	20,217	0.0	20.8	0.0
Cocoa	19,116	49.3	80.1	0.0
Cocoyam	13,538	0.0	7.1	0.0
Maize	15,102	2.9	40.4	1.5
Plantain	20,375	0.0	8.3	0.0
Rice	1,515	0.0	63.0	20.1
Tomato	6,129	24.7	28.9	33.5
Yam	4,372	0.0	0.0	0.0

In Asante Akim North (Table 3.20), the situation for cocoa was similar. Most holdings cultivating cocoa (82.5%) used PPPs, and 33.0% used fertilizers. Even higher adoption was reported by tomato-producing holdings, with 89.1% using PPPs and 85.0% using fertilizers on tomatoes. Irrigation was used by over half (51.6%) of holdings producing rice.

As in Ahafo Ano South, there was significant adoption of PPPs for maize, with 30.7% of producers reporting their use.

Table 3.20: Percentage of holdings by crops, use of Fertilizers, PPPs and Irrigation, Asante Akim North

	Total # of holdings reporting crop	Fertilizers used on crop	Plant protection products used on crop	Irrigation of crop ⁽¹⁾
		% of total holdings cultivating the crop	% of total holdings cultivating the crop	% of total holdings cultivating the crop
Holdings reporting at least one crop	10,524	16.5%	31.2%	3.1%
Cassava	5,657	2.2%	15.8%	0.0%
Cocoa	3,938	33.0%	82.5%	5.2%
Cocoyam	2,830	1.3%	6.0%	1.9%
Groundnuts	118	0.0%	0.0%	0.0%
Maize	3,422	7.7%	30.7%	1.8%
Plantain	9,027	9.3%	17.5%	0.0%
Rice	176	0.0%	0.0%	51.6%
Tomato	882	85.0%	89.1%	0.0%
Yam	900	0.0%	0.0%	0.0%

All of the holdings cultivating cocoa or tomatoes in the Ejura Sekye Dumasi district used fertilizer and PPPs. A large proportion of maize producers also reported using fertilizers and PPPs (92.6% and 77.7% respectively).

Rice has been included in the analysis, although it was not a major crop. On 93.2% of rice producing holdings PPPs were used, on 60.8%, fertilizers were used and 16.9% used irrigation.

The vast majority of cowpea producers in the district (95.0%) used PPPs.

Table 3.21: Percentage of holdings by crops, use of Fertilizers, PPPs and irrigation, Ejura Sekye Dumasi

	Total # of holdings reporting crop	Fertilizers used on crop	Plant protection products used on crop	Irrigation of crop ⁽¹⁾
		% of total holdings cultivating the crop	% of total holdings cultivating the crop	% of total holdings cultivating the crop
Holdings reporting at least one crop	15,230	43.8%	72.4%	1.9%
Cassava	4,104	0.0%	26.0%	4.1%
Cocoa	995	100.0%	100.0%	0.0%
Cocoyam	375	0.0%	0.0%	0.0%
Cowpeas	8,257	11.7%	95.0%	0.0%
Groundnuts	5,441	0.0%	72.5%	0.0%
Maize	13,956	92.6%	77.7%	0.0%
Plantain	440	0.0%	0.0%	0.0%
Rice	3,387	60.8%	93.2%	16.9%
Tomato	554	100.0%	100.0%	0.0%
Yam	7,056	0.0%	38.7%	0.0%

In Sekyere Afram Plains, a higher percentage of holdings (44.9%) used PPPs on cassava compared to the other districts. Again, rice producers (12.1%) and tomato producers (48.8%) irrigated their crops, although the percentage of holdings using irrigation on rice was not as high as in the other district. With the exception of cocoyam, PPPs were used by a relatively high percentage of producing holdings across all crop types (more than 40% in all cases). By comparison, the only crop for which a large share of producers used fertilizer was tomato (48.8%).

Table 3.22: Percentage of holdings by crops, use of Fertilizers, PPPs and Irrigation, Sekyere Afram Plains

	Total # of holdings reporting crop	Fertilizers used on crop	Plant protection products used on crop	Irrigation of crop
		% of total holdings cultivating the crop	% of total holdings cultivating the crop	% of total holdings cultivating the crop
Holdings reporting at least one crop	4,302	6.4%	55.2%	2.2%
Cassava	2,531	3.6%	40.9%	0.0%
Cocoyam	318	0.0%	16.8%	0.0%
Cowpeas	1,251	0.0%	62.1%	0.0%
Groundnuts	2,276	1.6%	64.0%	1.8%
Maize	3,464	15.8%	74.3%	1.2%
Plantain	1,641	2.2%	51.7%	0.0%
Rice	1,318	12.2%	61.8%	12.1%
Tomato	92	48.8%	48.8%	48.8%
Yam	2,741	3.0%	42.4%	1.7%

3.5.3 Total area planted and harvested, quantity produced, and average yield by crops

AGRIS represents a powerful tool for estimating the area planted and harvested for each crop included in the survey. By estimating the total quantity of crops produced, this integrated survey also provides the ability to extrapolate average crop yields.

The sample size used for this pilot was relatively small. As such, estimates obtained for areas, quantities and yields may be less accurate than those that could be offered by a survey in its full-scale implementation. However, in an effort to demonstrate the AGRIS data and its potential uses, results obtained through the pilot are being presented in this report. Standard errors and coefficients of variation for area planted and production of crops can be found in **Annex 5**.

In the original structure proposed for the AGRIS questionnaire, before answering questions related to area planted and harvested, the respondent is asked to indicate if the reported crop was harvested continuously during the reference period or with a limited number of harvests.

Given the difficulties in precisely reporting the area harvested for continuous crops, respondents reporting a crop in this category, were only asked to report the total quantity harvested and not the size of the area harvested. For this reason, it was not possible to compute yield for continuous crops. Estimation difficulties emerged when some holders reported harvesting the same crop both continuously and with a limited number of harvests. This happened in particular with cassava, cocoa and cocoyam, resulting in an under-estimation of total area harvested, consequently impacting the quality of yield estimates.

Table 3.23 illustrates, for the top crops in each district, the total hectares planted and harvested, quantity harvested and yield (excluding continuous crops) and quantity harvested including continuous crops during the 2017 farming season.

Plantain, cassava and cocoa were cultivated by the largest number of holdings in Ahafo Ano South, followed by maize and cocoyam. Cassava seems to be the crop with the highest yield in the district, where, on average, 1.18 Metric Tonnes per hectare were produced during the last reference period. With plantain, the crop cultivated by the largest number of holdings, the total area of land planted with this crop was smaller than that planted with cocoa or maize.

This differs somewhat from Asante Akim North, where plantain was grown by the largest share of holdings and also had by far the largest planted area of any crop. Plantain was also the highest yielding crop reported.

In Ejura Sekye Dumasi, maize was the main crop in terms of holdings reporting area planted, area harvested and quantity produced. This was followed by cowpeas. While yams were next for holdings reporting, it was groundnuts that ranked third for area planted and harvested. In this district, crops with the highest yield were cassava and yam.

Finally, in Sekyere Afram Plains, maize, yam, cassava and groundnuts were the crops produced by the largest number of holdings. In particular, maize, with 16,454 Ha planted area was four times larger than the next largest crop (groundnuts).

Table 3.23: Crops, total area planted, total area harvested, total quantity harvested, and average yield

	# of holdings reporting	Total Area planted	Total Area harvested	Total quantity harvested (excluding continuous crops)	Average Yield	Total quantity harvested (including continuous crops)
		Ha	Ha	MT	MT/Ha	MT
Ahafo Ano South						
Crop	24,480	109,865	64,978	51,600	0.92	72,253
Cassava	20,217	14,717	11,690	12,532	1.18	12,532
Cocoa	20,070	22,913	670	35	0.07	9,062
Cocoyam	13,538	7,476	6,591	1,737	0.54	1,737
Maize	15,102	20,037	17,381	9,870	0.64	9,870
Plantain	20,375	14,660	13,029	13,842	0.89	13,842
Rice	1,515	3,298	3,001	1,404	0.67	1,404
Tomato	6,129	1,754	1,544	2,112	0.91	2,647
Yam	4,372	3,937	3,875	1,648	1.00	1,648
Asante Akim North						
Crop	10,524	34,074	27,973	241,368	4.35	243,543
Cassava	5,754	3,599	2,811	6,632	2.74	6,672
Cocoa	3,938	1,835	575	169	0.67	1,970
Cocoyam	3,106	1,435	1,119	1,483	1.87	1,548
Groundnuts	169	48	48	96	2.01	96
Maize	3,422	4,972	4,931	3,671	1.55	3,671
Plantain	9,027	18,864	15,285	218,075	8.26	218,090
Rice	176	353	353	146	0.53	146
Tomato	1,059	573	537	774	1.56	792
Yam	1,026	344	285	674	1.59	674
Ejura Sekye Dumasi						
Crop	15,230	114,173	106,340	142,463	1.96	144,785
Cassava	4,349	1,585	1,076	7,109	4.09	7,109
Cocoyam	375	455	38	102	2.70	102
Cowpeas	8,257	25,274	25,274	24,696	0.96	24,696
Groundnuts	5,441	10,695	10,641	6,403	0.60	6,403
Maize	14,201	67,696	61,166	80,629	1.32	80,629
Plantain	440	165	165	646	2.69	646
Rice	3,387	3,365	3,020	1,938	0.96	1,938
Yam	7,056	4,938	4,961	20,938	5.43	20,938

	# of holdings reporting	Total Area planted	Total Area harvested	Total quantity harvested (excluding continuous crops)	Average Yield	Total quantity harvested (including continuous crops)
		Ha	Ha	MT	MT/Ha	MT
Sekyere Afram Plains						
Crop	4,302	31,999	28,767	28,151	1.03	33,588
Cassava	2,572	1,710	1,535	4,300	0.66	5,203
Cocoyam	318	165	165	64	0.53	89
Cowpeas	1,348	1,358	1,233	1,009	1.33	1,031
Groundnuts	2,276	3,698	3,598	2,387	0.45	2,387
Maize	3,464	16,454	14,648	10,999	0.72	10,999
Plantain	1,682	777	662	2,002	4.05	3,608
Rice	1,318	2,215	2,127	1,080	0.50	1,080
Tomato	92	28	28	153	4.50	153
Yam	2,741	3,411	2,862	6,100	1.69	6,338

3.5.4 Crop production and type of use

A complete analysis of crop production data needs to include the assessment of the final destination of crops produced. AGRIS pilot data on the share of crop production devoted to own use, sales, pay for labour, pay for renting land, and pay for other inputs are presented in Table 3.24.

Overall in Ahafo Ano South, 55.8% of holdings reported using their crop production for their own consumption, while 49.5% of holdings in the district sold their produce. On the other hand, holdings reporting using their produce to pay for labour, rent of land or other inputs were few (4.0%, 0.7%, and 0.5% respectively). The destination varies by crop type.

While no holdings in the district used cocoa of their own consumption, all holdings producing tomatoes or rice used their crops for own consumption. Rice was also sold by all producing holdings. Cocoa and maize were sold by the majority of holdings producing them (86.5%, and 65.3% respectively).

Although the share of households reporting using their crop production for own use was higher than those selling, the opposite was the case for quantities, with the overall share of crops produced and sold being significantly higher than the share of own consumed (79.8% versus the 19.3%). This relationship holds true for all individual crops except yams. In general, less than 1% of total production was used to pay for labour during the reference period.

Table 3.24: Crops, quantity, by type of use of the production of crop from all harvests, Ahafo Ano South

	share of holdings reporting each crop by type of use						Share of crop production by type of use					
	Number of holdings reporting crop	own use	sold	used as pay for labour	used to pay for land rent	used to pay for inputs (other than land)	Total crop production	Share for own use	Share sold	Share used as pay for labour	Share used to pay for land rent	Share used to pay for inputs (other than land)
	quantity	Percent	Percent	Percent	Percent	Percent	quantity (mt)	Percent	Percent	Percent	Percent	Percent
Crop	24,480	55.8%	49.5%	4.0%	0.7%	0.5%	51,600	19.3%	79.8%	0.9%	0.0%	0.0%
Cassava	20,217	55.9%	25.9%	0.0%	0.0%	0.0%	12,532	25.3%	74.7%	0.0%	0.0%	0.0%
Cocoa	20,070	0.0%	65.2%	6.5%	2.0%	0.9%	35	0.0%	95.9%	4.1%	0.0%	0.0%
Cocoyam	13,538	29.1%	18.1%	0.0%	0.0%	0.0%	1,737	39.9%	60.1%	0.0%	0.0%	0.0%
Maize	15,102	91.2%	86.5%	10.9%	0.0%	0.0%	9,870	18.4%	79.8%	1.9%	0.0%	0.0%
Plantain	20,375	52.0%	39.2%	0.0%	0.0%	0.0%	13,842	20.6%	79.4%	0.0%	0.0%	0.0%
Rice	1,515	100.0%	100.0%	0.0%	0.0%	0.0%	1,404	25.6%	74.4%	0.0%	0.0%	0.0%
Tomato	6,129	100.0%	56.6%	12.5%	0.0%	0.0%	2,112	13.7%	82.2%	4.1%	0.0%	0.0%
Yam	4,372	63.9%	5.0%	0.0%	0.0%	0.0%	1,648	63.0%	37.0%	0.0%	0.0%	0.0%

In Asante Akim North (Table 3.25), the percentage of holdings reporting using their produce for own consumption and sales were comparable (71.2% versus 77.7%). All major crops in this district other than cocoa were used for own consumption by more than 60% of producing holdings, while all crops except yam and cocoyam were sold by more than 60%. Once again, cocoa producers did not use their produce for their own purposes, and the totality of holdings cultivating rice or groundnuts used these crops for their own consumption.

In Asante Akim North, the 92% of the total quantity of crop produced was sold by agricultural holdings, while only the 7.3% was own consumed.

Table 3.25: Crops, quantity, by type of use of the production of crop from all harvests, Asante Akim North

	share of holdings reporting each crop by type of use						Share of crop production by type of use					
	Number of holdings reporting crop	own use	sold	used as pay for labour	used to pay for land rent	used to pay for inputs (other than land)	Total crop production	Share for own use	Share sold	Share used as pay for labour	Share used to pay for land rent	Share used to pay for inputs (other than land)
	quantity	Percent	Percent	Percent	Percent	Percent	quantity (mt)	Percent	Percent	Percent	Percent	Percent
Crop	10,524	71.2%	77.7%	3.9%	2.4%	2.3%	241,368	7.3%	92.6%	0.1%	0.0%	0.0%
Cassava	5,754	69.1%	62.2%	2.7%	1.6%	1.6%	6,632	22.6%	76.8%	0.6%	0.0%	0.0%
Cocoa	3,938	0.0%	86.6%	4.3%	0.0%	0.0%	169	0.0%	99.0%	1.0%	0.0%	0.0%
Cocoyam	3,106	65.4%	45.3%	9.0%	9.0%	9.0%	1,483	35.8%	64.2%	0.0%	0.0%	0.0%
Groundnuts	169	100.0%	100.0%	100.0%	30.2%	30.2%	96	9.1%	68.2%	22.7%	0.0%	0.0%
Maize	3,422	91.6%	89.9%	3.0%	0.0%	0.0%	3,671	18.0%	81.6%	0.3%	0.0%	0.0%
Plantain	9,027	94.5%	91.0%	0.0%	0.4%	0.0%	218,075	6.7%	93.3%	0.0%	0.0%	0.0%
Rice	176	100.0%	100.0%	0.0%	0.0%	0.0%	146	12.0%	88.0%	0.0%	0.0%	0.0%
Tomato	1,059	80.9%	77.0%	12.9%	12.9%	12.9%	774	10.1%	89.9%	0.0%	0.0%	0.0%
Yam	1,026	73.3%	26.5%	11.2%	11.2%	11.2%	674	29.1%	70.9%	0.0%	0.0%	0.0%

A similar scenario was observed in Ejura Sekye Dumasi, where holdings equally used crops for sales and own consumption (respectively 86.8% and 88.1%). Crops were used to pay for labour by 15.9% of this districts crop producing holdings (Table 3.26).

All holdings producing cocoyam, groundnuts or plantain in this district used these crops for own consumption. While no holdings producing cocoyam sold this crop, at least part of the production of groundnuts or plantain was sold by all holdings that produced them. The previous relationship between the total quantity of crops sold and own consumed was observed in this district with 79.7% sold and 14.7% for own use.

Table 3.26: Crops, quantity, by type of use of the production of crop from all harvests, Ejura Sekye Dumasi

	share of holdings reporting each crop by type of use						Share of crop production by type of use					
	Number of holdings reporting crop	own use	sold	used as pay for labour	used to pay for land rent	used to pay for inputs (other than land)	Total crop production	Share for own use	Share sold	Share used as pay for labour	Share used to pay for land rent	Share used to pay for inputs (other than land)
	quantity	Percent	Percent	Percent	Percent	Percent	quantity (mt)	Percent	Percent	Percent	Percent	Percent
Crop	15,230	88.1	86.8	15.9	4.7	4.0	142,463	14.7	79.7	3.3	0.6	1.7
Cassava	4,349	75.5	65.5	7.2	9.8	7.2	7,109	20.2	79.5	0.0	0.2	0.0
Cocoyam	375	100.0	0.0	0.0	0.0	0.0	102	100.0	0.0	0.0	0.0	0.0
Cowpeas	8,257	94.7	95.8	24.3	0.0	1.0	24,696	12.9	81.0	5.7	0.0	0.4
Groundnuts	5,441	100.0	100.0	34.1	0.0	0.0	6,403	8.4	84.9	6.7	0.0	0.0
Maize	14,201	89.0	89.7	10.3	4.8	8.6	80,629	11.4	81.8	3.0	0.9	2.9
Plantain	440	100.0	100.0	0.0	0.0	0.0	646	4.6	95.4	0.0	0.0	0.0
Rice	3,387	79.3	72.6	17.4	0.0	0.0	1,938	26.9	69.0	4.1	0.0	0.0
Yam	7,056	94.8	78.6	8.0	6.3	0.0	20,938	27.2	70.4	1.8	0.6	0.0

Table 3.27 reveals that crop producing holdings in Sekyere Afram Plains were involved in using their crops for more destinations than in other districts. While similar in crops for own use (80.1%) and for sale (77.6%) this district had higher shares of crop producing holdings using crops to pay for labour (20.0%), to pay for land rent (14.0%) and to pay for other inputs (43.6%). The share of crop quantities used for these three destinations was each under 10%.

Table 3.27: Crops, quantity, by type of use of the production of crop from all harvests, Sekyere Afram Plains

	share of holdings reporting each crop by type of use						Share of crop production by type of use					
	Number of holdings reporting crop	own use	sold	used as pay for labour	used to pay for land rent	used to pay for inputs (other than land)	Total crop production	Share for own use	Share sold	Share used as pay for labour	Share used to pay for land rent	Share used to pay for inputs (other than land)
	quantity	Percent	Percent	Percent	Percent	Percent	quantity (mt)	Percent	Percent	Percent	Percent	Percent
Crop	4,302	80.1	77.6	20.0	14.0	43.6	28,151	12.0	76.0	4.0	1.0	7.0
Cassava	2,572	72.1	63.1	30.4	8.8	5.8	4,300	20.6	66.6	12.1	0.6	0.2
Cocoyam	318	44.0	67.0	0.0	0.0	0.0	64	21.6	78.4	0.0	0.0	0.0
Cowpeas	1,348	85.5	69.4	13.3	9.2	51.1	1,009	34.4	62.2	0.5	0.1	2.8
Groundnuts	2,276	68.1	88.2	19.6	5.0	65.9	2,387	6.9	77.8	9.1	0.1	6.1
Maize	3,464	89.4	82.6	13.6	22.2	56.3	10,999	9.0	82.5	1.9	1.9	4.7
Plantain	1,682	80.2	94.3	19.8	3.4	0.0	2,002	10.0	88.9	0.8	0.2	0.0
Rice	1,318	77.5	85.8	24.4	24.0	71.7	1,080	9.4	79.3	4.0	3.0	4.3
Tomato	92	35.2	100.0	35.2	0.0	35.2	153	0.9	90.8	3.7	0.0	4.6
Yam	2,741	96.1	65.1	22.5	17.7	54.2	6,100	13.9	59.0	1.5	0.5	25.1

3.5.5 Quantity and value of sales of crops

Tables 3.28 to 3.31 show figures on sales of major crops in the four surveyed districts. In all districts, maize, cassava, rice and plantain are normally sold by many holdings.

Looking at the average unit price received by holdings for selling their crops, prices for the same crop were similar among the districts. For example, the unit price of cassava ranges from 0.7 GH Cedis per Metric Ton (MT) in Ahafo Ano South to 1 GH Cedi per MT in Asante Akim North. The average unit price received per MT of cocoa sold was 7 GH Cedis in both Ahafo Ano South and Asante Akim North. While the average unit prices for most other crops in the surveyed districts were similar, the price variability for groundnuts and yam was higher.

Table 3.28: Total quantity sold, value of sales and unit price of crops (from all harvests), Ahafo Ano South

	Total # of holdings reporting the crop type	Holdings reporting sales of the crop type	Holdings reporting sales as a percent of all holdings reporting the crop type	Total quantity of the crop type sold ⁽¹⁾	Total value of sales	Average unit price
	Number of holdings	Number of holdings	Percent	MT	'000 GH Cedis	GH Cedis per MT
Crop	24,480	12,126	49.5%	58,155	122,691,235	2.9
Cassava	20,217	5,245	25.9%	9,360	10,516,024	0.7
Cocoa	20,070	13,096	65.2%	8,623	63,381,821	7.0
Cocoyam	13,538	2,454	18.1%	1,044	2,070,986	1.4
Maize	15,102	13,057	86.5%	7,731	13,016,210	1.7
Plantain	20,375	7,987	39.2%	10,985	10,848,859	1.3
Rice	1,515	1,515	100.0%	1,046	3,028,776	3.2
Yam	4,372	218	5.0%	610	438,845	0.7

**Table 3.29: Total quantity sold, value of sales and unit price of crops
(from all harvests), Asante Akim North**

	Total # of holdings reporting harvesting the crop type	Holdings reporting sales of the crop type	Holdings reporting sales as a percent of all holdings reporting harvesting the crop type	Total quantity of the crop type sold ⁽¹⁾	Total value of sales	Average unit price
	Number of holdings	Number of holdings	Percent	MT	'000 GH Cedis	GH Cedis per MT
Crop	10,524	8,177	77.7%	224,055	252,093,034	6.0
Cassava	5,754	3,579	62.2%	5,215	5,405,742	1.0
Cocoa	3,938	3,411	86.6%	1,946	13,608,806	7.0
Cocoyam	3,106	1,407	45.3%	994	1,175,891	1.0
Groundnuts	169	169	100.0%	65	706,668	10.8
Maize	3,422	3,075	89.9%	2,993	3,695,329	1.3
Plantain	9,027	8,215	91.0%	201,844	121,083,525	0.8
Rice	176	176	100.0%	129	433,540	3.5
Yam	1,026	272	26.5%	469	1,142,674	3.5

**Table 3.30: Total quantity sold, value of sales and unit price of crops
(from all harvests), Ejura Sekye Dumasi**

	Total # of holdings reporting harvesting the crop type	Holdings reporting sales of the crop type	Holdings reporting sales as a percent of all holdings reporting harvesting the crop type	Total quantity of the crop type sold ⁽¹⁾	Total value of sales	Average unit price
	Number of holdings	Number of holdings	Percent	MT	'000 GH Cedis	GH Cedis per MT
Crop	15230	13223	86.8%	105,538	252,093,034	6.0
Cassava	4,104	2,690	65.5%	5,586	3,183,073	0.8
Cocoyam	375	0	0.0%	0	0	-
Cowpeas	8,257	7,911	95.8%	17,727	50,210,442	2.8
Groundnuts	5,441	5,441	100.0%	5,420	27,827,744	3.1
Maize	13,956	12,518	89.7%	59,433	77,920,331	1.2
Plantain	440	440	100.0%	616	616,129	1.0
Rice	3,387	2,458	72.6%	1,039	2,361,159	2.3
Yam	7,056	5,545	78.6%	13,922	257,869,088	1.4

**Table 3.31: Total quantity sold, value of sales and unit price of crops
(from all harvests), Sekyere Afram Plains**

	Total # of holdings reporting harvesting the crop type	Holdings reporting sales of the crop type	Holdings reporting sales as a percent of all holdings reporting harvesting the crop type	Total quantity of the crop type sold ⁽¹⁾	Total value of sales	Average unit price
	Number of holdings	Number of holdings	Percent	MT	'000 GH Cedis	GH Cedis per MT
Crop	4,302	3,337	77.6%	24,018	38,558,674	1.9
Cassava	2,531	1,598	63.1%	3,365	2,085,053	0.8
Cocoyam	318	213	67.0%	48	83,272	1.7
Cowpeas	1,251	867	69.4%	628	1,324,833	2.2
Groundnuts	2,276	2,008	88.2%	1,832	6,753,687	2.9
Maize	3,464	2,863	82.6%	8,124	9,026,877	1.2
Plantain	1,641	1,548	94.3%	3,186	2,307,234	0.7
Rice	1,318	1,131	85.8%	748	2,953,237	3.7
Yam	2,741	1,785	65.1%	3,555	12,416,401	1.7

3.6 Livestock production and destination

The livestock sector including poultry plays an important role in the economy of Ghana and in 2017, the percentage share of the livestock sub-sector to Gross Domestic Product (GDP) was 5.4% (GSS, 2018). Livestock generates a considerable amount of cash income and determines the household's economic and social status in many communities. Besides meat production, other products from livestock include hides, skins, milk and eggs. Livestock also contributes to crop and vegetable production by providing draught power for cultivation and manure for fertilizer. This section illustrates results related to livestock types raised by agricultural holdings in the four surveyed districts.

3.6.1 Livestock rearing

Figure 3.21 illustrates the distribution of agricultural holdings by the presence of livestock of any kind during the survey reference period. In all districts, more than 40% of holdings reared livestock, with Ejura Sekye Dumasi and Sekyere Afram Plains being the two districts with the highest percentage of holdings of this kind (75.4% and 66.3% respectively).

Figure 3.21: Holdings by presence of livestock

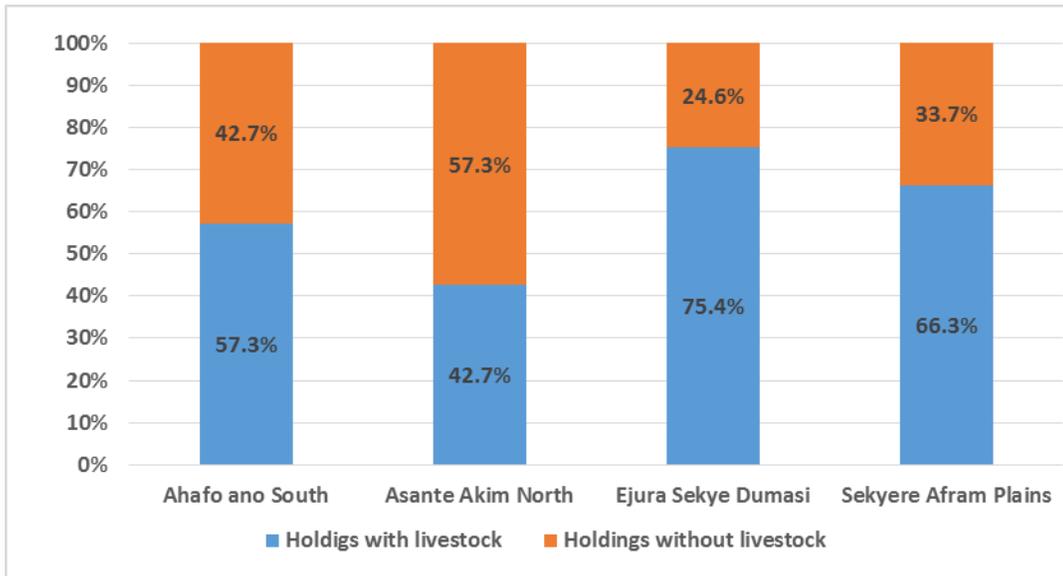


Table 3.21 shows that, in the surveyed districts, poultry, goats and sheep were the livestock types kept by the largest share of holdings. Indeed, poultry was kept by 60.1% of total holdings in the Ejura Sekye Dumasi, and 41.9% in Ahafo Ano South.

The share of holdings raising goats was highest in Ejura Sekye Dumasi (38.4%) and Sekyere Afram Plains (30.4%). Over one-quarter of holdings in Ahafo Ano South and Sekyere Afram Plains kept sheep during the reference period. On the contrary, in all districts, very few there were holdings rearing pigs and rabbits.

Cattle were found mostly on holdings in Ejura Sekye Dumasi and Sekyere Afram Plains, where 8.6% and 9.6% of holdings respectively raised them during the reference period.

The total number of livestock by districts and livestock type, is presented in **Annex 3**. While the relatively small sample of the pilot impacts the quality of data in disaggregated tables such as those in the Annex, it provides a demonstration of the types of tables that would be well suited to a full scale AGRIS.

Table 3.32: Livestock raised by district

	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	# of holdings	% of total	# of holdings	% of total	# of holdings	% of total	# of holdings	% of total
Total number of holdings	24,480	100.0	10,779	100.0	16,094	100.0	4,763	100.0
Total number of holdings with livestock	14,027	57.3	4,602	42.7	12,132	75.4	3,160	66.3
RUMINANTS								
<i>Cattle</i>	256	1.0	182	1.7	1,383	8.6	458	9.6
<i>Sheep</i>	6,289	25.7	626	5.8	3,398	21.1	1,234	25.9
<i>Goats</i>	3,368	13.8	2,267	21.0	6,174	38.4	1,447	30.4
NON RUMINANTS								
<i>Pigs</i>	709	2.9	60	0.6	440	2.7	288	6.1
<i>Rabbits & Grasscutters</i>	0	0.0	136	1.3	230	1.4	0	0.0
Poultry	10,268	41.9	2,044	19.0	9,669	60.1	1,733	36.4
<i>Other animals</i>	0	0.0	118	1.1	0	0.0	0	0.0

3.6.2 Herd/flock size

Figure 3.22 shows the distribution of livestock by herd or flock size in Ahafo Ano South. All of the cattle holders in this district reported fewer than 10 animals. Most sheep flocks were also of this size, with 70.2% reporting fewer than 10 sheep. Flocks with 10 to 49 animals were reported by 23.8% of sheep holdings, and 6.1% kept at least 50 animals.

Among keepers of goats, 89.0 % kept up to 9 animals and 11.0% kept between 10 and 49 goats. All of the holdings reporting pigs kept between 10 and 49 animals. More than half (54.8%) of those who kept poultry had up to 9 birds and 38.0% kept between 10 and 49 birds. Flocks of 50 or more birds were reported by 7.1% of poultry raising holdings.

Figure 3.22: Livestock by herd/flock size and categories in Ahafo Ano South

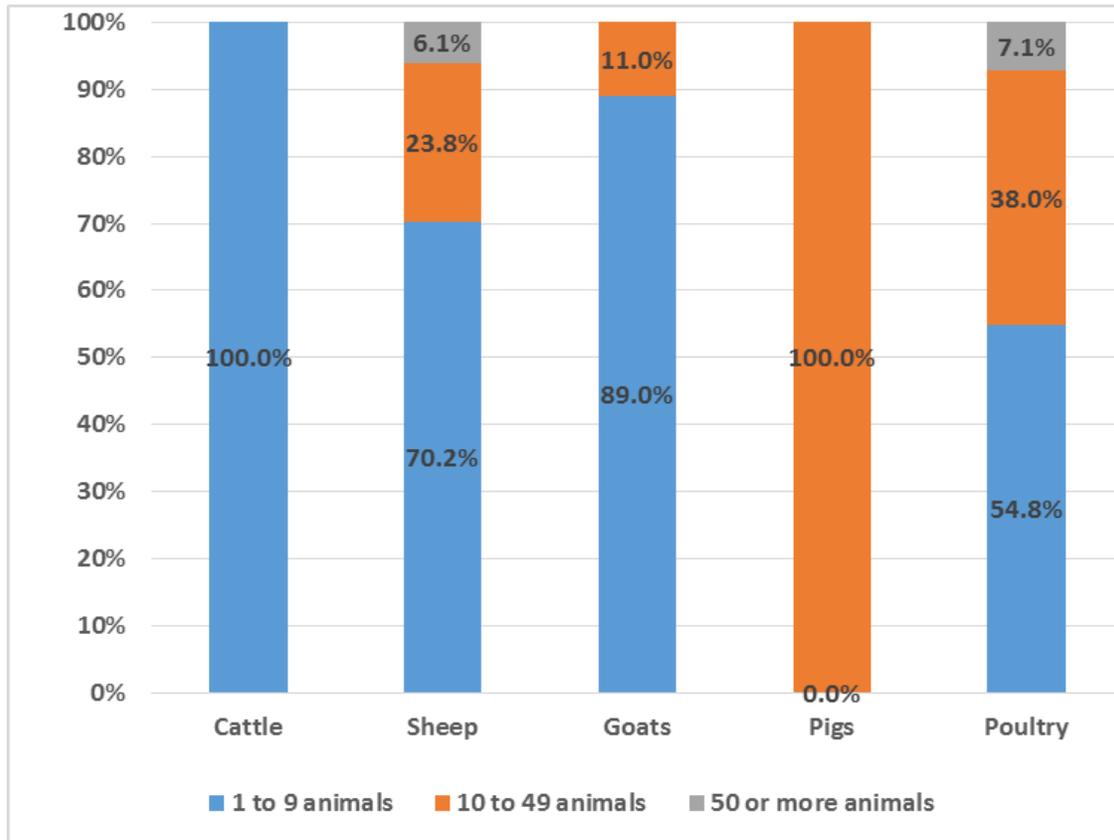


Figure 3.23 provides the distribution of livestock by herd or flock size in the Asante Akim North District. One-quarter (25.0%) of the cattle holders in the district kept less than 10 animals and half (50.0%) kept between 10 and 49 animals. The remaining one-quarter had more than 50 animals. Among sheep holders, 70.2% kept less than 10 animals, 23.8% kept between 10 and 49 animals, and the remaining 6.1% kept at least 50 sheep. For keepers of goats, 94.5% of them kept up to 9 animals while 5.5% kept between 10 and 49 animals. All holders of pigs kept fewer than 10 animals. Two-fifths (40.3%) of those who kept poultry had up to 9 birds and 52.6% kept between 10 and 49 birds. Finally, the 7% of them kept more than 50 birds.

Figure 3.23: Livestock by herd/flock/bird size and categories, Asante Akim North

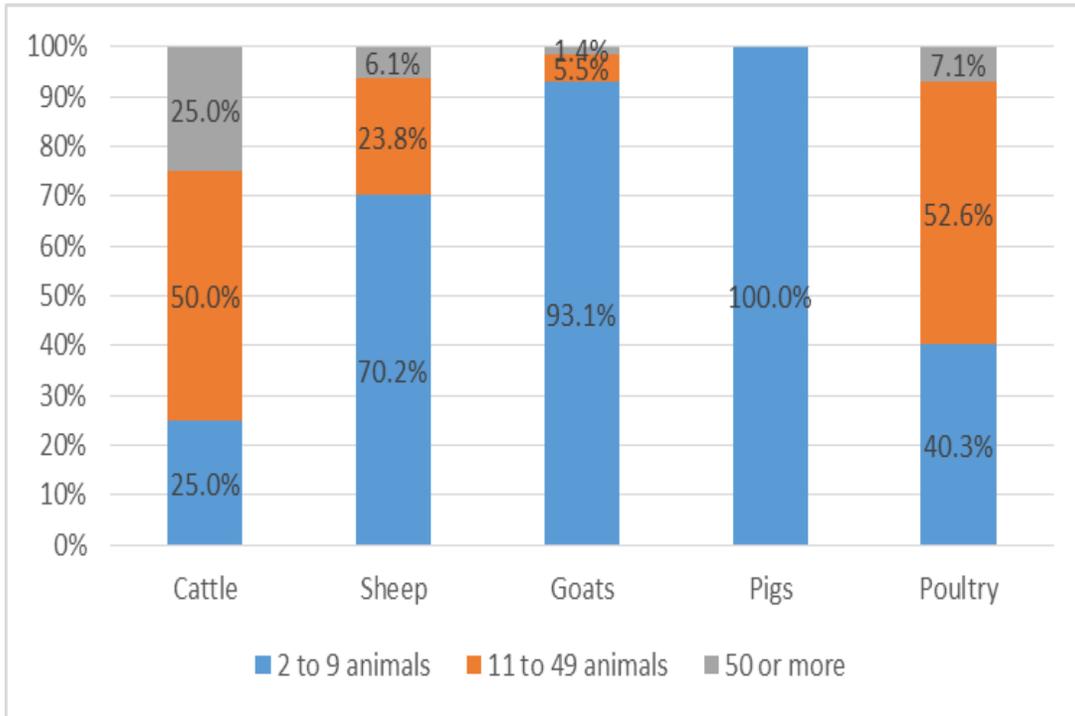


Figure 3.24 shows the distribution of livestock by herd or flock size in Ejura Sekye Dumasi. About one-fifth (21.0%) of the cattle keepers in the district kept less than 10 animals; the same share that kept 50 or more cattle. The largest share of cattle producers (57.9%) kept between 10 and 49 animals. Of all the sheep holders, 84.3% kept less than 10 animals and 15.7 percent kept between 10 and 49 animals. Similarly, 84.4% of goats' holders kept fewer than 10 animals and 15.6% kept between 10 and 49 animals. All pig producers in this district kept fewer than 10 pigs on their holdings.

