REPORT ON PILOT GHANA AGRICULTURAL PRODUCTION SURVEY (GAPS)

2012/2013

VOLUME II
(MINOR CROPPING SEASON)

Issued by Statistics Research and Information Directorate (SRID)
April, 2013

Contents

Chapter 1 Introduction

1.1 Background

The Ghana Agricultural Production Survey (GAPS) was first piloted in twenty districts across the country during the 2011/2012 cropping season. It was implemented by SRID with technical and financial support from the Ghana Strategy Support Program (GSSP) of the International Food Policy Research Institute (IFPRI).

At the end of the first phase of piloting, a team of assessors was tasked to evaluate the outcome of the project against the objectives and targets set. The team recommended that given some initial setbacks to implementation, such as late start of pilot, the survey should be extended by one more year. It further recommended the repetition of most of the activities of the first phase with some modifications. The extension is intended to ensure the consolidation of the gains made in the first phase and to allow for those areas that suffered some implementation challenges to be corrected.

In line with these recommendations, the second phase of the pilot collected data relating to farming practices, inputs, infrastructure, labour utilization, assets, sales, livestock and poultry, field measurements, and yield estimates but with a reduced sample size of holders per district. During the major cropping season, data was collected on cropped areas and yields of various crops while the minor season survey focused on pre-harvest and post-harvest households and holding enquiry.

The results of the major season survey was presented in Volume I of the survey report. This current report (Volume II) presents the results and findings of the minor season survey.

1.2 Survey Objective

The overall objective of the minor season GAPS II is to provide information on pre-harvest and post-harvest activities of selected agricultural holders.

Specifically areas covered under pre-harvest interviews include; general characteristics of household members, information on livestock/poultry/other animals, tree crops and aquaculture.

Post-harvest household and holding enquiry covered the following areas; field practices, inputs and expenses, crop production and marketing, shocks/adaptations to shocks, other income-generating activities and health

1.3 The Report

The report is divided into four chapters. Following chapter one which gives an introduction to the report, chapter two presents the survey methodology. It contains sections on sampling

methodology, data collection instruments and data processing and analysis. Chapter three discusses the results of the survey as outlined in the table of content. A number of appendices serve as reference information to the issues discussed under various sub-sections in Chapter three. Conclusion and recommendations are presented in Chapter four.

Chapter 2 Survey Methodology

2.1 Sampling

The GAPS employed a three stage multi-sampling design in response to the Government of Ghanaôs requirement for reliable agricultural statistics at the national, regional and district levels.

- **First Stage Sampling- Selection of 2 Districts from each of the 10 Regions.**

  A total of 20 districts, 2 from each of the 10 regions were randomly selected with probability proportional to size, using districtsô population in year 2000 as a measure of size.[1]. Eleven Metropolitan and Municipal Assemblies (Kumasi, Sunyani, Cape Coast, New Juaben, Accra, Tema, Tamale, Bolgatanga, Wa, Ho and Shama Ahanta East) were excluded from the study, given their urban predominance.

- **Second Stage Sampling – Selection of 40 Enumeration Areas (EAs) from each of the 20 Districts.**

  A total of 800 EAs was selected; 40 EAs were randomly selected with probability proportional to size in each district, using the list of EAs compiled by the 2010 Census as a sample frame, and projected total population as a measure of size.[2] In the Kassena-Nankana East district, 53 of the 187 EAs compiled by the 2010 census were excluded from the study because of the land disputes prevalent in the area earlier in 2011.

- **Third Stage Sampling – Selection of 5 holders**

  At the third stage, five holders were randomly chosen in each EA, using as a sample frame; the full list of all holders, compiled from the Household and Holders Listing questionnaire. This provides a total sample of 4000 holders, consisting of 200 holders per district.

2.2 Structure of Field Workers

Each district had a core team consisting of 4 District Agricultural Statistics Agents (DASAs) and one District Agricultural Statistics Officer (DASO). The DASO acted as supervisors of the DASAs while the District Director of Agriculture (DDA) coordinated the whole survey operations. A DASA administered questionnaires in 10 selected Enumeration Areas and therefore interviewed 100 agricultural holders.

[1] 2010 population figures (estimated or published) were not available at the time when the first stage was drawn because the 2010 Census was still in the field collecting data.

[2] By the time the second stage sampling was drawn total population projections by EA for 2010, which were relied on in order to implement the 2010 Census, were made available to us by the Ghana Statistical Service.

2.3 Instruments

The set of questionnaires used in the minor season survey include:-

(a) The Household and Holding Inquiry ï Pre-Harvest questionnaire, also known as the form 2a. This was used to make enquiries on the general characteristics of households and holdings for pre-harvest farming activities during the minor season. Information sought included changes in the household composition, detailed information on livestock, poultry and other animals owned by the selected holders, detailed information on tree crops grown by the selected holders, information on aquaculture practices, inputs, outputs and assets.

(b) The Household and Holding Inquiry ï Post-Harvest questionnaire, also known as form 2b. This was used to make enquiries on field practices, inputs and outputs. The following information were sought: inventory of fields, inputs and expenses, Remaining major season production and marketing of crops, minor season crop production and marketing, holding information, shocks and adaptation to shocks, other income generating activities and household health status.

(c) The Household and Holding Inquiry ï Pre-harvest field measurements questionnaire known as the form 3. This questionnaire was used to gather data on the nature and characteristics of crop fields and area measurements for individual crop fields for all selected holdings.

(d) Crop Yield Measurement questionnaire also known as the form 4. This was used to seek for data on the yields of food crops such as the cereals, root and tubers, plantain, legumes and nuts, and vegetables.

2.4 Data Processing and Analysis

2.4.2 Data Entry, Storage and Transmission

District Agricultural Statistics Officer (DASO) did the data entry at each district with further checking and validating after which the questionnaires were returned to the data processing

centre at SRID. Entered and saved data was stored on laptops in the districts as text files in locations specified by each of the Data Entry Programme (DEP). The DEP stores data from each questionnaire in a single text file.

The Dropbox and PureSync applications were maintained for data synchronization, storage and transmissions from the previous GAPS programmes. However, a need to review and reset the district systems for data transmission was beckoning owing to constraints experienced in some districts, specifically North Tongu, Atiwa and West Akim. Indeed, the process to review and reset the district systems for data transmission commenced on test basis with the introduction of new data synchronization software, Allway Sync. This application was piloted in a few districts close to Accra in the minor season pending possible replacement of PureSync as the main synchronization application. It was clear that Allway Sync was easier to configure and maintain and may be more reliable.

2.4.3 Monitoring and System Maintenance

Further improvements were made to the data management workflow in the minor season of this phase of the GAPS with the development of the minor season version of the data monitoring software and introduction of the automatic progress report generator. While the objective of both the data monitoring software and the report generator is to maintain data integrity at the DASO, DDA and SRID levels, the report generator focuses more on the completeness of the data and the data monitoring software, on the accuracy. The minor season version of the data monitoring application was used by the Regional M & E and SRID staff for monitoring during this minor season.

In earlier GAPS surveys progress of data entry was tracked mainly by the number of files in the DropBox, which didnôt give an accurate reflection of work done by content and, mainly for the minor season application, individual progress for Form 2a, 2b and 2c. The automatic progress report generator was introduced to address these issues by picking each file, examining its content and presenting an estimate of the extent of work for each Form.

TeamViewer (non-commercial version) was maintained from the major season of GAPS phase 2 as a tool for remote assistance to the DASOs from SRID in Accra. Although it was still used in the resolution of many issues related to folder structures, data file management, data entry and software installation and configuration, its potential was not fully exploited because of cost limitations of internet connectivity in the districts.

2.4.4 Exporting, Cleaning and Analyzing data

During the second phase, Seven Hundred and Thirteen (713) variables were compiled but only a relevant number was reported. Checking and validating were done at both the SRID and districts levels with feedback and cleaning given to DASOs during monitoring and weekly reports. Using the database export functionality of the DEP, data from all the different text files was exported into a collection of SPSS files based on record type or unit of analysis. To ensure high quality work, data cleaning was further conducted prior to the analysis stage on all the variables.

Due to serious gaps in the datasets from North Tongu and Lawra and the high probable impact of skewing the overall distribution towards lower values, these districts were not included in the analysis pending further examination of the questionnaires and datasets and possible re-entry of the data for the two districts.

Chapter 3 Discussion of Results

3.1 Characteristics of Households and Holders

This section presents key changes in the characteristics of households and holders in the survey districts. These include sex and age disaggregation of holders, marital status of households, household size, and level of literacy of household members.

3.1.1 Sex and Age Distribution of Holders

Table 3.1.1 presents the sex distribution of selected holders in the sampled districts.
Almost all the districts recorded more male holders than the female holders. Yendi, Bia and Ga East recorded the highest male holders with 80.0 percent, 78.5 percent and 78.4 percent recspectively as against 19.3 precent, 21.5 percent and 21.6 percent of female holders. However, Dormaa East, Prestea Huni Valley and Sekyere Afram Plains recorded highest female holders with 46.4 percent, 45.5 percent and 45.3 percent respectively.

Table 3.1.1: Sex Distribution of Selected Holders by Districts

District	Male	Female	Total
Prestea Huni Valley	66	55	121
	54.50%	45.50%	100.00%
Bia	146	40	186
	78.50%	21.50%	100.00%
Mfanstiman	109	85	194
	56.20%	43.80%	100.00%
Assin North	124	67	191
	64.90%	35.10%	100.00%
Ga West	119	38	157
	75.80%	24.20%	100.00%
Ga East	138	38	176
	78.40%	21.60%	100.00%
Keta	117	65	182

	64.30%	35.70%	100.00%
West Akim	101	35	136
	74.30%	25.70%	100.00%
Atiwa	109	76	185
	58.90%	41.10%	100.00%
Amansie West	117	68	185
	63.20%	36.80%	100.00%
Sekyere Afram Plains	99	82	181
	54.70%	45.30%	100.00%
Dormaa East	98	85	183
	53.60%	46.40%	100.00%
Techiman	123	70	193
	63.70%	36.30%	100.00%
Yendi	151	36	187
	80.70%	19.30%	100.00%
	142	61	203
Gushiegu	70.00%	30.00%	100.00%
Kassena Nankana East	129	57	186
	69.40%	30.60%	100.00%
Bawku Municipal	92	93	185
	49.70%	50.30%	100.00%
Sissala East	74	50	124
	59.70%	40.30%	100.00%
TOTAL	2054	1101	3155
	65.10%	34.90%	100.00%

Tables 3.1.1b and 3.1.1c presents the count and percentage of age distribution of selected holders in the sampled Districts. Prestea recorded 42 percent of holders in the age group 19 and below representing the highest among all the sampled Districts. The age group 40 to 49 recorded the highest number of 777 representing 24.0 percent.

Table 3.1.1b: Age Distribution of Selected holders by Districts

	Age Distribution of Selected Holders						
District	**(≤19 Years)**	**(20-29 Years)**	**(30-39 Years)**	**(40-49 Years)**	**(50-59 Years)**	**(60 Years and above)**	**Total**
Prestea Huni Valley	53	19	13	17	15	8	125
Bia	4	10	39	57	37	39	186
Mfanstiman	1	5	29	57	48	54	194

Assin North	3	4	38	52	52	42	191
Ga West	0	7	26	48	41	35	157
Ga East	0	3	43	61	37	32	176
Keta	3	15	24	42	47	49	180
West Akim	0	17	20	39	28	32	136
Atiwa	4	12	39	39	41	50	185
Amansie West	15	12	43	40	38	38	186
Sekyere Afram Plains	1	13	34	51	42	40	181
Dormaa East	0	10	42	46	42	43	183
Techiman	2	9	38	50	44	50	193
Yendi	3	39	51	39	23	32	187
Gushiegu	9	64	53	29	27	20	202
Kassena Nankana East	3	21	29	50	40	39	182
Bawku Minucipal	11	23	35	41	36	39	185
Sissala East	8	21	36	19	18	22	124
Total	120	304	632	777	656	664	3153

Table 3.1.1c: Percentage Age Distribution of Selected holders by Districts

Age Distribution of Selected Holders (%)							
District	**(≤19 Years)**	**(20-29 Years)**	**(30-39 Years)**	**(40-49 Years)**	**(50-59 Years)**	**(60 Years and above)**	**Total**
Prestea Huni Valley	42	15	10	14	12	6	100
Bia	2	5	21	31	20	21	100
Mfanstiman	1	3	15	29	25	28	100
Assin North	2	2	20	27	27	22	100
Ga West	0	4	17	31	26	22	100
Ga East	0	2	24	35	21	18	100
Keta	2	8	13	23	26	27	100
West Akim	0	13	15	29	21	24	100
Atiwa	2	6	21	21	22	27	100
Amansie West	8	6	23	22	20	20	100
Sekyere Afram Plains	1	7	19	28	23	22	100
Dormaa East	0	5	23	25	23	23	100
Techiman	1	5	20	26	23	26	100
Yendi	2	21	27	21	12	17	100
Gushiegu	4	32	26	14	13	10	100

Kassena Nankana East	2	12	16	27	22	21	100
Bawku Minucipal	6	12	19	22	19	21	100
Sissala East	6	17	29	15	15	18	100
Average	4	10	20	24	21	21	100

3.1.2 Marital Status of Selected Holders Household

Table 3.1.2 presents the marital status for all selected holders in the sampled districts. The table recorded the highest of 9,499 holders being single representing 56.9 percent for all the sampled districts. This is followed closely by married holders with a figure of 6,159 representing 38.3 percent. Holders who are divorced recorded the lowest figure of 263 representing 1.1 percent of the total with 555 being widowed holders representing 5.8 percent.

Table 3.1.2 : Marital Status of selected holders

	Married		Single		Divorced		Widowed	
District	No.	%	No.	%	No.	%	No.	%
Prestea Huni Valley	88	37.30%	142	60.20%	4	1.70%	2	0.80%
Bia	352	35.30%	613	61.50%	17	1.70%	15	1.50%
Mfanstiman	319	31.60%	627	62.10%	24	2.40%	39	3.90%
Assin North	337	31.10%	697	64.20%	18	1.70%	33	3.00%
Ga West	290	42.70%	364	53.60%	10	1.50%	15	2.20%
Ga East	274	35.60%	476	61.80%	10	1.30%	10	1.30%
Keta	345	36.30%	537	56.50%	23	2.40%	45	4.70%
West Akim	233	37.00%	376	59.70%	3	0.50%	18	2.90%
Atiwa	315	37.00%	472	55.50%	26	3.10%	38	4.50%
Amansie West	322	39.20%	473	57.60%	16	1.90%	10	1.20%
Sekyere Afram Plains	332	31.10%	690	64.60%	12	1.10%	34	3.20%
Dormaa East	306	30.20%	623	61.50%	36	3.60%	48	4.70%
Techiman	330	33.20%	609	61.30%	17	1.70%	38	3.80%
Yendi	637	37.90%	991	58.90%	8	0.50%	46	2.70%
Gushiegu	473	76.40%	137	22.10%	4	0.60%	5	0.80%

Kassena Nankana East	356	37.60%	506	53.40%	25	2.60%	61	6.40%
Bawku Minucipal	547	41.10%	731	54.90%	1	0.10%	52	3.90%
Sissala East	303	38.20%	435	54.90%	9	1.10%	46	5.80%
Total	6,159	38.27%	9,499	56.91%	263	1.64%	555	3.18%

3.1.3 Household Size of Selected HoldersôHousehold

Average household size per district ranges between 4 and 14. Yendi and Gushiegu recorded the largest average household size of 10 and 14 respectively while the smallest average size of 4 was recorded in Ga West. It is also observed from the household size categories that, Yendi, Gushiegu and Bawku Municipal had 38, 60 and 20 households respectively whose sizes are 15 and above representing 23.5 percent, 33.5 percent and 13.4 percent of all the categories respectively. Ga East, Ga West and Mfantsiman on the other hand, had 95, 81 and 77 households respectively whose sizes are less than 5 representing 54.9 percent, 53.6 percent and 41.2 percent respectively of all the household size categories.

Table 3.1.3: Number of Households within Various Size Categories by District

District	Average Household Size	Less Than 5	%	5 to 9	%	10 to 14	%	15 and above	%
Prestea Huni Valley	6	17	34.70%	28	57.10%	4	8.20%	0	0.00%
Bia	6	64	35.80%	99	55.30%	12	6.70%	4	2.20%
Mfanstiman	5	77	41.20%	99	52.90%	7	3.70%	4	2.10%
Assin North	6	57	30.50%	113	60.40%	17	9.10%	0	0.00%
Ga West	4	81	53.60%	59	39.10%	10	6.60%	1	0.70%
Ga East	5	95	54.90%	70	40.50%	7	4.00%	1	0.60%
Keta	6	68	40.70%	79	47.30%	17	10.20%	3	1.80%
West Akim	5	67	51.10%	58	44.30%	6	4.60%	0	0.00%
Atiwa	5	72	42.90%	90	53.60%	6	3.60%	0	0.00%
Amansie West	5	81	49.10%	69	41.80%	13	7.90%	2	1.20%
Sekyere Afram Plains	6	60	34.70%	89	51.40%	18	10.40%	6	3.50%
Dormaa East	6	59	34.90%	91	53.80%	16	9.50%	3	1.80%
Techiman	6	55	30.90%	111	62.40%	9	5.10%	3	1.70%
Yendi	10	11	6.80%	56	34.60%	57	35.20%	38	23.50%

Gushiegu	14	14	7.80%	50	27.90%	55	30.70%	60	33.50%
Kassena Nankana East	5	57	32.00%	113	63.50%	8	4.50%	0	0.00%
Bawku Minucipal	9	22	14.80%	64	43.00%	43	28.90%	20	13.40%
Sissala East	7	28	25.70%	56	51.40%	22	20.20%	3	2.80%

3.1.4 Literacy

Table 3.1.4 below presents the literacy status of household members in selected holdersô household by district. As indicated in the table, about half of the sampled districts recorded above 50 percent of respondents being literate. The proportions of literate household members were highest in the Assin North recording 96.9 percent followed by Prestea Huni Valley, Ga West and Keta recording 77.4 percent, 76.0 percent and 75.6 percent respectively. The lowest proportion of literate household members was in the Gushiegu district with a record of 16.6 percent. According to the Ghana Living Standard Survey by the Ghana Statistical Service (GSS), Gushiegu district lies within the most socio-economically deprived area of Ghana.

Table 3.1.4: Literacy status of Selected Holders' Household

	Literate		Not Literate	
District	**No.**	**%**	**No.**	**%**
Prestea Huni Valley	206	77.40%	60	22.60%
Bia	652	64.80%	354	35.20%
Mfanstiman	424	42.00%	585	58.00%
Assin North	1051	96.90%	34	3.10%
Ga West	516	76.00%	163	24.00%
Ga East	564	73.20%	206	26.80%
Keta	717	75.60%	232	24.40%
West Akim	347	55.60%	277	44.40%
Atiwa	487	57.20%	364	42.80%
Amansie West	576	70.50%	241	29.50%
Sekyere Afram Plains	519	48.60%	549	51.40%
Dormaa East	489	48.30%	524	51.70%
Techiman	551	55.50%	442	44.50%
Yendi	502	29.80%	1180	70.20%
Gushiegu	100	16.60%	501	83.40%
Kassena Nankana	447	47.40%	496	52.60%

East				
Bawku Minucipal	551	41.20%	788	58.80%
Sissala East	319	40.20%	475	59.80%

3.2 Migration

3.2.1 Changes in Household Composition

During the minor cropping season, there is a tendency of agriculture holders and other household members moving to other locations due to various socio-economic reasons, this part of the study seeks to ascertain the composition of the holdersô household members who have migrated. Migration in this context referred to the situation where a household member is not present and intends to return to the household within a total of 6 months. When a household member is not present and does not intend to return to the household within a total of 6 months he/she is said to have moved out. When a household member is newly present and intends to stay for at least 6 months after arriving he /she is considered to have moved in.

The table 3.2.1 gives information on the migration of households members in the study area. Overall 515 household members migrated from their localities to another during the minor season out of 16,637 given a percentage of 3.1. On the whole 1 percent of 16,637 household members moved in whilst 2.1 percent moved out of 16,637. Yendi recorded 0.36 percent of household members who moved out as the least migration level whilst 4.26 percent household members moved out the highest in the category. Ga East and Atiwa recorded 1.16 percent household members who moved out. Prestea Huni Valley recorded 3.66 percent of household members who moved in; Ga East and Gushiegu recorded zero percent of household members who moved in. Migration in general was low during the minor season.

Table 3.2.1 Household Composition Changes

Districts	Join/Leave Household						
	Moved Out		Moved In		Total		
	NO.	%	NO.	%	NO.	%	NO.
PRESTEA HV	7	2.56%	10	3.66%	17	6.23%	273
BIA	37	3.67%	4	0.40%	41	4.06%	1009
MFANTSIMAN	43	4.26%	31	3.07%	74	7.33%	1010
ASSIN NORTH	11	0.98%	12	1.07%	23	2.06%	1117
GA WEST	18	2.64%	4	0.59%	22	3.23%	682
GA EAST	9	1.16%	0	0.00%	9	1.16%	776
KETA	26	2.67%	10	1.03%	36	3.70%	974
WEST AKIM	25	3.97%	2	0.32%	27	4.29%	630

ATIWA	10	1.16%	9	1.05%	19	2.21%	859
AMANSIE WEST	21	2.54%	8	0.97%	29	3.51%	826
SEKYERE AP	18	1.68%	3	0.28%	21	1.96%	1071
DORMAA EAST	30	2.96%	6	0.59%	36	3.55%	1013
TECHIMAN	27	2.69%	2	0.20%	29	2.89%	1002
YENDI	6	0.36%	1	0.06%	7	0.42%	1684
GUSHIEGU	3	0.48%	0	0.00%	3	0.48%	620
KASSENA NE	19	1.99%	19	1.99%	38	3.98%	955
BAWKU MUNICIPAL	36	2.68%	37	2.76%	73	5.44%	1342
SISSALA EAST	3	0.38%	8	1.01%	11	1.39%	794
Total	**349**	**2.10%**	**166**	**1.00%**	**515**	**3.10%**	**16637**

3.2.2 Destination and Period of Movements

The table 3.2.2 depicts the migration of household members to various locations. The pattern of movement of holders in the minor season varies substantially regards to locations. The movement in the Dormaa East to same community /town accounted for the highest migration of 62.2 percent. Mfantsiman and Assin North recorded 14.3 percent. Ga West accounted for the lowest migration to same community/town by 4.3 percent. On movement to other community /same town same district Prestea Huni Valley recorded 61.1 percent with Bia recording 2.6 percent. The results depict 92.3 percent of migration to other community /town, other districts was recorded in Bia and 7.1 percent by Assin North as the lowest. Generally there was low migration to the various district capitals by the household members with Dormaa East recording 7.9 percent as the highest, Prestea Huni Valley, Mfantsiman, Bia, Assin North, Ga West; Ga East, Keta, West Akim, Atiwa, Sekyere Afram Plains, Techiman, Yendi, Gushiegu, and Kassena Nankana recorded zero percent.

The migration from the northern part of the country to capital city, Accra according the results ranges between 2.1 percent to 14.3 percent whilst for the southern sector it is between 26.1 percent and 56.2 percent.

Bawku recorded 37.3 percent as the highest migration to other cities, Bia accounted for 5.1 percent as the lowest, furthermore migration to abroad in general was low. On the whole migration to other community/town, other districts was the highest with 33.9 percent while migration to abroad was 1.1 percent among other destinations. The periods for migration to various destinations by month can be obtained in the appendix 3.1.