Figure 3.24: Livestock by herd/flock/bird size and categories in Ejura Sekye Dumasi

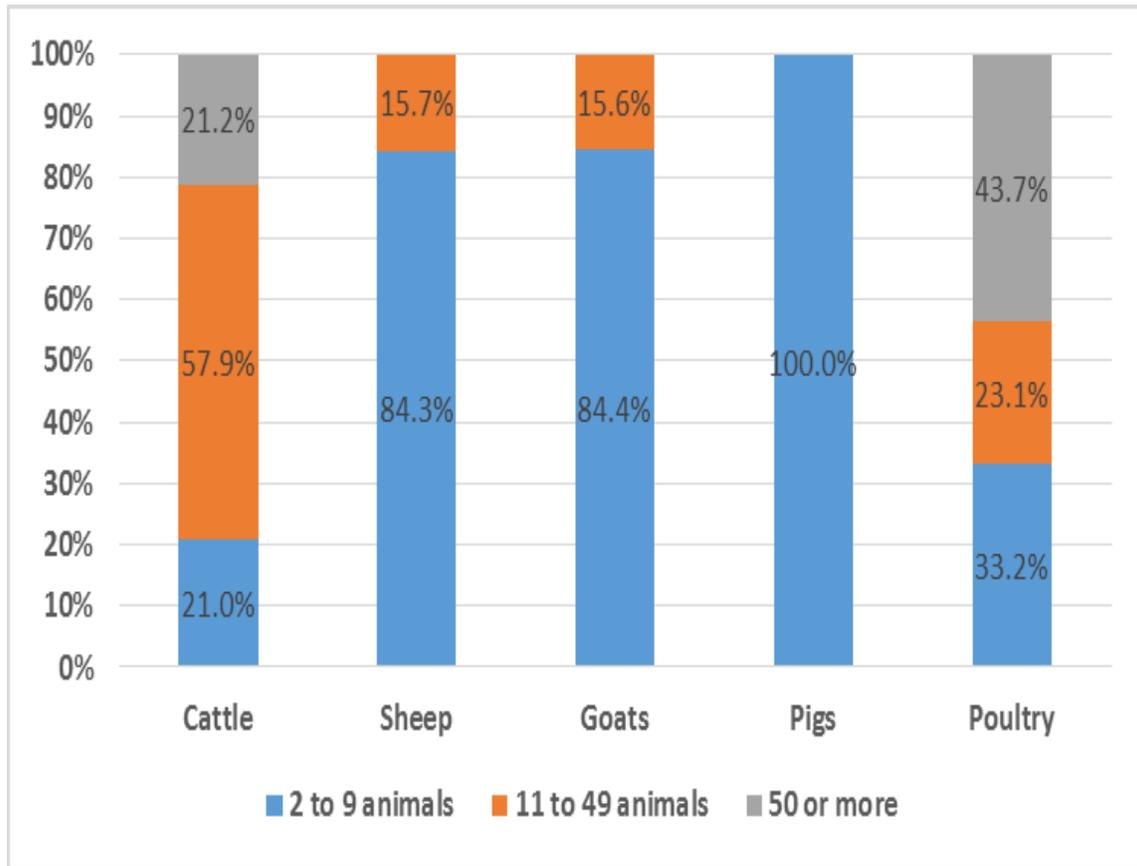
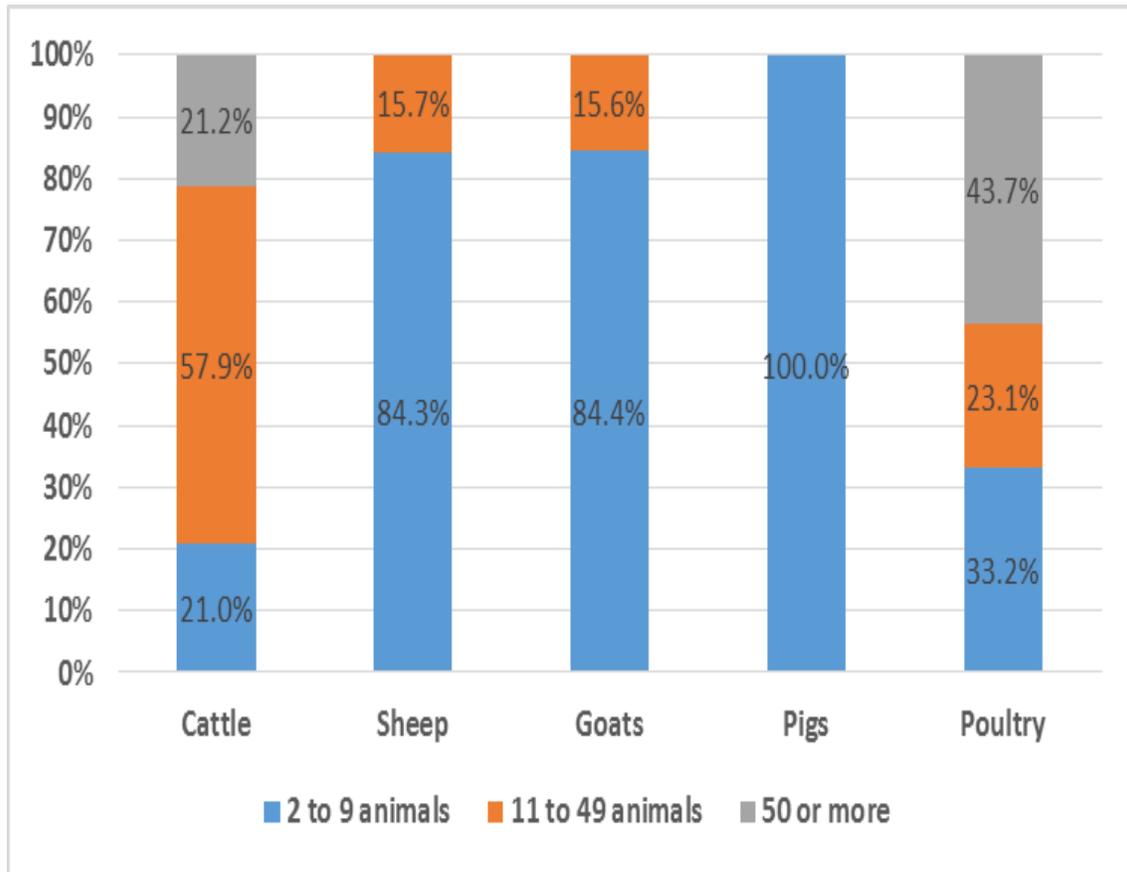


Figure 3.25 shows the distribution of livestock by herd or flock size in Sekyere Afram Plains. Less than one-quarter (23.3%) of the cattle holders in the district kept fewer than 10 animals and 63.4% kept between 10 and 49, while the remaining 13.4% of them had more than 50 cattle. Among sheep holders, 86.6% kept fewer than 10 animals and the remaining producers reported between 10 and 49 animals. Like sheep producers, goat producers in this district also had herds that fell in the small (78.1%) and mid-sized (21.9%) categories. This was also the case for pig producers, with 87.0% of holders reporting fewer than 10 pigs and 13.0% kept between 10 and 49 animals.

Figure 3.25: Livestock by herd/flock/bird size and categories in Sekyere Afram Plain



3.6.3 Meat production

Distributions of holdings slaughtering their livestock are illustrated in Figures from 3.26 to 3.29. In all districts, irrespective of livestock type, there were very few holdings that reported slaughtering animals. Ahafo Ano South represents an exception, with cattle-rearing holdings reporting slaughtering them during the reference period. In all four districts, poultry was slaughtered by the largest share of producing holdings.

Data on quantity of meat produced and sold can be tabulated through AGRIS and are presented in **Annex 3**, to demonstrate potential tables for a full scale AGRIS implementation.

Figure 3.26: Holdings slaughtering livestock in Ahafo Ano South



Figure 3.27: Holdings slaughtering livestock in Asante Akim North

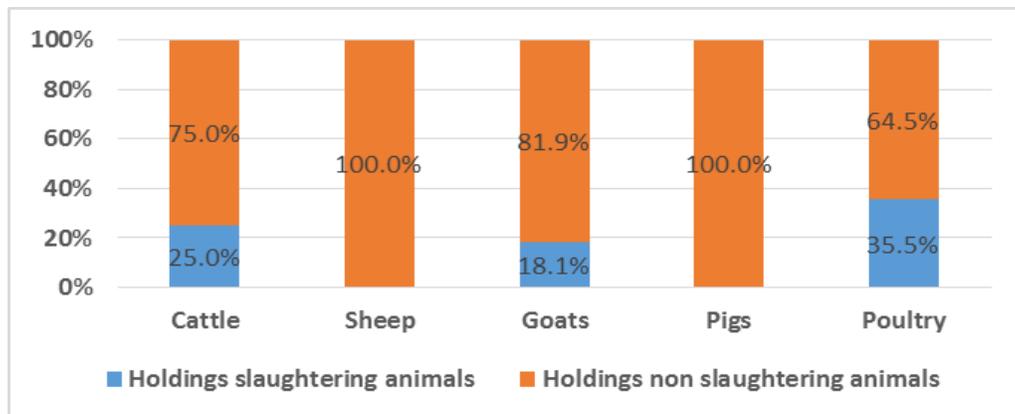


Figure 3.28: Holdings slaughtering livestock in Ejura Sekye Dumasi

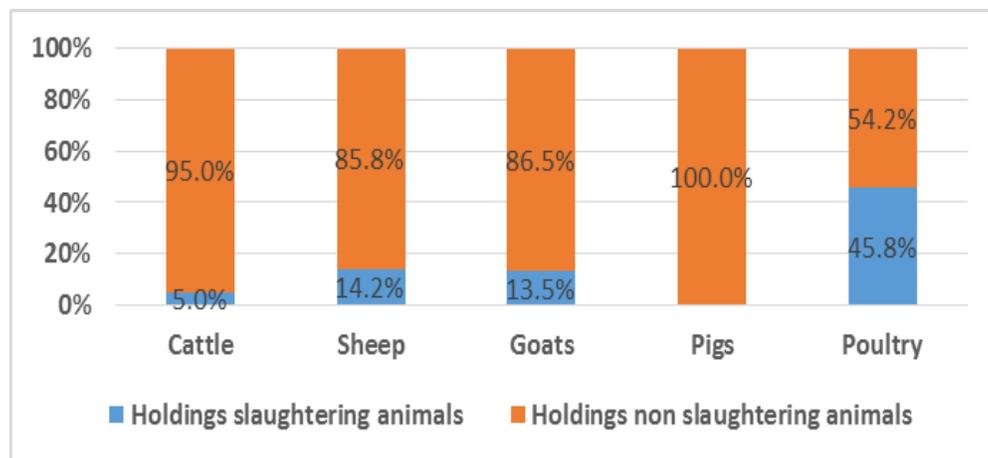
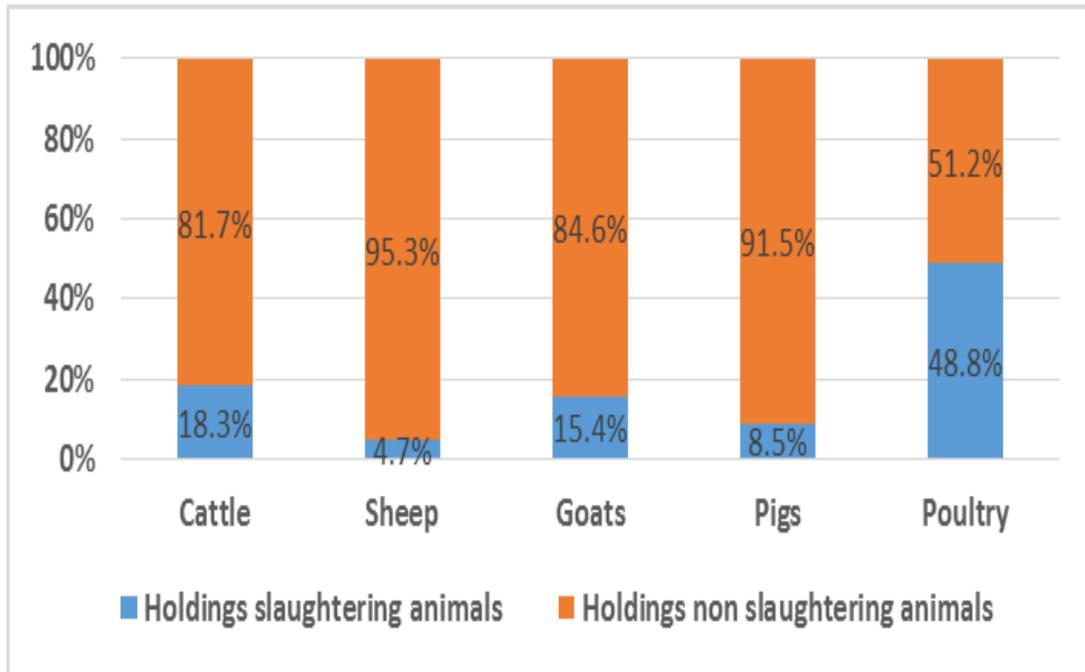


Figure 3.29: Holdings slaughtering livestock in Sekyere Afram Plain



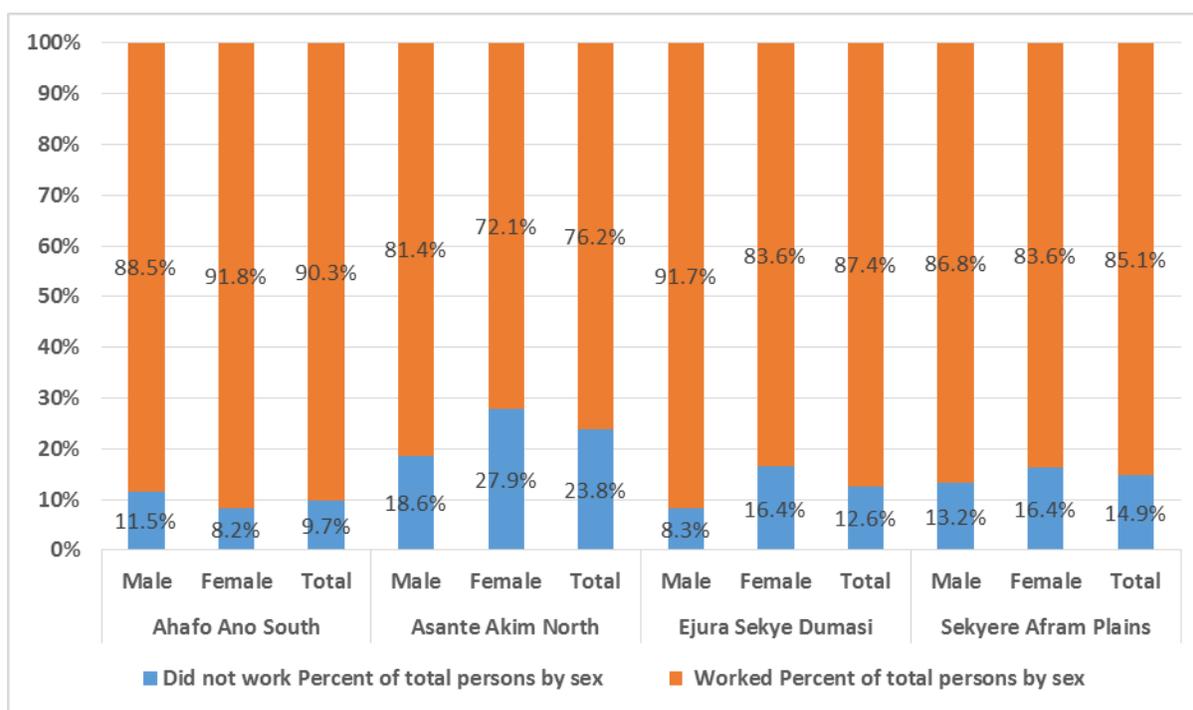
3.7 Labour on the agricultural holding

In the Ghanaian context, the economic importance of the agricultural sector cannot be overlooked. Agriculture, to a very large extent, can indeed be an essential engine of growth and poverty reduction in the country, with a considerable number of household members earning their living from activities in this sector. However, the share of agricultural employment varies from district to district in the country. There are two farming seasons in Ghana; the main season, from March to July, and the minor season which starts in August and continues to February of the following calendar year. This section presents analysis of labour utilisation on holdings in the surveyed districts.

3.7.1 Work of household members on the agricultural holding

Figure 3.30 presents the distribution of household members aged fifteen years or older who were economically active and enumerates their roles on the holding. It provides gender disaggregated information about the labour used on agriculture holdings of all sizes in the four surveyed districts. In all districts, at least three-quarters of household members worked on the holding during the reference period. Male and female household members had similar profiles of work on the holding. Women were generally slightly less likely to work on the holding than men, except in Ahafo Ano South, where a higher percentage of women than men did so.

Figure 3.30: Persons 15 years and older, by work on the holding, sex and district



3.7.2 Household members' type of work on the holding and time spent

Tables 3.33 to 3.35 provide a breakdown of the types of work and the duration by sex for household members. In all districts, over 90% of household members working on the holding during the last reference period were engaged in crop production activities. As expected, the average time spent in working on the holding was higher in the major season than in the minor season. This observation held regardless of the sex of the household member, the type of work or the district where the holding was located.

Virtually, no household member in Ahafo Ano South District worked on raising of livestock during the main season (Table 3.33). It is believed that livestock raising plays quite an important role in supporting women and also helps in improving their financial situation. In this respect, Table 3.33 shows that although few household members were engaged in livestock activities, those who did were females.

The Table further shows that average time worked during the main season by household members in the Ahafo Ano South District was about 53 days during the main season and about 31 days during the minor season. During both seasons, male household members spent more time working on the holding than females. During the main season, men worked 65 days on average, while women worked 43 days. Analogously, during the minor season, about 41 days were worked by men, versus the 22 worked by women.

Table 3.33: Household members aged 15 or older, by sex, main task on the holding and hours and days worked and season, Ahafo Ano South

		Main season (1 March to 31 July 2017)		Minor season (1 August 2017 to 28 February 2018)	
		Number of household members	% of total	Number of household members	% of total
Sex of household members	Main task on the holding for those who worked on the holding				
Male	Crop cultivation (all crops, including horticulture crops)	117,679	96.3	112779	92.3
	Raising livestock	0	0.0	0	0.0
	Non-agricultural activities related to the holding	4,535	3.7	9436	7.7
	Total	122,214	100.0	122,214	100.0
Female	Crop cultivation (all crops, including horticulture crops)	144,721	95.4	142932	94.2
	Raising livestock	0	0.0	1789	1.2
	Non-agricultural activities related to the holding	7,004	4.6	7004	4.6
	Total	151,725	100.0	151,725	100.0
Total	Crop cultivation (all crops, including horticulture crops)	262,400	95.8	255711	93.3
	Raising livestock	0	0.0	1789	0.7
	Non-agricultural activities related to the holding	11,539	4.2	16439	6.0
	Total	273,940	100.0	273,940	100.0
		Time units		Time units	
		Hours ⁽²⁾	Days ⁽³⁾	Hours ⁽²⁾	Days ⁽³⁾
Sex of household members	Time units worked on the holding for those who worked on the holding				
Male	Total time units worked during the season	50,553,683	6,319,210	27,341,138	3,417,642
	Number of household members reporting	122,214	122,214	122,214	122,214
	Average time units worked during the season	514.3	64.3	335.8	42.0
Female	Total time units worked during the season	48,575,353	6,071,919	25,275,479	3,159,435
	Number of household members reporting	151,725	151,725	151,725	151,725
	Average time units worked during the season	344.3	43.0	177.5	22.2
Total	Total time units worked during the season	99,129,037	12,391,130	52,616,616	6,577,077
	Number of household members reporting	273,940	273,940	273,940	273,940
	Average time units worked during the season	426.3	53.3	252.4	31.6

Table 3.34 presents the same information for Asante Akim North. Almost all household members (99%) who worked on their agricultural holding during the reference period engaged in crop production activity. This was true both for the major and the minor season.

Household members' involvement in non-agricultural activities related to the holding was not high in the major season, and was not reported at all in the minor season. Examples of non-agricultural activities related to the holding include:

- on-farm processing of agricultural products;
- selling of holding's products;
- provision of accommodation, restaurant and catering services;
- other leisure/educational activities using facilities of the holding;
- training of animals.

Compared to Ahafo Ano South, a greater percentage of male and female household members in Asante Akim North engaged in livestock activities. However, percentages remain low compared to those of crop production. Women were more likely than men to perform livestock related work during the major season (1.3% versus 0.1%), but less likely than men in the minor season (0.3% compared to 0.8%).

In total, household members aged 15 years or older in the Asante Akim North district who worked on the holdings during the main season worked for an average of 58 days, compared to 36 days during the minor season. Again, male household members worked relatively more than females, although the difference was minimal during the minor season (38 days versus 35 days).

Table 3.34: Household members aged 15 or older, by sex, main task on the holding and hours and days worked and season, Asante Akim North

		Main season (1 March to 31 July 2017)		Minor season (1 August 2017 to 28 February 2018)	
		Number of household members	% of total	Number of household members	% of total
Sex of household members	Main task on the holding for those who worked on the holding				
Male	Crop cultivation (all crops, including horticulture crops)	47,791	99.9	44,300	99.2
	Raising livestock	68	0.1	341	0.8
	Non-agricultural activities related to the holding	0	0.0	0	0.0
	Total	47,858	100.0	44,641	100.0
Female	Crop cultivation (all crops, including horticulture crops)	52,906	98.2	48,310	99.7
	Raising livestock	674	1.3	128	0.3
	Non-agricultural activities related to the holding	302	0.6	0	0.0
	Total	53,882	100.0	48,438	100.0
Total	Crop cultivation (all crops, including horticulture crops)	100,696	99.0	92,610	99.5
	Raising livestock	742	0.7	469	0.5
	Non-agricultural activities related to the holding	302	0.3	0	0.0
	Total	101,741	100.0	93,079	100.0
		Time units		Time units	
		Hours ⁽²⁾	Days ⁽³⁾	Hours ⁽²⁾	Days ⁽³⁾
Sex of household members	Time units worked on the holding for those who worked on the holding				
Male	Total time units worked during the season	24,381,545	3,047,693	13,714,184	1,714,273
	Number of household members reporting	49,182	49,182	49,182	49,182
	Average time units worked during the season	503.0	62.9	303.0	37.9
Female	Total time units worked during the season	22,898,228	2,862,278	13,196,630	1,649,579
	Number of household members reporting	54,479	54,479	54,479	54,479
	Average time units worked during the season	427.0	53.4	276.9	34.6
Total	Total time units worked during the season	47,279,773	5,909,972	26,910,814	3,363,852
	Number of household members reporting	103,661	103,661	103,661	103,661
	Average time units worked during the season	462.9	57.9	289.1	36.1

Table 3.35 shows again that, during both seasons, both male and female household members in Sekyere Afram Plains district engaged mainly in crop production activities. Even though the share of household members working on livestock activities was higher in this district than in the previous two, no females engaged in this type of work in either season.

Again, men spent more time on average than women working on the holding. Indeed, during the main season, men worked an average of 94 days, versus the 83 worked by women. During the minor season, men worked 85 days on average, and women 73.

Table 3.35: Household members aged 15 or older, by sex, main task on the holding and hours and days worked and season, Sekyere Afram Plain

		Main season (1 March to 31 July 2017)		Minor season (1 August 2017 to 28 February 2018)	
		Number of household members	% of total	Number of household members	% of total
Sex of household members	Main task on the holding for those who worked on the holding				
Male	Crop cultivation	35,236	91.6%	34,656	90.1%
	Raising livestock	2,815	7.3%	2,003	5.2%
	Non-agricultural activities related to the holding	401	1.0%	1,794	4.7%
	Total	38,452	100.0%	38,452	100.0%
Female	Crop cultivation	41,316	97.7%	39,551	93.5%
	Raising livestock	0	0.0%	0	0.0%
	Non-agricultural activities related to the holding	990	2.3%	2,755	6.5%
	Total	42,306	100.0%	42,306	100.0%
Total	Crop cultivation	76,552	94.8%	74,207	91.9%
	Raising livestock	2,815	3.5%	2,003	2.5%
	Non-agricultural activities related to the holding	1,392	1.7%	4,549	5.6%
	Total	80,759	100.0%	80,759	100.0%
		Time units		Time units	
		Hours ⁽²⁾	Days ⁽³⁾	Hours ⁽²⁾	Days ⁽³⁾
Sex of household members	Time units worked on the holding for those who worked on the holding				
Male	Total time units worked during the season	29,035,275	3,629,409	25,539,842	3,192,480
	Number of household members reporting	38,452	38,452	38,452	38,452
	Average time units worked during the season	754.1	94.3	683.0	85.4
Female	Total time units worked during the season	28,905,559	3,613,195	24,562,523	3,070,315
	Number of household members reporting	42,306	42,306	42,306	42,306
	Average time units worked during the season	661.7	82.7	581.0	72.6
Total	Total time units worked during the season	57,940,834	7,242,604	50,102,365	6,262,795.6
	Number of household members reporting	80,759	80,759	80,759	80,759
	Average time units worked during the season	707.9	88.5	632.2	79.0

3.7.3 Household members' receipt of payment for work on the holding

Employment is a primary tool for improving rural poverty. Table 3.36 presents household members aged fifteen years and older who worked on agricultural holdings and the payment received. In all districts, the percentage of household members, both male and female, working on the holding for pay was very small, with 90% or more of people working without pay on the holding of their household. While no women in Ahafo Ano South or Sekyere Afram Plains reported receiving pay, women in Asante Akim North were more likely to receive pay than men – more women, in both relative and absolute terms reported receiving pay from the holding during the reference period.

Table 3.36: Household members aged 15 or older who worked on the holding, by sex, payment received and district

		Ahafo Ano South		Asante Akim North		Sekyere Afram Plains	
		Number of household members	% of total	Number of household members	% of total	Number of household members	% of total
Male	Did not receive a payment	122,214	100.0	48,674	99.0	36,603	95.2
	Received a payment	0	0.0	508	1.0	1,849	4.8
	Total	122,214	100.0	49,182	100.0	38,452	100.0
Female	Did not receive a payment	151,725	100.0	53,647	98.5	42,306	100.0
	Received a payment	0	0.0	833	1.5	0	0.0
	Total	151,725	100.0	54,479	100.0	42,306	100.0
Total	Did not receive a payment	273,940	100.0	102,321	98.7	78,909	97.7
	Received a payment	0	0.0	1,341	1.3	1,849	2.3
	Total	273,940	100.0	103,661	100.0	80,759	100.0

3.7.4 Use of external workers

Figure 3.31 illustrates the distribution of agricultural holdings by use of paid or unpaid workers. In all districts, the majority of holdings used paid or unpaid external workers for at least one day during the reference period. This percentage was particularly high in Ahafo Ano South, where 98.2% of holdings declared to have used external workers.

Figure 3.31: Holdings, by use of external workers

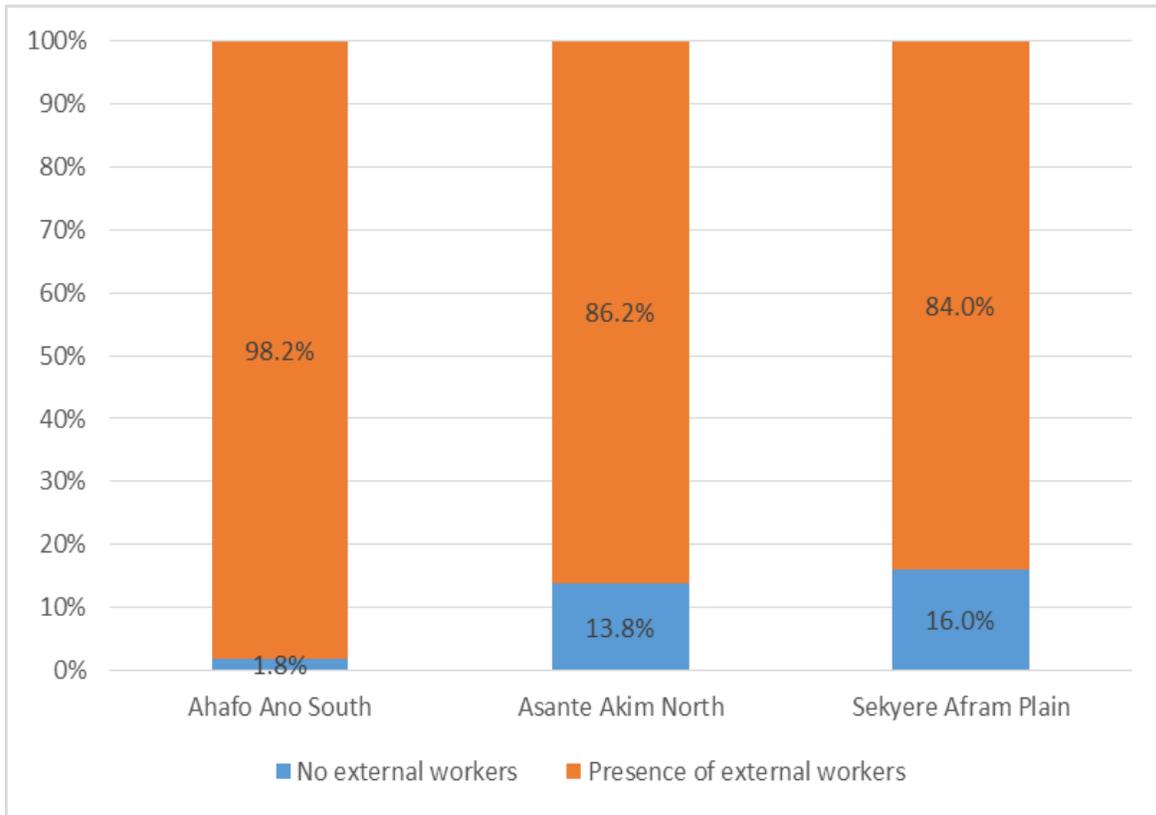
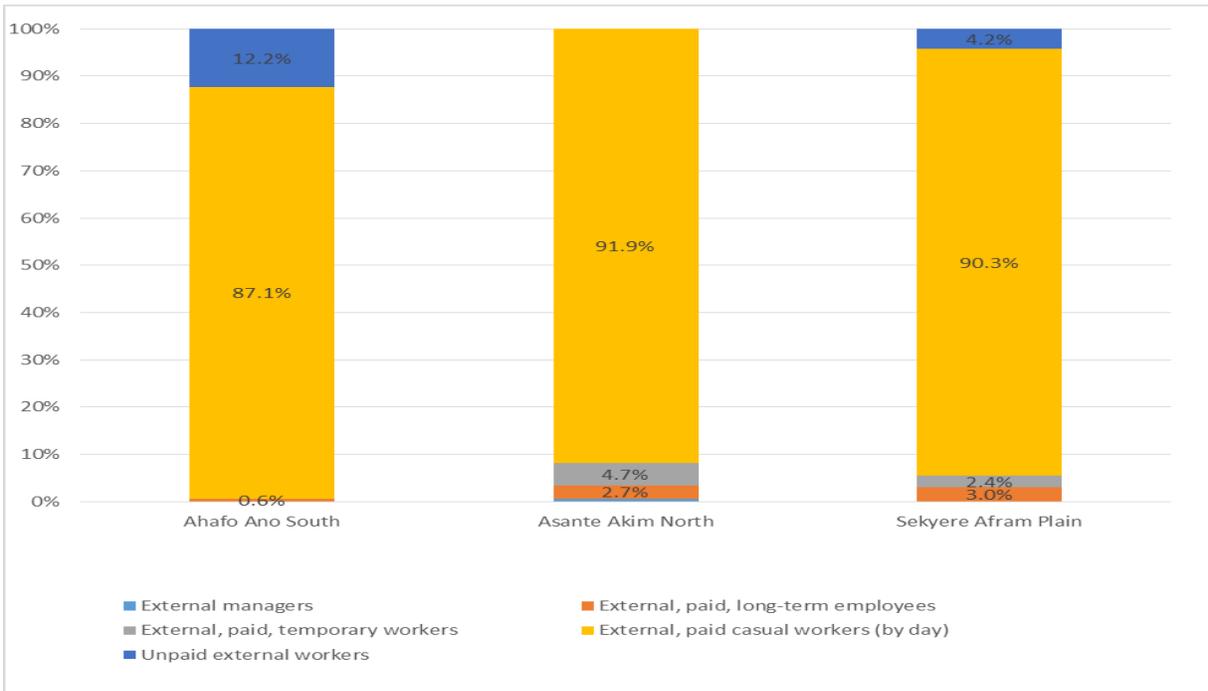


Figure 3.32 shows that in all districts, holdings using external workers, were most likely to use paid casual workers. Casual workers are characterized by the short term nature of their employment. They are often hired on a daily basis, when holdings require labour to deal with specific tasks. Unpaid external workers were used on 12.2% of the holdings in Ahafo Ano South that utilized external labour.

Figure 3.32: Holdings, by type of external workers and district



3.7.5 Shortage of agricultural workers during peak periods

Table 3.37 presents holdings reporting a shortage of workers during peak periods. The Table shows that Sekyere Afram Plains district has the highest share of holdings (34.0%) experiencing worker shortages during peak periods. This could serve as an important indicator for surplus labour in other districts to take up opportunities created by agriculture in districts with shortages. There was a lower incidence of worker shortages on the agricultural holdings in Asante Akim North (24.0%) compared with the other districts.

Table 3.37: Holding experiencing shortage of workers during peak periods

	District					
	Ahafo Ano South		Asante Akim North		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Holding experienced a shortage of workers during peak periods						
No shortage of workers	17,446	71.3	7,065	76.1	3,146	66.1
Shortage of workers	7,034	28.7	2,225	23.9	1,617	33.9
Total	24,480	100.0	9,290	100.0	4,763	100.0

3.8 Economy of agricultural holdings

3.8.1 Economic data from the Economy Module

The Economy (ECO) rotating module of AGRIS, is designed to collect information on the economic life of agricultural holdings in Ghana. This module, including questions on sources of income and expenditures of agricultural holdings, main commercial network used to sell agricultural products, and other information pertaining to the economic activities of agricultural holdings, was tested on 100 holdings in Sekyere Afram Plains. Although this module offers the possibility of collecting a great deal of information, given the small sample size of the pilot and the abundance of variables generated, this report will focus on counts of holdings reporting various economic activities or characteristics, rather than tabulating variables related to monetary values. However, to demonstrate the breadth of tabulation options offered by AGRIS, most variables can be found in tables presented in **Annex 3**.

3.8.1.1 Sources of income for the holding

Table 3.38 presents the share of holdings reporting various income sources, including crop and livestock sales, aquaculture sales, sales of forestry products, etc. In interpreting the results, it should be noted that no holdings reported engaging in aquaculture or fishery activities in Sekyere Afram Plains.

Crop sales were reported by 86.7% of agricultural holdings in Sekyere Afram Plains. One-quarter (24.9%) of holdings had income from sales of livestock or livestock products and over half (55.2%) had income from other diversification activities. All holdings in the district reported other sources of income directly related to the holding. The income profile presented in this Table is in line with other AGRIS pilot data which depicts holdings in this region as more crop-based than livestock focused.

Table 3.38: Sources of income for agricultural holdings in the household, number reporting, average income obtained Sekyere Afram Plains

Sources of income	Number of holdings reporting	% of total holdings
Crop sales	4,128	86.7
Livestock and livestock product sales	1,188	24.9
Aquaculture sales	0	0.0
Sales of forestry products	491	10.3
Sales of on-farm processing products	82	1.7
Other sources of income directly related to the agricultural holding	4,763	100.0
Other diversification activities	2,630	55.2
Cash transfers	353	7.4
Activities not related to the agricultural holding	576	12.1

3.8.1.2 Expenditures for the holding

Crop inputs and services were purchased by 86.7% of holdings in the district, while 69.8% reported expenditures on taxes or licenses. Just under half (46.7%) of holdings declared expenses for livestock production, almost twice as many as reported livestock sales. This reflects a situation where livestock can incur expenses without necessarily generating sales in the same period, and where they can be raised for own use rather than sales.

A similar share of holdings reported expenditures for resource inputs (29.0%) as reported expenditures for other inputs (29.3%).

Table 3.39: Expenditure for agricultural holdings in the household sector by average expenditure and average household size

Expenditure type	Number of holdings reporting	Percent of total holdings
Expenses for resource inputs	1,383	29.0
Expenses for inputs and services for crop production	4,128	86.7
Expenses for inputs and services for livestock production	2,223	46.7
Expenses for other inputs	1,398	29.3
Insurance	0	0.0
Taxes and licenses	3,326	69.8

3.8.1.3 Commercial networks, and frequency and time to get to markets

The economic success of agricultural activity depends on the availability of a market for selling production. According to Table 3.40, the most important commercial networks for selling crops and livestock for about nine out of ten agricultural holdings was the combination of Farmers' markets and Farm-gate sales, stands or kiosks. The sale of crops by 48.0% of holdings was through Farmers' markets as the most important commercial network, and a further 42.7% of holdings reported that Farm-gate sales, stands or kiosks were the major method of sales.

A similar pattern was observed for livestock sales, with close to half (48.2%) of holdings reporting Farmers' markets as their most important commercial network selling livestock, and 40.7% selling predominantly via Farm-gate sales, stands or kiosks.

Table 3.40: Most important commercial network used for selling agricultural products, Sekyere Afram Plains

	# of holdings	% of total holdings
Total number of holdings	4,763	100.0%
Most important commercial network used for selling crops	4,302	
Wholesale and retail market	122	2.8%
Farmers' markets	2,064	48.0%
Farm-gate sales, stands, kiosks	1,839	42.7%
Delivered to customers' homes	94	2.2%
Production/marketing contracts	92	2.1%
Other	90	2.1%
Most important commercial network used for selling livestock	3,324	
Wholesale and retail market	122	3.7%
Farmers' markets	160	48.2%
Farm-gate sales, stands, kiosks	1,352	40.7%
Delivered to customers' homes	61	1.8%
Production/marketing contracts	106	3.2%
Other	82	2.5%

The length of time taken by agricultural holdings in Sekyere Afram Plains to reach markets and the frequency of trips are presented in Table 3.41. It took less than an hour for 70.4% of holdings to reach the market where most of their crop production was sold. For 32.9% of holdings, the trip to the market took under 30 minutes. However, 17.5% of holdings took more than 2 hours to reach the market where most of their crop production was sold. This distribution was very similar for holdings travelling to markets where most of their livestock and animal products were sold.

Holdings selling crops were relatively evenly distributed among weekly trips to market (28.7%), trips every two weeks (27.8%), and occasional/less than monthly trips (24.1%). Only 3.3% of holdings made daily trips to market to sell the crop production of the holding. While the distribution for the frequency of trips to market by livestock producing holdings was largely similar to that of crop-selling holdings, the livestock holdings were less likely to go to market only occasionally (16.6% versus 24.1%).

**Table 3.41: Holdings time to reach the market by frequency of trips to market
in the past 12 months, Sekyere Afram Plains**

	# of holdings	% of total holdings
CROPS		
Length of time to reach the market where most of the crop production of the holding is sold		
Under 30 minutes	1,417	32.9
30 to 59 minutes	1,613	37.5
1 to 2 hours	519	12.1
More than 2 hours	753	17.5
Total	4,302	100.0
Frequency of trips to the market to sell the crop production of the holding		
Daily	144	3.3
Weekly	1,237	28.7
Every two weeks	1,195	27.8
Monthly	691	16.1
Occasionally or less frequently than monthly	1,035	24.1
Total	4,302	100.0
LIVESTOCK AND ANIMAL PRODUCTS		
Length of time to reach the market where most of the livestock and animal products produced by the holding is sold		
Under 30 minutes	1,018	30.2
30 to 59 minutes	1,358	40.2
1 to 2 hours	424	12.6
More than 2 hours	576	17.1
Total	3,377	
Frequency of trips to the market to sell the livestock and animal products produced by the holding		
Daily	99	2.9
Weekly	1,040	30.8
Every two weeks	743	22.0
Monthly	474	14.0
Occasionally or less frequently than monthly	560	16.6
Total	3,377	100.0

3.8.1.4 Ability to store agricultural products

Table 3.42 provides information on the ability of holdings to store agricultural products as well as the main reason for storing. Just over half of holdings in Sekyere Afram Plains (52.9%) were able to store agricultural products. For those with the ability to store, the majority (47.6%) reported storage for further sale when needed. Another 36.7% indicated that they stored products to wait for better market conditions and higher prices. The remaining holdings mainly stored products for their own consumption.

Table 3.42: Holdings, ability to store agricultural products, and main reason for storing agricultural products, Sekyere Afram Plains

Ability of holding to store agricultural products (crops, animal products) that are produced on the holding	# of holdings	% of total holdings
Inability of holding to store agricultural product	2,246	47.1
Ability of holding to store agricultural product	2,518	52.9
Total	4,763	100.0
Main reason for storing agricultural products	# of holdings	% of holdings who have the ability to store
Total	2,518	100.0
To wait for better market conditions (higher selling prices)	925	36.7
To keep it for own consumption	394	15.6
For further sale when needed	1,199	47.6

3.8.2 Economy information from the Core Module

Economy information collected via the Core module covers all four districts included in the pilot survey.

3.8.2.1 Production and household shocks

Severe shocks encountered by households have been grouped into two major categories; production and household shocks. In Ahafo Ano South district, 9,323 holdings (38%) reported to have experienced severe shocks. Among those that experienced shocks related to agricultural production, 68.7% witnessed drought or erratic rains. The other production shocks reported in Table 3.43 (extreme temperatures, unusually high level of crop pests, fire, floods) were reported with lower frequency.

Other potential shocks do not appear in the Table because they were not reported in the district during the survey. They include landslides, an unusually high level of livestock disease, shocks related to input and output prices, theft, destruction by rampaging herds, etc.

Two types of household shocks were reported in Ahafo Ano South. Unspecified other shocks were reported by 10.2% of holdings, while 2.7% reported to have witnessed a serious illness of a household member. Other potential household shocks that were not reported during the pilot were: unusually high food prices, reduction in the earnings/loss of employment, break-up of household, and conflict/violence.

Table 3.43: Production and household shocks, Ahafo Ano South

	Holdings reporting severe shocks hitting the holding or household	
	Number of holdings	% of holdings reporting shocks
Holdings reporting any severe shock hitting the holding or household	9,323	100.0
Production shocks		
Drought or erratic rains	6,404	68.7
Floods	476	5.1
Fire	1,014	10.9
Extreme temperatures (too hot or too cold)	1,454	15.6
Unusually high level of crop pests, weeds	1,291	13.9
Household shocks		
Serious illness or accident or death of household member(s)	256	2.7
Other	955	10.2

In Asante Akim North, only 13% of holdings reported to have experienced a production or household shock during the survey reference period (Table 3.44).

Fire afflicted 26.3% of the holdings that experienced shocks. Two production shocks, unusually high levels of livestock diseases, and destruction by rampaging herds, were each reported by about 17% of shock affected holdings.

Serious illness, accident or death of a household member was experienced by 11.4% of shock affected holdings.

Table 3.44: Production and household shocks, Asante Akim North

	Holdings reporting severe shocks hitting the holding or household	
	Number of holdings	% of holdings reporting shocks
Holdings reporting any severe shock hitting the holding or household	1409	100.0
Production shocks		
Drought or erratic rains	34	2.4
Floods	85	6.1
Fire	370	26.3
Unusually high level of crop pests, weeds	198	14.1
Unusually high level of livestock diseases	242	17.2
Unusually low prices for agricultural output	41	2.9
Theft of agricultural assets, outputs, money or valuables	171	12.1
Destruction by rampaging herds	248	17.6
Other	37	2.6
Household shocks		
Serious illness or accident or death of household member(s)	161	11.4
Other	91	6.5

In Ejura Sekye Dumasi, the percentage of holdings experiencing a shock is higher than in the other districts (see Table 3.45), reaching almost 75% of total holdings in the district. Among those reporting shocks, 78.9% reported experiencing an unusually high level of crop pests. Destruction by rampaging herds afflicted 14.9% of holdings.

Table 3.45: Production and household shocks, Ejura Sekye Dumasi

	Holdings reporting severe shocks hitting the holding or household	
	Number of holdings	% of holdings reporting shocks
Holdings reporting any severe shock hitting the holding or household	11,973	100.0
Production shocks		
Drought or erratic rains	1,094	9.1
Floods	245	2.0
Fire	492	4.1
Unusually high level of crop pests, weeds	9,445	78.9
Unusually low prices for agricultural output	179	1.5
Theft of agricultural assets, outputs, money or valuables	491	4.1
Destruction by rampaging herds	1,781	14.9

Finally, Table 3.46 shows that in Sekyere Afram Plains district, 2,929 holdings (61% of the total) reported severe shock hitting the holding or the household. Drought or erratic rains affected the highest share of holdings (45.5%). Fires (14.4%) and unusually high level of crop pests or weeds (13.7%) were the next most frequently reported.

Table 3.46: Production and household shocks, Sekyere Afram Plains

	Holdings reporting severe shocks hitting the holding or household	
	Number of holdings	% of holdings reporting shocks
Holdings reporting any severe shock hitting the holding or household	2929	100.0
Production shocks		
Drought or erratic rains	1333	45.5
Floods	222	7.6
Fire	422	14.4
Extreme temperatures (too hot or too cold)	123	4.2
Unusually high level of crop pests, weeds	400	13.7
Unusually high level of livestock diseases	92	3.1
Theft of agricultural assets, outputs, money or valuables	81	2.8
Destruction by rampaging herds	204	7.0
Household shocks		
Other	53	1.8

3.8.2.2 Household income derived from agricultural activities

Households derive their income from various sources and key among these sources is agriculture, which represents one of the main sources of livelihood in Ghana. Table 3.47 presents holdings according to the share of their household income that was derived from agricultural activities. The majority of holdings in three districts derived their household income mainly from agricultural activities.

In Ahafo Ano South, about half (51.9%) of holdings derived all of their income from agriculture. For a further 40.9%, agricultural activities generated 60% to 99% of household income. This profile is similar to that reported in Sekyere Afram Plains. A slightly different pattern was reported in Ejura Sekye Dumasi, where the largest share of holdings (62.0%) reported that 60% to 99% of their household income came from agricultural activity. Agriculture was the sole income generator for 26.0% of holdings in the district.

Table 3.47: Percentage of household's income derived from agricultural activities by district

	District					
	Ahafo Ano South		Ejura Sekye Dumasi		Sekyere Afram Plains	
	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings
Total number of holdings	24,480	100.0	16,094	100.0	4,763	100.0
None/close to 0 (less than 10%)	0	0.00	245	1.5	106	2.2
Less than half (10%-39%)	0	0.00	358	2.2	142	3.0
About half (40% to 59%)	1,784	7.3	1,323	8.2	47	1.0
Most/almost all (60% -99%)	10,004	40.9	9,982	62.0	1,799	37.8
All (100%)	12,692	51.8	4,185	26.1	2,669	56.0

3.8.2.3 Sources of agricultural information

Figure 3.33 shows that across three of the four districts surveyed, the majority of holdings got their agricultural information from other individual farmers. The exception was Sekyere Afram Plains, where government or other public institutions were the main source of agricultural information for 71.9% of holdings during the reference period. Nearly one-quarter (23.8%) of holdings in this district did not consult any source for agricultural information.

Figure 3.33: Main sources of agricultural information by district

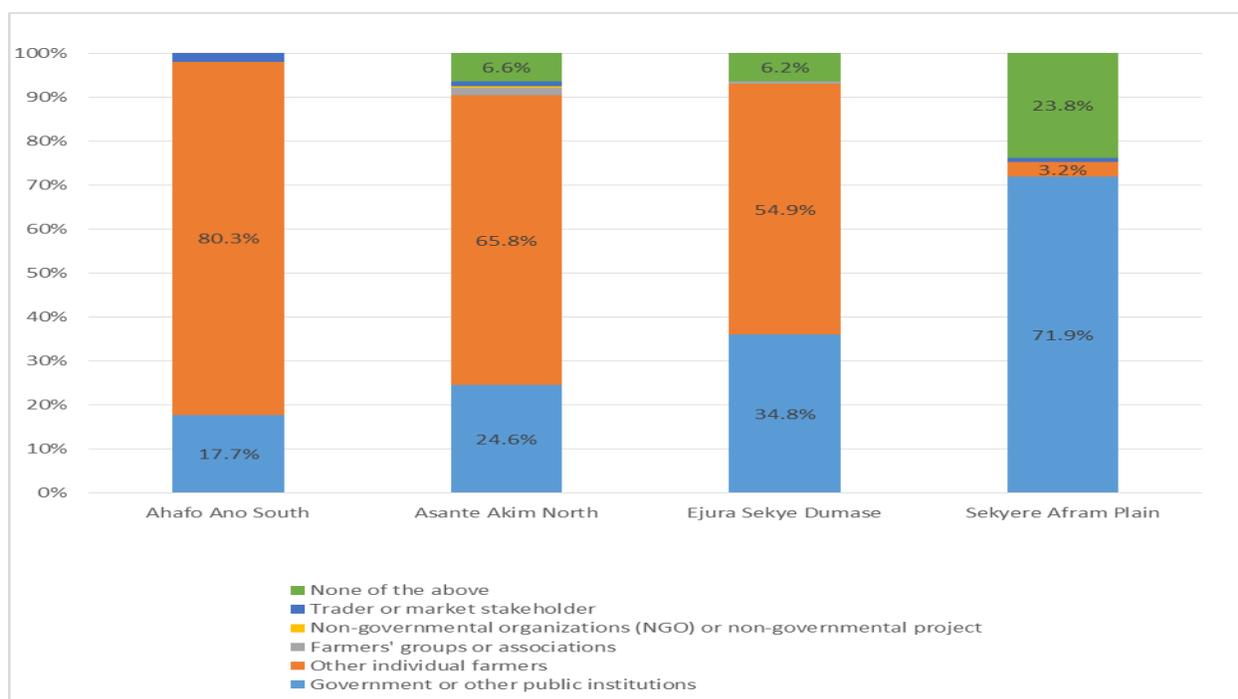
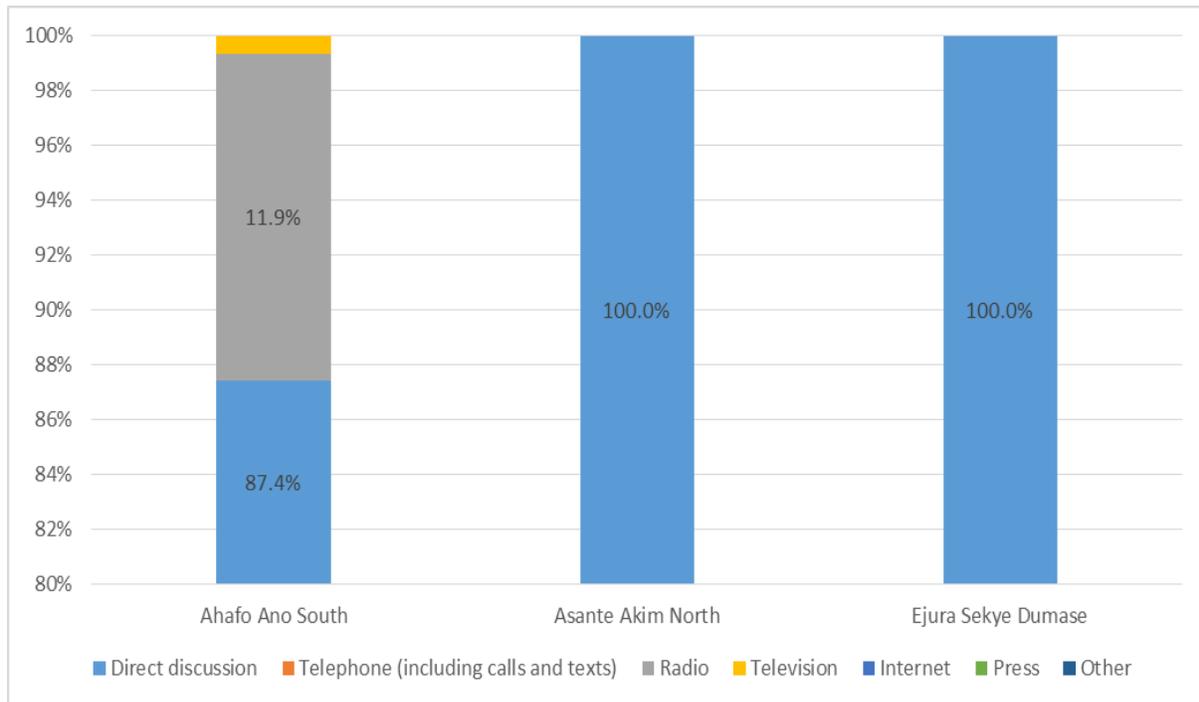


Figure 3.34 provides data on the means used by holdings to access agricultural information. As a means to access information, direct discussion with other individual farmers was the most reported option in all districts; in fact, it was the only method reported in Asante Akim North and Ejura Sekye Dumasi.

Figure 3.34: Main way of accessing information by district¹



3.8.2.4 Participation in associations

In agrarian and rural communities, belonging to an association, bank or susu group can be beneficial in obtaining help in times of crisis or need. These groups are able to respond to the needs of their members when they arise. As presented in Table 3.48, participation in farmer-based organizations (FBO) or water users associations (WUA) ranged from 4.6% of holdings in Sekyere Afram Plains to 12.3% of holdings in Ahafo Ano South.

The participation of holdings in commercial or producer cooperatives was lower than participation in FBOs or WUAs. In all of the districts, the rate of participation was less than 6.5%.

The emergence of Rural Banks over the years has brought banking to the doorstep of agrarian communities. The data shows that between one-quarter and one-third of holdings in the four districts reported having a bank account.

¹ Data to prepare this figure has been collected using a different approach in Sekyere Afram Plains. Hence, results for this district cannot be presented in the same figure.

Table 3.48: Type of association, bank account by district

	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings
Total number of holdings	24,480	100.0	10,779	100.0	16,094	100.0	4,763	100.0
Participation in a farmer-based organization (FBO) or water users association (WUA)								
No	21,475	87.7	9,930	92.1	15,243	94.7	4,544	95.4
Yes	3,005	12.3	849	7.9	850	5.3	220	4.6
Participation in a commercial or producer cooperative								
No	23,210	94.8	10,382	96.3	15,500	96.3	4,454	93.5
Yes	1,269	5.2	398	3.7	593	3.7	309	6.5
Holding has a bank account								
No	18,441	75.3	7,342	68.1	12,124	75.3	3,224	67.7
Yes	6,038	24.7	3,437	31.9	3,970	24.7	1,539	32.3

3.8.3 Household assets of the agricultural holding

The AGRIS-Ghana Pilot tested the Machinery, Equipment and Asset (MEA) module in Asante Akim North, on a sample of 140 agricultural holdings.

3.8.3.1 Type of households dwelling by tenure

The type of household dwellings by tenure reported in Asante Akim North can be found in Table 3.49. The majority (75.2%) of holders occupied compound houses, followed by 15.3% of holders who occupied separate houses; 4.9% lived in huts/buildings in the same compound and 2.1% resided in a flat or apartment in an apartment block. The least occupied dwelling type was huts/buildings in different compounds and improvised home (kiosk, container) with 0.3% each. None of the holders occupied living quarters attached to office/shop or in an uncompleted building. The data further reveal that 36.7% of holders owned the dwelling they occupied (this data can be consulted in **Annex 3**).

Table 3.49: Type of households dwelling by tenure in Asante Akim North

	Households of holders	
	Number	% of total
Total number of households⁽¹⁾	10,779	100.0
Type of dwelling		
Separate house	1,652	15.3
Semi-detached house	203	1.9
Flat or apartment in an apartment block	222	2.1
Compound house (rooms)	8,107	75.2
Huts/buildings (same compound)	525	4.9
Huts/buildings (different compounds)	36	0.3
Improvised home (kiosk, container)	34	0.3

3.8.3.2 Main materials used for the exterior walls of the dwelling

The main construction material used for the exterior walls of dwellings in Asante Akim North is presented in Table 3.50. Cement was the most common (83.8%) material used for construction of the exterior walls followed by earth/mud/mud-bricks, reported by 6.2% of holdings. Exterior walls of dwellings that were made of stone with mud constituted 3.8% while cement blocks made up 3.2%, and wood planks recorded the lowest share at 0.3%.

Table 3.50: Main materials used for the exterior walls of dwellings, Asante Akim North

Main material used for the exterior walls of the dwelling	Households of holders	
	number	% of total
Earth/mud/mud bricks	673	6.2
Stone with mud	406	3.8
Cement	9,037	83.8
Stone with lime/cement	41	0.4
Bricks	244	2.3
Cement blocks	345	3.2
Wood planks	34	0.3
Total	10,779	100.0

3.8.3.3 Main materials used for the roof of the dwelling

The main construction material used for the construction of the roof of dwellings in Asante Akim North is presented in Table 3.51. Metal/tin/corrugated iron sheets were the materials most commonly used for the construction of roofs (94.1%), followed by slate (3.6%) and cardboard/polythene sheet (1.2%). The least used materials for the construction of the roofs were cement and Palm/bamboo with 0.3% each.

Table 3.51: Main material used for the roof of dwellings, Asante Akim North

Main material used for the roof of the dwelling	Households of holders	
	number	% of total
Thatch/palm leaf/rafia	51	0.5
Palm/bamboo	36	0.3
Cardboard/polythene sheet	126	1.2
Metal/tin/corrugated iron sheet	10,144	94.1
Cement	37	0.3
Slate/asbestos	385	3.6
Total	10,779	100.0

3.8.3.4 Main materials used for the floor of the dwelling

Information on the main material used for the construction of the floor of the holders' dwellings in Asante Akim North is presented in Table 3.52. Cement was the most common material used for the construction of the floor (96.9%), followed by ceramic tiles with 1.5%. The least materials used for the construction of floors were earth/sand and wood planks with equal proportions of 0.3%.

Table 3.52 Main material used for the floor of dwellings, Asante Akim North

Main material used for the floor of the dwelling	Households of holders	
	number	% of total
Earth/sand	36	0.3
Wood planks	34	0.3
Ceramic tiles	163	1.5
Cement	10,446	96.9
Carpet	101	0.9
Total	10,779	100.0

3.8.3.5 Type of toilet facility normally used by the household

Table 3.53 illustrates the distribution of holdings by access to toilet facilities. The largest proportion (94.7%) of holder households used pit latrines followed by flush or pour-flush toilets (3.3%). The use of a hanging toilet or hanging latrine by households was very minimal in the district (0.5%). The Table also shows that 1.5% of holder households in the district did not have toilet facilities, so the bush or field was used. No household in the district used composting toilets or buckets (see **Annex 3**).

Table 3.53: Type of toilet facility used by households, Asante Akim North

Type of toilet facility	Households of holders	
	number	% of total
Flush or pour-flush toilet	355	3.3
Pit latrine	10,209	94.7
Hanging toilet or hanging latrine	51	0.5
No facilities, or bush or field	164	1.5
Total	10,779	100.0

3.8.3.6 Main source of drinking water

According to Table 3.54, about half (51.5%) of households in Asante Akim North had their main source of drinking water from wells, while 43.3% had pipe-borne water as their main source. Other sources of water (including protected springs, bottled water, or rain water) were reported by 5.2% of households, of which surface water constituted the highest proportion (2.6%).

As a subset of pipe-borne water, most households (21.7%) used a public tap or standpipe, followed by water piped to a neighbor with 14.6%. Water piped into the dwelling (2.4%) was the least reported among the sources of pipe-borne water used in the district.

Under the category of well water, a tube well or borehole source was used by 38.8% of households followed by dug well – protected (11.3%) with the least being dug well – unprotected (1.4%).

Table 3.54: Holder households, by main source of drinking water for the household, Asante Akim North

Main source of drinking water for the household	Households of holders	
	Number	% of total
All	10,779	100.0
Pipe-borne	4,673	43.3
Piped water – piped into dwelling	260	2.4
Piped water – piped to yard/plot	505	4.7
Piped water – piped to neighbor	1,574	14.6
Piped water – public tap or standpipe	2,334	21.7
Well	5,551	51.5
Piped water – tube well or borehole	4,182	38.8
Dug well – protected	1,215	11.3
Dug well – unprotected	154	1.4
Others	556	5.2
Spring water – protected spring	51	0.5
Surface water	279	2.6
Spring water – unprotected spring	226	2.1

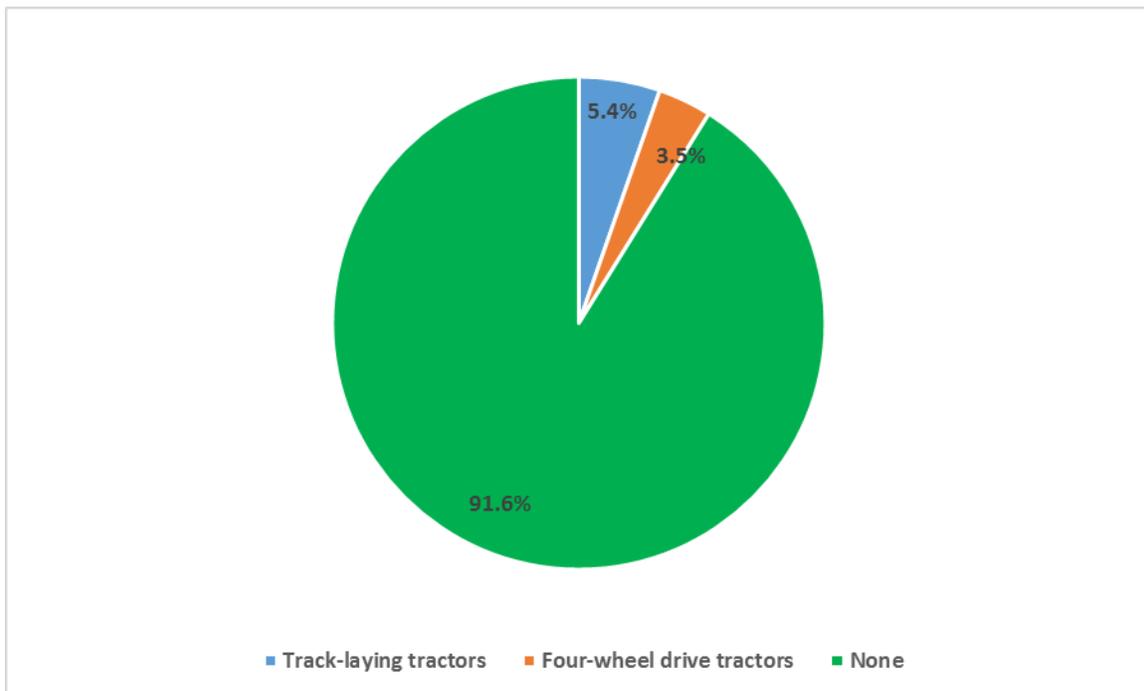
3.8.4 Agricultural assets of the agricultural holding

3.8.4.1 Agricultural machinery

Tractors

The distribution of holdings by type of tractors used in Asante Akim North is presented in Figure 3.35. While 5.4% of holdings in the district used track -laying tractors, 3.5% used four-wheel drive tractors. The Figure further shows that no tractors were used on 91.6% of the holdings in the district. Data related to tractor tenure can be found in additional tables presented in **Annex 3**.

Figure 3.35: Holdings by type of agricultural machineries used, Asante Akim North



Other equipment

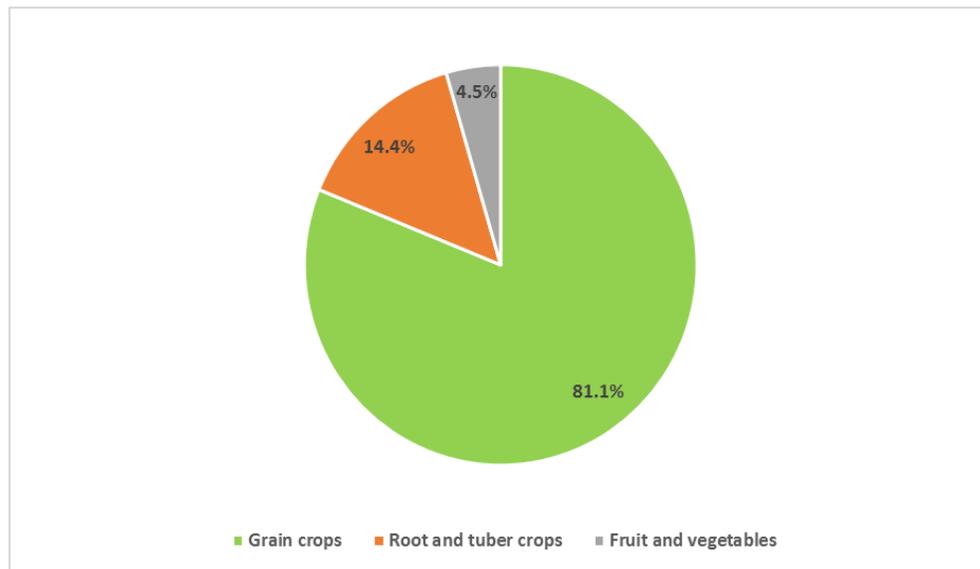
Data on the use of other agricultural equipment were collected during the pilot, and the results are included in **Annex 3**. On 98.4% of holdings in the district, no other equipment was used. Ploughs were used on 1.6% of holdings, demonstrating that the use of agriculture equipment on holdings in the district was minimal.

3.8.4.2 Non-residential buildings or structures of the agricultural holding

Type of crops stored in storage facilities

Figure 3.36 presents information on the type of crops stored in storage facilities by capacity and tenure in Asante Akim North district. The type of crops most frequently stored were grain crops (81.1%). This was followed by root and tuber crops (14.4%), with the least frequently stored crop being fruit and vegetable crops (4.5%). With a sample size larger than that of the pilot it would also be possible to estimate the capacity of storage facilities on holdings.

Figure 3.36: Type of crops stored in storage facilities, Asante Akim North



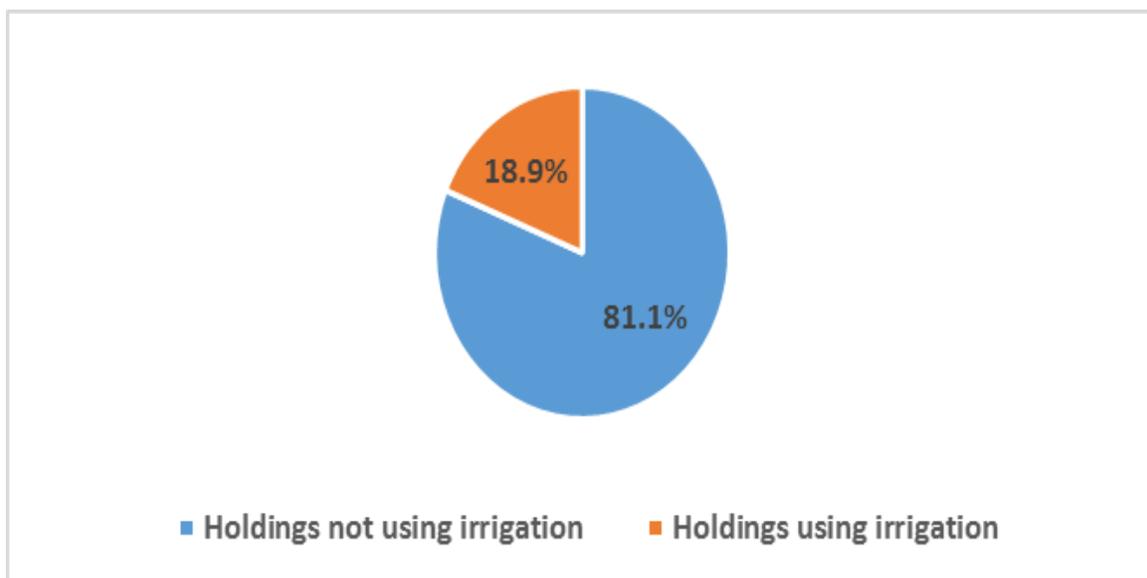
3.8.5 Agricultural practices from the Production Methods and the Environment Module

The Production Methods and Environment (PME) Module was tested with the AGRIS-Ghana Pilot in Ahafo Ano South, on 60 agricultural holdings.

3.8.5.1 Use of irrigation and drainage

Figure 3.37 presents information on the use of irrigation in the district. Results indicate that 18.9% of holdings used irrigation during the reference period.

Figure 3.37: Holdings by use of irrigation, Ahafo Ano South



Of agricultural holdings using irrigation, 20.9% used spray or micro-sprinkler irrigation, 6.6% used surface irrigation (flooding or furrows) and 5.5% used sprinkler irrigation. The largest share of irrigating holdings (67.0%) used other methods of irrigation (See Figure 3.38).

Figure 3.38: Holdings by method of irrigation used, Ahafo Ano South

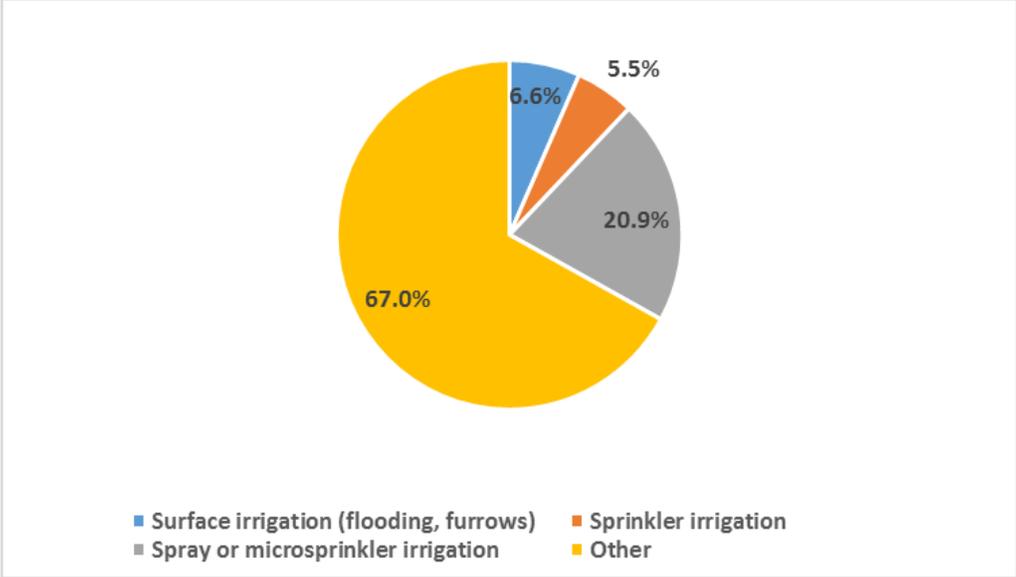
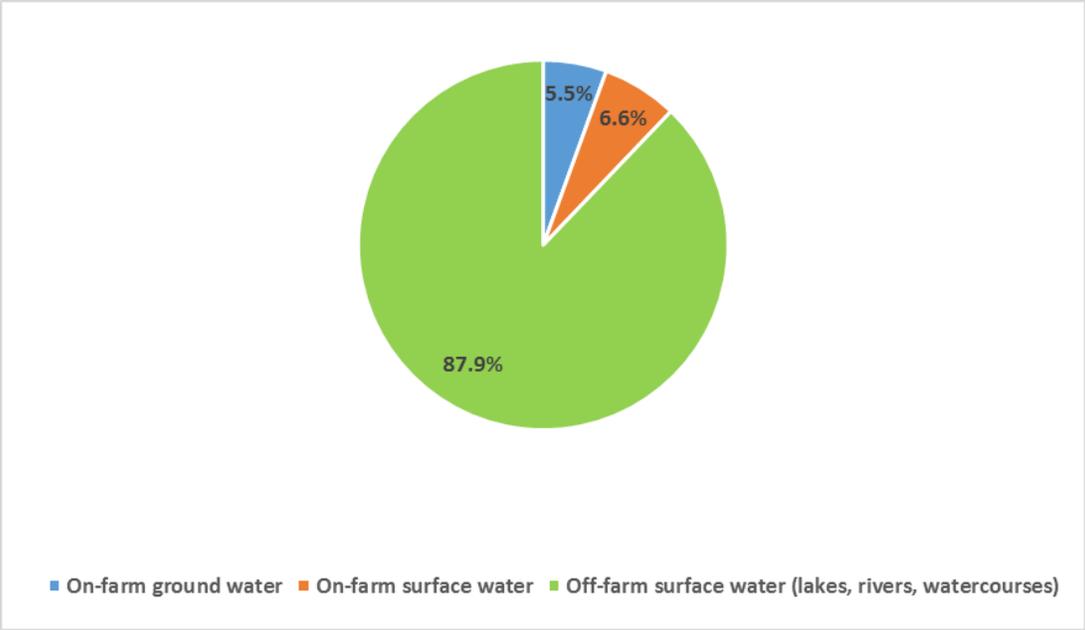


Figure 3.39 shows that, among the holdings using irrigation, 87.9% had off-farm sources of water. The remaining holdings used surface water on the farm (6.6%) and ground water on-farm (5.5%).

Figure 3.39: Holdings by source of water used for irrigation, Ahafo Ano South



3.8.5.2 Use of fertilizers

Table 3.55 shows data on the number of holdings who used fertilizers. In Ahafo Ano South, 13.0% of holdings used fertilizers during the reference period.

Table 3.55: Number of holdings by use of fertilizers, Ahafo Ano South

	# of holdings reporting	% of total holdings
Total holdings reporting crops	24,480	100.0
Use of fertilizers		
holdings not using fertilizers	21,293	87.0
holdings using fertilizers	3,187	13.0

Among reasons for not using fertilizers (Table 3.56), 32.3% of holdings reported that fertilizers were too expensive, while 24.4% reported other unspecified reasons.

Table 3.56: Number of holdings by reasons for not using fertilizers in Ahafo Ano South

Reasons fertilizers were not used	# of holdings reporting	% of holdings that did not use fertilizers
Number of holdings not using fertilizers	21,293	
Fertilizers were too expensive	6,868	32.3
Fertilizers were not available	524	2.5
Poor infrastructure or too far	0	0.0
Other	5,194	24.4

3.8.5.3 Crop and seed varieties

Table 3.57 provides information on the types of seed used for temporary crops in Ahafo Ano South. It also provides information on whether the seeds used for planting on the holdings were modern varieties (certified or uncertified), or uncertified traditional varieties.

Results presented for the main crops in the district show at least 93% of holdings reporting the crops, traditional uncertified varieties of seeds were used. The exception was maize, for which a relatively high proportion of modern varieties of certified seeds (34.9%) were reported.

Table 3.57: Type of seed used for temporary crops, Ahafo Ano South

Crop	Number of holdings reporting the crop		Modern varieties, certified seed		Modern varieties, uncertified seed		Traditional varieties, uncertified seed	
	number	% of total	number	% of total	number	% of total	number	% of total
Cassava	20,217	82.6	709	3.5	0	0.0	19,508	96.5
Maize	15,102	61.7	5,267	34.9	1,121	7.4	8,935	59.2
Plantain	20,375	83.2	0	0.0	0	0.0	20,375	100.0
Rice	1,515	6.2	0	0.0	0	0.0	1,515	100.0
Tomato	6,129	25.0	256	4.2	0	0.0	5,873	95.8
Yam	4,372	17.9	305	7.0	0	0.0	4,067	93.0
Total number of holdings reporting crops	24,480	100.0						

In **Annex 3**, tables on the source of modern uncertified and traditional uncertified seeds can be consulted, as well as tables on permanent crops in homogeneous plots and grown as scattered trees. Tables related to rice cultivation techniques adopted by agricultural holdings and to animal housing practices can also be found in the Annex. These tables are for demonstration purposes only, due to the relatively low sample size of the pilot in the district.

3.8.5.4 Area under different land use practices

Figure 3.40 illustrates information on the type of tillage used by agricultural holdings in Ahafo Ano South. More than half of holdings (59.2%) indicated zero-tillage (no tillage), while 38.0% used conservation tillage. The remaining 1.8% of holdings reported using conventional tillage.

Figure 3.40: Holdings by type of tillage used, Ahafo Ano South

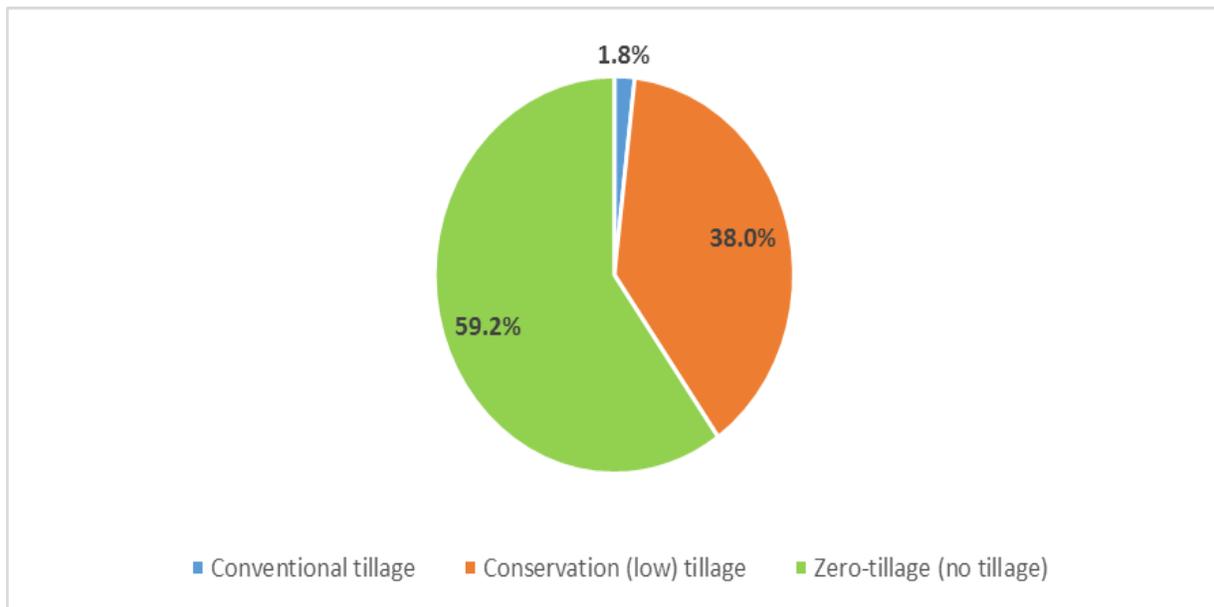


Figure 3.41 presents data on soil cover in Ahafo Ano South. The most common soil cover was plant residues, on 23.2% of holdings. Cover crops or intermediate crops were reported by 3.2% of holdings, and the next seasonal crop was reported by 2.9%.