Table 3.2.2: Destination of Movement

District	Same community/ town	Other community/ town, same district	Other community/ town, other district	District capital	Accra	Other city	Abroad	Total
PRESTEA HV	5.6%	61.1%	22.2%			11.1%		100.0%
BIA		2.6%	92.3%			5.1%		100.0%
MFANTSIMAN	14.3%	10.0%	27.1%		10.0%	34.3%	4.3%	100.0%
ASSIN NORTH	14.3%	42.9%	7.1%		25.0%	10.7%		100.0%
GA WEST	4.3%	47.8%	26.1%			21.7%		100.0%
GA EAST	20.0%		80.0%					100.0%
KETA	19.6%	19.6%	19.6%		26.1%	13.0%	2.2%	100.0%
WEST AKIM		6.2%	31.2%		56.2%	6.2%		100.0%
ATIWA	36.4%	18.2%	18.2%		27.3%			100.0%
AMANSIE WEST	16.7%	20.0%	56.7%	3.3%			3.3%	100.0%
SEKYERE AP	63.2%		10.5%		15.8%	10.5%		100.0%
DORMAA EAST	18.4%	18.4%	44.7%	7.9%		5.3%	5.3%	100.0%
TECHIMAN	6.2%	46.9%	31.2%		6.2%	9.4%		100.0%
YENDI	42.9%		28.6%		14.3%	14.3%		100.0%
GUSHIEGU	14.3%	42.9%	28.6%		14.3%			100.0%
KASSENA NE	12.5%	12.5%	60.4%		2.1%	12.5%		100.0%
BAWKU MUNICIPAL	36.5%	5.6%	19.8%	0.8%		37.3%		100.0%
SISSALA EAST	13.3%	33.3%	33.3%	6.7%	6.7%	6.7%		100.0%
TOTAL	**19.50%**	**17.40%**	**33.90%**	**1.00%**	**9.70%**	**17.40%**	**1.10%**	

3.2.3 Reasons for Migration

The table 3.2.3 indicates the reasons for migrating to other locations, Prestea Huni Valley recorded 63.2 percent of household members migrated to work in agricultural fields, Ga East, Yendi, and Techiman recorded zero percent migration for agricultural works. The result indicates 40 percent of household members in Ga East moved out to work in non agricultural fields; Assin North and Sekeyere Afram Plains recorded zero percent. Yendi and Gushiegu recorded lowest migration level of 14.3 percent of migration to non agricultural fields.

Bia accounted for 63.40 percent household members migrating to study while Ga East, Ga West, Sekeyere Afram Plains and Sissala East recorded zero percent for migration to study. Mfantsiman recorded 56.30 percent migration to other locations for family reasons .Gushiegu and Prestea Huni Valley, recorded zero percent. The result s show 52 percent of house members

in the Sekeyere Afram Plains migrated in pursuit of other activities with 5.6 percent accounted by Mfantsiman.

On whole 14.2 percent holders migrated to work in agricultural fields, 16.8 percent household members migrated to work in non agricultural fields. Migration for family reasons was the highest 23.with migration for study and other recorded 23.1 percent, 22 percent respectively.

Table 3.2.3 Reasons for Migration

District	Work in agriculture	Work not in agriculture	Study	Family reasons	Other	Total
PRESTEA HV	12	2	3	0	2	19
	63.20%	10.50%	15.80%	0.00%	10.50%	100.00%
BIA	2	4	26	5	4	41
	4.90%	9.80%	63.40%	12.20%	9.80%	100.00%
MFANTSIMAN	9	4	14	40	4	71
	12.70%	5.60%	19.70%	56.30%	5.60%	100.00%
ASSIN NORTH	7	0	9	3	9	28
	25.00%	0.00%	32.10%	10.70%	32.10%	100.00%
GA WEST	2	6	0	6	9	23
	8.70%	26.10%	0.00%	26.10%	39.10%	100.00%
GA EAST	0	4	0	3	3	10
	0.00%	40.00%	0.00%	30.00%	30.00%	100.00%
KETA	1	11	13	9	12	46
	2.20%	23.90%	28.30%	19.60%	26.10%	100.00%
WEST AKIM	1	9	7	10	5	32
	3.10%	28.10%	21.90%	31.20%	15.60%	100.00%
ATIWA	3	2	4	5	8	22
	13.60%	9.10%	18.20%	22.70%	36.40%	100.00%
AMANSIE WEST	6	4	12	4	4	30
	20.00%	13.30%	40.00%	13.30%	13.30%	100.00%
SEKYERE AP	1	0	0	11	13	25
	4.00%	0.00%	0.00%	44.00%	52.00%	100.00%
DORMAA EAST	6	9	8	11	4	38
	15.80%	23.70%	21.10%	28.90%	10.50%	100.00%
TECHIMAN	0	11	11	6	4	32
	0.00%	34.40%	34.40%	18.80%	12.50%	100.00%
YENDI	0	1	2	3	1	7
	0.00%	14.30%	28.60%	42.90%	14.30%	100.00%
GUSHIEGU	1	1	4	0	1	7

	14.30%	14.30%	57.10%	0.00%	14.30%	100.00%
KASSENA NE	4	4	7	12	19	46
	8.70%	8.70%	15.20%	26.10%	41.30%	100.00%
BAWKU MUNICIPAL	32	29	23	14	29	127
	25.20%	22.80%	18.10%	11.00%	22.80%	100.00%
SISSALA EAST	1	3	0	6	5	15
	6.70%	20.00%	0.00%	40.00%	33.30%	100.00%
TOTAL	**88**	**104**	**143**	**148**	**136**	**619**
	14.20%	**16.80%**	**23.10%**	**23.90%**	**22.00%**	**100.00%**

3.3 Livestock, Poultry and Other Animals by Holding

3.3.1 Livestock Type and Numbers

Livestock are kept across the country for various reasons ranging from prestige, meat, mobile banks since they can be quickly converted to cash, insurance during crop failure among other things.

Table 3.3.1 below is a presentation of ownership of various livestock owned by districts.

Table 3.3.1 Number of Selected Holders who keep Livestock by Districts

District	Small Ruminants	Large Ruminants	Poultry	Pigs	Non Traditional
Prestea Huni Valley	17	4	20	-	
Bia	69	1	80	-	1
Mfantsiman	113	-	79	6	1
Assin North	44	-	115	1	2
Ga West	26	5	46	28	4
Ga East	20	-	25	3	7
Keta	55	-	144	4	-
West Akim	56	3	52	1	-
Atiwa	67	1	73	-	-
Amansie West	18	5	39	-	-
Sekyere Afram Plains	31	-	47	-	-
Dorman East	58	-	45	3	-
Techiman	46	1	45	1	-

Yendi	140	34	71	3	1
Gushegu	112	16	149	12	-
Kassena Nankana East	222	51	133	14	-
Bawku Municipal	143	49	181	7	-
Sissala East	56	12	56	-	-
Total	**1293**	**182**	**1400**	**83**	**16**

3.3.1.1. Small Ruminants

The small ruminant category is made up of the Djallonke sheep, Sahelian goats, Sahelian sheep and West African Dwarf goats.

The Yendi and Bawku districts reported the highest number of holders who have some Djallonke sheep, whilst Kassena Nankana East district reported the highest number of holders with Sahelian sheep. These are sheep that come mainly from the Sahel regions of Baurkina Faso and beyond.

Yendi (82) and Mfantsiman (79) have the highest number of holders who keep the West African dwarf goat, which are indigenous to Ghana and the non-Sahel parts of Africa and thrive quite well in these environments.

Table 3.3.1.1 Number of Holders who keep Small Ruminants

District	Djallonke Sheep	Sahelian Goat	Sahelian Sheep	West Africa Dwarf Goat
Prestea Huni Valley	2	0	4	11
Bia	23	3	12	31
Mfantsiman	27	1	6	79
Assin North	5	0	7	32
Ga West	6	2	1	17
Ga East	3	0	2	15
Keta	3	1	6	45
West Akim	10	1	1	44
Atiwa	0	42	25	0
Amansie West	0	0	18	0
Sekyere Afram Plains	3	16	10	2
Dorman East	0	36	14	8

Techiman	6	3	11	26
Yendi	43	1	14	82
Gushegu	31	3	14	64
Kassena Nankana East	46	58	43	75
Bawku Municipal	61	10	10	62
Sissala East	21	2	1	32
Total	**290**	**179**	**199**	**625**

3.3.1.2 Large Ruminants

Large ruminants are made up of animals whose anatomy include a four chambered digestive system, distinct from animals with simple digestive system. This report covers donkeys, Ghana Shorn horn also known as West African Short Horn cattle, Ndama, Sanga and Zebu.

Districts in the three northern regions of Ghana reported higher numbers of possession of large ruminants (table 3.3.1.2).

Table 3.3.1.2 Number of Holders who keep Large Ruminants

District	Ghana WASH	Ndama	Sanga	Zebu	Total
Prestea Huni Valley	4	0	0	0	4
Bia	0	0	0	1	1
Ga West	5	0	0	0	5
West Akim	3	0	0	0	3
Atiwa	1	0	0	0	1
Amansie West	5	0	0	0	5
Techiman	0	0	1	0	1
Yendi	32	1	1	0	34
Gushegu	11	0	1	4	16
Kassena Nankana East	27	3	19	2	51
Bawku Municipal	20	18	4	7	49
Sissala East	0	0	1	11	12
Total	108	22	27	25	182

3.3.1.3. Poultry

Local poultry is the most kept by all holders across the country as presented in Table 3.13. Bawku Municipal and Assin North however reported the largest number of holders who keep local poultry. The introduction of Cross chicken which is an effort by the Animal Production Directorate to improve the sizes of our local chicken, by introducing bigger exotic cocks, is also catching up well with Gushegu and Sissala East recording the highest number of holders keeping such chicken.

Keta recorded the highest number of duck keepers among the districts, whilst Guinea fowl is mainly kept in the northern regions of the country. The survey revealed that Guinea fowl ia mainly kept in the northern sector of the country. The northern sector districts, Bawku Municipal and Kassena Nankana East alone accounted for over 81 percent of the total number of holders reproting. Exotic chicken which are kept commercially is highest in the Urban and semi urban districts with Ga East and Ga West recording 5 and 3 respectively.

Table 3.3.1.3 Number of Holders who keep Poultry

District	Cross Chicken	Duck	Exotic Chicken	Guinea Fowl	Local chicken	Turkey
Prestea Huni Valley	0	0	0	0	20	0
Bia	0	9	0	7	63	1
Mfantsiman	0	2	2	0	75	0
Assin North	0	1	1	0	113	0
Ga West	1	3	3	1	36	2
Ga East	0	5	5	1	13	1
Keta	2	37	1	4	99	1
West Akim	4	0	0	0	48	0
Atiwa	0	2	0	0	71	0
Amansie West	0	0	0	0	39	0
Sekyere Afram Plains	0	4	0	2	40	1
Dorman East	0	3	1	1	40	0
Techiman	0	1	0	1	42	1
Yendi	0	0	0	5	65	1
Gushegu	13	3	0	33	100	0
Kassena Nankana East	1	3	0	23	105	1
Bawku Municipal	0	2	0	47	132	0
Sissala East	15	4	0	2	35	0
Total	**36**	**79**	**13**	**127**	**1136**	**9**

3.3.1.4. Pigs

Two types of pigs are kept by holders in the districts. The exotic pigs are usually confined and fed with compounded feeds. The local pigs are mainly scavengers, and only given supplementary feed occasionally. Ga West which has some rural communities and Kassena Nankana districts recorded the highest number of local pig owners. Ga East and west again recorded 3 holders each of holders who kept exotic pigs.

Table 3.3.1.4 Number of Holders who keep Pigs

Districts	Exotic pig	Local pig
Bia	1	3
Mfantsiman	1	5
Assin North	0	1
Ga West	3	25
Ga East	3	0
Keta	2	2
West Akim	1	0
Dorman East	1	2
Techiman	0	1
Yendi	0	3
Gushegu	0	12
Kassena Nankana East	0	14
Bawku Municipal	0	7
Total	**12**	**75**

3.3.1.5 Non-traditional Livestock

Non traditional livestock reported on in the survey were Grasscutter, Pigeon and Rabbits. Table 3.15 show grasscutter to be the most kept with Ga East and Ga West alone accounting for 81.8 percent of holders keeping grasscutter. .

Table 3.3.1.5 Number of Holders who keep Non Traditional Livestock

District	Grasscutter	Pigeon	Rabbit	Total
Bia	0	0	1	1
Mfantsiman	1	0	0	1
Assin North	1	0	1	2
Ga West	2	1	1	4
Ga East	7	0	0	7
Yendi	0	0	1	1
Total	**11**	**1**	**4**	**16**

3.3.2 Animal Husbandry Practices

There are some essential husbandry practices undertaken by livestock keepers. The survey sought responses from holders about such practices. Table 3.16 represents their responses.

Deworming and Dipping engaged the holders most. These practices deal with internal and external health issue of their livestock. Dorman East and Keta districts were the least in their husbandry practices.