Figure 3.41: Holdings by soil cover, Ahafo Ano South

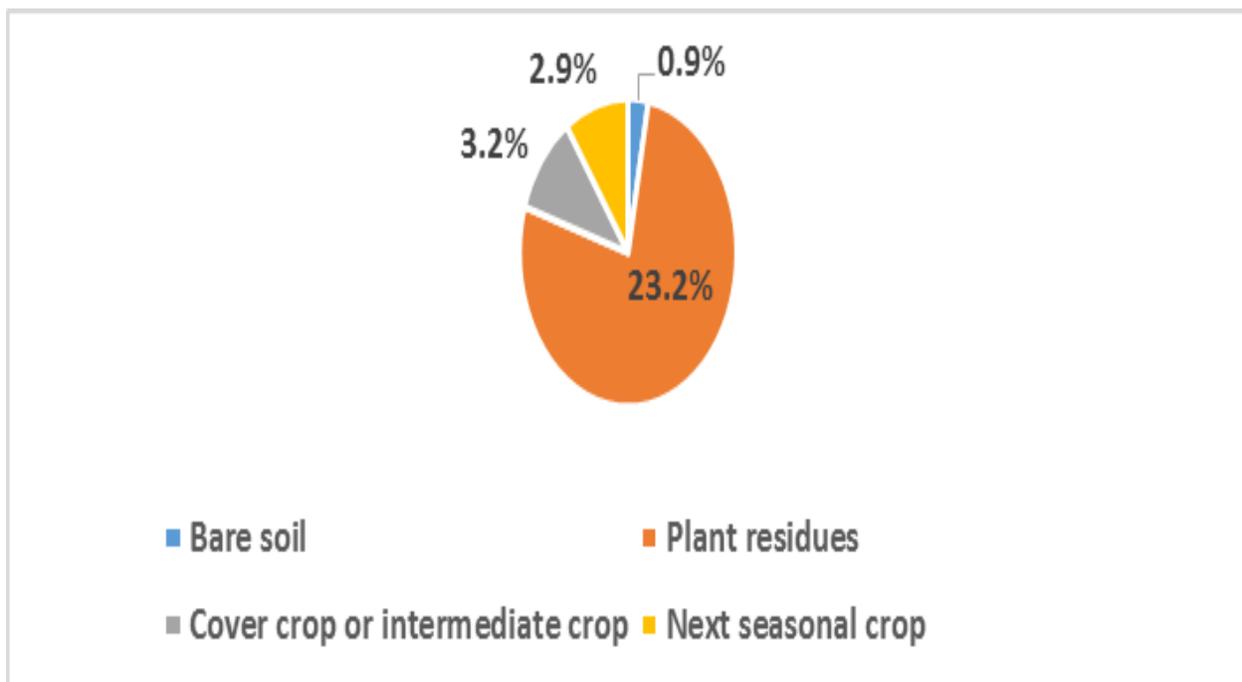
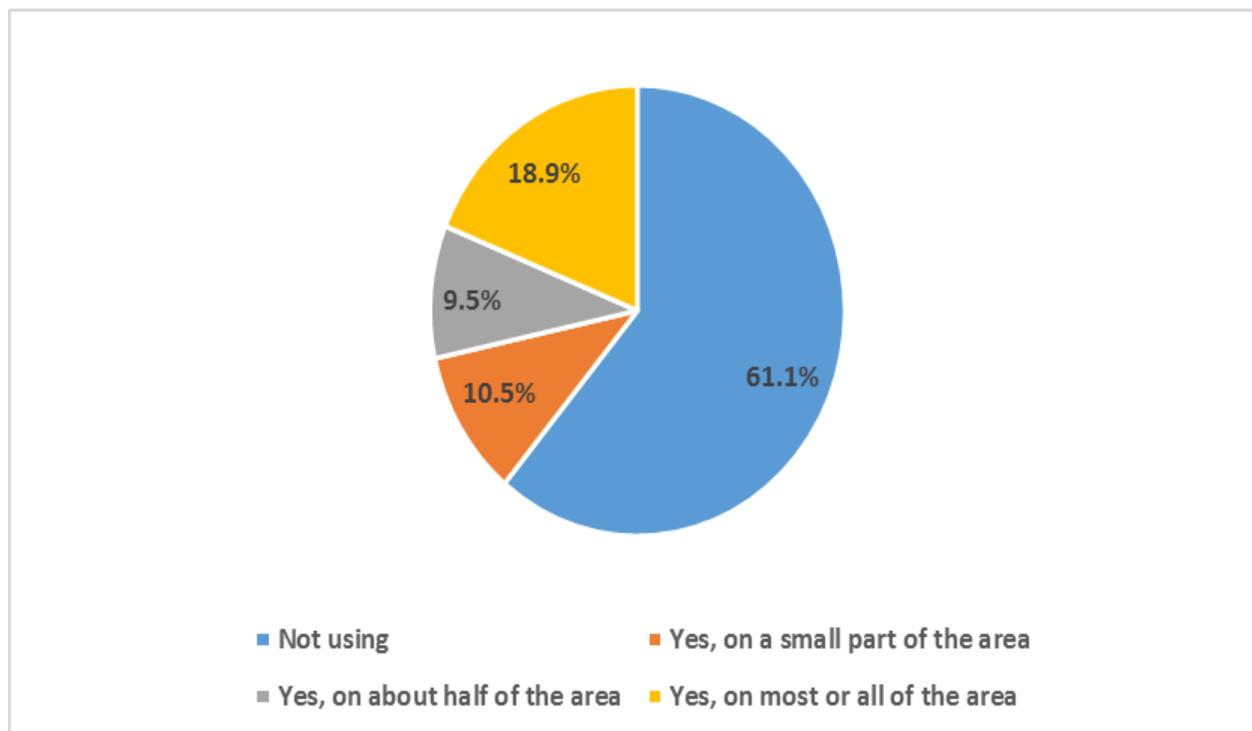


Figure 3.42 illustrates the use of temporary crop rotation by agricultural holdings. While 61.1% of holdings did not report using any sort of crop rotation, 18.9% used crop rotation on most or all of the holding's area. A similar proportion of holdings implemented crop rotation either on a small portion of the area (10.5%) or on about half of it (9.5%).

Figure 3.42: Holdings by use of crop rotation for temporary crops, Ahafo Ano South



3.9 Use of AGRIS for monitoring CAADP indicators

The Comprehensive Africa Agriculture Development Programme (CAADP) is Africa's policy framework for transforming the agricultural sector and achieving sustainable economic growth, poverty reduction, and food security.

The CAADP, officially endorsed by the African Union heads of states and government in 2003 Maputo Declaration, has the following two main targets:

- Achieving a 6% annual agricultural growth rate at the national level;
- Allocating 10% of national budgets to the agriculture sector.

In 2014, the commitment of countries in the African Union to CAADP was reaffirmed with the adoption of the Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods. In this context, the CAADP Results Framework was developed in order to track, monitor and report progress in meeting the Malabo commitments. Consequently, this result framework outlines expected results and impacts, and specifies benchmarks and milestones for Africa's agricultural development agenda.

Many of the priority indicators included in the CAADP results framework can be computed using data collected through the AGRIS survey programme. In this regard, this pilot test has offered some preliminary data to assess the feasibility of using the survey to monitor the CAADP implementation.

Examples of indicators that can be computed using AGRIS are summarized in Table 3.58. For some of these indicators, tables have been prepared using data generated through the pilot. Given the length of the final report and the overlapping of most of CAADP tables with subjects already covered in previous sections, CAADP results are presented below the measurement of the indicators.

Table 3.58: CAADP indicators that can be computed through AGRIS

Indicator 3.1i: Fertilizer consumption	
Performance target	Ensure minimum use of fertilizer for African agriculture development at level of consumption of at least 50 kilograms per hectare of arable land, from 2015 to 2025.
Performance indicator	Fertilizer consumption (kg of nutrients per hectare of arable land) Total fertilizer consumption (organic and/or inorganic) divided by arable land and permanent crops area
Definitions	Arable land = land under temporary agricultural crops, temporary meadows for mowing or pasture, land under market and kitchen gardens and land temporarily fallow. Abandoned land resulting from shifting cultivation is not included in this category. Permanent crops = the land cultivated with long-term crops which do not have to be replanted for several years (such as cocoa and coffee); land under trees and shrubs producing flowers, such as roses and jasmine; and nurseries (except those for forest trees, which should be classified under “forest”). Permanent meadows and pastures are excluded from land under permanent crops.
Data required	Arable land area, Permanent crops area, Nitrogen Fertilizers (N total nutrients), Phosphate Fertilizers (P205 total nutrients) Potash Fertilizers (K20 total nutrients)
Indicator 3.1ii: Irrigated Area	
Performance target	Increase the size of irrigated areas (as per its value observed in the year 2000), by the year 2025.
Performance indicator	Growth rate of the size of irrigated areas from the size of the year 2000
Definitions	The Irrigated areas is the total area equipped for irrigation. The growth rate of irrigated areas is the change (%) in its value in 2000.
Data required	Identified areas in the country that are under irrigation in the year 2000. Identified areas in the country that are under irrigation in the year t.
Indicator 3.1iii: Supplied quality inputs	
Performance target	Double (100% increase) the current levels of quality agricultural inputs for crops (seed), livestock (breed), and fisheries (fingerlings), by the year 2025 from the year 2015.
Performance indicator	Growth rate of the ratio of supplied quality agriculture inputs (seed, breed, fingerlings) to the total national inputs requirements for the commodity.
Definitions	Inputs (quality seed of improved varieties, improved breed, and improved fingerlings) supplied or sold compared to national input requirements. This is a measure of the extent to which quality inputs is utilized to boost production of the considered commodity.
Data required	- Crops: Quality seed of improved varieties of the selected crop sold to farmers for planting, compared to the total seeded area multiplied by seeding rate. - Livestock (cattle, sheep, goat, pig): the number of female cattle at a reproductive age that are artificially inseminated compared to the total. - Livestock (poultry): the number of Day-Old Chicks (DOC) supplied or sold. - Fish: number of improved fingerlings supplied or sold.

Indicator 3.1iv: Access to advisory services	
Performance target	All farmers have access to quality agricultural advisory services that provide locally relevant knowledge, information and other services.
Performance indicator	Proportion of farmers having access to Agricultural Advisory Services
Definitions	Agricultural extension is the function of providing need- and demand-based knowledge in agronomic techniques and skills to rural communities in a systematic, participatory manner. This indicator is the percentage of farmers having access to Agricultural Advisory Services through training, information sharing, and other extension support related services to farmers and small-to-medium enterprises in rural value chains.
Data required	Total number and farmers coverage of agricultural extension workers Total number of farmers
Indicator 3.1vi: Access to ownership or secure land rights	
Performance target	Ensure that 100% of farmers and agribusiness interested in agriculture have rights to access the required land.
Performance indicator	Proportion of farm households with ownership or secure land rights
Definitions	The social and legal context regarding land ownership varies across countries. The definition of ownership has to be defined appropriately considering the country context.
Data required	Total number of farm households in the country Number of farm HHs with secured land rights
Indicator 3.2.i Agricultural productivity – growth rate of value added per agricultural worker	
Performance target	Double (100% increase) the current agricultural labor productivity levels by the year 2025 from the year 2015.
Performance indicator	Growth rate of agriculture value added, in constant US dollars, per agricultural worker
Definitions	Agriculture value added per worker is a measure of agricultural productivity . Value added in agriculture measures the output of the agricultural sector (International Standard Industrial Classification of All Economic Activities, Rev.4 or ISIC divisions 1-5) less the value of intermediate inputs. Agriculture comprises value added from forestry, hunting, and fishing as well as cultivation of crops and livestock production.
Data required	*Agriculture corresponds to ISIC divisions 1-5 and includes forestry, hunting, and fishing, as well as cultivation of crops and livestock production. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3 (WDI, World Bank, 2016). *Total number of agricultural workers (W) *Agricultural value added divided by the total number of agricultural workers.

Indicator 3.2.ii: Agricultural productivity – growth rate of value added per hectare of agricultural arable land	
Performance target	Double (increase by 100%) the current agricultural land productivity levels, by the year 2025 from the year 2015.
Performance indicator	Growth rate of agriculture value added, in constant US dollar, per hectare of agricultural arable land
Definitions	Agriculture value added per hectare of land is a measure of agricultural productivity. Agriculture comprises value added from forestry, hunting, and fishing as well as cultivation of crops and livestock production (WDI, Word Bank, 2016).
Data required	*Agriculture corresponds to ISIC divisions 1-5 and includes forestry, hunting, and fishing, as well as cultivation of crops and livestock production. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3 (WDI, World Bank, 2016). *Arable land (hectares) includes land defined by the FAO as land under temporary crops (double-cropped areas are counted once), temporary meadows for mowing or for pasture, land under market or kitchen gardens, and land temporarily fallow. Land abandoned as a result of shifting cultivation is excluded. *Agriculture value added divided by total agricultural arable land in hectares.
Indicator 3.2.iii: Agricultural productivity - growth rate of yields for the 5 national priority commodities and possibly for the 11 AU agriculture priority commodities	
Performance target	Double (100% increase) the current agricultural yield levels, by the year 2025 from the year 2015.
Performance indicator	Growth rate of yields for the 5 national priority commodities, and possibly for the 11 AU agriculture priority commodities
Definitions	Production per unit of area for products. In most of the cases yield data are not recorded but obtained by dividing the production data by the data on area harvested (FAO).
Data required	*Production for individual commodity, in ton (t). It includes the quantities of the commodity (crop, livestock products, fish, etc...) sold in the market (marketed production) and the quantities consumed or used by the producers (auto-consumption). *Size of the production unit for individual commodities (hectares harvested for crops, cattle slaughtered for livestock, etc...) *Total production divided by total size of production unit for products.

Indicator 4.4: Women's access to productive assets, including land, credit, inputs and financial services and information	
Performance target	Ensure that 20% of rural women have access to productive assets, including land, credit, inputs and financial services and information (empowered) by 2023.
Performance indicator	Proportion of rural women that are empowered in agriculture.
Definitions	<p>Total number of rural women engaged in agriculture.</p> <p>Production: Sole or joint decision-making over food and cash-crop farming, livestock and fisheries as well as autonomy in agricultural production.</p> <p>Resources: Ownership, access to and decision-making power over productive resources such as land, livestock, agricultural equipment, consumer durables, and credit.</p> <p>Income: Sole or joint control over income and expenditures.</p> <p>Leadership: Membership in economic or social groups and comfort in speaking in public</p> <p>Time: Allocation of time to productive and domestic tasks and satisfaction with the available time for leisure activities.</p> <p>The proportion of rural women that are empowered can be generated for the country using mathematical set method to provide the overall proportion of women that meet at least 4 of the above-mentioned domains (94ember94rox. 80% of the reported domains of available data).</p>
Data required	<p>Number of women that have: a) Input in productive decisions and b) Autonomy in production.</p> <p>Number of women that have: a) Ownership of assets, b) Purchase, sale or transfer of assets, c) Access to and decisions about credit.</p> <p>Number of women that have Control over use of income.</p> <p>Number of women that have: a) Group member and b) Speaking in public.</p> <p>Number of women that are able to manage their time amongst: a) Workload and b) Leisure.</p>
Indicator 6.1i: Resilience to climate related risks	
Performance target	Ensure that at least 30% of farm, pastoral, and fisher households are resilient to climate and weather-related risks, by the year 2025.
Performance indicator	Percentage of farm, pastoral, and fisher households that are resilient to climate and weather-related shocks
Definitions	<p>It is the total number of farms, pastoral, and fisher households, as availed by the country agriculture statistics.</p> <p>Farm, pastoral, and fisher households that are resilient are considered here as the households that are able to recover from natural and human-induced shocks. The household resilience can be measured with the FAO's Resilience Index Measurement and Analysis (RIMA) model. It is the total number of farms, pastoral, and fisher households, as availed by the country agriculture statistics. It is a composite index captures both physical and capacity dimensions and can be composed of latent variables estimated through various techniques. • Exposure to climate related risks; • Time required to recover; • Income level and its diversification • Asset ownership such as land and livestock • Access to Social safety nets such as food assistance and social security • Access to basic services such as water, health care, electricity, etc. • Households adaptive capacity which is linked to education and diversity of income sources • The stability of all these factors over time</p>
Data required	Latent variables to estimate a household resilience, include: - Access to Basic Social services; - Agricultural Assets; - Non-Agricultural Assets; - Income and Food Access; - Enabling Institutional Environment; - Agricultural Practice and Technology; - Social Safety Nets; - Climate Change; - Sensitivity; - Adaptive Capacity.

CAADP Indicator 6.1ii: Resilience to climate related risks	
Performance target	Ensure that at least 30% of agricultural land is placed under sustainable land management practice.
Performance indicator	Share of agriculture land under sustainable land management practices
Definitions	<p>Area of land that is under SLM practices</p> <p>Agronomic measures: measures that improve soil cover (e.g. green cover, mulch); measures that enhance organic matter / soil fertility (e.g. manuring); soil surface treatment (e.g. conservation tillage); subsurface treatment (e.g. deep ripping). Vegetative measures: plantation / reseeding of tree and shrub species (e.g. live fences; tree crows), grasses and perennial herbaceous plants (e.g. grass strips). Structural measures: terraces (bench, forward / backward sloping); bunds banks / level, graded); dams, pans; ditches (level, graded); walls, barriers, palisades. Management measures: change of land use type (e.g. area enclosure); change of management / intensity level (e.g. from grazing to cut-and carry); major change in timing of activities; control / change of species composition. Agriculture land including cropland and rangeland</p>
Data required	<p>Identified agriculture areas in the country under each SLM practice.</p> <p>Identified agriculture areas of the country.</p>

CAADP Indicators

The following are the CAADP indicators captured by the AGRIS Ghana pilot

Table 5.59. Use of agricultural land by total area utilized and area applied with fertilizers, Ahafo Ano South

Use of agricultural area	Total Area	Area on which fertilizers were applied	
	Hectares	Hectares	As a percent of total area
Temporary crops	41,698	1,910	4.6
Temporary fallow	16,414	0	0.0
Temporary meadows and pastures	12	0	0.0
Kitchen gardens and backyards	898		
Permanent crops	60,529	13,968	23.1
Total	48,401	6,428	13.3

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table 3.60. Type of fertilizer applied by land use, quantity applied and area applied with fertilizer, Ahafo Ano South

	Number of holdings reporting the fertilizer	Area applied with fertilizer, by land use				Total area applied with fertilizer ⁽¹⁾	% of area applied with fertilizer
		Temporary crops	Temporary fallow	Temporary meadows and pastures	Permanent crops		
Units		ha					
Type of fertilizer	11,894	4,199	0	0	23,304	27503	9.2%
Mineral fertilizers	11,894	4,199	0	0	23,304	27503	9.2%
Organo-mineral fertilizers	0	-	-	-	-	-	
Compost	0	-	-	-	-	-	
Mulch	0	-	-	-	-	-	
Biofertilizers	0	-	-	-	-	-	
Solid dung, incorporated	0	-	-	-	-	-	
	0	-	-	-	-	-	
Liquid manure, incorporated	0	-	-	-	-	-	
Liquid manure, not incorporated	0	-	-	-	-	-	
Slurry, incorporated	0	-	-	-	-	-	
Slurry, not incorporated	0	-	-	-	-	-	
Other	0	-	-	-	-	-	
Total	11,894	4,199	0	0	23,304	27503	9.2%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table 3.61 Area equipped for irrigation in working order, by district

	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plain	
	Acres	Hectares	Acres	Hectares	Acres	Hectares	Acres	Hectares
Area equipped for irrigation in working order	0	0	599	242	0	0	0	0

Table 3.62: Type of seed used for temporary crops, Ahafo Ano South

Crop	Number of holdings reporting the crop		Modern varieties, certified seed		Modern varieties, uncertified seed		Traditional varieties, uncertified seed	
	number	% of total	number	% of total	number	% of total	number	% of total
Bambara beans	524	2.10	-	0.00%	524	100.00%	-	0.00%
Cabbage	1,036	4.20	511	49.40%	-	0.00%	524	50.60%
Cassava	20,217	82.60	709	3.50%	-	0.00%	19,508	96.50%
Garden eggs	5,080	20.80	256	5.00%	-	0.00%	4,825	95.00%
Maize	15,102	61.70	5,267	34.90%	1,121	7.40%	8,935	59.20%
Okro	4,515	18.40	560	12.40%	-	0.00%	3,955	87.60%
Other-temporary	221	0.90	-	0.00%	-	0.00%	221	100.00%
Pepper (Hot)	8,866	36.20	1,772	20.00%	1,234	13.90%	5,860	66.10%
Pepper (Sweet)	256	1.00	256	100.00%	-	0.00%	-	0.00%
Plantain	20,375	83.20	-	0.00%	-	0.00%	20,375	100.00%
Rice	1,515	6.20	-	0.00%	-	0.00%	1,515	100.00%
Sugar Cane	305	1.20	-	0.00%	-	0.00%	305	100.00%
Sweet potato	305	1.20	-	0.00%	-	0.00%	305	100.00%
Tomato	6,129	25.00	256	4.20%	-	0.00%	5,873	95.80%
Yam	4,372	17.90	305	7.00%	-	0.00%	4,067	93.00%
Total number of holdings reporting crops	24,480	100.00						

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table 3.63: Sources of information used, methods of consulting information, participation in a farmer-based organization or water user's association, participation in a commercial or producer cooperative. By district

	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number reporting	as a % of Total holdings	Number reporting	as a % of Total holdings	Number reporting	as a % of Total holdings	Number reporting	as a % of Total holdings
Total number of holdings		100.00		100.00		100.00		100.00
Sources of information used during the reference period								
Government or other public institutions	4,322	17.70	2,649	24.60	5,795	34.80	3,105	71.90
Other individual farmers	19,560	80.30	7,092	65.80	9,155	54.90	140	3.20
Farmers' groups or associations	0	0.00	191	1.80	117	0.70	0	0.00
Non-governmental organizations (NGO) or non-governmental project	0	0.00	34	0.30	0	0.00	0	0.00
Trader or market stakeholder	488	2.00	107	1.00	0	0.00	45	1.00
None of the above	0	0.00	706	6.60	1,026	6.20	1,028	23.80
Method of consulting information during the reference period⁽³⁾								
Direct discussion	21,310	87.40	10,779	100.00	16,665	100.00	3,038	70.40
Telephone (including calls and texts)	0	0.00	0	0.00	0	0.00	131	3.00
Radio	2,901	11.90	0	0.00	0	0.00	2,641	61.20
Television	159	0.70	0	0.00	0	0.00%	0	0.00
Internet	0	0.00	0	0.00	0	0.00%	0	0.00
Press	0	0.00	0	0.00	0	0.00%	0	0.00
Other	0	0	0.00%	0.00	0	0	0	0.00
Holdings participating in a farmer-based organization (FBO) or water users association (WUA)								
No	21,475	87.70	9,930	92.10	15,243	94.70%	4,544	95.40
Yes	3,005	12.30	849	7.90	850	5.30%	220	4.60
Total	24,480	100.00	10,779	100.00	16,094	100.00%	4,763	100.00
Holdings participating in a commercial or producer cooperative								
No	23,210	94.80	10,382	96.30	15,500	96.30%	4,454	93.50
Yes	1,269	5.20	398	3.70	593	3.70%	309	6.50
Total	24,480	100	10,779	100.00	16,094	100.00%	4,763	100.00

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table 3.64. Visits to holdings by an extension officer, veterinarian or animal health assistant, and main reasons for not having more visits, Ahafo Ano South

	Number reporting	as a % of Total holdings
Total number of holdings⁽¹⁾		100.0
Visits made to the holding by an extension officer, veterinarian or animal health assistant		
No visits	18,584	75.9
1 visit	2,087	8.5
2 visits	2,772	11.3
3 visits	816	3.3
4 visits	221	0.9
5 visits	0	0.0
More than 5 visits	24,480	100.0
Main reason for not having more visits to the holding by extension officers, veterinarians or animal health assistants		
No need	2,885	13.0
Too expensive	0	0.0
Too far away	0	0.0
Service provider was too busy/not available	15,698	87.0
Other	18,584	100.0
Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018		

Table 3.65: Holdings by recovery from shocks, ability to cope with shocks and perception of level of severity of shocks, by district

	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains		
	# of holdings	% of total holdings reporting shocks	# of holdings	% of total holdings reporting shocks	# of holdings	% of total holdings reporting shocks	# of holdings	% of total holdings reporting shocks	
Total number of holdings	24,480		10,779		16,094		4,763		
Holdings reporting any severe shock hitting the holding or household	9,323	100.0	1,409	100.0	11,973	100.0	2,929	100.0	
Recovery from shocks									
Holding has recovered fully or partially from the shocks	No	2,442	26.2	269	19.1	2,370	19.8	879	30.0
	Yes	6,881	73.8	1,140	80.9	9,602	80.2	2,050	70.0
	Total	9,323	100.0	1,409	100.0	11,973	100.0	2,929	100.0
Ability to cope with shocks									
Holding is better able to cope with shocks	No	4,679	50.2	263	18.7	1,523	12.7	831	28.4
	Yes	4,644	49.8	1,146	81.3	10,449	87.3	2,099	71.6
	Total	9,323	100.0	1,409	100.0	11,973	100.0	2,929	100.0
Perception of the level of severity of shocks									
General perception of the level of severity of shocks compared to the past	Similar	709	7.6	205	14.5	347	2.9	649	22.2
	Greater	3,795	40.7	1,068	75.8	9,295	77.6	1,831	62.5
	Lower	4,818	51.7	136	9.7	2,330	19.5	449	15.3
	Total	9,323	100.0	1,409	100.0	11,973	100.0	2,929	100.0
Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018									

Table 3.66. Holdings involvement in an organization for environmental protection programs, Ahafo Ano South

	# of holdings	% of total holdings
Holding was involved in an organization (cooperative, association, etc.) for environmental protection programs		
Not involved	24,259	99.1
Involved	221	0.9
Total	24,480	100.0
Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018		

Table 3.67: Type of natural extreme event or disaster and human impacts, Ahafo Ano South

	Holdings reporting natural extreme events or disasters during the reference period		Number of times the natural extreme event or disaster hit the holding during the reference period							
			Zero times		Once		Twice		Three or more times	
	Number of holdings	% of holdings reporting natural extreme events or disasters	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Total number of holdings	24,480									
Holdings reporting any natural extreme events or disasters	7,868	100.0								
Type of natural extreme event or disaster										
Drought	7,136	90.7	-		7,136	100.0	0	0.0	0	0.0
Heavy rainfall or heavy winds	1,466	18.6	-		1,466	100.0	0	0.0	0	0.0
Extreme temperatures (cold or heat)	0	0.0	-		-		-		-	
Bush fires	709	9.0	-		709	100.0	0	0.0	0	0.0
Earthquakes	0	0.0	-		-		-		-	
Other	0	0.0	-		-		-		-	
			Number of people affected by human impacts							
			Zero		One to four		Five to nine		Ten or more	
Type of human impacts from the extreme event or disaster			Number of holdings	% of holdings reporting natural extreme events or disasters	Number of holdings	% of holdings reporting natural extreme events or disasters	Number of holdings	% of holdings reporting natural extreme events or disasters	Number of holdings	% of holdings reporting natural extreme events or disasters
People killed	0		-	-	-	-	-	-	-	-
People injured	0		-	-	-	-	-	-	-	-
People rendered homeless	0		-	-	-	-	-	-	-	-
People evacuated	0		-	-	-	-	-	-	-	-
Other	0		-	-	-	-	-	-	-	-

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table 3.68: Type of economic impacts from natural extreme events or disasters and severity, Ahafo Ano South

			Severity of the economic impact related to the natural extreme events or disasters					
			Small losses		Significant losses		Almost total or total losses	
	# of holdings	% of holdings reporting natural extreme events or disasters	# of holdings	% of holdings reporting natural extreme events or disasters	# of holdings	% of holdings reporting natural extreme events or disasters	# of holdings	% of holdings reporting natural extreme events or disasters
Total number of holdings	24,480							
Holdings reporting any natural extreme events or disasters	7,868	100.0						
Type of economic impacts from the extreme event or disaster								
Loss of revenue	4,106	52.2	1,745	22.2	2,361	30.0	0	0.0
Loss due to disruption of production	5,252	66.7	1,990	25.3	3,262	41.5	0	0.0
Other economic impacts	0	0.0	-	-	-	-	-	-
None of the above	0	0.0	-	-	-	-	-	-

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table 3.69. Type of physical impacts from natural extreme events or disasters and severity, Ahafo Ano South

			Severity of the physical impact related to the natural extreme events or disasters					
			Small losses		Significant losses		Almost total or total losses	
	# of holdings	% of holdings reporting natural extreme events or disasters	# of holdings	% of holdings reporting natural extreme events or disasters	# of holdings	% of holdings reporting natural extreme events or disasters	# of holdings	% of holdings reporting natural extreme events or disasters
Total number of holdings	24,480							
Holdings reporting any natural extreme events or disasters	7,868	100.0						
Type of physical impacts from the extreme event or disaster								
Area lost	0	0.0	-	-	-	-	-	-
Crop losses	7,868	100.0	2,246	28.5	5,623	71.5	0	0.0
Livestock losses	0	0.0	-	-	-	-	-	-
Aquaculture losses	0	0.0	-	-	-	-	-	-
Biomass losses	0	0.0	-	-	-	-	-	-
Building damages or losses	0	0.0	-	-	-	-	-	-
Other physical losses	0	0.0	-	-	-	-	-	-
None of the above	0	0.0	-	-	-	-	-	-

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table 3.70: Practices to adapt to climate change, Ahafo Ano South

	# of holdings	% of total holdings
Type of practice used to adapt to climate change	24,480	100.0
Multicropping	11,203	45.8
Use of traditional agricultural heritage practices and knowledge	2,617	10.7
Use of traditional crop and animal varieties	4,173	17.0
Use of seeds adapted to local conditions and stresses	0	0.0
Use of new practices or technologies	0	0.0
Other	0	0.0
None of the above	6,488	26.5
Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018		

Table 3.71: Type of crop residues burned by share of the total area of crops, Ahafo Ano South

	Share of the total area of the crop for which the crop residue was burned												
	# of holdings reporting the crop type	Holdings reporting burning the residues of the crop type		Very small share (less than 10%)		Less than half (10% to 39%)		About half (40% to 59%)		Most (60% to 99%)		All (100%)	
		Number of holdings	Number of holdings	% of total holdings reporting the crop type	Number of holdings	% of total holdings reporting the crop type	Number of holdings	% of total holdings reporting the crop type	Number of holdings	% of total holdings reporting the crop type	Number of holdings	% of total holdings reporting the crop type	Number of holdings
Crop													
Cassava	4,334	1,569	36.2	0	0.0	26	0.6	304	7.0	457	10.5	783	18.1
Cocoa	4,656	0	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
Cocoyam	2,325	587	25.2	0	0.0	0	0.0	136	5.8	349	15.0	102	4.4
Maize	3,083	1,117	36.2	191	6.2	26	0.8	310	10.1	486	15.8	74	2.4
Plantain	3,959	710	17.9	0	0.0	0	0.0	501	12.7	136	3.4	74	1.9
Rice	359	0	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
Tomato	842	0	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
Yam	611	0	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0

Table 3.72: Water accumulation and appearance, salt accumulation and soil changes in the last five years by type of change, Ahafo Ano South

	Number of holdings reporting	Percent of total
Large volumes of water accumulate on the agricultural soil surface during heavy rain		
No large water accumulation	20,253	82.7
Large water accumulation	4,227	17.3
Total	24,480	100.0
Appearance of water which accumulates on the soil and runs		
The water is clear	1,270	30.0
The water is not clear and/or is brown because it contains a lot of soil	2,957	70.0
Total	4,227	100.0
Accumulation of salts on the agricultural soil of the holding during dry periods		
No, never	23,259	95.0
Yes, sometimes	1,221	5.0
Yes, often	0	0.0
Total	24,480	100.0
Changes in the soil on the holding in the last five years ⁽¹⁾		
Change in soil colour	3,983	16.3
Change in the amount of fine and coarse particles	4,067	16.6
Change in how easy it is to plough or work the soil	560	2.3
Change in how easily crops emerge after planting	1,664	6.8
Change in the amount of stones present in the soil	1,931	7.9
None of the above	12,274	50.1
Total number of holdings	24,480	100.0
Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018		

3.10 Use of AGRIS for monitoring SDG indicators

In September 2015, the 2030 Agenda for Sustainable Development was unanimously adopted by the 193 Member States of the United Nations. The Agenda, which includes 17 goals and 169 targets, is expected to guide policies and programmes of policy makers, the civil society, the private sector and other relevant stakeholders in the next 15 years and beyond.

In March 2016, the UN Statistical Commission agreed on a list of 230 global indicators to track progress against the 169 SDG targets. FAO's strategic framework is closely aligned with the SDGs, and the Organization has been proposed as custodian for 21 SDG indicators.

In this framework, AGRIS represents a powerful tool for the production of data needed to produce these indicators and could help countries in filling some of the existing data gaps in this domain. For this reason, one of the main objectives of the AGRIS-Ghana Pilot was to test the possibility of using this survey programme to collect data needed to produce at least some of the core indicators identified to monitor SDGs. In this regard, the survey tabulation plan included a vast number of tables related to some SDGs.

This section focuses on the discussion of indicators that could actually be computed with the full-scale implementation of AGRIS.

Table 3.73: SDG indicators that can be computed through AGRIS

Indicator 2.3.1: Volume of Production per labour unit by classes of farming/pastoral/forestry enterprises	
Target	Target 2.3: By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment
Data required	1) Total volume of agricultural production; 2) Total labour input
Indicator 2.3.2 Average Income of small-scale food producers, by sex and indigenous status	
Target	Target 2.3: By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment
Data required	1) Sex of the holder; 2) Ethnicity of holder; 3) Revenues of the agricultural holding (from crop, livestock, animal products, aquaculture, fishery, forestry)
Indicator 5.a.1 a): Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex	
Target	Target 5.a: Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws
Data required	1) tenure of agricultural land; 2) sex of holder; 3) household members owning land; 4) sex of household members
Indicator 5.a.1 b): Share of women among owners or rights-bearers of agricultural land, by type of tenure	
Target	Target 5.a: Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws
Data required	1) tenure of agricultural land; 2) sex of holder.