Table 3.3.2a Husbandry Practices in Livestock

District	Wound Treatment			Dipping/Spraying			Deworming			Castration		
	No	*Yes*	*% Yes*	*No*	*Yes*	*%Yes*	*No*	*Yes*	*%Yes*	*No*	*Yes*	*% Yes*
Prestea Huni Valley	0	4	100%	0	6	100%	0	7	100%	0	2	100%
Bia	2	0	0%	2	8	80%	1	48	98%	2	0	0%
Mfantsiman	1	7	88%	1	2	67%	1	13	93%	1	6	86%
Assin North	0	7	100%	0	5	100%	0	22	100%	0	1	100%
Ga West	0	2	100%	0	4	100%	0	37	100%	0	3	100%
Ga East	0	7	100%	0	1	100%	0	17	100%	0	2	100%
Keta	0	0	-	1	4	80%	0	7	100%	0	6	100%
West Akim	29	19	40%	29	5	15%	29	23	44%	29	22	43%
Atiwa	2	2	50%	2	10	83%	2	13	87%	2	2	50%
Amansie West	0	0	-	0	1	100%	0	7	100%	0	0	-
Sekyere Afram Plains	5	2	29%	5	6	55%	5	14	74%	5	0	0%
Dorman East	93	0	0%	88	4	4%	79	17	18%	91	2	2%
Techiman	38	9	19%	34	2	6%	36	14	28%	34	2	6%
Yendi	0	27	100%	0	7	100%	0	150	100%	0	29	100%
Gushegu	6	23	79%	6	11	65%	5	88	95%	7	29	81%
Kassena Nankana East	0	2	100%	0	14	100%	0	47	100%	0	0	-
Bawku Municipal	10	70	88%	6	7	54%	7	99	93%	10	35	78%
Sissala East	0	16	100%	0	5	100%	0	90	100%	0	0	-
Average			**68%**			**73%**			**85%**			**63%**

3.3.2.1 Livestock Housing

Housing is another important husbandry practice in livestock production. Where livestock spend their nights has implications on their health and survival. In the day livestock may normally return to where they sleep for food and water.

The survey revealed that small ruminants (sheep and goats) in the selected districts are kept in the compound of houses. Ninety five (95%) of holders interviewed housed their sheep and goats in the compound of their houses across the sampled districts. 78 and 77 percent tethered and caged their small ruminants respectively in selected districts (see table 3.3.b).

Table 3.3.2b Housing of Small Ruminants

District	House/Compound			Tethered			Cage			Other		
	No	*Yes*	*%Yes*	*No*	*Yes*	*%Yes*	*No*	*Yes*	*%Yes*	*No*	*Yes*	*%Yes*
Prestea Huni Valley	0	20	100%	0	2	100%	0	3	100%	0	1	100%
Bia	3	102	97%	2	14	88%	2	35	95%	1	39	98%
Mfantsiman	0	186	100%	0	1	100%	0	54	100%	0	37	100%
Assin North	0	98	100%	0	1	100%	0	17	100%	0	46	100%
Ga West	0	93	100%	0	3	100%	0	19	100%	0	20	100%
Ga East	1	45	98%	0	0	-	0	5	100%	0	8	100%
Keta	0	178	100%	0	30	100%	0	35	100%	0	56	100%
West Akim	1	76	99%	19	6	24%	19	7	27%	18	44	71%
Atiwa	0	114	100%	0	0	-	0	17	100%	0	55	100%
Amansie West	0	47	100%	0	0	-	0	16	100%	0	10	100%
Sekyere Afram Plains	0	70	100%	0	1	100%	0	1	100%	0	24	100%
Dorman East	18	84	82%	95	1	1%	79	15	16%	76	19	20%
Techiman	45	20	31%	29	0	0%	37	4	10%	33	1	3%
Yendi	0	104	100%	0	10	100%	0	35	100%	0	44	100%
Gushegu	0	250	100%	7	31	82%	7	2	22%	3	141	98%
Kassena Nankana East	0	79	100%	0	31	100%	0	3	100%	0	7	100%
Bawku Municipal	1	394	100%	12	29	71%	12	1	8%	13	51	80%
Sissala East	0	94	100%	0	4	100%	0	25	100%	0	30	100%
Average			**95%**			**78%**			**77%**			**87%**

Large Ruminants Housing

Large ruminants (cattle, donkey etc.) are kept mainly in kraals and the compounds of holders' houses (Appendix 3.3.2a). Most holders in the northern regions of the country, kept cattle in

kraals at the outskirts of communities but brought cattle to the house and compound during crop farming season, in order to feed them and prevent cattle destroying crop farms in the community and farms around.

Poultry kept by holders are local poultry, and these are mainly kept on the compound of the houses (Appendix 3.3.2b). Other types of housing are coops and baskets used to cover poultry at night. Cages refer to constructed housing for poultry. These are mainly used by commercial poultry farmers, but of late a lot of cages have been designed by the MOFA with local materials.

3.3.3 Main Illness of Livestock

Livestock illnesses reported by holders are not based on veterinary evidence but what holders reported as illnesses that plagued their livestock. Enumerators were guided by a list of symptoms that helped them identify and categorise illnesses.

3.3.3.1 Small Ruminants main Illness

Peste de Petite Ruminant (PPR) was the most reported in all districts, this is followed by Mange and Unknown illnesses. Foot rot was the least reported.

Table 3.3.3.1 Main illness of Small Ruminants

District	Parasites / Worms	Pneumonia	PPR	Footrot	Mange	Bloat	Ingestion of Polythene	Unknown
Prestea Huni Valley	0	0	0	0	0	0	0	3
Bia	3	0	4	0	0	0	0	0
Mfantsiman	1	0	9	0	7	0	0	3
Assin North	0	0	2	0	1	2	0	2
Ga West	0	0	1	0	1	0	0	0
Ga East	1	1	2	0	0	1	0	2
Keta	0	0	11	0	5	0	0	7
West Akim	1	0	21	0	1	0	1	0
Atiwa	1	0	4	0	3	0	0	2
Amansie West	0	0	3	0	0	0	0	0
Sekyere Afram Plains	0	0	4	0	0	0	0	6
Dorman East	0	0	33	0	8	0	0	2

Techiman	3	0	20	0	0	1	0	0
Yendi	0	1	1	0	0	0	0	0
Gushegu	0	0	57	0	6	0	0	0
Kassena Nankana East	5	5	3	1	0	0	0	0
Bawku Municipal	3	2	15	0	0	0	0	0
Sissala East	0	17	1	0	0	0	1	2
Total	**18**	**26**	**191**	**1**	**32**	**4**	**2**	**29**

3.3.3.2 Large Ruminants Illness

Contagious Bovine Pleuro Pneumonia (CBPP) and Pneumonia were the most reported. The northern region districts of Bawku, Kassena Nankana and Gushegu recorded the most cases

Table 3.19 Main Illness of Large Ruminants

District	Pneumonia	CBPP	Tuberculosis	Foot and Mouth Disease	Mange
Prestea Huni Valley	1	0	0	0	0
Ga West	0	0	0	1	0
West Akim	0	1	0	0	0
Techiman	0	1	0	0	0
Gushegu	0	6	0	1	1
Kassena Nankana East	2	0	0	1	0
Bawku Municipal	0	7	0	0	0
Sissala East	0	2	1	0	0
Total	**3**	**17**	**1**	**3**	**1**

3.3.3.3 Poultry main Illness

New castle Diseases were the most reported in all districts and this mainly occurred around the drier periods of the year. Fowl Pox was also noticeable on poultry kept perhaps due to its visibility.

Table 3.3.3.3 Main Illness of Poultry

District	New Castle Diseases	Fowl pox	Mareks Disease	Gumboro	Coccidiosis

Bia	10	1	0	0	1
Mfantsiman	9	0	0	1	2
Assin North	7	3	0	1	5
Ga West	4	1	0	0	0
Ga East	1	0	0	0	1
Keta	33	1	4	0	3
West Akim	29	7	0	0	0
Atiwa	3	0	0	0	2
Amansie West	3	1	0	0	1
Sekyere Afram Plains	9	1	1	0	2
Dorman East	33	0	0	0	0
Techiman	16	3	0	0	0
Yendi	7	0	0	1	0
Gushegu	88	1	0	0	0
Kassena Nankana East	11	0	0	0	0
Bawku Municipal	25	1	0	0	0
Sissala East	10	3	0	1	1
Total	**298**	**23**	**5**	**4**	**18**

3.4 Aquaculture

Aquaculture practices has recently been revived into the Ghanaian fish industry from the zeal that died down in the 1980s as an economic activity with the potential to generate employment and reduce poverty. During the 80s a lot of fish ponds were constructed across the country, but these ponds could not be sustained. Recognising the great potential in this economic activity, the Government of Ghana acting through the Ministry of Fisheries has established a unit responsible for Inland Fishing and Aquaculture, focusing largely on the scientific cultivation of fish.

Table 3.4 reflects aquaculture practice in the 20 selected districts covered by the survey. Out of a total number of 3178 respondents only 12 representing 0.4 percent practice some form/kind of aquaculture.

Table 3.4 Holders Practicing Aquaculture by District

Districts	Total Respondents	Yes	%	No	%

Prestea Huni Valley	83	1	*1.2%*	82	*98.8%*
Bia	190	2	*1.1%*	188	*98.9%*
Mfantsiman	195	1	*0.5%*	194	*99.5%*
Assin North	198	2	*1.0%*	196	*99.0%*
Ga West	155	1	*0.6%*	154	*99.4%*
Ga East	178	0	*0.0%*	178	*100.0%*
Keta	186	0	*0.0%*	186	*100.0%*
West Akim	139	1	*0.7%*	138	*99.3%*
Atiwa	192	0	*0.0%*	192	*100.0%*
Amansie West	175	1	*0.6%*	174	*99.4%*
Sekyere Afram Plains	191	2	*1.0%*	189	*99.0%*
Dormaa East	185	0	*0.0%*	185	*100.0%*
Techiman	198	0	*0.0%*	198	*100.0%*
Yendi	190	0	*0.0%*	190	*100.0%*
Gushiegu	200	0	*0.0%*	200	*100.0%*
Kassena Nankana	203	1	*0.5%*	202	*99.5%*
Bawku Municipal	186	0	*0.0%*	186	*100.0%*
Sissala East	134	0	*0.0%*	134	*100.0%*
Total	**3178**	**12**	***0.4%***	**3166**	***99.6%***

3.4.1 Aquaculture Inputs and Practices

All respondents had ponds of various sizes. A fish farmer normally will have a harvest net and a scoop net, which is used to scoop up fish to show to customers or fingerlings to check on their sizes from time to time. Baskets of various sizes were used to hold the harvested fish for sale.

Three districts reported surface areas of the ponds they had. Assin Northôs 2 ponds had a total of 2,724 square meters of pond surface area, which were the largest (table 3.4.1). Tilapia and Mudfish are the main species kept in the districts (table 3.4.2).

Table 3.4.1 Total Surface Area of Ponds by District

District	Surface Area (Sq. Metres)
Bia	144
Mfantsiman	18
Assin North	2,724
TOTAL	**2,886**

Table 3.4.2 Aquatic Species kept

Species

District	Tilapia	African Mudfish (Catfish)
Bia	1	1
Mfantsiman	0	1
Assin North	3	3
Total	**4**	**5**

3.5 Health Status of Selected Holders

The health of any people is linked to the general state of development of the country (Ghana Statistical Service, November, 2006). This statement corroborates results from this section of the study. Figures from tables ***3.5.1 to 3.5.3*** in the text and ***3.7c and d*** in the appendices suggests that the health status of holders affect activities on their holdings. The same can be said for the health of members of the holdersô household.

Holders in all these instances had to forgo some farm activities to take care of their ailing health or that of a household member. Productivity of holders in particular and agricultural development in general could therefore be negatively affected in such situations.

3.5.1 Total Number of Holders who felt sick in the last 2 weeks

Figures from table 3.5.1 below show that 679 respondents out of a total number of 2243 representing 30% of selected holders reported cases of ill health in all 20 districts within the 2-week specified period.

The table further indicates that, Prestea district reported the highest number of cases of ill health among holders across districts. Thirteen (13) out of 18 selected holders representing 67% felt sick within the period. Yendi district on the other hand, reported the lowest number of cases of ill health amongst holders. Four (4) out of a total of 171 respondents, representing 2% reported sick within the specified period.

Table 3.5.1 Total Number of Holders who felt sick in the last 2 weeks

Districts	Number of Holders who felt sick		Total
	YES	NO	
Prestea	12	6	18
Bia	38	119	157

Mfanstiman	54	68	122
Assin North	49	139	188
Ga West	33	25	58
Ga East	38	117	155
Keta	44	83	127
West Akim	32	34	66
Atiwa	34	106	140
Amansie West	17	80	97
Sekyere AP	47	70	117
Dormaa East	62	102	164
Techiman	57	100	157
Yendi	11	160	171
Gushegu	32	91	123
Kassena	36	123	159
Bawku	70	67	137
Sissala East	13	74	87
Total	**679**	**1564**	**2243**

3.5.2 Total Number of Holders who missed a full day's work due to Ill Health

According to table 3.5.2 below, out of a total of 2247 holders, 520 representing 23% of selected holders across districts missed a full dayôs work due to ill health. Whilst figures from the table show an impressive health situation of respondents from some districts, others paint a gloomy picture.

The table for instance show that 4 out of a total of 171 holders, representing 2% of selected holders missed a full dayôs work due to ill health in the Yendi district. The

situation was however different for that of Bawku Municipal and West Akim district. In these districts, a significant proportion i.e. 56 out of 137 and 30 out 66 respondents, representing 41% and 45% of selected holders respectively, reported that they missed a full dayôs work due to ill health.

Table 3.5.2 Total number of Holders who missed full day's work due to Ill Health

Districts	Number of Holders missing full day's work		Total
	YES	NO	
Prestea	3	6	9
Bia	38	119	157
Mfanstiman	39	83	122
Assin North	35	153	188
Ga West	17	41	58
Ga East	30	125	155
Keta	42	85	127
West Akim	30	36	66
Atiwa	33	107	140
Amansie West	11	87	98
Sekyere Afram Plains	34	84	118
Dormaa East	39	125	164
Techiman	47	119	166
Yendi	9	167	171
Gushegu	25	98	123
Kassena Nankana East	24	137	161

Bawku Municipal	56	81	137
Sissala East	13	74	87
Total	**520**	**1727**	**2247**

3.5.3 Total Number of Holders who Missed Full Day's Work due to Ill Health of a Household Member

Tables 3.5.3 and appendix 3.5.3 indicate that in all districts under review, some selected holders missed a day or part of a dayôs work due to ill health of a member of their household. This presupposes that the health status of holdersô household members have a direct impact on their productivity.

The tables further indicates that, in almost all districts, reported cases of holders who missed a dayôs work due to ill health of a household member was lower compared to the case in which the holder him/her self reported sick. Table 3.5.3 for instance show that, 14% of holders missed a full dayôs work due to ill health of a household member whilst 23% of holders themselves missed a dayôs work due to ill health they suffered (table 3.5.2).

Table 3.5.3 Number of Holders who missed full day's work due to Ill Health of Household Member

Districts	Holders missing day's work due to ill health of HH member		Total
	YES	NO	
Prestea	12	6	18
Bia	16	141	157
Mfanstiman	22	100	122
Assin North	47	141	188
Ga West	4	55	59

Ga East	11	144	155
Keta	21	109	130
West Akim	20	46	66
Atiwa	24	116	140
Amansie West	8	91	99
Sekyere AP	21	101	122
Dormaa East	7	154	164
Techiman	23	144	167
Yendi	2	171	173
Gushegu	19	104	123
Kassena	14	149	163
Bawku	44	100	144
Sissala East	3	84	87
Total	**318**	**1959**	**2277**

3.6 Production and Marketing

Various commodities were cropped during the minor season in the districts. Appendix 3.6 show that 1116 holders took part in the minor season farming. Overall, more holders (16.2%) cropped in Keta than in any other district. On the other hand, Amansie West saw the least number of holders (1.5%) going into minor season farming. This can be explained by the fact that holders in Keta do practice irrigation and so are able to farm all year round. In the case of Amansie West, however, it is presumed that most farmers did not do minor season farming because of the emergence of small scale mining in the district. The possibility of farmersô involvement is therefore high because of the huge financial gains associated with it. Cassava and maize were the crops mostly cultivated by holders in the selected districts.

3.6.1 Production, Utilization and Sale of Commodities

Information on the quantities of various commodities produced was provided by holders. Appendix 3.7 in the appendix indicates the form in which these commodities were utilized.

3.6.2 Production and Utilization of Maize

The results in Table 3.6.2 show that greater proportion of maize (76.3%) produced in the pilot districts was sold. The portion consumed at home was 20 percent whiles 4 percent was used as payment in kind for labour. Techiman district produced the largest volume of maize (94,570kg) representing 52.2 percent of total maize production.

Table 3.6.2 Production Quantities and Utilization of Maize (kg)

District	No. of Respondents	Total Production	Home consumption	Payment in Kind for Labour	Quantity Sold
Prestea HV	121	2575	425		2150
Mfantsiman	194	900	600		300
Assin North	191	7609	2215	201	5193
Keta	182	9706	2255	4649	2802
West Akim	136	4660	2687	1019	955
Atiwa	185	18183	3645	157	14381
Amansie West	185	1027	579	84	364
Sekyere Afram Plains	181	35255	4888		30367
Dormaa East	183	6465	663	55	5747
Techiman	193	94570	18242	572	75756
Total	1751	180950	36199	6737	138015

3.6.3 Production and Utilization of Rice

Quantities of production and utilization for rice are presented in Table 3.6.3. Sekyere Afram Plains and Kassena Nakana East were the only districts where rice was cultivated for the minor season. A total of 6800kg of the commodity was produced out of which a greater portion, 5576kg constituting 82 percent was sold.

Table 3.6.3 Production Quantities and Utilization of Rice (kg)

District	No. of Respondents	Total Production	Home consumption	Payment in Kind for Labour	Quantity Sold

Sekyere AP	181	3600			3600
Kassena NE	186	3200	565	659	1976
Total	367	6800	565	659	5576

3.6.4 Production and Utilization of Cocoa

Table 3.6.4 presents the quantities of cocoa produced in the minor season. A total of 22432kg was obtained from the pilot districts in the Western and Eastern regions. The respondents indicated that 80 percent of the commodity was sold whiles 20% percent was used as payment in kind for labour. In Atiwa however, all the produce was sold.

Table 3.6.4 Production Quantities and Utilization of Cocoa (kg)

District	No. of Respondents	Total Production	Home consumption	Payment in Kind for Labour	Quantity Sold
Prestea HV	121	1536		512	1024
Bia	186	5040		1163	3877
West Akim	136	7320		2906	4414
Atiwa	185	8536			8536
Total	628	22432		4581	17851

3.6.5 Production and Utilization of Tomato

The quantities of tomato produced by the various districts in the minor season are presented in table 3.6.5. A total of 6753kg was produced out of which 96 percent was sold for income and 4 percent used in the home. None was used as payment in kind for labour.

Table 3.6.5 Production Quantities and Utilization of Tomato (kg)

District	No. of Respondents	Total Production	Home consumption	Payment in Kind for Labour	Quantity Sold
Mfantsiman	194	20	7		13
Amansie West	185	400	50		350
Sekyere AP	181	952			952
Dormaa East	183	1575	75		1500
Techiman	193	3536	109		3427
Kassena NE	186	270			270
Total	1122	6753	241		6512

3.6.6 Production and Utilization of Okro

Production for okro is as presented in Table 3.6.6. In all, 1119 respondents from the various districts produced a total of 2937kg of okro. 95 percent of the total production was sold whiles 5 percent was consumed by holders in the home. 1 percent of the total produce was used as payment in kind for labour and this occurred in the Assin North district.

Table 3.6.6 Production Quantities and Utilization of Okro (kg)

District	No. of Respondents	Total Production	Home consumption	Payment in Kind for Labour	Quantity Sold
Mfantsiman	194	200			200
Assin North	191	507	47	36	424
Ga East	176	80	20		60
Keta	182	850			850
Dormaa East	183	400	20		380
Techiman	193	900	30		870
Total	1119	2937	117	36	2784

3.6.7 Production and Utilization of Hot Pepper

Figures for hot pepper show that out of a total production of 2461kg, 82 percent was sold and 14 percent used as payment in kind for labour. Only 108kg representing 4 percent of total production was consumed at home (Table 3.6.7.

Table 3.6.7 Production Quantities and Utilization of Hot Pepper (kg)

District	No. of Respondents	Total Production	Home consumption	Payment in Kind for Labour	Quantity Sold
Mfantsiman	194	249		75	174
Keta	182	348	18		330
West Akim	136	599	85	257	257
Techiman	193	1265	5		1260
Total	705	2461	108	332	2021

3.6.8 Tree Crops

Tables 3.6.8 indicate the total number of tree crops planted in the sampled districts. The total number of cocoa trees recorded in the survey districts was 2,328,892. A total number of 415,290 cocoa hybrids were planted in 6 districts out of the selected districts with Dormaa East recording 319,200 being the highest. Cocoa local on the other hand recorded 1,913,602 for 11 districts representing 82.1 percent of the total number of cocoa trees planted. Bia district recorded 841,483 number of cocoa local trees being the highest.

A total of 134,530 oil palm trees planted were recorded for 12 districts. West Akim recorded 68,480 oil palm trees planted representing about 51.0 percent of the total. Other tree crops recorded include coconut, avocado, mango, oranges, cashew, cola, lime, papaya, and Shea nut.

The number of trees by age and percentage of new trees planted in the last 12 months are presented in appendices 3.6.8.1 and 3.6.8.2.

Table 3.6.8 Total Number of Tree Crops by District

REGION	DISTRICT	Cocoa Hybrid	Cocoa Local	Oil Palm	Avocado	Coconut	Mango	Oranges
Western	Prestea Huni Valley	13,010	103,877	5,825	-	-	-	-
	Bia	-	841,483	6,001	67	26	4	544
Central	Mfantsiman	-	630	10,880	-	165	52	2920
	Assin North	30	233,106	22,049	-	-	-	1984
Greater Accra	Ga West	1	35	447	32	35	55	79
	Ga East	-	-	-	-	-	-	-
Volta	Keta	-	-	496	-	769	195	8
Eastern	West Akim	46,343	41,394	68,480	-	-	-	3585
	Atiwa	9,729	311,758	3,529	-	240	-	2500
Ashanti	Amansie West	26,977	261,790	3,080	-	-	-	800
	Sekyere Afram Plains	-	25,599	4,766	17	160	22	780
Brong Ahafo	Dormaa East	319,200	19,400	7,677	-	30	-	577
	Techiman	-	74,530	1,300	-	-	96	1483
Northern	Yendi	-	-	-	-	-	88	-
	Gushiegu	-	-	-	-	-	6	-
Upper East	Kassena Nankana East	-	-	-	-	-	269	5

	Bawku Municipal	-	-	-	-	-	18	-
	Sisala East	-	-	-	-	-	54	-
Upper West		**CROPPED AREA (Ha)**		**AVERAGE YIELD (Mt/Ha)**		**PRODUCTION (Mt)**		
Total		**415,290**	**1,913,602**	**134,530**	**116**	**1,425**	**859**	**15,265**

Table 3.6.8 Total number of Tree crops by District (Cont'd)

REGION	DISTRICT	Cashew	Lime	Pawpaw	Cola	Shea nut
Central	Mfantsiman	72	3,255	-	-	-
Greater Accra	Ga West	-	1	34	-	-
Volta	Keta	2	-	4	-	-
	West Akim	-	-	-	2,800	-
	Atiwa	-	-	-	150	-
Eastern	Sekyere Afram Plains	-	-	18	-	-
Brong Ahafo	Dormaa East	1800	-	-	-	-
	Techiman	7639	-	-	-	-
Northern	Yendi	21	-	-	-	253
	Gushiegu	-	-	-	-	612
Upper East	Kassena Nankana East	12	-	47	-	-
	Bawku Municipal	-	-	-	-	7
Upper West	Sisala East	731	-	-	-	1704
		10,277	**3,256**	**103**	**2,950**	**2,576**

Table 3.6.9 Area, Yield and Production of Minor Season Cereals by Districts

REGION	DISTRICT	MAIZE	RICE	MAIZE	RICE	MAIZE	RICE
Central	Assin North	8	-	2.33	-	18	-
Ashanti	Amansie West	350	-	2.72	-	951	-
	Sekyere Afram Plains	560	73	2.91	5.75	1,630	419
Brong Ahafo	Techiman	2,325	-	1.77	-	4,116	-
	Dormaa East	40	-	1.65	-	67	-
TOTAL/AVERAGE		**3,283**	**73**	**2.28**	**5.75**	**6,781**	**419**

3.6.9

Production of Food Crops

Production of food crops during the minor season is limited mainly to the southern sector districts. Table 3.6.9 presents results obtained on cereal production in Central, Ashanti and Brong Ahafo regions.

3.6.10 Use of Agro-Inputs (improved seed, fertilisers etc)

The main agro inputs (certified seeds and agro-chemicals) used in the pilot districts are presented in Tables 3.6.10a and 3.6.10b respectively. figures from the table show that a greater number of farmers are not using certified seeds for cultivation. It was observed that only 9.2 percent of respondents used certified seed with Keta recording the highest number of holders (44), representing 24.2 percent during the minor season. On the other hand, Amansie West recorded one holder using certified seeds.