SDG Indicator 1.4.1: Proportion of population living in households with access to basic services	
Target	Target 1.4: By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance
Data required	1) type of toilet facility normally used by the holding; main source of drinking water; 3) access to basic services (electricity, internet, source of water)
Indicator 5.5.2: Proportion of women in managerial positions	
Target	Target 5.5: Ensure wo'en's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life
Data required	1) sex of holders, 2) age of holders; 3) sex of holders household members; 4) age of holders household members
Indicator 5.b.1: Proportion of individuals who own a mobile telephone, by sex	
Target	Target 5.b: Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women
Data required	1) ownership of mobile phone by household member; 2) sex of holders; 3) sex of household members
Indicator 7.1.1: Proportion of population with access to electricity	
Target	Target 7.1: By 2030, ensure universal access to affordable, reliable and modern energy services
Data required	household access to electricity
Indicator 8.7.1: Proportion and number of children aged 5-17 years engaged in child labour, by sex and age	
Target	Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms
Data required	1) sex and age of household members; 2) household members by work on the holding

SDG Indicators generated from the AGRIS Ghana Pilot

Table 3.74: Agricultural households by type of toilet facility, Asante Akim North

Type of toilet facility normally used by the household	Holder households		Members of holder households	
	Number	Percent	Number	Percent
Flush or pour-flush toilet	355	3.3	1,371	3.0
Pit latrine	10,209	94.7	42,683	94.9
Composting toilet	0	0.0	0	0
Bucket	0	0.0	0	0
Hanging toilet or hanging latrine	51	0.5	204	0.5
No facilities, or bush or field	164	1.5	738	1.6
Other	0	0.0	0	0
Total	10,779	100.0	44,996	100.0

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.75: Agricultural households by main source of drinking water, Asante Akim North

Main source of drinking water for the household	Holder households		Members of holder households	
	Number	Percent	Number	Percent
1-Piped water - piped into dwelling	260	2.4	852	1.9
2-Piped water - piped to yard/plot	505	4.7	1,734	3.9
3-Piped water - piped to neighbour	1,574	14.6	5,707	12.7
4-Piped water - public tap or standpipe	2,334	21.7	9,469	21.0
5-Piped water - tube well or borehole	4,182	38.8	19,690	43.8
6-Dug well - protected	1,215	11.3	4,802	10.7
7-Dug well - unprotected	154	1.4	579	1.3
8-Spring water - protected spring	51	0.5	102	0.2
9-Spring water - unprotected spring	226	2.1	1,375	3.1
10-Rainwater	0	0.0	0	0.0
11-Tanker-truck	0	0.0	0	0.0
12-Cart with small tank/drum	0	0.0	0	0.0
13-Surface water	279	2.6	686	1.5
14-Bottled water	0	0.0	0	0.0
15-Other	0	0.0	0	0.0
16-Total	10,779	100.0	44,996	100.0

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table 3.76: Agricultural households by access to basic services, Ahafo Ano South

Basic services to which the household has access	Holder households		Members of holder households	
	Number	Percent	Number	Percent
Electricity				
No access to electricity	11,799	48.2	58,816	53.8
Access to electricity	12,680	51.8	50,600	46.2
Total	24,480	100.0	109,415	100.0
Internet access				
No access to internet	24,224	99.0	108,137	98.8
Access to internet	256	1.0	1,278	1.2
Total	24,480	100.0	109,415	100.0
Pipeborne water / borehole / protected water source				
No access to Pipeborne water / borehole / protected water source	10,643	43.5	42,402	38.8
Access to Pipeborne water / borehole / protected water source	13,836	56.5	67,014	61.2
Total	24,480	100.0	109,415	100.0

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table 3.77: Agricultural households by access to basic services, Asante Akim North

Basic services to which the household has access	Holder households		Members of holder households	
	Number	Percent	Number	Percent
Electricity				
No access to electricity	2,397	22.2	9,429	21.0
Access to electricity	8,382	77.8	35,567	79.0
Total	10,779	100.0	44,996	100.0
Internet access				
No access to internet	10,622	98.5	44,601	99.1
Access to internet	157	1.5	394	0.9
Total	10,779	100.0	44,996	100.0
Pipeborne water / borehole / protected water source⁽²⁾				
No access to Pipeborne water / borehole / protected water source	710	6.6	2,640	5.9
Access to Pipeborne water / borehole / protected water source	10,121	93.4	42,356	94.1
Total	10,830	100.0	44,996	100.0

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table 3.78: Agricultural households by access to basic services, Ejura Sekye Dumasi

Basic services to which the household has access	Holder households		Members of holder households	
	Number	Percent	Number	Percent
Electricity				
No access to electricity	5,014	31.2	30,790	37.4
Access to electricity	11,080	68.8	51,508	62.6
Total	16,094	100.0	82,298	100.0
Internet access				
No access to internet	15,848	98.5	80,580	97.9
Access to internet	245	1.5	1,717	2.1
Total	16,094	100.0	82,298	100.0
Pipeborne water / borehole / protected water source⁽²⁾				
No access to Pipeborne water/borehole/protected water source	10,471	65.1	48,988	59.5
Access to Pipeborne water/borehole/protected water source	5,623	34.9	33,310	40.5
Total	16,094	100.0	82,298	100.0

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table 3.79: Agricultural households by access to basic services, Sekyere Afram Plain

Basic services to which the household has access	Holder households		Members of holder households	
	Number	Percent	Number	Percent
Electricity				
No access to electricity	4,148	87.1	23,553	87.3
Access to electricity	616	12.9	3,411	12.7
Total	4,763	100.0	26,964	100.0
Internet access				
No access to internet	4,763	100.0	26,964	100.0
Access to internet	0	0.0	0	0.0
Total	4,763	100.0	26,964	100.0
Pipeborne water / borehole / protected water source⁽²⁾				
No access to Pipeborne water / borehole / protected water source	4,718	99.1	26,829	99.5
Access to Pipeborne water / borehole / protected water source	45	0.9	135	0.5
Total	4,763	100.0	26,964	100.0

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table 3.80. Agricultural households by access to electricity, Ahafo Ano South

Basic services to which the household has access	Holder households		Members of holder households	
	Number	Percent	Number	Percent
Electricity				
No access to electricity	11,799	48.2	58,816	53.8
Access to electricity	12,680	51.8	50,600	46.2
Total	24,480	100.0	109,415	100.0
Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018				

Table 3.81: Agricultural households by access to electricity, Asante Akim North

Basic services to which the household has access	Holder households		Members of holder households	
	Number	Percent	Number	Percent
Electricity				
No access to electricity	2,397	22.2	9,429	21.0
Access to electricity	8,382	77.8	35,567	79.0
Total	10,779	100.0	44,996	100.0
Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018				

Table 3.82. Agricultural households by access to electricity, Ejura Sekye Dumasi

Basic services to which the household has access	Holder households		Members of holder households	
	Number	Percent	Number	Percent
Electricity				
No access to electricity	5,014	31.2	30,790	37.4
Access to electricity	11,080	68.8	51,508	62.6
Total	16,094	100.0	82,298	100.0
Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018				

Table 3.83: Agricultural households by access to electricity, Sekyere Afram Plain

Basic services to which the household has access	Holder households		Members of holder households	
	Number	Percent	Number	Percent
Electricity				
No access to electricity	4,148	87.1	23,553	87.3
Access to electricity	616	12.9	3,411	12.7
Total	4,763	100.0	26,964	100.0
Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018				

Table 3.84: Members of households aged 5 years or older, by work on the holding, sex and age, Ejura Sekye Dumasi

Work on the holding in the period from 1 July to 31 December 2017	Sex of the members of holder households	Age of the members of holder households					
		5 to 17 years		18 years or older		Total 5 years or older	
		# of household members	% of total household members in the age group	# of household members	% of total household members in the age group	# of household members	% of total household members in the age group
Did not work	Male	53,838	24.2	8,014	2.9	61,851	12.5
	Female	57,018	25.6	21,871	8.0	78,889	15.9
	<i>Total</i>	110,856	49.8	29,885	11.0	140,741	28.4
Worked	Male	66,165	29.7	109,828	40.3	175,993	35.5
	Female	45,600	20.5	132,864	48.7	178,464	36.0
	<i>Total</i>	111,765	50.2	242,692	89.0	354,457	71.6
Total	Male	120,002	53.9	117,842	43.2	237,844	48.0
	Female	102,618	46.1	154,735	56.8	257,353	52.0
	<i>Total</i>	222,621	100.0	272,577	100.0	495,198	100.0

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table 3.85: Members of households aged 15 years or older, by position on the holding, sex and age, Ejura Sekye Dumasi

Position on the holding	Sex of the members of holder households	Age of the members of holder households					
		15 to 17 years		18 years or older		Total aged 15 years or older	
		# of household members	% of total household members in the age group	# of household members	% of total household members in the age group	# of household members	% of total household members in the age group
None, did not work on the holding	Male	5,266	8.6	8,014	3.5	13,280	4.5
	Female	7,959	13.0	21,871	9.4	29,830	10.2
	<i>Total</i>	13,225	21.7	29,885	12.9	43,110	14.7
Holder/co-holder	Male	0	0.0	63,376	27.4	63,376	21.7
	Female	0	0.0	27,251	11.8	27,251	9.3
	<i>Total</i>	0	0.0	90,627	39.1	90,627	31.0
Manager	Male	0	0.0	4,031	1.7	4,031	1.4
	Female	0	0.0	1,615	0.7	1,615	0.6
	<i>Total</i>	0	0.0	5,646	2.4	5,646	1.9
Worker with no decision-making role	Male	34,270	56.1	40,704	17.6	74,974	25.6
	Female	13,579	22.2	94,649	40.9	108,228	37.0
	<i>Total</i>	47,849	78.3	135,353	58.4	183,203	62.6
Total	Male	39,537	64.7	108,111	46.7	147,647	50.4
	Female	21,538	35.3	123,516	53.3	145,054	49.6
	<i>Total</i>	61,075	100.0	231,627	100.0	292,701	100.0

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

4 Conclusions and lessons learned

The main objective of the AGRIS-Ghana Pilot Survey was to test the implementation of the four integrated questionnaires in the Ghanaian context, in order to assess the technical and institutional sustainability of the survey programme.

As previously mentioned, questionnaires were administered using Survey Solutions, a CAPI software developed and maintained by the World Bank. Being the first time in which such a tool was used to conduct a survey in Ghana, one of the goals was to establish familiarity with Survey Solutions and evaluate the possibility of using it for an eventual full-scale survey.

The implementation of the Pilot was a challenge, which has offered many lessons for the future upscale of the survey.

Regarding the use of Survey Solutions, it revealed itself to be a very powerful tool, capable of increasing data quality and reducing data collection time. The system to develop the questionnaire offers the possibility of embedding a series of enabling and validating conditions, which could substantially improve the overall quality of collected information and reduce the burden on respondents and enumerators. However, in order for such a system to work effectively, and given the size of the AGRIS questionnaire, an adequate time for pre-testing and fine-tuning the application should be allocated and scheduled in advance.

The data collected in the four districts offer a myriad of lessons learned from this exercise, and these will be considered in refining the questionnaire for full scale implementation. Many are the elements that will be considered. For example, having information on the most selected units of measures to report quantities and areas, the questionnaire will be significantly simplified in the next stages.

Furthermore, considering answers received by respondents, questions that have revealed themselves to be irrelevant for the Ghanaian context will be deleted or revised, in order to better customize AGRIS to country needs.

Some specific examples for refinement include:

- Eggs should be reported for only one period rather than collecting information on different time periods
- For the definition of livestock in subsequent surveys, poultry should be considered as part of livestock
- The age of holders should start at 15 years and older to conform to the International Organisation of Labour (ILO) classification rather than the current classification which starts at 19 years and below.
- Questions on cocoa under intention/purpose for producing crop need to be corrected in CAPI

The meaning of continuous crops should be well explained in the next training because it seems it was misunderstood either by the interviewers or the respondents. Also, in the next round the TWG should decide what crops constitute a continuous crop.

A significant problem encountered during the implementation of the Pilot was related to the difficulty of respondents to accurately distinguish between continuous and other crops. Being an element of primary importance for the accurate estimation of yield, in case of implementation of a full-scale survey, the list of continuous crops has to be clearly identified, in order to be embedded into the CAPI application.

Annex 1: PAPI version of the questionnaire used for the listing of holdings in the household sector

District code |_|

EA code |_|_|_|_|_|_|_|_|_|_|

EA name: _____

House/Compound No.	Localisation of the Compound	Household Serial No.	Household head				Agricultural practices during the last 12 months							Household size (number 118 members)	Holder (person economically responsible for the agricultural production)			
			name	Age (years)	Sex	Primary occupation	Possession of parcels of temporary crops?	Possession of parcels of permanent crops?	Number of parcels of crops (all)	Keeping Livestock?	Nb. of Bovine animals	Nb. of Sheep	Nb. of Goats		name	Age (years)	Sex	Highest completed level education
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
					male = 1 female = 2	Farmer = 1 farm hand = 2 fishing = 3 agro-processing = 4 trader = 5 artisan = 6 student = 7 none = 8 other = 9 (spec _____)	yes = 1 no = 2	yes = 1 no = 2		yes = 1 no = 2 (if no, go to question 15)							male = 1 female = 2	No-e - 00 Kindergarten - 01 Primary - 02 JSS/J-S - 03 Middle - 04 SSS/S-S - 05 Secondary - 06 Voc/Tech/Co-m - 07 Teacher Training/Agric / Nursing Cert - 08 Post Sec. Dip (HND, Teacher training, Nursing, Univ. Dip) - 09 Bachelor degree - 10 Post graduate - 11 Don't know - 99

Annex 2: PAPI version of questionnaires used for the AGRIS Pilot Survey

Annex 3: Detailed tables produced

A3.1 Main characteristics of the Agricultural Holdings

Table A3.1: Holdings by Legal status and district								
Legal status of the holding	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number	% of total	Number	% of total	Number	% of total	Number	% of total
Single-holding household	24,480	100.0%	10,742	99.7%	15,719	97.7%	4,763	100.0%
Multiple-holding household	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Partnership of two or more households	0	0.0%	37	0.3%	375	2.3%	0	0.0%
Large-scale, private corporation (outgrower)	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Farmer-based organization (FBO), cooperative	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Institutional farm	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other (church, school, etc.)	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.2: Holdings by main agricultural focus								
Main agricultural focus	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Mainly crop production	21,620	88.3%	9,696	89.9%	14,710	91.4%	3,422	71.8%
Mainly livestock production	0	0.0%	125	1.2%	1,383	8.6%	461	9.7%
A mix of crop and livestock production	2,860	11.7%	959	8.9%	0	0.0%	880	18.5%
Total	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.3: Main cropping activities by district								
Main cropping activity	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Production of annual field crops (cereals, oilseeds, protein crops, root crops, tobacco, cotton, etc.)	14,501	67.1%	4,314	44.5%	12,752	86.7%	3,374	98.6%
Production of vegetables, mushrooms, flowers, ornamental plants, etc.	0	0.0%	233	2.4%	0	0.0%	0	0.0%
Production of fruits (oranges, bananas, pineapples, papaya, etc.)	256	1.2%	2,504	25.8%	0	0.0%	0	0.0%
Production of other perennial crops (cocoa, coffee, coconut, etc.)	6,863	31.7%	1,722	17.8%	0	0.0%	0	0.0%
Mixed cropping (no real prevalence of a specific crop activity)	0	0.0%	922	9.5%	1,958	13.3%	47	1.4%
Total holdings with a crop production focus	21,620	100.0%	9,696	100.0%	14,710	100.0%	3,422	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.4: Main livestock activities by district								
Main livestock activity	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Raising ruminant livestock for meat (cattle, sheep, goats, etc.)	0.0	0.0%	91	72.9%	1,383	100.0%	367	79.5%
Raising non-ruminant livestock for meat (pigs, poultry, etc.)	0.0	0.0%	34	27.1%	0	0.0%	0	0.0%
Production of eggs	0.0	0.0%	0	0.0%	0	0.0%	0	0.0%
Production of milk	0.0	0.0%	0	0.0%	0	0.0%	0	0.0%
Production of honey	0.0	0.0%	0	0.0%	0	0.0%	0	0.0%
Mixed livestock (no real prevalence of a specific livestock activity)	0.0	0.0%	0	0.0%	0	0.0%	95	20.5%
Total holdings with a livestock production focus	0.0	100.0%	125	100.0%	1,383	100.0%	461	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.5: Main intended destination of agricultural production of holdings by average agricultural area and district								
Intended destination of agricultural production	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of	% of total	Number of	% of total	Number of	% of total	Number of	% of total
Producing primarily for sale (selling more than 90%)	14,046	57.4%	2,740	25.4%	10,794	67.1%	3,377	70.9%
Producing mainly for sale, with some own consumption	9,189	37.5%	6,554	60.8%	5,234	32.5%	435	9.1%
Producing mainly for own consumption, with some sales (selling more than 10% and up to 50%)	1,245	5.1%	1,042	9.7%	66	0.4%	753	15.8%
Producing primarily for own consumption (selling 10% or less)	0	0.0%	443	4.1%	0	0.0%	199	4.2%
Total	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.6: Holdings recording of agricultural activity in registers or logbooks by frequency								
Frequency of recording information	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of	% of total	Number of	% of total	Number of	% of total	Number of	% of total
Never record agricultural activity	23,294	95.2%	10,234	94.9%	13,847	86.0%	4,662	97.9%
Occasionally or partially record agricultural activity	1,186	4.8%	363	3.37%	2,246	14.0%	101	2.1%
Systematically record agricultural activity	0	0.0%	183	1.7%	0	0.0%	0	0.0%
Total	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

A3.2: Characteristics of the holder

Table A3.7: Holdings by type of holder and district								
Type of holder	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Holder is a civil/natural person	24,480	100.0%	10,702	99.3%	15,719	97.7%	4,763	100.0%
Holder is a group of civil/natural persons	0	0.0%	77	0.7%	375	2.3%	0	0.0%
Holder is a legal person	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.8: Holdings by sex of the holder and district (The holder is a civil/natural person)								
Sex of the holder	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Male	14,486	59.2%	5,628	52.2%	12,205	75.8%	3,875	81.3%
Female	9,994	40.8%	5,151	47.8%	3,888	24.2%	888	18.7%
Total	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.9: Holdings by age of the holder and district (The holder is a civil/natural person)								
Age of the holder	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
19 years or under	0	0.0%	0	0.0%	0	0.0%	45	0.9%
20 to 29 years	1,269	5.2%	794	7.2%	2,267	14.4%	634	13.3%
30 to 39 years	5,682	23.2%	1,753	16.4%	2,418	15.4%	1,283	26.9%
40 to 49 years	8,831	36.1%	3,319	30.8%	4,740	27.8%	1,040	21.8%
50-59 years	3,861	15.8%	1,544	14.4%	3,473	22.1%	605	12.7%
60 years or over	4,837	19.8%	3,370	31.2%	3,195	20.3%	1,157	24.3%
Total	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%
Average age	46.8		50.7		47.2		45.0	

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.10: Holdings by age and sex of the holder and district									
		District							
		Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
		Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Male	19 years or under	0	0.0%	0	0.0%	0	0.0%	45	1.2%
	20 to 29 years	1,269	8.8%	488	8.7%	2,267	18.6%	586	15.1%
	30 to 39 years	3,959	27.3%	1,041	18.5%	2,043	16.7%	1,135	29.3%
	40 to 49 years	5,557	38.4%	1,772	31.5%	3,511	28.8%	888	22.9%
	50-59 years	1,662	11.5%	713	12.7%	2,363	19.4%	488	12.6%
	60 years or over	2,039	14.1%	1,613	28.7%	2,021	16.6%	732	18.9%
	Total	14,486	100.0%	5,628	100.0%	12,205	100.0%	3,875	100.0%
	Average age	43.9		49.5		44.8		42.8	
Female	19 years or under	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	20 to 29 years	0	0.0%	305	5.9%	0	0.0%	47	5.3%
	30 to 39 years	1,723	17.2%	712	13.8%	375	9.6%	147	16.6%
	40 to 49 years	3,274	32.8%	1,546	30.0%	1,229	31.6%	152	17.2%
	50-59 years	2,199	22.0%	831	16.1%	1,110	28.6%	117	13.2%
	60 years or over	2,798	28.0%	1,757	34.1%	1,174	30.2%	424	47.8%
	Total	9,994	100.0%	5,151	100.0%	3,888	100.0%	888	100.0%
	Average age	51.1		51.9		54.6		54.6	
Total	19 years or under	0	0.0%	0	0.0%	0	0.0%	45	1.0%
	20 to 29 years	1,269	5.2%	794	7.4%	2,267	14.1%	634	13.3%
	30 to 39 years	5,682	23.2%	1,753	16.3%	2,418	15.0%	1,283	26.9%
	40 to 49 years	8,831	36.1%	3,319	30.8%	4,740	29.5%	1,040	21.8%
	50-59 years	3,861	15.8%	1,544	14.3%	3,473	21.6%	605	12.7%
	60 years or over	4,837	19.8%	3,370	31.3%	3,195	19.9%	1,157	24.3%
	Total	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%
	Average age	46.8		50.7		47.2		44.97	

Table A3.11: Holdings by sex and nationality of the holder and district												
	District											
	Ahafo Ano South			Asante Akim North			Ejura Sekye Dumasi			Sekyere Afram Plains		
Nationality	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Ghanaian	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	89.2%	100.0%	91.6%	90.5%	100.0%	92.3%
ECOWAS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.5%	0.0%	5.8%	9.5%	0.0%	7.7%
African, other than ECOWAS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.4%	0.0%	2.6%	0.0%	0.0%	0.0%
Outside Africa	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	14,486	9,994	24,480	5,628	5,151	10,779	12,205	3,888	16,094	3,875	888	4,763

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.12: Holdings by highest level of education attained and sex of the holder and district												
	District											
	Ahafo Ano South			Asante Akim North			Ejura Sekye Dumasi			Sekyere Afram Plains		
Highest level of education attained by	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
None	19.7%	31.6%	24.6%	9.3%	34.2%	21.4%	31.0%	37.9%	32.2%	56.9%	55.6%	56.6%
Pre-school	0.0%	0.0%	0.0%	3.6%	0.7%	2.2%	5.6%	0.0%	4.4%	12.6%	7.1%	11.6%
Primary	14.8%	14.9%	14.8%	17.6%	18.3%	17.9%	15.4%	12.6%	15.1%	12.2%	13.2%	12.4%
JSS/JHS, Middle (Standard 7)	42.5%	53.5%	47.0%	54.5%	42.9%	49.1%	24.3%	39.8%	27.5%	12.3%	24.1%	14.5%
SSS/SHS, Secondary, Voc/Tech/Comm	14.3%	0.0%	8.5%	7.3%	3.9%	5.5%	18.3%	9.6%	16.6%	2.6%	0.0%	2.1%
Diploma	8.7%	0.0%	5.1%	4.7%	0.0%	2.4%	5.4%	0.0%	4.2%	2.3%	0.0%	1.9%
Bachelor degree or higher	0.0%	0.0%	0.0%	3.0%	0.0%	1.6%	0.0%	0.0%	0.0%	1.2%	0.0%	1.0%
Total	14,486	9,994	24,480	5,628	5,151	10,779	12,205	3,888	16,094	3,875	888	4,763

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.13: Share of holder's working time spent working on the holding by sex and district												
	District											
	Ahafo Ano South			Asante Akim North			Ejura Sekye Dumasi			Sekyere Afram Plains		
Share of working time spent working on the holding	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Less than half (<40%)	3.6%	10.4%	6.4%	5.3%	4.5%	5.0%	6.3%	12.6%	8.0%	4.4%	0.0%	3.6%
About half (40-59%)	15.5%	25.4%	19.6%	12.1%	14.9%	13.3%	17.5%	9.6%	16.0%	1.2%	0.0%	0.9%
Most/almost all (60%-99%)	37.6%	36.5%	37.1%	27.1%	19.1%	22.9%	56.1%	60.5%	56.1%	53.5%	75.9%	57.7%
All (100%)	43.2%	27.8%	36.9%	55.5%	61.6%	58.8%	20.1%	17.3%	19.9%	41.0%	24.1%	37.8%
Total (number)	14,486	9,994	24,480	5,628	5,151	10,779	12,205	3,888	16,094	3,875	888	4,763

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.14 Presence of economic activities outside of the holding by district								
	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Holder has no economic activity outside of the holding	15,782	64.5%	7,768	72.1%	8,228	51.1%	4,143	87.0%
Holder has an economic activity outside of the holding	8,698	35.5%	3,011	27.9%	7,866	48.9%	620	13.0%
Total	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%

Table A3.15: Holdings, by whether the holder is also the manager of the holding								
	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Holder and manager of the holding								
The holder is also the manager of the holding	24,224	99.0%	10,692	99.2%	14,611	90.8%	4,458	93.6%
The holder is not the manager of the holding	256	1.0%	87	0.8%	1,483	9.2%	306	6.4%
Total	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

A3.3: Demographic characteristics of household members

Table A3.16: Agricultural Households by size category, average size and district								
	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number of households	% of total						
Average household size	4		4		5		6	
Number of household members								
1	2,897	11.8%	1,644	15.2%	2,333	14.5%	392	8.2%
2	2,053	8.4%	1,606	14.9%	850	5.3%	348	7.3%
3	3,189	13.0%	1,412	13.1%	2,318	14.4%	575	12.1%
4	4,716	19.3%	1,759	16.3%	1,653	10.3%	620	13.0%
5	3,845	15.7%	1,352	12.5%	986	6.1%	624	13.1%
6	3,482	14.2%	1,085	10.1%	3,651	22.7%	576	12.1%
7	1,990	8.1%	1,046	9.7%	1,306	8.1%	376	7.9%
8	1,574	6.4%	198	1.8%	905	5.6%	263	5.5%
9	0	0.0%	304	2.8%	605	3.8%	369	7.7%
10 or more	734	3.0%	373	3.5%	1,487	9.2%	620	13.0%
Total	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.17: Age structure of households Members by sex and district													
		District											
		Ahafo Ano South			Asante Akim North			Ejura Sekye Dumasi			Sekyere Afram Plains		
	Units	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Total members of holder households	Number of persons	53,161	56,255	109,415	20,093	24,903	44,996	42,545	39,753	82,298	13,602	13,362	26,964
	Percent of total persons by sex	48.6%	51.4%	100.0%	44.7%	55.3%	100.0%	51.7%	48.3%	100.0%	50.4%	49.6%	100.0%
Age													
0 to 4	Number of persons	11,717	7,503	19,220	2,167	1,859	4,025	5,372	2,620	7,992	2,535	2,288	4,824
	Percent of total persons by sex	22.0%	13.3%	17.6%	10.8%	7.5%	8.9%	12.6%	6.6%	9.7%	18.6%	17.1%	17.9%
5 to 9	Number of persons	8,757	9,821	18,578	2,622	4,125	6,747	5,912	4,282	10,193	2,287	2,509	4,797
	Percent of total persons by sex	16.5%	17.5%	17.0%	13.1%	16.6%	15.0%	13.9%	10.8%	12.4%	16.8%	18.8%	17.8%
10 to 14	Number of persons	6,153	7,183	13,336	3,970	3,908	7,878	4,849	5,873	10,722	2,268	1,530	3,798
	Percent of total persons by sex	11.6%	12.8%	12.2%	19.8%	15.7%	17.5%	11.4%	14.8%	13.0%	16.7%	11.4%	14.1%
15 to 65	Number of persons	24,435	29,965	54,400	9,884	13,109	22,993	25,154	25,376	50,530	6,274	6,413	12,687
	Percent of total persons by sex	46.0%	53.3%	49.7%	49.2%	52.6%	51.1%	59.1%	63.8%	61.4%	46.1%	48.0%	47.1%
65 and over	Number of persons	2,099	1,783	3,881	1,450	1,903	3,353	1,258	1,602	2,860	237	621	859
	Percent of total persons by sex	3.9%	3.2%	3.5%	7.2%	7.6%	7.5%	3.0%	4.0%	3.5%	1.7%	4.7%	3.2%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.18: Members of holder households by relationship to the head of the household, by sex and district													
		District											
		Ahafo Ano South			Asante Akim North			Ejura Sekye Dumasi			Sekyere Afram Plains		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Relationship to the head of the household													
Head of household		30.5%	15.6%	22.7%	30.9%	19.2%	24.4%	34.1%	21.3%	27.0%	33.1%	10.7%	22.2%
Spouse		0.0%	20.1%	10.5%	1.3%	20.3%	11.8%	1.4%	22.6%	13.1%	0.0%	29.9%	14.6%
Child		54.2%	50.7%	52.4%	57.5%	45.4%	50.8%	63.5%	50.3%	56.2%	60.5%	54.9%	57.8%
Parent/Parent-in-law		0.0%	0.9%	0.5%	0.0%	1.9%	1.1%	0.0%	2.2%	1.2%	2.2%	3.3%	2.7%
Son-in-law/Daughter-in-law		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grandchild		15.3%	12.7%	14.0%	9.6%	9.8%	9.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Sister/Brother		0.0%	0.0%	0.0%	0.8%	0.8%	0.8%	0.9%	0.9%	0.9%	4.2%	1.3%	2.8%
Step-child		0.0%	0.0%	0.0%	0.0%	2.5%	1.4%	0.0%	2.8%	1.5%	0.0%	0.0%	0.0%
Foster child		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other relative		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Non-relative		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total		51,588	56,255	107,842	19,814	24,608	44,422	17,916	22,185	40,101	38,495	36,506	75,001

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.19: Head of the household by age, sex and district

	Ahafo Ano South	Asante Akim North	Ejura Sekye Dumase	Sekyere Afram Plains North
Age class	% of household heads			
19 years or under	0.0%	0.0%	0.0%	1.7%
20 to 34 years	16.4%	9.5%	26.8%	27.0%
35 to 64 years	69.9%	65.7%	63.1%	59.0%
65 years or over	13.7%	24.7%	10.1%	12.3%
Total	24,480	10,779	16,094	4,763

Table A3.20: Persons over the age of 12 by marital status, sex, and district

	District											
	Ahafo Ano South			Asante Akim North			Ejura Sekye Dumasi			Sekyere Afram Plains		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Marital status												
Never married	45.6%	40.7%	42.9%	52.2%	41.4%	46.0%	61.8%	45.1%	53.4%	50.1%	29.6%	39.8%
Consensual union	5.9%	8.7%	7.5%	5.2%	5.7%	5.5%	3.3%	3.0%	3.1%	11.3%	17.1%	14.2%
Married	39.2%	32.3%	35.4%	38.9%	33.9%	36.0%	32.2%	39.2%	35.8%	35.5%	40.7%	38.1%
Separated	6.9%	5.4%	6.1%	0.3%	0.9%	0.7%	0.0%	1.2%	0.6%	1.9%	2.8%	2.4%
Divorced	0.0%	6.3%	3.5%	1.4%	6.7%	4.4%	0.0%	2.6%	1.3%	0.8%	0.0%	0.4%
Widowed	2.4%	6.5%	4.7%	2.0%	11.4%	7.4%	2.7%	8.8%	5.8%	0.5%	9.8%	5.2%
Total	28,889	35,974	64,864	13,321	17,964	31,284	29,974	30,440	60,414	7,837	7,907	15,744

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.21: Persons 3 years and older by highest level of education attained, sex and district

	District											
	Ahafo Ano South			Asante Akim North			Ejura Sekye Dumasi			Sekyere Afram Plains		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Highest level of education attained												
None	10.0%	14.8%	12.6%	5.9%	13.7%	10.3%	22.7%	30.0%	26.4%	42.7%	52.8%	47.6%
Pre-school	17.6%	12.5%	14.9%	12.2%	9.3%	10.5%	15.3%	18.9%	17.1%	24.1%	25.1%	24.6%
Primary	27.3%	26.2%	26.7%	34.0%	36.0%	35.2%	24.6%	17.7%	21.2%	16.1%	12.9%	14.5%
JSS/JHS, Middle (Standard 7)	25.8%	39.8%	33.4%	36.7%	30.9%	33.4%	17.8%	21.0%	19.4%	13.9%	8.8%	11.4%
SSS/SHS, Secondary, Voc/Tech/Comm	16.4%	5.6%	10.6%	7.9%	8.4%	8.2%	16.6%	10.8%	13.7%	2.4%	0.4%	1.5%
Diploma	2.9%	1.0%	1.9%	3.3%	1.7%	2.4%	2.9%	1.6%	2.2%	0.7%	0.0%	0.4%
Bachelor degree or higher	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	43,958	52,003	95,961	18,144	23,877	42,021	38,168	38,279	76,448	12,460	11,915	24,375

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.22: Persons 3 to 24 years by current school attendance, sex and district													
		District											
		Ahafo Ano South			Asante Akim North			Ejura Sekye Dumasi			Sekyere Afram Plains		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
School attendance during the current school year	Units												
	Number of persons	18,197	15,420	33,617	2,014	1,684	3,698	4,861	3,972	8,833	4,313	4,806	9,119
	Percent of total persons by sex	26.3%	22.0%	24.1%	16.8%	13.0%	14.8%	19.9%	17.8%	18.9%	96.2%	96.2%	96.2%
Currently attending school	Number of persons	51,018	54,571	105,589	9,974	11,302	21,276	19,551	18,292	37,843	171	188	359
	Percent of total persons by sex	73.7%	78.0%	75.9%	83.2%	87.0%	85.2%	80.1%	82.2%	81.1%	3.8%	3.8%	3.8%
Total	Number of persons	69,215	69,991	139,206	11,987	12,986	24,973	24,412	22,264	46,676	4,484	4,994	9,478
	Percent of total persons by sex	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.23: Persons 15 years of age and older by formal training in agriculture, sex and district													
		District											
		Ahafo Ano South			Asante Akim North			Ejura Sekye Dumasi			Sekyere Afram Plains		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Household member has received any formal training in agriculture	Units												
	Number of persons	17,044	19,977	37,021	10,622	14,858	25,480	26,346	26,604	52,950	5,963	6,909	12,871
	Percent of total persons by sex	64.2%	62.9%	63.5%	93.7%	99.0%	96.7%	99.8%	98.6%	99.2%	91.6%	98.2%	95.0%
Ever received formal training in agriculture	Number of persons	9,490	11,771	21,261	712	154	866	66	375	440	549	126	675
	Percent of total persons by sex	35.8%	37.1%	36.5%	6.3%	1.0%	3.3%	0.2%	1.4%	0.8%	8.4%	1.8%	5.0%
Total	Number of persons	26,534	31,748	58,282	11,334	15,012	26,346	26,412	26,979	53,390	6,511	7,035	13,546
	Percent of total persons by sex	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.24: Persons 15 years of age and older by participation in decisions concerning crops and livestock, sex and district													
		District											
		Ahafo Ano South			Asante Akim North			Ejura Sekye Dumasi			Sekyere Afram Plains		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Participation in decisions concerning crops and livestock	Units												
	Number of persons	10,068	16,318	26,385	5,040	8,051	13,092	14,240	20,810	35,050	3,431	4,079	7,510
	Percent of total persons by sex	37.9%	51.4%	45.3%	44.5%	53.6%	49.7%	53.9%	77.1%	65.6%	52.7%	58.0%	55.4%
Participation in decision making	Number of persons	16,466	15,430	31,896	6,293	6,961	13,254	12,171	6,169	18,340	3,080	2,956	6,036
	Percent of total persons by sex	62.1%	48.6%	54.7%	55.5%	46.4%	50.3%	46.1%	22.9%	34.4%	47.3%	42.0%	44.6%
Total	Number of persons	26,534	31,748	58,282	11,334	15,012	26,346	26,412	26,979	53,390	6,511	7,035	13,546
	Percent of total persons by sex	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.25: Persons 15 years of age and older, by work on the holding, sex and district													
		District											
		Ahafo Ano South			Asante Akim North			Ejura Sekye Dumasi			Sekyere Afram Plains		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Work on the holding during the reference period	Units												
	Number of persons	8,685	8,174	16,859	6,153	9,461	15,615	9,120	11,773	20,894	3,284	3,848	7,132
	Percent of total persons by sex	21.0%	16.8%	18.7%	34.3%	41.1%	38.1%	24.5%	31.7%	28.1%	29.7%	34.7%	32.2%
Worked	Number of persons	32,759	40,578	73,336	11,772	13,583	25,356	28,052	25,360	53,412	7,782	7,226	15,009
	Percent of total persons by sex	79.0%	83.2%	81.3%	65.7%	58.9%	61.9%	75.5%	68.3%	71.9%	70.3%	65.3%	67.8%
Total	Number of persons	41,444	48,752	90,196	17,926	23,045	40,970	37,172	37,133	74,306	11,067	11,074	22,141
	Percent of total persons by sex	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

A3.4: Land Area

Table A3.26: Land area by classification, Ahafo Ano South				
	Total area (acres)	% of total area	# of holdings reporting	Average area (acres)
TOTAL AREA ON HOLDINGS	304,675	100.0%	24,480	12.9
Total agricultural area	300,395	98.6%	24,480	12.6
Agricultural area (AAU) utilized	295,289	98.3%	24,480	12.3
Agricultural area unutilized	5,106	1.7%	781	6.7
Total other area	4280	1.4%	1,710	0.3

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.27: Land area by classification, Ahafo Ano South				
	Total area (acres)	% of total area	# of holdings reporting	Average area (acres)
TOTAL AREA ON HOLDINGS	304,675	100.0%	24,480	12.9
Total agricultural area	300,395	98.6%	24,480	12.6
Agricultural area (AAU) utilized	295,289	98.3%	24,480	12.3
Temporary crops	102,993	34.9%	24,224	4.7
Temporary fallow	40,543	13.7%	9,007	2.1
Temporary meadows and pastures	30	0.0%	734	0.0
Kitchen gardens and backyards	2,217	0.8%	1,981	0.1
Permanent crops	149,506	50.6%	19,116	6.5
Agricultural area unutilized	5,106	1.7%	781	6.7
Total other area	4280	1.4%	1,710	0.3
Farm buildings and farmyards	131.0886078	3.1%	524	0.3
Forest	0	0.0%	0	0.0
Other wooded land	3,266	76.3%	965	5.5
Aquaculture on the holding	0	0.0%	0	0.0
Other land	883	20.6%	221	5.5

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.28: Land area by classification, Asante Akim North				
	Total area (acres)	% of total area	# of holdings reporting	Average area (acres)
TOTAL AREA ON HOLDINGS	113,919	100.0%	10,524	11.2
Total agricultural area	113,647	99.8%	10,524	11.1
Agricultural area (AAU) utilized	110,839	97.5%	10,524	10.6
Agricultural area unutilized	2,807	2.5%	269	9.9
Total other area	272	0.2%	594	0.0

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.29: Land area by classification, Asante Akim North				
	Total area (acres)	% of total area	# of holdings reporting	Average area (acres)
TOTAL AREA ON HOLDINGS	113,919	100.0%	10,524	11.2
Total agricultural area	113,646.6	99.8%	10,524	11.1
Agricultural area (AAU) utilized	110,839.2	97.5%	10,524	10.6
Temporary crops	72,634.5	65.5%	10,219	6.9
Temporary fallow	8,355.0	7.5%	1,687	1.3
Temporary meadows and pastures	667.1	0.6%	107	0.1
Kitchen gardens and backyards	28.5	0.0%	114	0.0
Permanent crops	29,154.1	26.3%	3,931	2.8
Agricultural area unutilized	2,807.4	2.5%	269	9.9
Total other area	272	0.2%	594	0.0
Farm buildings and farmyards	150	55.2%	517	0.4
Forest	36	13.2%	36	1.0
Other wooded land	0	0.0%	0	
Aquaculture on the holding	0	0.0%	0	
Other land	86	31.5%	113	0.8

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.30: Land area by classification, Ejura Sekye Dumasi				
	Total area (acres)	% of total area	# of holdings reporting	Average area (acres)
TOTAL AREA ON HOLDINGS	218,352.6	100.0%	15,230	12.0
Total agricultural area	215,489.9	98.7%	15,230	11.9
Agricultural area (AAU) utilized	209,904.2	97.4%	15,230	11.6
Agricultural area unutilized	5,585.6	2.6%	1,291	4.3
Total other area	2,862.7	1.3%	869	0.1

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.31: Land area by classification, Ejura Sekye Dumasi				
	Total area (acres)	% of total area	# of holdings reporting	Average area (acres)
TOTAL AREA ON HOLDINGS	218,352.6	100.0%	15,230	12.0
Total agricultural area	215,489.9	98.7%	15,230	11.9
Agricultural area (AAU) utilized	209,904.2	97.4%	15,230	11.6
Temporary crops	175,150.8	83.4%	15,230	10.6
Temporary fallow	19,741.8	9.4%	4,406	1.2
Temporary meadows and pastures	0.0	0.0%	0	0.0
Kitchen gardens and backyards	148.3	0.1%	476	0.0
Permanent crops	14,863.3	7.1%	1,990	0.6
Agricultural area unutilized	5,585.6	2.6%	1,291	4.3
Total other area	2,862.7	1.3%	869	0.1
Farm buildings and farmyards	0.0	0.0%	249	0.0
Forest	0.0	0.0%	0	0.0
Other wooded land	2,862.7	100.0%	738	2.8
Aquaculture on the holding	0.0	0.0%	0	0.0
Other land	0.0	0.0%	0	0.0

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.32: Land area by classification, Sekyere Afram Plains				
	Total area (acres)	% of total area	# of holdings reporting	Average area (acres)
TOTAL AREA ON HOLDINGS	62,297	100.0%	4,302	13.8
Total agricultural area	61,494	98.7%	4,302	13.6
Agricultural area (AAU) utilized	57,278	93.1%	4,302	12.7
Agricultural area unutilized	4,216	6.9%	822	5.3
Total other area	802.8	1.3%	351	0.2

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.33: Land area by classification, Sekyere Afram Plains

	Total area (acres)	% of total area	# of holdings reporting	Average area (acres)
TOTAL AREA ON HOLDINGS	62,297.2	100.0%	4,302	13.8
Total agricultural area	61,494.4	98.7%	4,302	13.6
Agricultural area (AAU) utilized	57,278.1	93.1%	4,302	12.7
Temporary crops	50,329.0	87.9%	4,302	12.3
Temporary fallow	4,407.5	7.7%	904	1.0
Temporary meadows and pastures	0.0	0.0%	0	0.0
Kitchen gardens and backyards	253.5	0.4%	127	0.1
Permanent crops	2,288.1	4.0%	168	0.4
Agricultural area unutilized	4,216.3	6.9%	822	5.3
Total other area	802.8	1.3%	351	0.2
Farm buildings and farmyards	22.6	2.8%	45	0.5
Forest	0.0	0.0%	0	0.0
Other wooded land	780.2	97.2%	306	2.5
Aquaculture on the holding	0.0	0.0%	0	0.0
Other land	0.0	0.0%	0	0.0

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.34: Total agricultural area by size classifications and district

	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings
Holding has no agricultural	0	0.0%	255	2.4%	863	5.4%	461	9.7%
Holding has agricultural	24,480	100.0%	10,524	97.6%	15,230	94.6%	4,302	90.3%
Total	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%
	# of holdings reporting	% of holdings with agricultural area	# of holdings reporting	% of holdings with agricultural area	# of holdings reporting	% of holdings with agricultural area	# of holdings reporting	% of holdings with agricultural area
Size classification								
Under 20 acres	20,476	83.6%	9,061	86.1%	11,353	74.5%	3,279	76.2%
Between 21 and 50 acres	3,749	15.3%	1,335	12.7%	3,273	21.5%	889	20.7%
Between 51 and 100 acres	256	1.0%	128	1.2%	605	4.0%	134	3.1%
more than 100 acres	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	24,480	100.0%	10,524	100.0%	15,230	100.0%	4,302	100.0%