Table 3.6.10a Use of Certified Seed by Holders in Selected Districts

District	No. of Holders Using Certified Seeds	Total No. of Holders	Percentage
PresteaHuni Valley	27	121	22.3
Bia	13	186	7.0
Mfantsiman	2	194	1.0
Assin North	11	191	5.8
Ga West	18	157	11.5
Ga East	19	176	10.8
Keta	44	182	24.2
West Akim	11	136	8.1

Atiwa	29	185	15.7
Amansie West	1	185	0.5
SekyereAfram Plains	9	181	5.0
Techiman	16	193	8.3
KassenaNankana East	9	186	4.8
Total	**209**	**2273**	**9.2**

Table 3.6.10b Holders using Agro-chemicals in Districts

	No. of Holders using Agro-Chemicals in district							
District	Actellic	Karate	Roundup	Dusban	Atrazine	Champion	Gramazone	Total
Prestea Huni Valley	0	5	18	0	3	1	21	48
Mfantsiman	0	2	2	1	2	1	3	11
Assin North	1	5	14	1	6	3	11	41
Ga West	1	4	24	1	5	2	3	40
Ga East	0	1	10	19	0	2	0	32
Keta	1	3	2	17	0	4	0	27
West Akim	5	2	42	8	20	15	36	128
Atiwa	0	2	30	5	21	1	8	67
Amansie West	0	0	0	1	1	0	1	3
Sekyere Afram Plains	0	0	0	0	4	0	0	4
Dorman East	0	1	15	0	11	0	0	27
Techiman	1	17	32	0	8	2	19	79
Yendi	0	141	28	1	21	122	1	314
Kassena Nankana East	0	9	4	1	0	0	1	15
Total	**9**	**192**	**221**	**55**	**102**	**153**	**104**	**836**

For agro-chemicals, a total of 836 holders responded to using one or more of the agro-chemicals as shown in Table 3.6.10b. The table indicates that agro-chemical use was higher among holders in Yendi (314) than in other districts. Among the agro-chemicals mentioned, Roundup was the mostly used by selected holders. 221 out of a total of 836 holders representing 26.4 percent affirmed the use of roundup. Actellic on the other hand

was the least used among selected holders. The table shows 9 out of 836 holders representing 1.1 percent used it in their farming operations.

Table 3.6.10c Number of Holders using Fertilizer in Districts

District	NPK	%	Sulphate	%	Urea	%	No. of Respondents
Prestea Huni Valley	19	15.7	12	9.9	11	9.1	121
Bia	35	18.8	35	18.8	35	18.8	186
Mfantsiman	16	8.2	14	7.2	14	7.2	194
Assin North	190	99.5	190	99.5	190	99.5	191
Ga West	58	36.9	58	36.9	58	36.9	157
Ga East	85	48.3	85	48.3	85	48.3	176
Keta	96	52.7	94	51.6	95	52.2	182
West Akim	66	48.5	66	48.5	66	48.5	136
Atiwa	115	62.2	115	62.2	115	62.2	185
Amansie West	30	16.2	26	14.1	24	13.0	185
Sekyere Afram Plains	63	34.8	62	34.3	62	34.3	181
Dorman East	170	92.9	170	92.9	170	92.9	183
Techiman	190	98.4	190	98.4	190	98.4	193
Yendi	184	98.4	184	98.4	184	98.4	187
Kassena Nankana East	60	32.3	60	32.3	58	31.2	186
Bawku Municipal	10	5.4	10	5.4	10	5.4	185
Total	**1387**	**49.0**	**1371**	**48.5**	**1367**	**48.3**	**2828**

The proportion of holders using various types of fertilizers is presented in Table 3.6.10c. The types of fertilizers commonly used in the selected districts are NPK, Sulphate and Urea. In all, 2828 holders responded to using one or more of these fertilizers in all 20 districts. Even though NPK was observed to be the most used fertilizer with 1387 holders

responding to using it, sulphate and urea were also widely used with 1371 and 1367 holders using them respectively. Assin North recorded the highest number of holders (190 out of 191 respondents representing 99.5%) using fertilizers whiles Bawku recorded the least number of fertilizer users (5% of the respondents).

3.6.10 Storage

The table 3.6.11 indicates the various storage facilities used by holders in selected districts. Cribs/barns as well as rooms in holders' homes were popular modes of storage amongst holders (20% and 30% respectively) in the selected districts. The table also shows that a sizable number of holders (29%) across the districts do not store their produce suggesting that they sell their produce fresh. Overall, 894 holders used at least one of the storage facilities. The study indicates 36 percent of the holders stored their produce in a room, 1 percent of the holders accounted for the use of pots as a storage facility. Mfantsiman recorded one respondent using silo as a medium to store the produce. Bawku Municipal recorded the highest use of storage facilities of 18 percent. Preatea Huni Valley, Kassena Nankana, and Amansie West recorded 1 percent use of storage facilities. West Akim recorded 64 percent for heaping of produce on the ground as a means of storage.

Table 3.6.11 Storage Facilities

	Storage Facilities															
	Silos		Pots		Cribs/Barns		Room		Heaped on Ground		Other		None		All	
District	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
PRESTEA HV	0	0%	0	0%	0	0%	8	3%	0	0%	1	1%	1	0%	**10**	**1%**
BIA	0	0%	1	20%	0	0%	4	1%	0	0%	2	3%	74	29%	**81**	**9%**
MFANTSIMAN	1	100%	0	0%	5	3%	2	1%	0	0%	0	0%	8	3%	**16**	**2%**
ASSIN NORTH	0	0%	2	40%	3	2%	4	1%	0	0%	0	0%	5	2%	**14**	**2%**
GA WEST	0	0%	0	0%	12	7%	24	7%	0	0%	4	5%	9	4%	**49**	**5%**
GA EAST	0	0%	1	20%	12	7%	19	6%	0	0%	0	0%	39	15%	**71**	**8%**
KETA	0	0%	0	0%	3	2%	28	9%	10	19%	3	4%	24	9%	**68**	**8%**
WEST AKIM	0	0%	0	0%	14	8%	20	6%	33	64%	43	57%	27	11%	**137**	**15%**
ATIWA	0	0%	0	0%	23	13%	19	6%	0	0%	7	9%	20	8%	**69**	**8%**
AMANSIE WEST	0	0%	0	0%	1	1%	10	3%	1	2%	0	0%	0	0%	**12**	**1%**
SEKYERE AP	0	0%	1	20%	16	9%	14	4%	2	4%	7	9%	3	1%	**43**	**5%**
DORMAA EAST	0	0%	0	0%	13	7%	9	3%	0	0%	3	4%	16	6%	**41**	**5%**
TECHIMAN	0	0%	0	0%	23	13%	58	18%	5	10%	2	3%	28	11%	**116**	**13%**
KASSENA NE	0	0%	0	0%	0	0%	5	2%	0	0%	4	5%	1	0%	**10**	**1%**
BAWKU MUNICIPAL	0	0%	0	0%	54	30%	101	31%	1	2%	0	0%	1	0%	**157**	**18%**
Total	**1**	**0%**	**5**	**1%**	**179**	**20%**	**325**	**36%**	**52**	**6%**	**76**	**9%**	**256**	**29%**	**894**	**100%**

3.6.12 Point of Sale of Various Commodities by District

Holders were interviewed on the main points where they sell the larger part of their produce. The responses of holders are presented in appendix 3.6.12. It was observed that holders in all the districts apart from Amansie West sold most of their produce either on the farm or at their residence. The holdersô residence topped as the point where most of the produce were sold (157 respondents) across all the pilot districts. A market in other towns was the least patronised as selling point for holdersô produce (16 respondents).

3.8.5 Distance from Farm to point of Sale

Table 3.6.13 shows the average distances usually covered by a household from the farm to the point of sale of their produce. The results indicate that on the average, household members in the pilot districts covered a distance of 0.017km to get their produce sold. On the whole, household members in Sekyere Afram Plains covered more distance (0.086km) than those in any other district to get their produce sold. In Dormaa East however, an average distance of 0.001km is covered to get produce to the various points of sale, the least recorded.

Table 3.6.13 Average Distance from Farm to Point of Sale (km)

District	Total Distance From Farm (km)	Total Farm Households	Average Distance From Farm (km)
PRESTEA HV	86	4472	0.019
BIA	212	6015	0.035
MFANTSIMAN	30	692	0.043
ASSIN NORTH	16	9283	0.002
GA WEST	125	6721	0.019
GA EAST	9	4199	0.002
KETA	49	13545	0.004
WEST AKIM	77	8335	0.009
ATIWA	90	7603	0.012
AMANSIE WEST	26	597	0.044
SEKYERE AP	271	3145	0.086
DORMAA EAST	7	7967	0.001
TECHIMAN	376	15124	0.025
KASSENA NE	16	9358	0.002
BAWKU MUNICIPAL	319	5400	0.059
Total	1709	102456	0.017

3.7 Agro-Processing

From the results, it was realised that gari processing, rice milling, oil palm and coconut processing, shea butter processing and alcohol production were the main activities the holders engaged in as a way of adding value to their produce and also as a means of generating extra income to their homes.

Table 3.7 shows the number of holders who were involved in these processes. Overall, 180 holders were involved in one form of processing or the other. Majority of the holders doing processing were into oil (palm/coconut) production (47). This represents 26.1 percent. Assin North recorded the highest number of holders doing oil processing. Production of shea butter was done in only Yendi, Gushiegu and Kasena Nankana East districts where the shea tree grows. Out of a total of 15 processors, 8 of them were from Gushiegu (53%). For milled rice, 72 percent of the holders involved in it were from Kassena Nankana East. Atiwa recorded the highest number of holders processing gari (8) which was closely followed by Techiman (7) while Keta recorded only one gari processor. 15 of these processors were involved in alcohol processing such as palm wine or pito. This activity was more prevalent in Keta, recording a total of 8 processors representing 53 percent. Malt was being produced by only 2 holders from Kassena Nankana East. 32 of the holders were involved in other processing which was not specified.

Table 3.7 Holders Involved in Processing

District	Gari	Oil (Palm, coconut etc)	Shea butter	Milled Rice	Alcohol (pito, palm wine etc)	Malt	Other procesing	Total
Prestea Huni Valley	2	1	0	0	0	0	0	3
Bia	0	6	0	0	0	0	0	6
Mfantsiman	2	2	0	0	0	0	0	4
Assin North	2	14	0	5	1	0	0	22
Ga West	3	0	0	0	0	0	1	4
Ga East	2	0	0	0	0	0	1	3
Keta	1	0	0	0	8	0	2	11
West Akim	0	8	0	0	3	0	2	13
Atiwa	8	2	0	0	0	0	0	10
Amansie West	3	3	0	0	0	0	0	6
Dorman East	0	5	0	0	0	0	5	10
Techiman	7	0	0	0	0	0	9	16

Yendi	0	0	1	0	0	0	0	1
Gushegu	0	4	8	4	2	0	0	18
Kassena Nankana East	3	2	6	26	1	2	11	51
Bawku Municipal	0	0	0	1	0	0	1	2
Total	**33**	**47**	**15**	**36**	**15**	**2**	**32**	**180**

3.8 Effects of Shocks

Table 3.8 Type of Shocks/Event

TYPES OF SHOCKS			
SHOCKS	**NO. AFFECTED**	**TOTAL NO.**	**PERCENTAGE**
HIGH TEMPERATURE	105	2534	4.1
STRONG WINDS	74	2532	2.9
STORMS	38	2524	1.5
FLOODING	38	2524	1.5
DROUGHT	279	2529	11.0
FIRE	59	2524	2.3
WEED DAMAGE	14	2518	0.6
PLANT DISEASES	110	2521	4.4
INSECT-PEST INFESTATION	59	2520	2.3
LIVESTOCK DESTROYING FARMS	136	2521	5.4
BIRDS AND OTHER ANIMAL	26	2519	1.0
THEFT	30	2511	1.2
OTHERS	77	2445	3.1

Agriculture in Ghana encounters a number of events which may impact negatively on the holdings and therefore production. Shock in this context referred to as any event which affects the productivity of crops or animals. This aspect of the survey seeks to find the events which affected the productivity of his /her holdings in the minor season. The table 3.8 indicates percentage of the various shocks that affected the holdings of the holder in the minor season. The results shows that drought (11%) was the event with the highest impact on the holdings. Weed damage recorded the least impact of 0.6 percent on the holdings. Storm and flooding accounted for 1.5 percent impact on holdings.

3.9 Use of Mechanization Services

3.9.1 Use of Rented Equipment for Land clearing

In table 3.9.1, a total of 1,952 responses were recorded for the number of field on which rented equipment was used for land clearing. Out of this number 1,749 responses representing 89.6% said they had not used rented equipment on their field for land clearing. Only 203 responses representing 10.4% had used rented equipment on their field for land clearing.

In Bia, Ga East and Bawku Municipal there were no use of rented equipment whilst in Prestea Huni valley, Ga West and Amansie West all respondents had 100% responses to the use of hired equipment for land clearing. Dormaa East, Bia and Assin North received 20.7% 14.5% and 13.4% respectively of the total responses.

Table 3.9.1 Number of Fields for which Rented Equipment was Used for Land Clearing

	Yes		No		Total	
District	**Count**	**%**	**Count**	**%**	**Count**	**%**
Prestea Huni Valley	14	100%	0	0%	14	0.7%
Bia	0	0%	283	100%	283	14.5%
Mfantsiman	10	43%	13	57%	23	1.2%
Assin North	1	0%	260	100%	261	13.4%
Ga West	23	100%	0	0%	23	1.2%
Ga East	0	0%	93	100%	93	4.8%
Keta	22	13%	152	87%	174	8.9%
West Akim	70	58%	51	42%	121	6.2%
Atiwa	3	3%	93	97%	96	4.9%
Amansie West	3	100%	0	0%	3	0.2%
Sekyere AP	35	60%	23	40%	58	3.0%
Dormaa East	14	3%	390	97%	404	20.7%
Techiman	7	4%	162	96%	169	8.7%
Kassena NE	1	0%	209	100%	210	10.8%
Bawku M	0	0%	20	100%	20	1.0%
Total	**203**	**10.4%**	**1,749**	**89.6%**	**1,952**	**100.0%**

3.9.2 Use of Rented Equipment for Ploughing

In table 3.9.2, a total of 1,891 responses were recorded for the number of fields on which rented equipment (tractor) was used on their fields. Out of these responses, 1,774 responses

representing 93.8% of the total responses said they had not used a rented Tractor for ploughing on their fields. Only 117 responses representing 6.2% of the total responses had actually used a rented Tractor for ploughing on those fields. Prestea Huni Valley had 100% responses for fields ploughed with rented tractors.

Bia, Assin North, Mfantsiman , Ga East,West Akim, Keta ,Atiwa, Sekyere AP, Dormaa East, Techiman, Kassena NE and Bawku Municipal had no responses with regard to the use of a rented tractor on their fields.

Table 3.9.2 Number of Fields for Which a Rented Tractor was Used for Ploughing

District	Count			Percentage	
	Yes	No	Total	% Yes	% No
Prestea Huni Valley	12	0	12	100.0%	0.0%
Bia	0	282	282	0.0%	100.0%
Mfantsiman	0	23	23	0.0%	100.0%
Assin North	0	261	261	0.0%	100.0%
Ga West	6	0	6	100.0%	0.0%
Ga East	34	60	94	36.2%	63.8%
Keta	33	146	179	18.4%	81.6%
West Akim	0	97	97	0.0%	100.0%
Atiwa	0	97	97	0.0%	100.0%
Sekyere AP	14	26	40	35.0%	65.0%
Dormaa East	1	404	405	0.2%	99.8%
Techiman	3	170	173	1.7%	98.3%
Kassena NE	14	188	202	6.9%	93.1%
Bawku M	0	20	20	0.0%	100.0%
Total	**117**	**1,774**	**1,891**	**6.2%**	**93.8%**

3.9.3 Use of other Rented Equipment for Ploughing

Table 3.9.3 show that, a total of 1,867 responses were recorded for the number of fields for which other equipments was used for ploughing. Out of these responses, 1,851 responses representing 99.1% of the total responses had never used any other rented ploughing equipment on their fields. Only 16 response representing 0.9% of the total response had used other rented equipment on their fields for ploughing.

Prestea Huni, Kassena Nankana East and Techiman had responses of 12, 3 and 1 representing 100%, 1.5% and 0.6% respectively of those responses who had used other rented equipment on their fields for ploughing. All other districts had never used other equipment for ploughing on their fields.

Table 3.9.3 Number of Fields for which other Rented Equipment was used for Ploughing

District	Count			Percentage	
	Yes	No	Total	% Yes	% No
Prestea Huni Valley	12	0	12	100.0%	0.0%
Bia	0	283	283	0.0%	100.0%
Mfantsiman	0	23	23	0.0%	100.0%
Assin North	0	261	261	0.0%	100.0%
Ga East	0	93	93	0.0%	100.0%
Keta	0	177	177	0.0%	100.0%
West Akim	0	97	97	0.0%	100.0%
Atiwa	0	97	97	0.0%	100.0%
Sekyere AP	0	26	26	0.0%	100.0%
Dormaa East	0	404	404	0.0%	100.0%
Techiman	1	172	173	0.6%	99.4%
Kassena NE	3	198	201	1.5%	98.5%
Bawku M	0	20	20	0.0%	100.0%
Total	**16**	**1,851**	**1,867**	**0.9%**	**99.1%**

3.9.4 Use of Rented Equipment for Harvesting

A total of 1,933 responses were recorded for the number of rented equipment used for harvesting activities of on the fields of respondents (table 3.9.4). Out of these total 1,867 responses representing 96.6% said they had never used any rented equipment for harvesting on their fields 66 responses representing 3.4% of the total indicated that they had used rented equipment for harvesting on their fields.

Table 3.9.4: Number of Fields for Which Rented Equipment was Used for Harvesting Activities

District	Count			Percentage	
	Yes	No	Total	% Yes	% No
Prestea Huni Valley	11	0	11	100.0%	0.0%
Bia	0	275	275	0.0%	100.0%
Mfantsiman	1	20	21	4.8%	95.2%
Assin North	9	254	263	3.4%	96.6%

Ga West	3	0	3	100.0%	0.0%
Ga East	0	94	94	0.0%	100.0%
Keta	2	174	176	1.1%	98.9%
West Akim	14	103	117	12.0%	88.0%
Atiwa	0	100	100	0.0%	100.0%
Amansie West	1	0	1	100.0%	0.0%
Sekyere AP	9	33	42	21.4%	78.6%
Dormaa East	9	384	393	2.3%	97.7%
Techiman	1	224	225	0.4%	99.6%
Kassena NE	6	186	192	3.1%	96.9%
Bawku M	0	20	20	0.0%	100.0%
Total	**66**	**1,867**	**1,933**	**3.4%**	**96.6%**

3.9.5 Use of Rented Equipment for Post harvest Activities

In table 3.9.5, a total of 1,926 responses were recorded for the number of rented equipment used for post harvest activities. Out of this total, 1,870 responses representing 97.0% of the total said they had never rented any equipment for post harvest activities on their fields.

There were 56 responses who indicated that they should use rented equipment for post harvest activities on their fields.

Table 3.9.5 Number of Fields for Which Rented Equipment was Used for Post Harvest Activities

District	Count			Percentage	
	Yes	No	Total	% Yes	% No
Prestea Huni Valley	11	0	11	100.0%	0.0%
Bia	1	275	276	0.4%	99.6%
Mfantsiman	0	21	21	0.0%	100.0%
Assin North	3	260	263	1.1%	98.9%
Ga East	0	94	94	0.0%	100.0%
Keta	11	164	175	6.3%	93.7%
West Akim	13	99	112	11.6%	88.4%
Atiwa	0	100	100	0.0%	100.0%
Sekyere AP	13	32	45	28.9%	71.1%
Dormaa East	0	393	393	0.0%	100.0%
Techiman	4	221	225	1.8%	98.2%
Kassena NE	0	191	191	0.0%	100.0%
Bawku M	0	20	20	0.0%	100.0%
Total				**2.9%**	**97.1%**

	56	**1,870**	**1,926**		

3.9.6 Use of Rented Equipment for Pre-Harvest Activities

3.9.6.1 Sowing - Planting

Appendix 3.9.6.1 shows the total of 1920 responses was recorded for the number of field planted/sowed for which equipment was rented. Out of these responses 1,899 responses representing 98.9% the total responses had never used and rented equipment for sowing or planting only 24 responses representing 1.1% of the total responses had used a rented equipment for sowing or planting on the fields.

3.9.6.2 Fertilization

Appendix 3.9.6.2 shows the total of 1,922 responses were recorded for the number of fields on which rented equipment was used for ploughing out of this number 1,901 responses representing 98.9% of the total response had never used any rented equipment for fertilizers their field.
21 responses representing 1.1% of the total responses had actually used rented equipment for fertilizing his/her fields.

3.9.6.3 Pest Control

Appendix 3.9.6.3 shows the total of 1,948 responses was recorded for the number of fields for which rented equipment was used for pest control. Out of this, 1,768 of the responses representing 90.8% of the total response had never used rented equipment to control pest on their fields.

3.9.6.4 Weed Control

Appendix 3.9.6.4 shows a total of 1,962 responses were recorded for the number of fields on which rented equipment for wee control was used. Out of this, 1,839 responses representing 93.7% said they had not used any rented equipment for weed control on their fields. However, there were 123 responses representing 6.3% of the total who indicated they had used rented equipment to control weeds on their field.

3.10 Land and Water Management Practices

The respondents gave responses to the following sources of irrigated water used on their fields:

1) River/stream
2) Dam/Pond
3) Temporary shallow well
4) Customarily flood area
5) Urban waste-water

The respondents to various sources of irrigated water used on their fields are captured in Appendix 3.10. A total of 1,241 responses were given out of which 819 responses representing 66% of the total response said they had not used irrigated water on their fields.

The respondents who gave the highest number of gave responses to the different sources of irrigated water was ñothersò representing 13.9% of responses followed by River/Steam which recorded 145 responses representing 11.7% of the total responses. None of the responses had indicated using urban waste water on their fields.

Out of the 1,241 responses, Assin North (214), Bia (176), West Akim (146), Atiwa (132) and Keta (128) had responses representing 17.2%, 14.2%, 11.8%, 10.6% and 10.3% respectively representing 64.1% of the total responses.

Out of the 145 responses who had used River/Stream, 35 responses came from Ga East representing 24% of the total responses for River/Stream, whilst Mfrantsiman, Amansie West and Sekyere Afram Plains recorded I response each representing 0.7% each of the total responses for River/Steam.

For Dam/Ponds, there were 30 responses with the Kassena Nankana East district recording the highest number of responses of 22 representing 73% of the total for that category.

For temporary shallow wells there were a total 14 responses all coming from the Amansie West district representing 1.1% of the total responses.

3.10.1 Use of Water Lifting Technologies

From table 3.10.1, there were a total of 906 responses which indicated they had never used any kind of water lifting technologies. Out of a total of 1157 responses, 906 of the responses representing 78.3% said they had not used any water lifting technology.

170 responses representing 14.7% of the total responses indicated they had used a gourd/bucket and rope as a form of lifting water onto their fields.

However only 3 responses representing 0.3% of the total responses indicated they had used manual pump whilst 78 responses represent 6.7 of the total responses indicated they used small motorized pumps.

Table 3.10.1 Water-lifting Technologies

District	Gourd/ bucket and rope		Manual pump		Small motorized pump		None		Total	**Percentage**
	Count	Table N %	Count	Table N %	Count	Table N %	Count	Table N %		
Prestea Huni Valley	12	7%	1	33%	0	0%	1	0%	14	1.2%
Bia	3	2%	0	0%	0	0%	176	19%	179	15.5%
Mfantsiman	2	1%	0	0%	0	0%	18	2%	20	1.7%
Assin North	0	0%	0	0%	0	0%	213	24%	213	18.4%
Ga West	1	1%	0	0%	4	5%	16	2%	21	1.8%
Ga East	3	2%	0	0%	35	45%	55	6%	93	8.0%
Keta	98	58%	1	33%	32	41%	10	1%	141	12.2%
West Akim	3	2%	0	0%	0	0%	129	14%	132	11.4%
Atiwa	10	6%	0	0%	2	3%	84	9%	96	8.3%
Amansie West	14	8%	0	0%	0	0%	1	0%	15	1.3%
Sekyere AP	4	2%	0	0%	0	0%	42	5%	46	4.0%
Dormaa East	0	0%	0	0%	0	0%	51	6%	51	4.4%
Techiman	6	4%	1	33%	5	6%	88	10%	100	8.6%
Kassena NE	14	8%	0	0%	0	0%	22	2%	36	3.1%
Total	**170**	**100%**	**3**	**100%**	**78**	**100%**	**906**	**100%**	**1,157**	**100.0%**

Chapter 4 Summary, Conclusion and Recommendations

4.1 Summary and Conclusion

The Ghana Agricultural Production Survey (GAPS) is a pilot program to assess an improved version of SRIDôs Multi-Round Annual Crop and Livestock Survey (MRACLS). The main goal of the pilot is to provide basic statistics and indicators for planners and researchers to assist implement policies and strategies in the agricultural system in Ghana. The GAPS was first piloted during the 2011/2012 cropping season in twenty districts, two in each region. Upon recommendation of assessors at the end of the pilot, the survey hereby referred to as GAPS II was repeated during the 2012/2013 major and minor cropping seasons in the same districts with some modifications. In all 4,000 farm holders were randomly selected and interviewed in the 20 selected districts.