A3.5 Crop Production and destination

Table A3.35: Type of crops by district								
	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings
Total holdings	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%
Total holdings reporting crops	24,480	100.0%	10,524	97.6%	15,230	94.6%	4,302	90.3%
Starchy Staple								
Maize	15,102	61.7%	3,422	32.5%	14,201	93.2%	3,464	80.5%
Rice	1,515	6.2%	176	1.7%	3,387	22.2%	1,318	30.6%
Millet	0	0.0%	0	0.0%	0	0.0%	193	4.5%
Cassava	20,217	82.6%	5,754	54.7%	4,349	28.6%	2,572	59.8%
Yam	4,372	17.9%	1,026	9.7%	7,056	46.3%	2,741	63.7%
Cocoyam (root)	13,538	55.3%	3,106	29.5%	375	2.5%	318	7.4%
Sweet potato	305	1.2%		0.0%		0.0%		0.0%
Plantain	20,375	83.2%	9,027	85.8%	440	2.9%	1,682	39.1%
Pulses/legumes								
Bambara beans	524	2.1%	72	0.7%	0	0.0%	0	0.0%
Cowpeas	0	0.0%	0	0.0%	8,257	54.2%	1,348	31.3%
Groundnuts	0	0.0%	169	1.6%	5,441	35.7%	2,276	52.9%
Herbs, spices,								
Pepper (Hot)	8,866	36.2%	638	6.1%	409	2.7%	410	9.5%
Horticulture								
Pineapples	524	2.1%	0	0.0%	375	2.5%	0	0.0%
Watermelon	0	0.0%	434	4.1%	0	0.0%	0	0.0%
Vegetables								
Cabbage	1,036	4.2%	37	0.3%	0	0.0%	0	0.0%
Garden eggs	5,080	20.8%	264	2.5%	0	0.0%	193	4.5%
Okro	4,515	18.4%	353	3.4%	767	5.0%	368	8.6%
Pepper (Sweet)	256	1.0%	281	2.7%	0	0.0%	94	2.2%
Tomato	6,129	25.0%	1,059	10.1%	554	3.6%	92	2.2%
Onions	0	0.0%	273	2.6%	0	0.0%	0	0.0%
Tree crops								
Banana	2,148	8.8%	34	0.3%	0	0.0%	39	0.9%
Cashew	1,468	6.0%	85	0.8%	1,124	7.4%	0	0.0%
Cocoa	20,070	82.0%	3,938	37.4%	995	6.5%	0	0.0%
Coconut	1,868	7.6%	118	1.1%	375	2.5%	0	0.0%
Citrus	1,343	5.5%	0	0.0%	375	2.5%	0	0.0%
Oil-palm	5,838	23.8%	34	0.3%	475	3.1%	115	2.7%
Industrial								
Sugar Cane	305	1.2%	0	0.0%	245	1.6%	0	0.0%
Other crops	697	2.8%	0	0.0%	537	3.5%	282	6.5%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.36: Holdings by major crops, use of fertilizers, plant protection products and irrigation, Ahafo Ano South				
	Total # of holdings reporting crop	Fertilizers used on crop	Plant protection products used on crop	Irrigation of crop ⁽¹⁾
		% of total holding cultivating the crop	% of total holding cultivating the crop	% of total holding cultivating the crop
Holdings reporting at least one crop	24,480	12.6%	33.3%	4.7%
Cassava	20,217	0.0%	20.8%	0.0%
Cocoa	19,116	49.3%	80.1%	0.0%
Cocoyam	13,538	0.0%	7.1%	0.0%
Maize	15,102	2.9%	40.4%	1.5%
Plantain	20,375	0.0%	8.3%	0.0%
Rice	1,515	0.0%	63.0%	20.1%
Tomato	6,129	24.7%	28.9%	33.5%
Yam	4,372	0.0%	0.0%	0.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.37: Holdings by major crops, use of fertilizers, plant protection products and irrigation, Asante Akim North				
	Total # of holdings reporting crop	Fertilizers used on crop	Plant protection products used on crop	Irrigation of crop ⁽¹⁾
		% of total holding cultivating the crop	% of total holding cultivating the crop	% of total holding cultivating the crop
Holdings reporting at least one crop	10,524	16.5%	31.2%	3.1%
Cassava	5,657	2.2%	15.8%	0.0%
Cocoa	3,938	33.0%	82.5%	5.2%
Cocoyam	2,830	1.3%	6.0%	1.9%
Groundnuts	118	0.0%	0.0%	0.0%
Maize	3,422	7.7%	30.7%	1.8%
Plantain	9,027	9.3%	17.5%	0.0%
Rice	176	0.0%	0.0%	51.6%
Tomato	882	85.0%	89.1%	0.0%
Yam	900	0.0%	0.0%	0.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.37: Holdings by major crops, use of fertilizers, plant protection products and irrigation, Ejura Sekye Dumasi				
	Total # of holdings reporting crop	Fertilizers used on crop	Plant protection products used on crop	Irrigation of crop ⁽¹⁾
		% of total holding cultivating the crop	% of total holding cultivating the crop	% of total holding cultivating the crop
Holdings reporting at least one crop	15,230	43.8%	72.4%	1.9%
Cassava	4,104	0.0%	26.0%	4.1%
Cocoa	995	100.0%	100.0%	0.0%
Cocoyam	375	0.0%	0.0%	0.0%
Cowpeas	8,257	11.7%	95.0%	0.0%
Groundnuts	5,441	0.0%	72.5%	0.0%
Maize	13,956	92.6%	77.7%	0.0%
Plantain	440	0.0%	0.0%	0.0%
Rice	3,387	60.8%	93.2%	16.9%
Tomato	554	100.0%	100.0%	0.0%
Yam	7,056	0.0%	38.7%	0.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.37: Holdings by major crops, use of fertilizers, plant protection products and irrigation, Sekyere Afram Plains				
	Total # of holdings reporting crop	Fertilizers used on crop	Plant protection products used on crop	Irrigation of crop ⁽¹⁾
		% of total holding cultivating the crop	% of total holding cultivating the crop	% of total holding cultivating the crop
Holdings reporting at least one crop	4,302	6.4%	55.2%	2.2%
Cassava	2,531	3.6%	40.9%	0.0%
Cocoyam	318	0.0%	16.8%	0.0%
Cowpeas	1,251	0.0%	62.1%	0.0%
Groundnuts	2,276	1.6%	64.0%	1.8%
Maize	3,464	15.8%	74.3%	1.2%
Plantain	1,641	2.2%	51.7%	0.0%
Rice	1,318	12.2%	61.8%	12.1%
Tomato	92	48.8%	48.8%	48.8%
Yam	2,741	3.0%	42.4%	1.7%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.38: Crops, total area planted and total area harvested, Ahafo Ano South

	# of holdings reporting	Total Area planted	Total Area harvested	Total quantity harvested (excluding continuous crops)	Average Yield	Total quantity harvested (including continuous crops)
		Ha	Ha	Mt	Mt/Ha	Mt
Crop	24,480	109,865	64,978	51,600	0.9	72,253
Cassava	20,217	14,717	11,690	12,532	1.2	12,532
Cocoa	20,070	22,913	670	35	0.1	9,062
Cocoyam	13,538	7,476	6,591	1,737	0.5	1,737
Maize	15,102	20,037	17,381	9,870	0.6	9,870
Plantain	20,375	14,660	13,029	13,842	0.9	13,842
Rice	1,515	3,298	3,001	1,404	0.7	1,404
Tomato	6,129	1,754	1,544	2,112	0.9	2,647
Yam	4,372	3,937	3,875	1,648	1.0	1,648

Table A3.39: Crops, total area planted and total area harvested, Asante Akim North

	# of holdings reporting	Total Area planted	Total Area harvested	Total quantity harvested (excluding continuous crops)	Average Yield	Total quantity harvested (including continuous crops)
		Ha	Ha	Mt	Mt/Ha	Mt
Crop	10,524	34,074	27,973	241,368	4.4	243,543
Cassava	5,754	3,599	2,811	6,632	2.7	6,672
Cocoa	3,938	1,835	575	169	0.7	1,970
Cocoyam	3,106	1,435	1,119	1,483	1.9	1,548
Groundnuts	169	48	48	96	2.0	96
Maize	3,422	4,972	4,931	3,671	1.6	3,671
Plantain	9,027	18,864	15,285	218,075	8.3	218,090
Rice	176	353	353	146	0.5	146
Tomato	1,059	573	537	774	1.6	792
Yam	1,026	344	285	674	1.6	674

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.40: Crops, total area planted and total area harvested, Ejura Sekye Dumasi						
	# of holdings reporting	Total Area planted	Total Area harvested	Total quantity harvested (excluding continuous crops)	Average Yield	Total quantity harvested (including continuous crops)
		Ha	Ha	Mt	Mt/Ha	Mt
Crop	15,230	114,173	106,340	142,463	2.0	144,785
Cassava	4,349	1,585	1,076	7,109	4.1	7,109
Cocoyam	375	455	38	102	2.7	102
Cowpeas	8,257	25,274	25,274	24,696	1.0	24,696
Groundnuts	5,441	10,695	10,641	6,403	0.6	6,403
Maize	14,201	67,696	61,166	80,629	1.3	80,629
Plantain	440	165	165	646	2.7	646
Rice	3,387	3,365	3,020	1,938	1.0	1,938
Yam	7,056	4,938	4,961	20,938	5.4	20,938

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.41 : Crops, total area planted and total area harvested, Sekyere Afram Plains						
	# of holdings reporting	Total Area planted	Total Area harvested	Total quantity harvested (excluding continuous crops)	Average Yield	Total quantity harvested (including continuous crops)
		Ha	Ha	Mt	Mt/Ha	Mt
Crop	4,302	31,999	28,767	28,151	1.0	33,588
Cassava	2,572	1,710	1,535	4,300	0.7	5,203
Cocoyam	318	165	165	64	0.5	89
Cowpeas	1,348	1,358	1,233	1,009	1.3	1,031
Groundnuts	2,276	3,698	3,598	2,387	0.4	2,387
Maize	3,464	16,454	14,648	10,999	0.7	10,999
Plantain	1,682	777	662	2,002	4.0	3,608
Rice	1,318	2,215	2,127	1,080	0.5	1,080
Tomato	92	28	28	153	4.5	153
Yam	2,741	3,411	2,862	6,100	1.7	6,338

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.42: Crops, quantity, by type of use of the production of crop from all harvests, Ahafo Ano South

Crop	share of holdings reporting each crop by type of use						Share of crop production by type of use					
	Number of holdings reporting crop	own use	sold	used as pay for labour	used to pay for land rent	used to pay for inputs (other than land)	Total crop production	Share for own use	Share sold	Share used as pay for labour	Share used to pay for land rent	Share used to pay for inputs (other than land)
	quantity	Percent	Percent	Percent	Percent	Percent	quantity (mt)	Percent	Percent	Percent	Percent	Percent
Crop	24,480	55.8%	49.5%	4.0%	0.7%	0.5%	51,600	19.3%	79.8%	0.9%	0.0%	0.0%
Cassava	20,217	55.9%	25.9%	0.0%	0.0%	0.0%	12,532	25.3%	74.7%	0.0%	0.0%	0.0%
Cocoa	20,070	0.0%	65.2%	6.5%	2.0%	0.9%	35	0.0%	95.9%	4.1%	0.0%	0.0%
Cocoyam	13,538	29.1%	18.1%	0.0%	0.0%	0.0%	1,737	39.9%	60.1%	0.0%	0.0%	0.0%
Maize	15,102	91.2%	86.5%	10.9%	0.0%	0.0%	9,870	18.4%	79.8%	1.9%	0.0%	0.0%
Plantain	20,375	52.0%	39.2%	0.0%	0.0%	0.0%	13,842	20.6%	79.4%	0.0%	0.0%	0.0%
Rice	1,515	100.0%	100.0%	0.0%	0.0%	0.0%	1,404	25.6%	74.4%	0.0%	0.0%	0.0%
Tomato	6,129	100.0%	56.6%	12.5%	0.0%	0.0%	2,112	13.7%	82.2%	4.1%	0.0%	0.0%
Yam	4,372	63.9%	5.0%	0.0%	0.0%	0.0%	1,648	63.0%	37.0%	0.0%	0.0%	0.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.43: Crops, quantity, by type of use of the production of crop from all harvests, Asante Akim North

Crop	share of holdings reporting each crop by type of use						Share of crop production by type of use					
	Number of holdings reporting crop	own use	sold	used as pay for labour	used to pay for land rent	used to pay for inputs (other than land)	Total crop production	Share for own use	Share sold	Share used as pay for labour	Share used to pay for land rent	Share used to pay for inputs (other than land)
	quantity	Percent	Percent	Percent	Percent	Percent	quantity (mt)	Percent	Percent	Percent	Percent	Percent
Crop	10,524	71.2%	77.7%	3.9%	2.4%	2.3%	241,368	7.3%	92.6%	0.1%	0.0%	0.0%
Cassava	5,754	69.1%	62.2%	2.7%	1.6%	1.6%	6,632	22.6%	76.8%	0.6%	0.0%	0.0%
Cocoa	3,938	0.0%	86.6%	4.3%	0.0%	0.0%	169	0.0%	99.0%	1.0%	0.0%	0.0%
Cocoyam	3,106	65.4%	45.3%	9.0%	9.0%	9.0%	1,483	35.8%	64.2%	0.0%	0.0%	0.0%
Groundnuts	169	100.0%	100.0%	100.0%	30.2%	30.2%	96	9.1%	68.2%	22.7%	0.0%	0.0%
Maize	3,422	91.6%	89.9%	3.0%	0.0%	0.0%	3,671	18.0%	81.6%	0.3%	0.0%	0.0%
Plantain	9,027	94.5%	91.0%	0.0%	0.4%	0.0%	218,075	6.7%	93.3%	0.0%	0.0%	0.0%
Rice	176	100.0%	100.0%	0.0%	0.0%	0.0%	146	12.0%	88.0%	0.0%	0.0%	0.0%
Tomato	1,059	80.9%	77.0%	12.9%	12.9%	12.9%	774	10.1%	89.9%	0.0%	0.0%	0.0%
Yam	1,026	73.3%	26.5%	11.2%	11.2%	11.2%	674	29.1%	70.9%	0.0%	0.0%	0.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.44: Crops, quantity, by type of use of the production of crop from all harvests, Ejura Sekye Dumasi

Crop	share of holdings reporting each crop by type of use						Share of crop production by type of use					
	Number of holdings reporting crop	own use	sold	used as pay for labour	used to pay for land rent	used to pay for inputs (other than land)	Total crop production	Share for own use	Share sold	Share used as pay for labour	Share used to pay for land rent	Share used to pay for inputs (other than land)
	quantity	Percent	Percent	Percent	Percent	Percent	quantity (mt)	Percent	Percent	Percent	Percent	Percent
Crop	15,230	88.1%	86.8%	15.9%	4.7%	4.0%	142,463	14.7%	79.7%	3.3%	0.6%	1.7%
Cassava	4,349	75.5%	65.5%	7.2%	9.8%	7.2%	7,109	20.2%	79.5%	0.0%	0.2%	0.0%
Cocoyam	375	100.0%	0.0%	0.0%	0.0%	0.0%	102	100.0%	0.0%	0.0%	0.0%	0.0%
Cowpeas	8,257	94.7%	95.8%	24.3%	0.0%	1.0%	24,696	12.9%	81.0%	5.7%	0.0%	0.4%
Groundnuts	5,441	100.0%	100.0%	34.1%	0.0%	0.0%	6,403	8.4%	84.9%	6.7%	0.0%	0.0%
Maize	14,201	89.0%	89.7%	10.3%	4.8%	8.6%	80,629	11.4%	81.8%	3.0%	0.9%	2.9%
Plantain	440	100.0%	100.0%	0.0%	0.0%	0.0%	646	4.6%	95.4%	0.0%	0.0%	0.0%
Rice	3,387	79.3%	72.6%	17.4%	0.0%	0.0%	1,938	26.9%	69.0%	4.1%	0.0%	0.0%
Yam	7,056	94.8%	78.6%	8.0%	6.3%	0.0%	20,938	27.2%	70.4%	1.8%	0.6%	0.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.45: Crops, quantity, by type of use of the production of crop from all harvests, Sekyere Afram Plains

Crop	share of holdings reporting each crop by type of use						Share of crop production by type of use					
	Number of holdings reporting crop	own use	sold	used as pay for labour	used to pay for land rent	used to pay for inputs (other than land)	Total crop production	Share for own use	Share sold	Share used as pay for labour	Share used to pay for land rent	Share used to pay for inputs (other than land)
	quantity	Percent	Percent	Percent	Percent	Percent	quantity (mt)	Percent	Percent	Percent	Percent	Percent
Crop	4,302	80.1%	77.6%	20.0%	14.0%	43.6%	28,151	12%	76%	4%	1%	7%
Cassava	2,572	72.1%	63.1%	30.4%	8.8%	5.8%	4,300	20.6%	66.6%	12.1%	0.6%	0.2%
Cocoyam	318	44.0%	67.0%	0.0%	0.0%	0.0%	64	21.6%	78.4%	0.0%	0.0%	0.0%
Cowpeas	1,348	85.5%	69.4%	13.3%	9.2%	51.1%	1,009	34.4%	62.2%	0.5%	0.1%	2.8%
Groundnuts	2,276	68.1%	88.2%	19.6%	5.0%	65.9%	2,387	6.9%	77.8%	9.1%	0.1%	6.1%
Maize	3,464	89.4%	82.6%	13.6%	22.2%	56.3%	10,999	9.0%	82.5%	1.9%	1.9%	4.7%
Plantain	1,682	80.2%	94.3%	19.8%	3.4%	0.0%	2,002	10.0%	88.9%	0.8%	0.2%	0.0%
Rice	1,318	77.5%	85.8%	24.4%	24.0%	71.7%	1,080	9.4%	79.3%	4.0%	3.0%	4.3%
Tomato	92	35.2%	100.0%	35.2%	0.0%	35.2%	153	0.9%	90.8%	3.7%	0.0%	4.6%
Yam	2,741	96.1%	65.1%	22.5%	17.7%	54.2%	6,100	13.9%	59.0%	1.5%	0.5%	25.1%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.46: Total quantity sold, value of sales and unit price of crops (from all harvests), Ahafo Ano South

	Total # of holdings reporting the crop type	Holdings reporting sales of the crop type	Holdings reporting sales as a percent of all holdings reporting the crop type	Total quantity of the crop type sold	Total value of sales	Average unit price
	Number of holdings	Number of holdings	Percent	MT	GH'000 cedis	GH cedis per MT
Crop	24,480	12,126	49.5%	58,155	122,691,235	2.9
Cassava	20,217	5,245	25.9%	9,360	10,516,024	0.7
Cocoa	20,070	13,096	65.2%	8,623	63,381,821	7.0
Cocoyam	13,538	2,454	18.1%	1,044	2,070,986	1.4
Maize	15,102	13,057	86.5%	7,731	13,016,210	1.7
Plantain	20,375	7,987	39.2%	10,985	10,848,859	1.3
Rice	1,515	1,515	100.0%	1,046	3,028,776	3.2
Tomato	6,129	3,468	56.6%	2,176	5,329,896	2.6
Yam	4,372	218	5.0%	610	438,845	0.7

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.47: Total quantity sold, value of sales and unit price of crops (from all harvests), Asante Akim North

	Total # of holdings reporting harvesting the crop type	Holdings reporting sales of the crop type	Holdings reporting sales as a percent of all holdings reporting harvesting the crop type	Total quantity of the crop type sold	Total value of sales	Average unit price
	Number of holdings	Number of holdings	Percent	MT	GH'000 cedis	GH cedis per MT
Crop	10,524	8,177	77.7%	224,055	252,093,034	6.0
Cassava	5,754	3,579	62.2%	5,215	5,405,742	1.0
Cocoa	3,938	3,411	86.6%	1,946	13,608,806	7.0
Cocoyam	3,106	1,407	45.3%	994	1,175,891	1.0
Groundnuts	169	169	100.0%	65	706,668	10.8
Maize	3,422	3,075	89.9%	2,993	3,695,329	1.3
Plantain	9,027	8,215	91.0%	201,844	121,083,525	0.8
Rice	176	176	100.0%	129	433,540	3.5
Yam	1,026	272	26.5%	469	1,142,674	3.5

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.48: Total quantity sold, value of sales and unit price of crops (from all harvests), Ejura Sekye Dumasi

	Total # of holdings reporting harvesting the crop type	Holdings reporting sales of the crop type	Holdings reporting sales as a percent of all holdings reporting harvesting the crop type	Total quantity of the crop type sold	Total value of sales	Average unit price
	Number of holdings	Number of holdings	Percent	MT	GH'000 cedis	GH cedis per MT
Crop	15,230	13,223	86.8%	105,538	252,093,034	6.0
Cassava	4,104	2,690	65.5%	5,586	3,183,073	0.8
Cocoyam	375	0	0.0%	0	0	-
Cowpeas	8,257	7,911	95.8%	17,727	50,210,442	2.8
Groundnuts	5,441	5,441	100.0%	5,420	27,827,744	3.1
Maize	13,956	12,518	89.7%	59,433	77,920,331	1.2
Plantain	440	440	100.0%	616	616,129	1.0
Rice	3,387	2,458	72.6%	1,039	2,361,159	2.3
Yam	7,056	5,545	78.6%	13,922	257,869,088	1.4

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.49: Total quantity sold, value of sales and unit price of crops (from all harvests), Sekyere Afram Plains

	Total # of holdings reporting harvesting the crop type	Holdings reporting sales of the crop type	Holdings reporting sales as a percent of all holdings reporting harvesting the crop type	Total quantity of the crop type sold	Total value of sales	Average unit price
	Number of holdings	Number of holdings	Percent	MT	GH'000 cedis	GH cedis per MT
Crop	4,302	3,337	77.6%	24,018	38,558,674	1.9
Cassava	2,531	1,598	63.1%	3,365	2,085,053	0.8
Cocoyam	318	213	67.0%	48	83,272	1.7
Cowpeas	1,251	867	69.4%	628	1,324,833	2.2
Groundnuts	2,276	2,008	88.2%	1,832	6,753,687	2.9
Maize	3,464	2,863	82.6%	8,124	9,026,877	1.2
Plantain	1,641	1,548	94.3%	3,186	2,307,234	0.7
Rice	1,318	1,131	85.8%	748	2,953,237	3.7
Tomato	92	92	100.0%	139	742,722	3.4
Yam	2,741	1,785	65.1%	3,555	12,416,401	1.7

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

A3.6 Livestock

Table A3.50: Livestock and animal products by district								
	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	# of holdings	% of total	# of holdings	% of total	# of holdings	% of total	# of holdings	% of total
Total number of holdings	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%
Total number of holdings with livestock	14,027	57.3%	4,602	42.7%	12,132	75.4%	3,160	66.3%
RUMINANTS	-	-	-	-	-	-	-	-
<i>Mules or hinnies</i>	-	-	-	-	-	-	-	-
<i>Donkeys</i>	-	-	-	-	-	-	-	-
<i>Horses</i>	-	-	-	-	-	-	-	-
<i>Other equines</i>	-	-	-	-	-	-	-	-
<i>Cattle</i>	256	1.0%	182	1.7%	1,383	8.6%	458	9.6%
<i>Sheep</i>	6,289	25.7%	626	5.8%	3,398	21.1%	1,234	25.9%
<i>Goats</i>	3,368	13.8%	2,267	21.0%	6,174	38.4%	1,447	30.4%
NON RUMINANTS								
<i>Pigs</i>	709	2.9%	60	0.6%	440	2.7%	288	6.1%
<i>Rabbits & Grasscutters</i>	0	0.0%	136	1.3%	230	1.4%	0	0.0%
<i>Poultry</i>	10,268	41.9%	2,044	19.0%	9,669	60.1%	1,733	36.4%
<i>Other animals</i>		0.0%	118	1.1%		0.0%		0.0%
<i>Honeybees</i>	-	-	-	-	-	-	-	-
ANIMAL PRODUCTS								
<i>SHORN WOOL</i>	-	-	-	-	-	-	-	-
<i>PULLED WOOL</i>	-	-	-	-	-	-	-	-
<i>NON-CARDED</i>	-	-	-	-	-	-	-	-
<i>SILKWORM</i>	-	-	-	-	-	-	-	-
<i>FURS</i>	-	-	-	-	-	-	-	-
<i>ANIMAL SKINS</i>	-	-	-	-	-	-	-	-
<i>SNAILS</i>	-	-	-	-	-	-	-	-
<i>OTHER (FROGS,</i>	-	-	-	-	-	-	-	-

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.51: total number of livestock by district												
	District											
	Ahafo Ano South			Asante Akim North			Ejura Sekye Dumasi			Sekyere Afram Plains		
	Number of holdings reporting	Number of animals	Average number of animals per farm reporting	Number of holdings reporting	Number of animals	Average number of animals per farm reporting	Number of holdings reporting	Number of animals	Average number of animals per farm reporting	Number of holdings reporting	Number of animals	Average number of animals per farm reporting
Cattle	256	1,023	4	182	6,549	24	1,562	88,138	18	458	18,811	24
Dairy cows	0	0	0	45	2,547	28	741	50,173	28	163	6,600	27
Other cows	0	0	0	45	3,639	40	192	2,197	5	231	10,779	30
Cattle less than	0	0	0	45	0	0	254	16,069	19	63	1,433	9
Other cattle (bulls,	256	1,023	4	45	364	4	376	19,700	12	0	0	0
Sheep	6,289	49,637	3	667	8,101	6	3,398	46,945	6	1,234	15,210	5
Female sheep, one	2,345	22,694	4	335	5,208	8	1,452	24,140	8	630	8,765	7
Male sheep, one	2,082	10,176	2	224	1,820	4	811	6,919	4	405	2,283	2
Sheep less than	1,862	16,767	3	108	1,074	4	1,136	15,885	7	199	4,162	7
Goats	3,368	14,661	2	2,267	23,734	5	6,174	84,510	5	1,447	17,828	6
Female goats, one	1,497	9,149	3	1,207	13,281	6	2,620	42,542	6	846	8,740	6
Male goats, one	1,497	4,696	2	688	5,817	3	1,571	15,585	3	415	4,841	5
Goats less than	374	816	1	372	4,636	4	1,983	26,383	5	186	4,246	8
NON RUMINANTS												
Pigs	709	7,093	10	60	1,028	6	440	1,124	1	288	3,653	6
Piglets	709	7,093	10	20	363	6	0	0	0	30	767	9
Breeding sows	0	0	0	20	363	6	220	750	1	151	1,865	7
Other pigs (boars,	0	0	0	20	302	5	220	375	1	107	1,021	4
POULTRY	10,268	181,487	11	2,044	62,880	14	9,669	258,917	12	-	-	-
Broilers	0	0	0	0	0	0	179	0	0	-	-	-
Layers (commercial	0	0	0	76	662	7	82	0	0	-	-	-
Local cockerels	6,353	97,114	11	1,016	22,769	9	3,806	102,317	10.97142857	-	-	-
Local layers	2,860	43,138	9	900	39,229	19	4,673	120,815	13.15789474	-	-	-
Guinea fowls	85	3,834	15		0		596	31,616	15.375	-	-	-
Ducks	236	709	1	52	221	6	94	1,124	3	-	-	-
Pigeons	734	36,691	50	0	0	0	0		0	-	-	-
Other poultry	0	0	0	0	0	0	239	3,045	17	-	-	-

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.52: Livestock by herd/flock size and categories, Ahafo Ano South										
	Holdings reported livestock type				Herd size categories					
	No		Yes		1 to 9 animals		10 to 49 animals		50 or more animals	
	Number of holdings	% of total holdings	Number of holdings	% of total holdings	Number of holdings	% of holdings reporting livestock type	Number of holdings	% of holdings reporting livestock type	Number of holdings	% of holdings reporting livestock type
RUMINANTS										
<i>Cattle</i>	24,224	99.0%	256	1.0%	256	100.0%	0	0.0%	0	0.0%
<i>Sheep</i>	18,190	74.3%	6,289	25.7%	468	70.2%	158	23.8%	41	6.1%
<i>Goats</i>	21,111	86.2%	3,368	13.8%	2,017	89.0%	250	11.0%	0	0.0%
NON RUMINANTS										
<i>Pigs</i>	23,771	97.1%	709	2.9%	0	0.0%	709	100.0%	0	0.0%
<i>POULTRY</i>	14,211	58.1%	10,268	41.9%	5,628	54.8%	3,906	38.0%	734	7.1%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.53: Livestock by herd/flock size and categories Asante Akim North										
	Holdings reported livestock type				Herd size categories					
	No		Yes		1 to 9 animals		10 to 49 animals		50 or more animals	
	Number of holdings	% of total holdings	Number of holdings	% of total holdings	Number of holdings	% of holdings reporting livestock type	Number of holdings	% of holdings reporting livestock type	Number of holdings	% of holdings reporting livestock type
RUMINANTS										
<i>Cattle</i>	10,597	98.3%	182	1.7%	45	25.0%	91	50.0%	45	25.0%
<i>Sheep</i>	10,112	93.8%	667	6.2%	468	70.2%	158	23.8%	41	6.1%
<i>Goats</i>	8,512	79.0%	2,267	21.0%	2,111	93.1%	125	5.5%	32	1.4%
NON RUMINANTS										
<i>Pigs</i>	10,719	99.4%	60	0.6%	60	100.0%	0	0.0%	0	0.0%
<i>POULTRY</i>	8,735	81.0%	2,044	19.0%	824	40.3%	1,076	52.6%	145	7.1%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.54: Livestock by herd/flock size and categories Ejura Sekye Dumasi											
	Holdings reported livestock type				Herd size categories						
	No		Yes		1 to 9 animals		10 to 49 animals		50 or more animals		
	Number of holdings	% of total holdings	Number of holdings	% of total holdings	Number of holdings	% of holdings reporting livestock type	Number of holdings	% of holdings reporting livestock type	Number of holdings	% of holdings reporting livestock type	
RUMINANTS											
<i>Cattle</i>	14,531	90.3%	1,562	9.7%	328	21.0%	904	57.9%	331	21.2%	
<i>Sheep</i>	12,695	78.9%	3,398	21.1%	2,865	84.3%	533	15.7%	3,398		
<i>Goats</i>	9,920	61.6%	6,174	38.4%	5,213	84.4%	961	15.6%	0	0.0%	
NON RUMINANTS											
<i>Pigs</i>	15,653	97.3%	440	2.7%	375	100.0%	0	0.0%	0	0.0%	
<i>POULTRY</i>	6,424	39.9%	9,669	60.1%	5,478	33.2%	3,811	23.1%	7,197	43.7%	

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.55: Livestock by herd/flock size and categories Sekyere Afram Plains											
	Holdings reported livestock type				Herd size categories						
	No		Yes		1 to 9 animals		10 to 49 animals		50 or more animals		
	Number of holdings	% of total holdings	Number of holdings	% of total holdings	Number of holdings	% of holdings reporting livestock type	Number of holdings	% of holdings reporting livestock type	Number of holdings	% of holdings reporting livestock type	
RUMINANTS											
<i>Cattle</i>	4,306	90.4%	458	9.6%	107	23.3%	290	63.4%	61	13.4%	
<i>Sheep</i>	3,529	74.1%	1,234	25.9%	1,068	86.6%	166	13.4%	0	0.0%	
<i>Goats</i>	3,316	69.6%	1,447	30.4%	1,130	78.1%	317	21.9%	0	0.0%	
NON RUMINANTS											
<i>Pigs</i>	4,475	93.9%	288	6.1%	251	87.0%	38	13.0%	0	0.0%	

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.56: Holdings slaughtering livestock by location of slaughter, by District

Ahafo Ano South						
Reference period for reporting slaughter	Total # of holdings reporting the livestock type	Animals slaughtered on the holding		Animals slaughtered in a slaughterhouse		
		Holdings reporting slaughtering on the holding		Holdings reporting animals slaughtered in a slaughterhouse		
		Number of holdings	%	Number of holdings	%	
RUMINANTS						
Cattle	12 months: 17-03-01to 18-02-28	256	256	100.0%	0	0.0%
Sheep	the last 6 months of the reference period	6,289	492	7.8%	0	0.0%
Goats	the last 6 months of the reference period	3,368	682	20.2%	0	0.0%
NON RUMINANTS						
Pigs	the last 6 months of the reference period	709	0	0.0%	0	0.0%
Poultry	the last 3 months of the reference period	10,268	6,680	65.0%	0	0.0%
Asante Akim North						
Reference period for reporting slaughter	Total # of holdings reporting the livestock type	Animals slaughtered on the holding		Animals slaughtered in a slaughterhouse		
		Holdings reporting slaughtering on the holding		Holdings reporting animals slaughtered in a slaughterhouse		
		Number of holdings	%	Number of holdings	%	
RUMINANTS						
Cattle	12 months: 17-03-01to 18-02-28	182	45	25.0%	0	0.0%
Sheep	the last 6 months of the reference period	667	0	0.0%	0	0.0%
Goats	the last 6 months of the reference period	2,267	410	18.1%	0	0.0%
NON RUMINANTS						
Pigs	the last 6 months of the reference period	60	0	0.0%	0	0.0%
Poultry	the last 3 months of the reference period	2,044	727	35.5%	36	1.8%
Ejura Sekye Dumasi						
Reference period for reporting slaughter	Total # of holdings reporting the livestock type	Animals slaughtered on the holding		Animals slaughtered in a slaughterhouse		
		Holdings reporting slaughtering on the holding		Holdings reporting animals slaughtered in a slaughterhouse		
		Number of holdings	%	Number of holdings	%	
RUMINANTS						
Cattle	12 months: 17-03-01to 18-02-28	1,562	78	5.0%	0	0.0%
Sheep	the last 6 months of the reference period	3,398	481	14.2%	0	0.0%
Goats	the last 6 months of the reference period	6,174	832	13.5%	0	0.0%
NON RUMINANTS						
Pigs	the last 6 months of the reference period	440	0	0.0%	0	0.0%
Poultry	the last 3 months of the reference period	9,669	4,426	45.8%	0	0.0%
Sekyerere Afram Plains						
Reference period for reporting slaughter	Total # of holdings reporting the livestock type	Animals slaughtered on the holding		Animals slaughtered in a slaughterhouse		
		Holdings reporting slaughtering on the holding		Holdings reporting animals slaughtered in a slaughterhouse		
		Number of holdings	%	Number of holdings	%	
RUMINANTS						
Cattle	12 months: 17-03-01to 18-02-28	458	84	18.3%	0	0.0%
Sheep	the last 6 months of the reference period	1,234	105	8.5%	0	0.0%
Goats	the last 6 months of the reference period	1,447	69	4.7%	24	1.6%
NON RUMINANTS						
Pigs	the last 6 months of the reference period	288	44	15.4%	0	0.0%
Poultry	the last 3 months of the reference period	-	-	-	-	-

A3.7 Labour on the Agricultural Holding

Table A3.57: Persons 15 years of age and older, by work on the holding, sex and district													
		District											
		Ahafo Ano South			Asante Akim North			Ejura Sekye Dumasi			Sekyere Afram Plains		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
	Units												
Did not work	Number of persons	15,943	13,630	29,574	11,259	21,086	32,344	13,280	29,830	43,110	5,825	8,302	14,127
	Percent of total persons by sex	11.5%	8.2%	9.7%	18.6%	27.9%	23.8%	8.3%	16.4%	12.6%	13.2%	16.4%	14.9%
Worked	Number of persons	122,214	151,725	273,940	49,182	54,479	103,661	147,279	151,850	299,128	38,452	42,306	80,759
	Percent of total persons by sex	88.5%	91.8%	90.3%	81.4%	72.1%	76.2%	91.7%	83.6%	87.4%	86.8%	83.6%	85.1%
Total	Number of persons	138,158	165,355	303,513	60,441	75,565	136,006	160,559	181,680	342,238	44,278	50,608	94,886
	Percent of total persons by sex	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.58: Household members aged 15 or older, by sex, main task on the holding and hours and days worked and season, Ahafo Ano South					
		Main season		Minor season	
		Number of household members	% of total	Number of household members	% of total
Sex of household members	Main task on the holding for those who worked on the holding				
Male	Crop cultivation (all crops, including horticulture crops)	117,679	96.3%	112,779	92.3%
	Raising livestock	0	0.0%	0	0.0%
	Non-agricultural activities related to the holding	4,535	3.7%	9,436	7.7%
	Total	122,214	100.0%	122,214	100.0%
Female	Crop cultivation (all crops, including horticulture crops)	144,721	95.4%	142,932	94.2%
	Raising livestock	0	0.0%	1,789	1.2%
	Non-agricultural activities related to the holding	7,004	4.6%	7,004	4.6%
	Total	151,725	100.0%	151,725	100.0%
Total	Crop cultivation (all crops, including horticulture crops)	262,400	95.8%	255,711	93.3%
	Raising livestock	0	0.0%	1,789	0.7%
	Non-agricultural activities related to the holding	11,539	4.2%	16,439	6.0%
	Total	273,940	100.0%	273,940	100.0%
		Time units		Time units	
		Hours ⁽²⁾	Days ⁽³⁾	Hours ⁽²⁾	Days ⁽³⁾
Sex of household members	Time units worked on the holding for those who worked on the holding				
Male	Total time units worked during the season	50,553,683	6,319,210	27,341,138	3,417,642
	Number of household members reporting	122,214	122,214	122,214	122,214
	Average time units worked during the season	514.3	64.3	335.8	42.0
Female	Total time units worked during the season	48,575,353	6,071,919	25,275,479	3,159,435
	Number of household members reporting	151,725	151,725	151,725	151,725
	Average time units worked during the season	344.3	43.0	177.5	22.2
Total	Total time units worked during the season	99,129,037	12,391,130	52,616,616	6,577,077
	Number of household members reporting	273,940	273,940	273,940	273,940
	Average time units worked during the season	426.3	53.3	252.4	31.6

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.59: Household members aged 15 or older, by sex, main task on the holding and hours and days worked and season, Asante Akim North

		Main season		Minor season	
		Number of household members	% of total	Number of household members	% of total
Sex of household members	Main task on the holding for those who worked on the holding				
Male	Crop cultivation (all crops, including horticulture crops)	47,791	99.9%	44,300	99.2%
	Raising livestock	68	0.1%	341	0.8%
	Non-agricultural activities related to the holding	0	0.0%	0	0.0%
	Total	47,858	100.0%	44,641	100.0%
Female	Crop cultivation (all crops, including horticulture crops)	52,906	98.2%	48,310	99.7%
	Raising livestock	674	1.3%	128	0.3%
	Non-agricultural activities related to the holding	302	0.6%	0	0.0%
	Total	53,882	100.0%	48,438	100.0%
Total	Crop cultivation (all crops, including horticulture crops)	100,696	99.0%	92,610	99.5%
	Raising livestock	742	0.7%	469	0.5%
	Non-agricultural activities related to the holding	302	0.3%	0	0.0%
	Total	101,741	100.0%	93,079	100.0%
		Time units		Time units	
		Hours ⁽²⁾	Days ⁽³⁾	Hours ⁽²⁾	Days ⁽³⁾
Sex of household members	Time units worked on the holding for those who worked on the holding				
Male	Total time units worked during the season	24,381,545	3,047,693	13,714,184	1,714,273
	Number of household members reporting	49,182	49,182	49,182	49,182
	Average time units worked during the season	503.0	62.9	303.0	37.9
Female	Total time units worked during the season	22,898,228	2,862,278	13,196,630	1,649,579
	Number of household members reporting	54,479	54,479	54,479	54,479
	Average time units worked during the season	427.0	53.4	276.9	34.6
Total	Total time units worked during the season	47,279,773	5,909,972	26,910,814	3,363,852
	Number of household members reporting	103,661	103,661	103,661	103,661
	Average time units worked during the season	462.9	57.9	289.1	36.1

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.60: Household members aged 15 or older, by sex, main task on the holding and hours and days worked and season, Sekyere Afram Plains

		Main season		Minor season	
		Number of household members	% of total	Number of household members	% of total
Sex of household members	Main task on the holding for those who worked on the holding				
Male	Crop cultivation	35,236	91.6%	34,656	90.1%
	Raising livestock	2,815	7.3%	2,003	5.2%
	Non-agricultural activities related to the holding	401	1.0%	1,794	4.7%
	Total	38,452	100.0%	38,452	100.0%
Female	Crop cultivation	41,316	97.7%	39,551	93.5%
	Raising livestock	0	0.0%	0	0.0%
	Non-agricultural activities related to the holding	990	2.3%	2,755	6.5%
	Total	42,306	100.0%	42,306	100.0%
Total	Crop cultivation	76,552	94.8%	74,207	91.9%
	Raising livestock	2,815	3.5%	2,003	2.5%
	Non-agricultural activities related to the holding	1,392	1.7%	4,549	5.6%
	Total	80,759	100.0%	80,759	100.0%
		Time units		Time units	
		Hours ⁽²⁾	Days ⁽³⁾	Hours ⁽²⁾	Days ⁽³⁾
Sex of household members	Time units worked on the holding for those who worked on the holding				
Male	Total time units worked during the season	29,035,275	3,629,409	25,539,842	3,192,480
	Number of household members reporting	38,452	38,452	38,452	38,452
	Average time units worked during the season	754.1	94.3	683.0	85.4
Female	Total time units worked during the season	28,905,559	3,613,195	24,562,523	3,070,315
	Number of household members reporting	42,306	42,306	42,306	42,306
	Average time units worked during the season	661.7	82.7	581.0	72.6
Total	Total time units worked during the season	57,940,834	7,242,604	50,102,365	6,262,795.6
	Number of household members reporting	80,759	80,759	80,759	80,759
	Average time units worked during the season	707.9	88.5	632.2	79.0

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

TableA3.61: Household members aged 15 or older who worked on the holding, by sex, payment received and district							
		Ahafo Ano South		Asante Akim North		Sekyere Afram Plains	
		Number of household members	% of total	Number of household members	% of total	Number of household members	% of total
Male	Did not receive a payment	122,214	100.0%	48,674	99.0%	36,603	95.2%
	Received a payment	0	0.0%	508	1.0%	1,849	4.8%
	Total	122,214	100.0%	49,182	100.0%	38,452	100.0%
Female	Did not receive a payment	151,725	100.0%	53,647	98.5%	42,306	100.0%
	Received a payment	0	0.0%	833	1.5%	0	0.0%
	Total	151,725	100.0%	54,479	100.0%	42,306	100.0%
Total	Did not receive a payment	273,940	100.0%	102,321	98.7%	78,909	97.7%
	Received a payment	0	0.0%	1,341	1.3%	1,849	2.3%
	Total	273,940	100.0%	103,661	100.0%	80,759	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.62: Holdings, by use of paid or unpaid external workers and district						
	Ahafo Ano South		Asante Akim North		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
External workers of the holding						
The holding does not have external workers	442	1.8%	1,489	13.8%	764	16.0%
The holding has external workers	24,038	98.2%	9,290	86.2%	3,999	84.0%
Total	24,480	100.0%	10,779	100.0%	4,763	100.0%
	Number of holdings	% of households with external workers	Number of holdings	% of households with	Number of holdings	% of households with
Type of external workers⁽¹⁾						
External managers (non-household members)	0	0.0%	60	0.6%	0	0.0%
External, paid, long-term employees (non-	152	0.6%	256	2.7%	122	3.0%
External, paid, temporary workers (non-	0	0.0%	442	4.7%	99	2.4%
External, paid casual workers (by day) (non-	20,942	87.1%	8,565	91.9%	3,661	90.3%
Unpaid external workers (mutual helpers, unpaid	2,944	12.2%	0	0.0%	171	4.2%
Total	48,077	100.0%	9,324	100.0%	4,053	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.63: Holdings, by shortage of workers during peak periods and district						
	District					
	Ahafo Ano South		Asante Akim North		Sekyere Afram Plains	
	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Holding experienced a shortage of workers						
No shortage of workers	17,446	71.3%	7,065	76.0%	3,146	66.1%
Shortage of workers	7,034	28.7%	2,225	24.0%	1,617	33.9%
Total	24,480	100.0%	9,290	100.0%	4,763	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

A3.8 Economy

Table A3.64: Sources of income for agricultural holdings in the household sector by average income obtained and average household size, Sekyere Afram Plains				
	holdings		Average income obtained	Average household size
	number	percentage	GH cedis	Number of people
Total holdings in the District	4,763	100.0%		6
Source of Income				
Crop sales	4,128	86.7%	6,730	6
Livestock and livestock product sales	1,188	24.9%	1,492	6
Aquaculture sales	-	0.0%	na	na
Sales of forestry products	491	10.3%	1,980	4
Sales of on-farm processing products	82	1.7%	300	7
Other sources of income directly related to	4,763	100.0%	50	6
Other diversification activities	2,630	55.2%	2,847	6
Cash transfers	353	7.4%	513	6
Activities not related to the agricultural	576	12.1%	268	4
Average, District level			8,568	

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.65: Expenditures for agricultural holdings in the household sector by average expenditure and average household size, Sekyere Afram Plains				
	holdings		Average expense	Average household size
	number	percent	GH cedis	
Total holdings in the District	4,763	100.0%		6
Expenditure type				
Expenses for resource inputs	1,383	29.0%	122	5
Expenses for inputs and services for crop	4,128	86.7%	2,488	6
Expenses for inputs and services for	2,223	46.7%	266	6
Expenses for other inputs	1,398	29.3%	243	6
Insurance	-	0.0%	-	na
Taxes and licenses	3,326	69.8%	169	6
Average, District level			2,872	

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.66: Cash expenses of agricultural holdings, Sekyere Afram Plains

	Holdings		Total amount paid (Cash payments)	Average amount paid per holding reporting (Cash payments)	Amount paid for the input as a percent of the sum of all cash expenses reported
	number	percentage	GH cedis	GH cedis	% of total expenses reported
Resource inputs	1,383	29.8%	525,358	122	3.2%
Rent paid for land and buildings (including	953	20.5%	482,357	113	2.9%
Total expenditure for water	293	6.3%	15,092	3	0.1%
Fuel and lubricants (diesel, gasoline, oil,	140	3.0%	23,578	5	0.1%
Electricity	0	0.0%	0	0	0.0%
Other	45	1.0%	4,331	1	0.0%
Crop-related inputs	4,128	88.9%	12,033,544	2,488	72.3%
Seeds, seedlings and plants	4302	92.7%	3,762,400	887	22.6%
Fertilizer and lime	875	18.8%	1,662,393	417	10.0%
Plant protection products (PPPs)	3635	78.3%	4,247,630	980	25.5%
Crop-related contracts and services	605	13.0%	2,361,121	528	14.2%
Livestock-related inputs	2,223	47.9%	651,427	266	3.9%
Feed, supplements and hay	159	3.4%	53,775	19	0.3%
Veterinary services and drugs	1448	31.2%	363,928	212	2.2%
Semen and breeding fees	45	1.0%	2,729	60	0.0%
Livestock purchases	571	12.3%	230,996	106	1.4%
Contracts and services related to livestock	0	0.0%	0	0	0.0%
Other livestock inputs	0	0.0%	0	0	0.0%
Other inputs	1,398	30.1%	1,013,208	243	6.1%
Repairs and maintenance to farm	0	0.0%	0	0	0.0%
Rental and leasing of farm machinery,	657	14.2%	890,817	216	5.4%
Repairs and maintenance to farm buildings	0	0.0%	0	0	0.0%
Training and education to improve the	0	0.0%	0	0	0.0%
Other	737	15.9%	107,417	23	0.6%
Taxes and licenses paid	3,326	71.7%	847,875	169	5.1%
Community and town development levy	1,844	39.7%	250,296	49	1.5%
Market toll/levy	1,898	40.9%	166,814	37	1.0%
Other taxes	586	12.6%	430,765	83	2.6%
Interest paid	725	15.6%	1,579,185	358	9.5%
Interest paid on agricultural loans	725	15.6%	1,579,185	358	9.5%
Total of the expenses reported above	4641	100.0%	16650597	3756	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.67: Loans (cash loans repaid, cash loans obtained and in-kind loans) and grants for holdings by average value and average household size, Sekyere Afram Plains						
	Reference period	holdings		total value	average	Average household size
		number	percentage	GH cedis	GH cedis	
Total holdings in the District		4,763	100.0%			6
Loans repaid	The fiscal (calendar) year - 1 January to 31 December 2017					
Cash loans repaid		725	15.2%	1,579,185	358.1	5
Loans obtained						
Cash loans obtained during the reference		895	18.8%	902,553	214.0	6
In-kind loans obtained during the		174	3.7%	102,710	23.8	5
Total loans obtained, District level		1,070	22.5%	1,005,263	237.8	6

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.68: Most important commercial network used for selling agricultural products, Sekyere Afram Plains		
	# of holdings	% of total holdings
Total number of holdings	4,763	100.0%
Most important commercial network used	4,302	
Wholesale and retail market	122	2.8%
Farmers' markets	2,064	48.0%
Farm-gate sales, stands, kiosks	1,839	42.7%
Delivered to customers' homes	94	2.2%
Production/marketing contracts	92	2.1%
Other	90	2.1%
Most important commercial network used	3,324	
Wholesale and retail market	122	3.7%
Farmers' markets	1,601	48.2%
Farm-gate sales, stands, kiosks	1,352	40.7%
Delivered to customers' homes	61	1.8%
Production/marketing contracts	105	3.2%
Other	82	2.5%
Most important commercial network used		
Wholesale and retail market	0	0.0%
Farmers' markets	0	0.0%
Farm-gate sales, stands, kiosks	0	0.0%
Delivered to customers' homes	0	0.0%
Production/marketing contracts	0	0.0%
Other	53	1.1%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.69: Holdings time to reach the market by frequency of trips to market in the past 12 months, Sekyere Afram Plains

	# of holdings	% of total holdings
CROPS		
Length of time to reach the market where most of the crop production of the holding is sold (only for holdings producing crops)		
Under 30 minutes	1,417	32.9%
30 to 59 minutes	1,613	37.5%
1 to 2 hours	519	12.1%
More than 2 hours	753	17.5%
Total	4,302	100.0%
Frequency (in the 12 months prior to the reference period) of trips to the market to sell the crop production of the holding (only for holdings producing crops)		
Daily	144	3.3%
Weekly	1,237	28.7%
Every two weeks	1,195	27.8%
Monthly	691	16.1%
Occasionally or less frequently than	1,035	24.1%
Total	4,302	100.0%
LIVESTOCK AND ANIMAL PRODUCTS		
Length of time to reach the market where most of the livestock and animal products produced by the holding is sold (only holdings raising livestock)		
Under 30 minutes	1,018	30.2%
30 to 59 minutes	1,358	40.2%
1 to 2 hours	424	12.6%
More than 2 hours	576	17.1%
Total	3,377	100.0%
Frequency (in the 12 months prior to the reference period) of trips to the market to sell the livestock and animal products produced by the holding (only for holdings raising livestock)		
Daily	99	2.9%
Weekly	1,040	30.8%
Every two weeks	743	22.0%
Monthly	474	14.0%
Occasionally or less frequently than	560	16.6%
Total	3,377	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.70: Holdings, ability to store agricultural products, and main reason for storing agricultural products, Sekyere

	# of holdings	% of total holdings
Ability of holding to store agricultural		
Inability of holding to store agricultural	2,246	47.1%
Ability of holding to store agricultural	2,518	52.9%
Total	4,763	100.0%
	# of holdings	% of holdings who have the ability to store agricultural products
Main reason for storing agricultural	2,518	100.0%
To wait for better market conditions	925	36.7%
To keep it for own consumption	394	15.6%
For further sale when needed	1,199	47.6%
Other	0	0.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.72: Production and household shocks by severity, Ahafo Ano South

	Holdings reporting severe shocks hitting the holding or household	
	Number of holdings	% of holdings reporting shocks
Holdings reporting any severe shock hitting the	9,323	100.0%
Production shocks		
Drought or erratic rains	6,404	68.7%
Floods	476	5.1%
Landslides	0	0.0%
Fire	1,014	10.9%
Extreme temperatures (too hot or too cold)	1,454	15.6%
Unusually high level of crop pests, weeds	1,291	13.9%
Unusually high level of livestock diseases	0	0.0%
Unusually low prices for agricultural output	0	0.0%
Unusually high prices for agricultural inputs	0	0.0%
Theft of agricultural assets, outputs, money or	0	0.0%
Destruction by rampaging herds	0	0.0%
Other	0	0.0%
Household shocks		
Unusually high food prices	0	0.0%
Reduction in the earnings of salaried household	0	0.0%
Serious illness or accident or death of household	256	2.7%
Break-up of household	0	0.0%
Conflict or violence	0	0.0%
Other	955	10.2%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.73: Production and household shocks by main responses to shocks, Ahafo Ano South												
	Holding's main response to shocks											
	Sold land and/or buildings	Sold crops and/or livestock	Sold holding's other assets	Found other work, not on the holding	Received help from the government	Received help from NGOs or other organizations	Reduced expenses for the holding	Received help from relatives	Reduced expenses for the household	Asked for a loan	Other	None
	Number of holdings reporting											
Production shocks												
Drought or erratic rains	0	0	0	0	0	0	221	0	221	0	0	5,963
Floods	0	221	0	0	0	0	0	0	0	0	256	0
Fire	0	0	0	0	0	0	0	0	709	0	0	305
Extreme temperatures (too hot or too cold)	0	0	0	0	0	0	0	0	0	0	0	1,454
Unusually high level of crop pests, weeds	0	0	0	0	511	0	0	0	0	0	524	256
Household shocks												
Serious illness or accident or death of household	0	0	0	0	0	0	256	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	955

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.74: Production and household shocks by severity, Asante Akim North

	Holdings reporting severe shocks hitting the holding or household	
	Number of holdings	% of holdings reporting shocks
Holdings reporting any severe shock hitting the	1409	100.0%
Production shocks		
Drought or erratic rains	34	2.4%
Floods	85	6.1%
Landslides	0	0.0%
Fire	370	26.3%
Extreme temperatures (too hot or too cold)	0	0.0%
Unusually high level of crop pests, weeds	198	14.1%
Unusually high level of livestock diseases	242	17.2%
Unusually low prices for agricultural output	41	2.9%
Unusually high prices for agricultural inputs	0	0.0%
Theft of agricultural assets, outputs, money or	171	12.1%
Destruction by rampaging herds	248	17.6%
Other	37	2.6%
Household shocks		
Unusually high food prices	0	0.0%
Reduction in the earnings of salaried household	0	0.0%
Serious illness or accident or death of household	161	11.4%
Break-up of household	0	0.0%
Conflict or violence	0	0.0%
Other	91	6.5%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.75: Production and household shocks by main responses to shocks, Asante Akim North

	Holding's main response to shocks											
	Sold land and/or buildings	Sold crops and/or livestock	Sold holding's other assets	Found other work, not on the holding	Received help from the government	Received help from NGOs or other organizations	Reduced expenses for the holding	Received help from relatives	Reduced expenses for the household	Asked for a loan	Other	None
	Number of holdings reporting											
Production shocks												
Drought or erratic rains	0	0	0	0	0	0	0	0	0	0	0	34
Floods	0	0	0	0	0	0	0	0	85	0	0	0
Fire	60	0	0	0	0	0	51	0	0	85	0	174
Unusually high level of crop pests, weeds	0	0	0	0	0	0	0	41	0	73	0	85
Unusually high level of livestock diseases	0	0	0	0	0	0	209	0	0	0	0	34
Unusually low prices for agricultural output	0	0	0	0	0	0	0	0	0	0	0	41
Theft of agricultural assets, outputs, money or	0	0	0	0	0	0	85	0	85	0	0	0
Destruction by rampaging herds	0	0	0	0	0	0	0	36	0	176	0	36
Other	0	0	0	0	0	0	0	0	0	0	0	37
Household shocks												
Serious illness or accident or death of household	0	0	0	0	0	0	0	124	0	37	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	91

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.76: Production and household shocks by severity, Ejura Sekye Dumasi		
	Holdings reporting severe shocks hitting the holding or household	
	Number of holdings	% of holdings reporting shocks
Holdings reporting any severe shock hitting the	11973	100.0%
Production shocks		
Drought or erratic rains	1,094	9.1%
Floods	245	2.0%
Landslides	0	0.0%
Fire	492	4.1%
Extreme temperatures (too hot or too cold)	0	0.0%
Unusually high level of crop pests, weeds	9,445	78.9%
Unusually high level of livestock diseases	0	0.0%
Unusually low prices for agricultural output	179	1.5%
Unusually high prices for agricultural inputs	0	0.0%
Theft of agricultural assets, outputs, money or	491	4.1%
Destruction by rampaging herds	1,781	14.9%
Other	0	0.0%
Household shocks		
Unusually high food prices	0	0.0%
Reduction in the earnings of salaried household	0	0.0%
Serious illness or accident or death of household	0	0.0%
Break-up of household	0	0.0%
Conflict or violence	0	0.0%
Other	0	0.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.77: Production and household shocks by main responses to shocks, Ejura Sekye Dumasi

	Holding's main response to shocks											
	Sold land and/or buildings	Sold crops and/or livestock	Sold holding's other assets	Found other work, not on the holding	Received help from the government	Received help from NGOs or other organizations	Reduced expenses for the holding	Received help from relatives	Reduced expenses for the household	Asked for a loan	Other	None
Production shocks	Number of holdings reporting											
Drought or erratic rains	0	131	0	0	0	0	0	179	784	0	0	0
Floods	0	0	0	0	0	0	0	0	0	0	0	245
Fire	0	117	0	0	0	0	0	0	0	375	0	0
Unusually high level of crop pests, weeds	0	429	0	0	4,066	0	1,163	179	2,451	750	230	179
Unusually low prices for agricultural output	0	0	0	0	0	0	0	179	0	0	0	0
Theft of agricultural assets, outputs, money or	0	0	245	0	0	0	0	0	0	0	0	245
Destruction by rampaging herds	0	454	0	0	0	0	183	0	1,144	0	0	0

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.79: Production and household shocks by main responses to shocks, Sekyere Afram Plains												
	Holding's main response to shocks											
	Sold land and/or buildings	Sold crops and/or livestock	Sold holding's other assets	Found other work, not on the holding	Received help from the government	Received help from NGOs or other organizations	Reduced expenses for the holding	Received help from relatives	Reduced expenses for the household	Asked for a loan	Other	None
	Number of holdings reporting											
Production shocks												
Drought or erratic rains	0	47	0	0	0	0	23	0	461	55	41	706
Floods	0	32	0	0	0	0	0	0	0	0	0	190
Fire	0	23	0	0	0	0	0	0	0	0	41	358
Extreme temperatures (too hot or too cold)	0	23	0	0	0	0	18	0	41	0	0	41
Unusually high level of crop pests, weeds	0	116	0	0	0	0	0	0	0	36	0	248
Unusually high level of livestock diseases	0	0	0	0	0	0	0	0	0	0	0	92
Theft of agricultural assets, outputs, money or	0	0	0	0	0	0	0	0	0	0	0	81
Destruction by rampaging herds	0	0	0	0	0	0	0	0	0	0	0	204
Household shocks												
Other	0	0	0	0	0	0	0	0	0	0	0	53

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.80: Percentage of household's income accounted from agricultural activities by district

	District							
	Ahafo Ano South		Ejura Sekye Dumasi		Sekyere Afram Plains		Total	
	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings
Total number of	24,480	100.0%	16,094	100.0%	4,763	100.0%	45,337	100.0%
None/close to 0	0	0.0%	245	1.5%	106	2.2%	352	0.8%
Less than half (10%-	0	0.0%	358	2.2%	142	3.0%	500	1.1%
About half (40% to	1,784	7.3%	1,323	8.2%	47	1.0%	3,154	7.0%
Most/almost all	10,004	40.9%	9,982	62.0%	1,799	37.8%	21,784	48.0%
All (100%)	12,692	51.8%	4,185	26.0%	2,669	56.0%	19,546	43.1%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.81: Main sources of agricultural information by district								
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumase		Sekyere Afram Plain	
	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings
Total number of holdings	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%
Main information sources								
Government or other public	4,322	17.7%	2,649	24.6%	5,795	34.8%	3,105	71.9%
Other individual farmers	19,560	80.3%	7,092	65.8%	9,155	54.9%	140	3.2%
Farmers' groups or	0	0.0%	191	1.8%	117	0.7%	0	0.0%
Non-governmental	0	0.0%	34	0.3%	0	0.0%	0	0.0%
Trader or market stakeholder	488	2.0%	107	1.0%	0	0.0%	45	1.0%
None of the above	110	0.0%	706	6.6%	1,026	6.2%	1,473	23.8%
How information was								
Direct discussion	21,310	87.4%	10,073	100.0%	15,067	100.0%	3,038	70.4%
Telephone (including calls)	0	0.0%	0	0.0%	0	0.0%	131	3.0%
Radio	2,901	11.9%	0	0.0%	0	0.0%	2,641	61.2%
Television	159	0.7%	0	0.0%	0	0.0%	0	0.0%
Internet	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Press	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018								
* Percentages for Sekyere Afram Plains do not have to sum up to 100. Indeed, in this districts, holdings were allowed to report more than one source of information								

Table A3.82: Type of association, bank account by district								
	District							
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings	# of holdings reporting	% of total holdings
Total number of holdings	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%
Participation in a farmer-based organization (FBO) or water users association (WUA)								
No	21,475	87.7%	9,930	92.1%	15,243	94.7%	4,544	95.4%
Yes	3,005	12.3%	849	7.9%	850	5.3%	220	4.6%
Participation in a commercial or producer cooperative								
No	23,210	94.8%	10,382	96.3%	15,500	96.3%	4,454	93.5%
Yes	1,269	5.2%	398	3.7%	593	3.7%	309	6.5%
Holding has a bank account								
No	18,441	75.3%	7,342	68.1%	12,124	75.3%	3,224	67.7%
Yes	6,038	24.7%	3,437	31.9%	3,970	24.7%	1,539	32.3%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

A3.9 Household assets of the agricultural holding

Table A3.83: Type of households dwelling by tenure, Asante Akim North										
Total number of households	Households of holders		Tenure of the holder dwelling							
	Number	% of total	Owned		Rented		Used for free		Used under another	
			Number of households	% of total	Number of households	% of total	Number of households	% of total	Number of households	% of total
	10,779	100.0%	3,957	36.7%	1,609	14.9%	5,213	48.4%	-	0.0%
Type of dwelling										
Separate house	1,652	15.3%								
Semi-detached house	203	1.9%								
Flat or apartment in an apartment block	222	2.1%								
Compound house (rooms)	8,107	75.2%								
Huts/buildings (same compound)	525	4.9%								
Huts/buildings (different compounds)	36	0.3%								
Improvised home (kiosk, container)	34	0.3%								
Living quarters attached to office/shop	-	0.0%								
Uncompleted building	-	0.0%								
Other	-	0.0%								

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.84: Main material used for the exterior walls of dwellings, Asante Akim North		
	Households of holders	
	number	% of total
Main material used for the exterior walls of the dwelling		
Cane/palm/trunks	0	0.0%
Earth/mud/mud bricks	673	6.2%
Bamboo with mud	0	0.0%
Stone with mud	406	3.8%
Plywood	0	0.0%
Cardboard	0	0.0%
Cement	9,037	83.8%
Stone with lime/cement	41	0.4%
Bricks	244	2.3%
Cement blocks	345	3.2%
Wood planks	34	0.3%
Slates/asbestos	0	0.0%
Other	0	0.0%
Total	10,779	100.0%
Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018		

Table A3.85: Main material used for the roof of dwellings, Asante Akim North

	Households of holders	
	number	% of total
Main material used for the roof of the dwelling		
Thatch/palm leaf/rafia	51	0.5%
Rustic mat	0	0.0%
Palm/bamboo	36	0.3%
Wood planks	0	0.0%
Cardboard/polythene sheet	126	1.2%
Mud/mud brick/earth	0	0.0%
Metal/tin/corrugated iron sheet	10,144	94.1%
Wood planks	0	0.0%
Calamine/cement fibre	0	0.0%
Ceramic tiles	0	0.0%
Cement	37	0.3%
Roofing shingles	-	0.0%
Slate/asbestos	385	3.6%
Other	-	0.0%
Total	10,779	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.86: Main material used for the floor of dwellings, Asante Akim North

	Households of holders	
	number	% of total
Main material used for the floor of the dwelling		
Earth/sand	36	0.3%
Dung	0	0.0%
Wood planks	34	0.3%
Palm/bamboo	0	0.0%
Stone	0	0.0%
Parquet or polished wood	0	0.0%
Vinyl or asphalt strips	0	0.0%
Ceramic tiles	163	1.5%
Cement	10,446	96.9%
Carpet	101	0.9%
Terrazzo	0	0.0%
Other	0	0.0%
Total	10,779	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.87: Type of toilet facility used by households, Asante Akim North

	Households of holders	
	number	% of total
Type of toilet facility		
Flush or pour-flush toilet	355	3.3%
Pit latrine	10,209	94.7%
Composting toilet	-	0.0%
Bucket	-	0.0%
Hanging toilet or hanging latrine	51	0.5%
No facilities, or bush or field	164	1.5%
Other	-	0.0%
Total	10,779	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.88: Holder households and members of holder households, by main source of drinking water for the household, Asante Akim North, 2018

	Households of holders	
	number	% of total
Main source of drinking water for the household		
All	10,779	100.0%
Pipe-borne	4,673	43.3%
Piped water - piped into dwelling	260	2.4%
Piped water - piped to yard/plot	505	4.7%
Piped water - piped to neighbor	1,574	14.6%
Piped water - public tap or standpipe	2,334	21.7%
Well	5,551	51.5%
Piped water - tube well or borehole	4,182	38.8%
Dug well - protected	1,215	11.3%
Dug well - unprotected	154	1.4%
Others	556	5.2%
Rainwater	-	0.0%
Cart with small tank/drum	-	0.0%
Spring water - protected spring	51	0.5%
Bottled water	-	0.0%
Surface water	279	2.6%
Tanker-truck	-	0.0%
Spring water - unprotected spring	226	2.1%
Other	-	0.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.89: Number of holdings by type and tenure of agricultural machinery used, Asante Akim North															
Type of agricultural machinery ⁽¹⁾	# of holdings	% of holdings	Tenure of machine type used												
			Used			Owned			Co-owned with another holding			Rented without an operator		Used under another arrangement	
			Number of machines	Number	% of total	Average age (years)	Number	% of total	Average age (years)	Number	% of total	Number	% of total	Number	% of total
Track-laying tractors	577	5.4%	459	0	0.0%	-	0	0	-	288	62.8%	171	37.2%		
Four-wheel drive tractors	381	3.5%	123	0	0.0%	-	0	0.0%	-	123	100%	0	0%		
Two-wheel drive tractors	0	0.0%	-	-	-	-	-	-	-	-	-	-	-		
Bulldozers	0	0.0%	-	-	-	-	-	-	-	-	-	-	-		
Trucks	0	0.0%	-	-	-	-	-	-	-	-	-	-	-		
Boats	0	0.0%	-	-	-	-	-	-	-	-	-	-	-		
Trailers	0	0.0%	-	-	-	-	-	-	-	-	-	-	-		
Other vehicles	0	0.0%	-	-	-	-	-	-	-	-	-	-	-		
None	9,872	91.6%	-	-	-	-	-	-	-	-	-	-	-		
Total	10,779	100.0%	582	0	0.0%	-	0	0	-	411	70.7%	171	29.4%		

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.90: Type of agricultural equipment used by number of holdings, tenure and average age of equipment, Asante Akim North

Type of land preparation and planting equipment ⁽¹⁾	Tenure of machine type used												
	# of holdings	% of holdings	Used Number of machines	Owned			Co-owned with another holding			Rented without an operator		Used under another arrangement	
				Number	% of total	Average age (years)	Number	% of total	Average age (years)	Number	% of total	Number	% of total
Ploughs	171	1.58%	341	0	0.0%	-	0	0.0%	-	170.5305023	50.0%	170.5305023	50.0%
Power tillers	0	0.00%	-	-	-	-	-	-	-	-	-	-	-
Rotary tillers	0	0.00%	-	-	-	-	-	-	-	-	-	-	-
Rotary harrows	0	0.00%	-	-	-	-	-	-	-	-	-	-	-
Disk harrows	0	0.00%	-	-	-	-	-	-	-	-	-	-	-
Cultivators	0	0.00%	-	-	-	-	-	-	-	-	-	-	-
Levellers	0	0.00%	-	-	-	-	-	-	-	-	-	-	-
Land planes	0	0.00%	-	-	-	-	-	-	-	-	-	-	-
Diggers used for land preparation	0	0.00%	-	-	-	-	-	-	-	-	-	-	-
Grain drills	0	0.00%	-	-	-	-	-	-	-	-	-	-	-
Seed/fertilizer drills	0	0.00%	-	-	-	-	-	-	-	-	-	-	-
Broadcast seeders	0	0.00%	-	-	-	-	-	-	-	-	-	-	-
Planters	0	0.00%	-	-	-	-	-	-	-	-	-	-	-
Transplanters	0	0.00%	-	-	-	-	-	-	-	-	-	-	-
Rippers (sub-soilers)	0	0.00%	-	-	-	-	-	-	-	-	-	-	-
Ridgers	0	0.00%	-	-	-	-	-	-	-	-	-	-	-
Other land preparation equipment	-	0.00%	-	-	-	-	-	-	-	-	-	-	-
None	10,609	98.42%											
Total	10,779	100.00%	341	0	0.0%	-	0	0.0%	-	170.5305023	50.0%	170.5305023	50.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.91: Type of crops stored in storage facilities by capacity and tenure, Asante Akim North									
				Tenure of the buildings or structures used to store crops					
	Farms reporting		Average capacity of	Owned		Rented		Used under another	
	Number	% of total	Capacity (kg)	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Type of crops stored⁽¹⁾									
Grain crops	665	81.1%	4,083	442		-		-	
Root and tuber crops	118	14.4%	na	118		-		-	
Fruit and vegetables	37	4.5%	10,000	37		-		-	
Other crops	0	0.0%	na	-		-		-	
Holdings reporting buildings or structures used to store at least one type of crop	820	100.0%		596		-		-	

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.92: Usage of buildings or structures by type of activity, capacity and tenure, Asante Akim North										
					Tenure of the buildings or structures used for crop-related					
	Farms reporting		Average area of the		Owned		Rented		Used under another	
	Number	% of total	Unit of Measure TBD for Ghana		Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Type of crop-related activity ⁽¹⁾										
Processing of crops (preparation for market, etc.)	0	0.0%								
Storing plant protection products	18	50.0%								
Storing fertilizers	18	50.0%								
Storing crop-related machinery and equipment	0	0.0%								
Other purposes	0	0.0%								
Holdings reporting buildings or structures used for at least one crop-related activity	36	100.0%								

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.93: Usage of Buildings or structures for livestock by type of uses, average area and tenure, Asante Akim North										
					Tenure of the buildings or structures for livestock-related					
	Farms reporting		Average area of the		Owned		Rented		Used under another	
	Number	% of total	Unit of Measure TBD for Ghana (sq. m./sq. ft./other?)		Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Livestock-related uses⁽¹⁾										
Housing of livestock other than poultry	1,383	76.5%	9.1	sq. M	1,383	100.0%	-	0.0%	-	0.0%
Housing of poultry	425	23.5%	7.4	sq. M	425	100.0%	-	0.0%	-	0.0%
Milking	0	0.0%	-	-	-	-	-	-	-	-
Production of dairy products	0	0.0%	-	-	-	-	-	-	-	-
Meat production (slaughtering and first cuts)	0	0.0%	-	-	-	-	-	-	-	-
Meat processing	0	0.0%	-	-	-	-	-	-	-	-
Preparation of hides and skins and/or production of leather goods	0	0.0%	-	-	-	-	-	-	-	-
Storage for livestock-related machinery and equipment	0	0.0%	-	-	-	-	-	-	-	-
Storage of meat and other livestock products	0	0.0%	-	-	-	-	-	-	-	-
Other purposes	0	0.0%	-	-	-	-	-	-	-	-
Holdings reporting buildings or structures for at least one livestock-related use	1,808	100.0%	8.7	sq. M	1,808	100.0%	0	0.0%	0	0.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.94: Usage of Buildings or structures used to house both humans and farm animals, average area and tenure, Asante Akim North																
	Type of farm animals sharing housing with humans ⁽¹⁾															
	Buildings or		Horses or other		Cattle, buffaloes or		Sheep		Goats		Pigs		Poultry		Other	
	# of holdings reporting	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Holdings not using buildings to house both humans and livestock	10,779	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Holdings using buildings to house both humans and livestock	0	0.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	10,779	100.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

A3.10 Agricultural Practices

Table A3.95: Use of irrigation, methods of irrigation and sources of irrigation water, Ahafo Ano South		
	number	% of total
Total holdings reporting crops	24,480	100.0%
Use of irrigation		
Holdings not using irrigation	19,863	81.1%
Holdings using irrigation	4,616	18.9%
	number	% of total
Methods of irrigation⁽¹⁾	4,616	100.0%
Surface irrigation (flooding, furrows)	305	6.6%
Sprinkler irrigation	256	5.5%
Drip irrigation	-	0.0%
Spray or microsprinkler irrigation	965	20.9%
Other	3,091	67.0%
	number	% of total
Sources of irrigation water⁽¹⁾	4,616	100.0%
On-farm ground water	256	5.5%
On-farm surface water	305	6.6%
Off-farm surface water (lakes, rivers, watercourses)	4,056	87.9%
District Assembly water supply or other water network	-	0.0%
Reservoir (used to avoid flooding)	-	0.0%
Other	-	0.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.96: Number of Holdings by use of fertilizers, Ahafo Ano South		
	# of holdings reporting	% of total holdings
Total holdings reporting crops	24,480	100.0%
Use of fertilizers		
holdings not using fertilizers	21,293	87.0%
holdings using fertilizers	3,187	13.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

TableA3.97: Number of Holdings by reasons for not using fertilizer, Ahafo Ano South

	# of holdings reporting	% of holdings that did not use fertilizers
Reasons fertilizers were not used	21,293	
Fertilizers were too expensive	6,868	32.3%
Fertilizers were not available	524	2.5%
Poor infrastructure or too far	-	0.0%
Other	5,194	24.4%
Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018		

Table A3.98: Type of fertilizer applied by land use, quantity applied and area applied with fertilizer, Ahafo Ano South

	Number of holdings reporting the fertilizer	Area applied with fertilizer, by land use				Total area applied with fertilizer ⁽¹⁾	% of area applied with fertilizer
		Temporary crops	Temporary fallow	Temporary meadows and pastures	Permanent crops		
		ha.					
Type of fertilizer	11,894	4,199	-	-	23,304	27,503	9.16%
Mineral fertilizers	11,894	4,199	-	-	23,304	27,503	9.16%
Organo-mineral fertilizers	0	-	-	-	-	-	
Compost	0	-	-	-	-	-	
Mulch	0	-	-	-	-	-	
Biofertilizers	0	-	-	-	-	-	
Solid dung, incorporated	0	-	-	-	-	-	
	0	-	-	-	-	-	
Liquid manure, incorporated	0	-	-	-	-	-	
Liquid manure, not incorporated	0	-	-	-	-	-	
Slurry, incorporated	0	-	-	-	-	-	
Slurry, not incorporated	0	-	-	-	-	-	
Other	0	-	-	-	-	-	
Total	11,894	4,199	-	-	23,304	27,503	9.16%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.99: Type of seed used for temporary crops, Ahafo Ano South

	Number of holdings reporting the crop		Modern varieties, certified seed		Modern varieties, uncertified seed		Traditional varieties, uncertified seed	
	number	% of total	number	% of total	number	% of total	number	% of total
Crop								
Bambara beans	524	2.1%	-	0.0%	524	100.0%	-	0.0%
Cabbage	1,036	4.2%	511	49.4%	-	0.0%	524	50.6%
Cassava	20,217	82.6%	709	3.5%	-	0.0%	19,508	96.5%
Garden eggs	5,080	20.8%	256	5.0%	-	0.0%	4,825	95.0%
Maize	15,102	61.7%	5,267	34.9%	1,121	7.4%	8,935	59.2%
Okro	4,515	18.4%	560	12.4%	-	0.0%	3,955	87.6%
Other-temporary	221	0.9%	-	0.0%	-	0.0%	221	100.0%
Pepper (Hot)	8,866	36.2%	1,772	20.0%	1,234	13.9%	5,860	66.1%
Pepper (Sweet)	256	1.0%	256	100.0%	-	0.0%	-	0.0%
Plantain	20,375	83.2%	-	0.0%	-	0.0%	20,375	100.0%
Rice	1,515	6.2%	-	0.0%	-	0.0%	1,515	100.0%
Sugar Cane	305	1.2%	-	0.0%	-	0.0%	305	100.0%
Sweet potato	305	1.2%	-	0.0%	-	0.0%	305	100.0%
Tomato	6,129	25.0%	256	4.2%	-	0.0%	5,873	95.8%
Yam	4,372	17.9%	305	7.0%	-	0.0%	4,067	93.0%
Total number of holdings reporting crops	24,480	100.0%						

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.100: Source of modern uncertified varieties of seed used for temporary crops, Ahafo Ano South

	Holdings using Modern variety, uncertified seed	Source for Modern variety, uncertified seeds									
		Produced on the holding		Obtained at exchanges within the community		local market or another agricultural holding		Purchased from a seed company		Received as a donation	
		number	% of total	number	% of total	number	% of total	number	% of total	number	% of total
Crop											
Bambara beans	524	-	0.0%	-	0.0%	524	100.0%		0.0%		0.0%
Maize	1,121	610	54.4%	-	0.0%	256	22.8%		0.0%	256	22.8%
Pepper (Hot)	1,234	709	57.5%	-	0.0%	524	42.5%		0.0%		0.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.101: Source of Traditional varieties of seed used for temporary crops, Ahafo Ano South

Crop	Holdings using Traditional variety, uncertified seed	Source for Traditional variety, uncertified seeds									
		Produced on the holding		Obtained at exchanges within the community		Purchased from a local market or another agricultural holding		Purchased from a seed company		Received as a donation	
		number	% of total	number	% of total	number	% of total	number	% of total	number	% of total
Cabbage	524	-	0.0%	-	0.0%	524	100.0%	-	0.0%	-	0.0%
Cassava	19,508	12,910	66.2%	256	1.3%	2,582	13.2%	-	0.0%	5,459	28.0%
Garden eggs	4,825	1,723	35.7%	-	0.0%	1,843	38.2%	-	0.0%	1,258	26.1%
Maize	8,935	5,782	64.7%	-	0.0%	2,665	29.8%	-	0.0%	1,186	13.3%
Okro	3,955	1,049	26.5%	-	0.0%	2,382	60.2%	-	0.0%	524	13.3%
Other-temporary	221	221	100.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%
Pepper (Hot)	5,860	2,318	39.6%	-	0.0%	2,308	39.4%	-	0.0%	1,234	21.1%
Plantain	20,375	12,582	61.8%	-	0.0%	8,076	39.6%	-	0.0%	4,310	21.2%
Rice	1,515	-	0.0%	-	0.0%	1,515	100.0%	-	0.0%	-	0.0%
Sugar Cane	305	-	0.0%	-	0.0%	305	100.0%	-	0.0%	-	0.0%
Sweet potato	305	-	0.0%	-	0.0%	305	100.0%	-	0.0%	-	0.0%
Tomato	5,873	2,297	39.1%	-	0.0%	3,786	64.5%	-	0.0%	524	8.9%
Yam	4,067	1,574	38.7%	-	0.0%	2,493	61.3%	-	0.0%	-	0.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.102: Permanent crops in homogeneous plots, Ahafo Ano South						
	Permanent crop plantations in homogeneous plots					
	Trees/plants grown			Trees/plants in production		
	# of holdings reporting	# of trees/plants grown	Average # grown per holding reporting	# of holdings reporting	# of trees/plants in production	Average # in production per holding reporting
Crop Type						
Cocoa	3,212	7,276,697	1,704	1,746	1,305,991	421
Coconut	305	30,475	100	0	-	-
Oil-palm	732	335,786	483	511	84,356	110
Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018						

Table A3.103: Permanent crops as scattered trees, Ahafo Ano South						
	Permanent crops grown as scattered trees/plants					
	Trees/plants grown			Trees/plants in production		
	# of holdings reporting	# of trees/plants grown	Average # grown per holding reporting	# of holdings reporting	# of trees/plants in production	Average # in production per holding reporting
Crop type						
Cashew	1,468	102,735	70	0	-	-
Citrus	1,343	556,097	327	1,039	330,098	260
Cocoa	16,907	56,167,559	3,340	14,414	33,636,367	2,385
Coconut	1,258	2,307	2	0	-	-
Oil-palm	5,106	553,161	163	4,067	306,792	123
Pineapples	305	30,475	100	305	18,285	60
Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018						

Table A3.104: Rice cultivation, Ahafo Ano South

Reporting Rice type	Type of rice					
	Perfumed rice		Non-perfumed rice		Brown rice	
	number of Holdings	% of total	number of Holdings	% of total	number of Holdings	% of total
	2,699					
Length of growing period	511	100.0%	2,077	100.0%	110	100.0%
Long (More than 130 days)	-	0.0%	1,468	70.7%	110	100.0%
Medium (110 to 130 days)	511	100.0%	-	0.0%	-	0.0%
Short (Less than 110 days)	-	0.0%	610	29.3%	-	0.0%
Irrigation methods used before the growing period	511	100.0%	2,077	100.0%	110	100.0%
Flooded pre-season, for less than 30 consecutive days	-	0.0%	-	0.0%	-	0.0%
Flooded pre-season, 30 consecutive days or more	-	0.0%	2,077	100.0%	110	100.0%
Regularly rain-fed pre-season, for less than 180 consecutive days	511	100.0%	-	0.0%	-	0.0%
Regularly rain-fed pre-season, 180 consecutive days or more	-	0.0%	-	0.0%	-	0.0%
Irrigation methods used during the growing period						
Irrigated, continuously flooded	-	0.0%	-	0%	-	0.0%
Irrigated, intermittently flooded with single irrigation	-	0.0%	-	0%	-	0.0%
Irrigated, intermittently flooded with multiple irrigations	-	0.0%	-	0%	-	0.0%
Regularly rain-fed	-	0.0%	1,468	100%	-	0.0%
Drought-prone	-	0.0%	-	0%	-	0.0%
Organic amendments added to the soil before the cultivation of rice						
Straw, incorporated shortly before cultivation (30 days or less)	-	0.0%	-	0.00%	0	0.0%
Straw, incorporated long before cultivation (more than 30 days)	-	0.0%	-	0.00%	0	0.0%
Compost	-	0.0%	-	0.00%	0	0.0%
Farmyard manure	-	0.0%	-	0.00%	0	0.0%
Green manure	-	0.0%	-	0.00%	0	0.0%
Other	-	0.0%	-	0.00%	0	0.0%
None	511	100.0%	2,077	100.00%	110	100.0%
Rice planting techniques used						
Transplanting	-	0.0%	-	0.0%	110	100.0%
Seed broadcasting	-	0.0%	-	0.0%	-	0.0%
Dibbling	-	0.0%	-	0.0%	-	0.0%
Drilling	511	100.0%	2,077	100.0%	-	0.0%
Other	-	0.0%	-	0.0%	-	0.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.105: Tillage type, soil cover, and area; crop rotation, practices and features, Ahafo Ano South

	Number of holdings	% of total	Area (acres)	Average area (acres)
Area of arable land covered by temporary crops	24,480	100.0%	90,541	
Tillage type				
Conventional tillage	442	1.8%	883.0	2.0
Conservation (low) tillage	9,295	38.0%	32,498.9	3.7
Zero-tillage (no tillage)	14,488	59.2%	57,158.6	3.9
Soil cover (considering the longest intercropping period)				
Bare soil	221	0.9%	662.3	3.0
Plant residues	5,670	23.2%	11,153.6	2.1
Cover crop or intermediate crop	780	3.2%	780.0	1.0
Next seasonal crop	709	2.9%	1,418.6	2.0
Plastic mulch	-	0.0%	-	-
Crop rotation				
No	14952	61.1%		
Yes, on a small part of the area of temporary crops	2574	10.5%		
Yes, on about half of the area of temporary crops	2333	9.5%		
Yes, on most or all of the area of temporary crops	4621	18.9%		
Practices and features used on the holding				
Fallowing	3,093	12.6%		
Vegetative strips	-	0.0%		
Liming	-	0.0%		
Terraces/contour ploughing	-	0.0%		
Windbreaks and hedges	-	0.0%		
Rotational grazing	-	0.0%		
Other practices and features to reduce soil erosion, salinity, compaction, drainage of soil water, etc.	-	0.0%		
None	21,387	87.4%		
Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018				

Table A3.106: Livestock by type of housing, Ahafo Ano South

	Holdings reporting the livestock type		Main housing type											
			Open/no housing		Loose housing, with solid dung or liquid manure/slurry		Other, including boxes sometimes used for young animals							
	# of holdings reporting	% of holdings reporting the livestock type	# of holdings reporting	% of holdings reporting the livestock type	# of holdings reporting	% of holdings reporting the livestock type	# of holdings reporting	% of holdings reporting the livestock type						
Cattle	256	100.0%	256	100.0%	-	0.0%	-	0.0%						
	Holdings reporting the livestock type		Main housing type											
			Open/no housing		On partially or completely slatted floors		Other							
	# of holdings reporting	% of holdings reporting the livestock type	# of holdings reporting	% of holdings reporting the livestock type	# of holdings reporting	% of holdings reporting the livestock type	# of holdings reporting	% of holdings reporting the livestock type						
Pigs	709	100.0%	709	0.0%	-	0.0%	-	0.0%						
	Holdings reporting the livestock type		Main housing type											
			Open/no housing		Traditional barns or buildings		Shelter		Other					
	# of holdings reporting	% of holdings reporting the livestock type	# of holdings reporting	% of holdings reporting the livestock type	# of holdings reporting	% of holdings reporting the livestock type	# of holdings reporting	% of holdings reporting the livestock type						
Small ruminants (sheep, goats)	8,829	100.0%	4,042	45.8%	4,787	54.2%	-	0.0%	-	0.0%				
	Holdings reporting the livestock type		Main housing type											
			Open/no housing		On straw beds (deep litter loose housing)		Battery cage with manure belt		Battery cage with deep pit		Battery cage with stilt house		Other	
	# of holdings reporting	% of holdings reporting the livestock type	# of holdings reporting	% of holdings reporting the livestock type	# of holdings reporting	% of holdings reporting the livestock type	# of holdings reporting	% of holdings reporting the livestock type	# of holdings reporting	% of holdings reporting the livestock type	# of holdings reporting	% of holdings reporting the livestock type		
Chickens	10,268	100.0%	3,454	33.6%	511	5.0%	-	0.0%	-	0.0%	-	0.0%	6,304	61.4%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.107. Use of agricultural land by total area utilized and area applied with fertilizers, Ahafo Ano South			
	Total Area	Area on which fertilizers were applied	
	Hectares	Hectares	As a percent of total area
Use of agricultural area			
Temporary crops	41,698	1,910	4.6%
Temporary fallow	16,414	0	0.0%
Temporary meadows and pastures	12	0	0.0%
Kitchen gardens and backyards	898		
Permanent crops	60,529	13,968	23.1%
Total	48,401	6,428	13.3%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.108. Type of fertilizer applied by land use, quantity applied and area applied with fertilizer, Ahafo Ano South

	Number of holdings reporting the fertilizer	Area applied with fertilizer, by land use				Total area applied with fertilizer ⁽¹⁾	% of area applied with fertilizer
		Temporary crops	Temporary fallow	Temporary meadows and pastures	Permanent crops		
Units		ha					
Type of fertilizer	11,894	4,199	0	0	23,304	27503	9.2%
Mineral fertilizers	11,894	4,199	0	0	23,304	27503	9.2%
Organo-mineral fertilizers	0	-	-	-	-	-	
Compost	0	-	-	-	-	-	
Mulch	0	-	-	-	-	-	
Biofertilizers	0	-	-	-	-	-	
Solid dung, incorporated	0	-	-	-	-	-	
	0	-	-	-	-	-	
Liquid manure, incorporated	0	-	-	-	-	-	
Liquid manure, not incorporated	0	-	-	-	-	-	
Slurry, incorporated	0	-	-	-	-	-	
Slurry, not incorporated	0	-	-	-	-	-	
Other	0	-	-	-	-	-	
Total	11,894	4,199	0	0	23,304	27503	9.2%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.108. Type of fertilizer applied by land use, quantity applied and area applied with fertilizer, Ahafo Ano South

	Number of holdings reporting the fertilizer	Area applied with fertilizer, by land use				Total area applied with fertilizer ⁽¹⁾	% of area applied with fertilizer
		Temporary crops	Temporary fallow	Temporary meadows and pastures	Permanent crops		
Units		ha					
Type of fertilizer	11,894	4,199.2	-	-	23,304	27,503	9.16%
Mineral fertilizers	11,894	4,199.2	-	-	23,304	27,503	9.16%
Organo-mineral fertilizers	0	-	-	-	-	-	
Compost	0	-	-	-	-	-	
Mulch	0	-	-	-	-	-	
Biofertilizers	0	-	-	-	-	-	
Solid dung, incorporated	0	-	-	-	-	-	
	0	-	-	-	-	-	
Liquid manure, incorporated	0	-	-	-	-	-	
Liquid manure, not incorporated	0	-	-	-	-	-	
Slurry, incorporated	0	-	-	-	-	-	
Slurry, not incorporated	0	-	-	-	-	-	
Other	0	-	-	-	-	-	
Total	11,894	4,199	0	0	23,304	27,503	9.16%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.109 Area equipped for irrigation in working order, by district								
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyerere Afram Plain	
	Acres	Hectares	Acres	Hectares	Acres	Hectares	Acres	Hectares
Area equipped for irrigation in working order	0	0	599	242	0	0	0	0

Table A3.110: Type of seed used for temporary crops, Ahafo Ano South								
	Number of holdings reporting the		Modern varieties, certified seed		Modern varieties, uncertified		Traditional varieties, uncertified	
	number	% of total	number	% of total	number	% of total	number	% of total
Crop								
Bambara beans	524	2.1%	-	0.0%	524	100.0%	-	0.0%
Cabbage	1,036	4.2%	511	49.4%	-	0.0%	524	50.6%
Cassava	20,217	82.6%	709	3.5%	-	0.0%	19,508	96.5%
Garden eggs	5,080	20.8%	256	5.0%	-	0.0%	4,825	95.0%
Maize	15,102	61.7%	5,267	34.9%	1,121	7.4%	8,935	59.2%
Okro	4,515	18.4%	560	12.4%	-	0.0%	3,955	87.6%
Other-temporary	221	0.9%	-	0.0%	-	0.0%	221	100.0%
Pepper (Hot)	8,866	36.2%	1,772	20.0%	1,234	13.9%	5,860	66.1%
Pepper (Sweet)	256	1.0%	256	100.0%	-	0.0%	-	0.0%
Plantain	20,375	83.2%	-	0.0%	-	0.0%	20,375	100.0%
Rice	1,515	6.2%	-	0.0%	-	0.0%	1,515	100.0%
Sugar Cane	305	1.2%	-	0.0%	-	0.0%	305	100.0%
Sweet potato	305	1.2%	-	0.0%	-	0.0%	305	100.0%
Tomato	6,129	25.0%	256	4.2%	-	0.0%	5,873	95.8%
Yam	4,372	17.9%	305	7.0%	-	0.0%	4,067	93.0%
Total number of holdings reporting crops	24,480	100.0%						

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.111. Sources of information used, methods of consulting information, participation in a farmer-based organization or water users association, participation in a commercial or producer cooperative. By district								
	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram Plains	
	Number reporting	as a % of Total holdings	Number reporting	as a % of Total holdings	Number reporting	as a % of Total holdings	Number reporting	as a % of Total holdings
Total number of holdings		100.0%		100.0%		100.0%		100.0%
Sources of information used during the reference								
Government or other public institutions	4,322	17.7%	2,649	24.6%	5,795	34.8%	3,105	71.9%
Other individual farmers	19,560	80.3%	7,092	65.8%	9,155	54.9%	140	3.2%
Farmers' groups or associations	0	0.0%	191	1.8%	117	0.7%	0	0.0%
Non-governmental organizations (NGO) or non-	0	0.0%	34	0.3%	0	0.0%	0	0.0%
Trader or market stakeholder	488	2.0%	107	1.0%	0	0.0%	45	1.0%
None of the above	0	0.0%	706	6.6%	1,026	6.2%	1,028	23.8%
Method of consulting information during the								
Direct discussion	21,310	87.4%	10,779	100.0%	16,665	100.0%	3,038	70.4%
Telephone (including calls and texts)	0	0.0%	0	0.0%	0	0.0%	131	3.0%
Radio	2,901	11.9%	0	0.0%	0	0.0%	2,641	61.2%
Television	159	0.7%	0	0.0%	0	0.0%	0	0.0%
Internet	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Press	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Holdings participating in a farmer-based								
No	21,475	87.7%	9,930	92.1%	15,243	94.7%	4,544	95.4%
Yes	3,005	12.3%	849	7.9%	850	5.3%	220	4.6%
Total	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%
Holdings participating in a commercial or producer								
No	23,210	94.8%	10,382	96.3%	15,500	96.3%	4,454	93.5%
Yes	1,269	5.2%	398	3.7%	593	3.7%	309	6.5%
Total	24,480	100.0%	10,779	100.0%	16,094	100.0%	4,763	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.112. Visits to holdings by an extension officer, veterinarian or animal health assistant, and main reasons for not having more visits, Ahafo Ano South

	Number reporting	as a % of Total holdings
Total number of holdings⁽¹⁾		100.0%
Visits made to the holding by an extension officer,		
No visits	18,584	75.9%
1 visit	2,087	8.5%
2 visits	2,772	11.3%
3 visits	816	3.3%
4 visits	221	0.9%
5 visits	0	0.0%
More than 5 visits	24,480	100.0%
Main reason for not having more visits to the		
No need	2,885	13.0%
Too expensive	0	0.0%
Too far away	0	0.0%
Service provider was too busy/not available	15,698	87.0%
Other	18,584	100.0%
Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018		

Table A3.113. Holdings by recovery from shocks, ability to cope with shocks and perception of level of severity of shocks, by district

	Ahafo Ano South		Asante Akim North		Ejura Sekye Dumasi		Sekyere Afram		
	# of holdings	% of total holdings reporting shocks	# of holdings	% of total holdings reporting shocks	# of holdings	% of total holdings reporting shocks	# of holdings	% of total holdings reporting shocks	
Total number of holdings	24,480		10,779		16,094		4,763		
Holdings reporting any severe shock	9,323	100.0%	1,409	100.0%	11,973	100.0%	2,929	100.0%	
Recovery from shocks									
Holding has recovered fully or partially from the shocks	No	2,442	26.2%	269	19.1%	2,370	19.8%	879	30.0%
	Yes	6,881	73.8%	1,140	80.9%	9,602	80.2%	2,050	70.0%
	Total	9,323	100.0%	1,409	100.0%	11,973	100.0%	2,929	100.0%
Ability to cope with shocks									
Holding is better able to cope with shocks	No	4,679	50.2%	263	18.7%	1,523	12.7%	831	28.4%
	Yes	4,644	49.8%	1,146	81.3%	10,449	87.3%	2,099	71.6%
	Total	9,323	100.0%	1,409	100.0%	11,973	100.0%	2,929	100.0%
Perception of the level of severity of									
General perception of the level of severity of shocks compared to the past	Similar	709	7.6%	205	14.5%	347	2.9%	649	22.2%
	Greater	3,795	40.7%	1,068	75.8%	9,295	77.6%	1,831	62.5%
	Lower	4,818	51.7%	136	9.7%	2,330	19.5%	449	15.3%
	Total	9,323	100.0%	1,409	100.0%	11,973	100.0%	2,929	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.114. Holdings involvement in an organization for environmental protection programs, Ahafo Ano South

	# of holdings	% of total holdings
Holding was involved in an organization		
Not involved	24,259	99.1%
Involved	221	0.9%
Total	24,480	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.115: Type of natural extreme event or disaster and human impacts, Ahafo Ano South

	Holdings reporting natural extreme events or disasters during the reference period		Number of times the natural extreme event or disaster hit the holding during the reference period							
			Zero times		Once		Twice		Three or more times	
	Number of holdings	% of holdings reporting natural extreme events or disasters	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total	Number of holdings	% of total
Total number of holdings	24,480									
Holdings reporting any natural extreme	7,868	100.0%								
Type of natural extreme event or										
Drought	7,136	90.7%	-		7,136	100.0%	0	0.0%	0	0.0%
Heavy rainfall or heavy winds	1,466	18.6%	-		1,466	100.0%	0	0.0%	0	0.0%
Extreme temperatures (cold or heat)	0	0.0%	-		-		-		-	
Bush fires	709	9.0%	-		709	100.0%	0	0.0%	0	0.0%
Earthquakes	0	0.0%	-		-		-		-	
Other	0	0.0%	-		-		-		-	
			Number of people affected by human impacts							
			Zero		One to four		Five to nine		Ten or more	
Type of human impacts from the extreme event or disaster			Number of holdings	% of holdings reporting natural extreme events or disasters	Number of holdings	% of holdings reporting natural extreme events or disasters	Number of holdings	% of holdings reporting natural extreme events or disasters	Number of holdings	% of holdings reporting natural extreme events or disasters
People killed	0		-	-	-	-	-	-	-	-
People injured	0		-	-	-	-	-	-	-	-
People rendered homeless	0		-	-	-	-	-	-	-	-
People evacuated	0		-	-	-	-	-	-	-	-
Other	0		-	-	-	-	-	-	-	-

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.116. Type of economic impacts from natural extreme events or disasters and severity, Ahafo Ano South								
			Severity of the economic impact related to the natural extreme events or disasters					
			Small losses		Significant losses		Almost total or total losses	
	# of holdings	% of holdings reporting natural extreme events or disasters	# of holdings	% of holdings reporting natural extreme events or disasters	# of holdings	% of holdings reporting natural extreme events or disasters	# of holdings	% of holdings reporting natural extreme events or disasters
Total number of holdings	24,480							
Holdings reporting any natural extreme	7,868	100.0%						
Type of economic impacts from the extreme event or disaster								
Loss of revenue	4,106	52.2%	1,745	22.2%	2,361	30.0%	0	0.0%
Loss due to disruption of production	5,252	66.7%	1,990	25.3%	3,262	41.5%	0	0.0%
Other economic impacts	0	0.0%	-	-	-	-	-	-
None of the above	0	0.0%	-	-	-	-	-	-

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.117. Type of physical impacts from natural extreme events or disasters and severity, Ahafo Ano South								
			Severity of the physical impact related to the natural extreme events or disasters					
			Small losses		Significant losses		Almost total or total losses	
	# of holdings	% of holdings reporting	# of holdings	% of holdings reporting	# of holdings	% of holdings reporting	# of holdings	% of holdings reporting
Total number of holdings	24,480							
Holdings reporting any natural extreme	7,868	100.0%						
Type of physical impacts from the extreme event or disaster								
Area lost	0	0.0%	-	-	-	-	-	-
Crop losses	7,868	100.0%	2,246	28.5%	5,623	71.5%	0	0.0%
Livestock losses	0	0.0%	-	-	-	-	-	-
Aquaculture losses	0	0.0%	-	-	-	-	-	-
Biomass losses	0	0.0%	-	-	-	-	-	-
Building damages or losses	0	0.0%	-	-	-	-	-	-
Other physical losses	0	0.0%	-	-	-	-	-	-
None of the above	0	0.0%	-	-	-	-	-	-

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.118. Practices to adapt to climate change, Ahafo Ano South		
	# of holdings	% of total holdings
Type of practice used to adapt to climate change	24,480	100.0%
Multicropping	11,203	45.8%
Use of traditional agricultural heritage practices and knowledge	2,617	10.7%
Use of traditional crop and animal varieties	4,173	17.0%
Use of seeds adapted to local conditions and stresses	0	0.0%
Use of new practices or technologies	0	0.0%
Other	0	0.0%
None of the above	6,488	26.5%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.119: Type of crop residues burned by share of the total area of crops, Ahafo Ano South														
Crop	# of holdings reporting the crop type		Share of the total area of the crop for which the crop residue was burned											
	Holdings reporting burning the residues of the crop type		Very small share (less than 10%)		Less than half (10% to 39%)		About half (40% to 59%)		Most (60% to 99%)		All (100%)			
	Number of holdings	% of total holdings reporting the crop type	Number of holdings	% of total holdings reporting the crop type	Number of holdings	% of total holdings reporting the crop type	Number of holdings	% of total holdings reporting the crop type	Number of holdings	% of total holdings reporting the crop type	Number of holdings	% of total holdings reporting the crop type		
Cassava	4,334	36.2%	1,569	0.0%	0	0.0%	26	0.6%	304	7.0%	457	10.5%	783	18.1%
Cocoa	4,656	0.0%	0	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%
Cocoyam	2,325	25.2%	587	0.0%	0	0.0%	0	0.0%	136	5.8%	349	15.0%	102	4.4%
Maize	3,083	36.2%	1,117	6.2%	191	6.2%	26	0.8%	310	10.1%	486	15.8%	74	2.4%
Plantain	3,959	17.9%	710	0.0%	0	0.0%	0	0.0%	501	12.7%	136	3.4%	74	1.9%
Rice	359	0.0%	0	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%
Tomato	842	0.0%	0	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%
Yam	611	0.0%	0	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%

Table A3.120: Water accumulation and appearance, salt accumulation and soil changes in the last five years by type of change, Ahafo Ano South

	Number of holdings reporting	Percent of total
Large volumes of water accumulate on the agricultural soil surface during		
No large water accumulation	20,253	82.7%
Large water accumulation	4,227	17.3%
Total	24,480	100.0%
Appearance of water which accumulates on the soil and runs		
The water is clear	1,270	30.0%
The water is not clear and/or is brown because it contains a lot of soil	2,957	70.0%
Total	4,227	100.0%
Accumulation of salts on the agricultural soil of the holding during dry		
No, never	23,259	95.0%
Yes, sometimes	1,221	5.0%
Yes, often	0	0.0%
Total	24,480	100.0%
Changes in the soil on the holding in the last five years ⁽¹⁾		
Change in soil colour	3,983	16.3%
Change in the amount of fine and coarse particles	4,067	16.6%
Change in how easy it is to plough or work the soil	560	2.3%
Change in how easily crops emerge after planting	1,664	6.8%
Change in the amount of stones present in the soil	1,931	7.9%
None of the above	12,274	50.1%
Total number of holdings	24,480	100.0%

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.133: Holdings, household income from agriculture, fishery and forestry by scale of holding, Sekyere Afram Plains (without weights)

	Holdings	Total agricultural revenue (In local currency) ¹	Total farm revenue (In local currency) ¹	Total labour (days)	Agricultural Output per labour day (In local currency)	Farm Output per labour day (In local currency)
	Number of holdings					
Values for all holdings	100	1,267,967	1,578,058	40,795	43.73	53.21

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.134: Holdings, household income from agriculture, fishery and forestry by scale of holding, Sekyere Afram Plains (with weights)

	Holdings	Total agricultural revenue (In local currency) ¹	Total farm revenue (In local currency) ¹	Total labour (days)	Agricultural Output per labour day (In local currency)	Farm Output per labour day (In local currency)
	Number of holdings					
Values for all holdings	4,763	58,884,529	73,278,397	1,890,154	43.73	53.21

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.135: Holdings, household income from agriculture, fishery and forestry by scale of holding, ethnicity and sex, Sekyere Afram Plains (without weights)

Nationality/Ethnicity of Holder	Number of holdings	Total agricultural revenue (In local currency)	Total costs of production (In local currency)	Average household income (In local currency)
Value for all holdings	100	1,267,967	221,399	10,466

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Table A3.136: Holdings, household income from agriculture, fishery and forestry by scale of holding, ethnicity and sex, Sekyere Afram Plains (with weights)

Nationality/Ethnicity of Holder	Number of holdings	Total agricultural revenue (In local currency)	Total costs of production (In local currency)	Average household income (In local currency)
Value for all holdings	4,763	58,884,529	9,582,921	10,466

Source: Agricultural Integrated Survey (AGRIS) Pilot - Ghana, 2018

Annex 4: Estimation procedures of totals, ratios and sampling errors

A stratified two-stage sampling design was used for holdings in the household sector with the enumeration areas (EAs) as PSUs and agricultural households as SSUs. Below we use and adapt notations and formulas from the AGRIS Handbook (GSARS, 2018).

Notation

h = stratum

H = total number of strata

i = PSU

N = total number of PSUs

I_h = total number of PSUs in the h -th stratum

j = SSU

M_{hi} = total number of SSUs found in the i -th PSU in stratum h ($j = 1, 2, \dots, M_{hi}$)

$M = \sum_h \sum_i M_{hi}$ = total number of SSUs in the country

F_{hi} = total number of SSUs listed in the sampling frame as belonging to the i -th PSU in stratum h

$F_h = \sum_i F_{hi}$, is the total number of SSUs listed in the sampling frame in stratum h

n_h = number of sample PSUs selected in stratum h

m_{hi} = number of sample SSUs selected in i -th PSU in stratum h

y_{hij} = value of the target variable Y observed on the j -th SSU, in i -th PSU in stratum h

Estimators

The probability of selecting the SSU j in the sample is the product of the probability of selection of the PSU i in which it is located ($n_h \frac{F_{hi}}{F_h}$) and its probability of selection in the PSU i ($\frac{m_{hi}}{M_{hi}}$).

Thus, the *weight* assigned to the SSU f selected in the i -th PSU in stratum h is:

$$w_{hij} = \left(n_h \frac{F_{hi}}{F_h} \right) * \left(\frac{m_{hi}}{M_{hi}} \right)$$

Here $m_{hi} = 10$, therefore

$$w_{hij} = \left(n_h \frac{F_{hi}}{F_h} \right) * \left(\frac{10}{M_{hi}} \right)$$

An estimate of the total amount of Y for the entire population may be computed with the following formula:

$$\hat{Y} = \sum_h \sum_i \sum_j w_{hij} y_{hij}$$

The mean of Y can be estimated with two different estimators:

- *Simple mean*

$$\hat{\bar{Y}} = \hat{Y} / M$$

- *Weighted sample mean*

$$\tilde{\bar{Y}} = \frac{\hat{Y}}{\sum_h \sum_i \sum_j w_{hij}}$$

Variance

A simple approximate estimation of the variance of the total is (GSARS, 2018).

$$\tilde{v}(\hat{Y}) = \sum_{h=1}^H M_h^2 \frac{1}{m_h(m_h - 1)} \sum_{i=1}^{I_h} (\hat{Y}_{hi} - \frac{1}{m_h} \sum_{i=1}^{I_h} \hat{Y}_{hi})$$

where \hat{Y}_{hi} and \hat{Y}_h are the estimates of the total amount of Y at PSU and stratum levels, respectively.

An approximate estimator of the variance of the mean is:

$$\tilde{v}(\hat{\bar{Y}}) = \frac{1}{M^2} \tilde{v}(\hat{Y})$$

Coefficient of variation

Total

$$\bar{cV}(\hat{Y}) = \frac{\sqrt{\tilde{v}(\hat{Y})}}{\hat{Y}}$$

Mean

$$\bar{cV}(\hat{\bar{Y}}) = \frac{\sqrt{\tilde{v}(\hat{\bar{Y}})}}{\tilde{\bar{Y}}}$$

Annex 5: Standard Errors and Coefficients of Variation

Sampling errors parameters (standard error and CV) are estimated for selected key variables.

Number of agricultural holdings

District	Number of holdings	Standard Error	Coefficient of Variation
Ahafo Ano South	24,480	4,454.7	18
Asante Akim North	10,779	1,292.2	12
Ejura Sekye Dumase	16,094	3,385.2	21
Sekyere Afram Plains North	4,763	286.8	6

Legal status of holdings

District	Legal status	Number of holdings	Standard Error	Coefficient of Variation
Ahafo Ano South	Single-holding household	24,480	4,454.7	18%
Asante Akim North	Partnership of two or more households	37	36.8	100%
	Single-holding household	10,742	1,305.0	12%
Ejura Sekye Dumase	Partnership of two or more households	375	374.8	100%
	Single-holding household	15,719	3,214.6	20%
Sekyere Afram Plains North	Single-holding household	4,763	286.8	6%

Main activity of holdings

District	Main activity	Number of holdings	Standard Error	Coefficient of Variation
Ahafo Ano South	Mainly crop	21,620	3,887.4	18%
	Mix crop and livestock	2,860	2,042.0	71%
Asante Akim North	Mainly crop	9,696	1,356.0	14%
	Mainly livestock	125	94.6	76%
	Mix crop and livestock	959	271.2	28%
Ejura Sekye Dumase	Mainly crop	14,710	2,979.5	20%
	Mainly livestock	1,383	865.2	63%
Sekyere Afram Plains North	Mainly crop	3,422	306.5	9%
	Mainly livestock	461	368.4	80%
	Mix crop and livestock	880	143.9	16%

Holdings' main intended destination of agricultural production

District	Main intended destination of the production	Estimate	Standard Error	Coefficient of Variation
Ahafo Ano South	Own-consumption with some sales	1,245	806.1	65%
	Sales	14,046	2,045.0	15%
	Sales with some own-consumption	9,189	2,425.6	26%
Asante Akim North	Own-consumption	443	177.6	40%
	Own-consumption with some sales	1,042	314.1	30%
	Sales	2,740	385.2	14%
	Sales with some own-consumption	6,554	1,376.5	21%
Ejura Sekye Dumase	Own-consumption with some sales	66	65.7	100%
	Sales	10,794	2,421.1	22%
	Sales with some own-consumption	5,234	1,087.6	21%
Sekyere Afram Plains North	Own-consumption	199	143.0	72%
	Own-consumption with some sales	753	254.2	34%
	Sales	3,377	439.5	13%
	Sales with some own-consumption	435	140.2	32%

Area Planted by crop and district

District	Crops		Estimate	Standard Error	Coefficient of Variation	Unweighted Count
Ahafo Ano South	Cassava	Mean	0.727946	0.23569	0.323775	46
		Sum	14717.19	3308.112	0.224779	46
	Cocoa	Mean	0.036976	0.040671	1.09991	44
		Sum	714.9928	714.9928	1	44
	Cocoyam	Mean	0.552273	0.260728	0.4721	30
		Sum	7476.438	3410.44	0.456158	30
	Maize	Mean	1.326842	0.35204	0.265322	35
		Sum	20037.35	3479.662	0.173659	35
	Plantain	Mean	0.719499	0.165305	0.22975	46
		Sum	14659.71	2497.844	0.170388	46
Asante Akim North	Cassava	Mean	0.625546	0.067142	0.107334	72
		Sum	3599.347	812.1133	0.225628	72
	Cocoa	Mean	0.466056	0.383926	0.823777	48
		Sum	1835.312	1365.107	0.743801	48
	Cocoyam	Mean	0.461958	0.104586	0.226397	39
		Sum	1434.954	310.5895	0.216446	39
	Maize	Mean	1.452977	0.460935	0.317235	44
		Sum	4971.855	1849.539	0.372002	44
	Plantain	Mean	2.089794	0.34615	0.165638	106
		Sum	18863.91	4082.83	0.216436	106
Ejura Sekye Dumase	Cowpeas	Mean	3.060837	0.557884	0.182265	43
		Sum	25273.51	8236.952	0.325912	43
	Maize	Mean	4.766855	0.879109	0.184421	61
		Sum	67695.8	22369.72	0.330445	61
Sekyere Afram Plains North	Cassava	Mean	0.664948	0.149333	0.224578	54
		Sum	1710.15	500.3959	0.292604	54
	Cowpeas	Mean	1.00736	0.261181	0.259273	31
		Sum	1358.129	450.6033	0.331782	31
	Groundnuts	Mean	1.624924	0.293299	0.1805	48
		Sum	3698.239	926.2447	0.250456	48
	Maize	Mean	4.750456	1.010839	0.212788	76
		Sum	16454.48	3740.243	0.227309	76
	Plantain	Mean	0.46221	0.107337	0.232226	33
		Sum	777.3696	329.8386	0.424301	33
	Rice	Mean	1.680626	0.142374	0.084715	32
		Sum	2215.17	668.3603	0.30172	32
Yam	Mean	1.244742	0.281118	0.225844	58	
	Sum	3411.239	898.4473	0.263379	58	

Total production of main crops

District	Crops	Production (Kg)	Estimate	Standard Error	Coefficient of Variation	
Ahafo Ano South	Cassava	Mean	619.88	246.79	40%	
		Sum	12,532,274.63	4,239,150.34	34%	
	Cocoa	Mean	451.51	51.99	12%	
		Sum	9,061,947.13	2,097,183.41	23%	
	Cocoyam	Mean	128.34	47.02	37%	
		Sum	1,737,443.22	565,211.19	33%	
	Maize	Mean	653.56	204.86	31%	
		Sum	9,869,800.05	2,117,099.81	21%	
	Plantain	Mean	679.35	318.22	47%	
		Sum	13,841,781.82	5,787,988.56	42%	
	Asante Akim North	Cassava	Mean	1,159.63	167.22	14%
			Sum	6,672,445.18	1,644,867.60	25%
Cocoa		Mean	500.24	57.66	12%	
		Sum	1,969,936.34	643,285.65	33%	
Cocoyam		Mean	498.40	111.84	22%	
		Sum	1,548,162.23	418,450.49	27%	
Maize		Mean	1,072.75	216.96	20%	
		Sum	3,670,785.33	918,959.69	25%	
Plantain		Mean	24,160.54	6,825.07	28%	
		Sum	218,089,565.74	73,418,972.34	34%	
Ejura Sekye Dumase		Cowpeas	Mean	2,990.88	557.12	19%
			Sum	24,695,868.40	8,386,637.79	34%
	Maize	Mean	5,677.54	1,161.70	20%	
		Sum	80,628,815.77	25,116,105.30	31%	
Sekyere Afram Plains North	Cassava	Mean	2,023.16	1,034.03	51%	
		Sum	5,203,274.34	2,408,981.61	46%	
	Cowpeas	Mean	764.67	237.04	31%	
		Sum	1,030,931.50	359,319.73	35%	
	Groundnuts	Mean	1,048.87	499.57	48%	
		Sum	2,387,168.01	1,142,952.96	48%	
	Maize	Mean	3,175.30	723.33	23%	
		Sum	10,998,511.57	2,723,548.22	25%	
	Plantain	Mean	2,145.19	634.75	30%	
		Sum	3,607,889.14	1,641,229.75	45%	
	Rice	Mean	819.32	120.29	15%	
		Sum	1,079,915.51	363,029.36	34%	
	Yam	Mean	2,312.77	710.13	31%	
		Sum	6,338,183.05	2,170,183.60	34%	

Annex 6: Number of EAs and households planned and actually covered

District	PSU sample (number of EAs)		SSU sample (number of households)	
	Planned	Realised	Planned	Realised
Ahafo Ano South	6	6	60	60
Asante Akim North	14	14	140	136
Ejura Sekye Dumasi	7	7	70	70
Sekyere Afram Plains	10	10	100	100
Total	37	37	370	366

Annex 7: Interview duration

	District (Module)			
	Ahafo Ano South (PME)	Asante Akim North (MEA)	Ejura Sekye Dumasi (LABOUR)	Sekyere Afram Plains (ECO)
Mean duration	2:36:00	1:19:00	1:59:06	2:08:02
Median duration	2:21:00	1:17:00	1:52:00	2:04:15
Sd of durations	0:49:45	0:20:30	0:41:36	0:34:18
Minimum duration	1:00:00	0:43:00	0:35:00	0:40:00
Maximum duration	5:02:00	2:28:33	4:49:00	4:22:00