District infrastructure was upgraded in the 20 districts to improve data collection efforts and raw data once collected is entered into a data entry program that was created for the survey. Dropbox and PureSync were organized on each computer which made the data collected automatically available to SRID at headquarters.

Report on the major season survey which focused on land area cropped for various crops as well their land productivity was presented in Volume I of the GAPS II report. This report is the Volume II and final part of the second phase of the minor season GAPS II. It presented the results on pre-harvest and post-harvest activities of selected agricultural household and holders. Specific areas covered under pre-harvest interviews include; general characteristics of household members, information on livestock/poultry/other animals, tree crops and aquaculture whilst post-harvest household and holding enquiry covered field practices, inputs and expenses, crop production and marketing, shocks/adaptations to shocks, other income-generating activities and health.

The results showed that generally, there were more male agricultural holders than female. About 25 percent of holders falls in the age bracket of 40-49 years whilst 42 percent are above age 50.

The average household size per district ranges between 4 and 14. Yendi and Gushiegu in the Northern region recorded the largest average household size of 10 and 14 respectively while the smallest average size of 4 was recorded in Ga West Municipal in the Greater Accra region.

With regards migration, the survey revealed that movement from the northern part of the country to capital city, Accra ranges between 2.1 percent to 14.3 percent whilst for the southern sector it is between 26.1 percent and 56.2 percent.

On production and utilization, the survey results showed that a greater proportion of holders produced mainly for sale while the common storage facility used were room storage and crib/barn. As much of 29 percent of holders interviewed have no storage facility.

Traditional livestock production (small and large ruminants) is concentrated in the northern part of the country while the non-traditional (grasscutter, pigeon and rabbit) is skewed to the southern sector districts.

The survey also collected information on the health status of holders. The results showed that 23% of selected holders across districts missed a full dayôs work due to ill health whilst 14% of holders missed a full dayôs work due to ill health of another household member.

The use of certified seed the survey revealed was not common among respondents. It was observed that only 9.2 percent of respondents used certified seed. Even though NPK was observed to be the most used fertilizer (49 %), sulphate and urea were equally patronised (48.9 and 48.5 and 48.3 respectively).

4.2 Recommendations

- Review of minor season questionnaire and subsequently the DEP
- Sampling methodology should be reviewed
- Manpower requirements in the districts should be improved
- Measures should be put in place to improve data quality such as effective monitoring, effective validation measures in the DEP,

List of Appendices

Appendix 3.1 Period of Migration/Movement by Month by Districts

District	Jan.	Feb.	March	April	May	June	July	Aug.	Sept	Oct.	Nov	Dec.
PRESTEA HV				60.0%								40.0%
BIA	25.0%	5.0%						10.0%	45.0%	15.0%		
MFANTSIMAN	3.4%	3.4%	20.7%	12.1%	3.4%	1.7%	5.2%	10.3%	8.6%	5.2%	6.9%	19.0%
ASSIN NORTH			9.1%		9.1%	36.4%		36.4%	9.1%			
GA WEST	14.3%	28.6%							14.3%	14.3%	14.3%	14.3%
GA EAST		12.5%	25.0%	12.5%							50.0%	
KETA	11.6%	2.3%	2.3%	4.7%			2.3%	11.6%	18.6%	7.0%	9.3%	30.2%
WEST AKIM	8.0%	4.0%	4.0%	36.0%	24.0%				4.0%		8.0%	12.0%
ATIWA						18.2%		9.1%	27.3%	45.5%		
AMANSIE WEST	20.0%	10.0%							10.0%	10.0%	10.0%	40.0%
SEKYERE AP	42.9%					14.3%			14.3%	14.3%		14.3%
DORMAA EAST	35.5%	12.9%	9.7%		3.2%	3.2%		6.5%	6.5%	6.5%	16.1%	
TECHIMAN	8.3%	12.5%	8.3%	4.2%	8.3%	4.2%	8.3%	16.7%	12.5%	8.3%		8.3%
GUSHIEGU							16.7%				16.7%	66.7%
KASSENA NE		3.7%		7.4%		3.7%	7.4%	18.5%	29.6%	11.1%		18.5%
BAWKU MUNICIPAL											100.0%	
SISSALA EAST						50.0%			50.0%			
All Districts	11.1%	5.7%	7.4%	8.4%	4.1%	4.1%	3.0%	9.8%	14.9%	8.1%	7.8%	15.5%

Appendix 3.3.2a Housing for Large Ruminants

District	Kept in Kraals			Kept: House/Compound			Non Hsehold Member			Teethered		
	No	*Yes*	*%Yes*	*No*	*Yes*	*%Yes*	*No*	*Yes*	*%Yes*	*No*	*Yes*	*%Yes*
Bia	0	1	100%	0	1	100%	0	0	-	0	0	-
Ga West	0	0	-	0	5	100%	0	0	-	0	0	-
West Akim	0	0	-	0	3	100%	0	0	-	0	0	-
Atiwa	0	0	-	0	1	100%	0	0	-	0	0	-
Amansie West	0	0	-	0	3	100%	0	1	100%	0	0	-
Techiman	0	1	100%	0	0	-	0	0	-	0	0	-
Yendi	0	25	100%	0	3	100%	0	5	100%	0	2	100%
Gushegu	0	9	100%	0	0	-	0	2	100%	0	13	100%
Kassena Nankana East	0	7	100%	0	7	100%	0	0	-	0	1	100%
Bawku Municipal	0	33	100%	0	47	100%	2	0	0%	2	5	71%
Sissala East	0	9	100%	0	5	100%	0	7	100%	0	4	100%
Average			100%			100%			80%			94%

Appendix 3.3.2b Housing for Poultry

District	**Cage**			**House/Compound**			**Away from home**			**Other**		
	No	***Yes***	***%Yes***	***No***	***Yes***	***%Yes***	***No***	***Yes***	***%Yes***	***No***	***Yes***	***%Yes***
Prestea Huni Valley	0	1	100%	0	9	100%	0	0	-	0	0	-
Bia	1	32	97%	2	54	96%	1	2	67%	0	33	100%
Mfantsiman	0	54	100%	0	78	100%	0	1	100%	0	25	100%
Assin North	0	15	100%	0	70	100%	0	0	-	0	39	100%
Ga West	0	14	100%	0	39	100%	0	1	100%	0	16	100%
Ga East	0	0	-	1	21	95%	0	0	-	0	8	100%
Keta	0	33	100%	0	128	100%	0	2	100%	0	48	100%
West Akim	9	6	40%	0	40	100%	7	6	46%	9	26	74%
Atiwa	0	15	100%	0	56	100%	0	1	100%	0	29	100%
Amansie West	0	16	100%	0	37	100%	0	2	100%	0	10	100%
Sekyere Afram Plains	0	1	100%	0	41	100%	0	8	100%	0	17	100%
Dorman East	25	14	36%	12	29	71%	39	2	5%	26	13	33%
Techiman	22	4	15%	26	7	21%	13	0	0%	18	1	5%
Yendi	0	35	100%	0	29	100%	0	1	100%	0	32	100%

Gushegu	5	1	17%	0	134	100%	5	13	72%	1	96	99%
Kassena Nankana East	0	3	100%	0	26	100%	0	0	-	0	3	100%
Bawku Municipal	4	1	20%	0	175	100%	5	0	0%	5	11	69%
Sissala East	0	24	100%	0	43	100%	0	10	100%	0	20	100%
Average			**78%**			**94%**			**71%**			**87%**

Appendix 3.6.8.1 Number of Trees By District, Type and Age Category

No of Tree crops/Age Category						
District	**Tree Type**	**Trees: Less Than 3 Years**	**3-5 Years**	**6-10 Years**	**11-20 Years**	**More Than 20 Years**
Prestea Huni Valley	Cocoa Hybrid	4350	2610	1740	1700	-
	Cocoa Local	18123	27816	19043	7875	3204
	Oil Palm	1501	1442	1320	120	-
Bia	Cocoa Local	48361	41984	83075	270922	355157
	Oranges	80	23	312	53	53
	Oil Palm	60	2408	885	220	20
Mfanstiman	Coconut	16	4	133	3	5
	Lime	550	1045	615	-	-
	Oranges	50	200	2230	230	10
	Oil Palm	2950	1435	3106	1667	287
Assin North	Cocoa Local	31848	17770	62697	74936	28085
	Oranges	-	60	1300	564	-
	Oil Palm	1050	6510	3764	3895	320
Ga West	Avocado	11	9	3	-	-
	Coconut	11	6	9	3	-
	Cocoa Local	17	8	1	1	-
	Mango	15	11	16	2	-
	Oranges	7	32	5	1	2
	Oil Palm	102	84	31	25	121
Keta	Coconut	165	55	115	277	102
	Mango	14	32	62	24	31
	Oil Palm	47	131	65	13	109
West Akim	Cocoa Hybrid	12110	7480	7310	5423	6540
	Cola	-	800	-	-	1200
	Cocoa Local	4822	4400	5860	17385	4527
	Oranges	145	1095	800	450	-
	Oil Palm	10479	11176	12883	12767	9999

Atiwa	Cocoa Hybrid	3278	1268	2175	1740	-
	Coconut	100	40	30	30	-
	Cocoa Local	45985	44136	98307	51234	27960
	Oranges	-	650	850	350	-
	Oil Palm	160	590	1670	519	-
Amansie West	Cocoa Hybrid	1760	3556	4747	9251	4107
	Cocoa Local	15820	30052	76397	94249	15220
	Oranges	-	250	300	-	-
	Oil Palm	-	-	510	2450	120
Sekyere Afram Plains	Cocoa Local	10613	2783	1420	4400	3600
	-	-	-	-	-	-
	Oranges	360		420		-
	Oil Palm	510	1827	522	80	-
	Pawpaw	6	5	2	-	-
Dormaa East	Cocoa Hybrid	98910	61120	43150	15600	39300
	Cocoa Local	14600	1500	600	1200	-
	Cashew	-	-	800	1000	-
	Oranges	-	200	157	-	-
	Oil Palm	340	1545	2412	1835	-
Techiman	Cocoa Local	3530	14450	32400	6100	3600
	Cashew	1020	1480	3659	-	-
	Oranges	675	265	268	-	10
	Oil Palm	300	500	-	-	-
Gushiegu	Sheanut	92	106	154	137	17
Kassena Nankana East	Mango	21	12	47	57	120
Sissala East	Cashew	72	100	138	181	140
	Sheanut	96	204	198	383	619

Appendix 3.6.8.2: Average Percentage of New Tree crops Planted in 12 Months by District and Crop

REGION	DISTRICT	Cocoa Hybrid	Cocoa Local	Oil Palm	Coconut	Mango	Oranges	Cashew
	Prestea Huni Valley	38.82	22.38	15.08	-	-	-	-
Western	Bia	-	18.25	-	-	-	-	-
	Mfantsiman	-	37.15	31.05	27.88	-	0.42	-
Central	Assin North	-	-	24.56	-	-	1.33	-
Greater	Ga West	-	-	-	-	-	-	-
Accra	Ga East	-	-	-	-	-	-	-
	Keta	31.74	-	-	32.72	16.67	-	-
Volta		-	-	-	-	-	-	-
	West Akim	-	15.51	27.08	-	-	1.54	-
Eastern	Atiwa	-	15.57	50.00	4.29	-	-	-
	Amansie West	-	14.71	25.00	-	-	-	-
Ashanti	Sekyere Afram Plains	43.43	10.92	14.92	-	-	30.00	-
	Dormaa East	-	47.39	22.73	-	-	-	-
Brong Ahafo	Techiman	-	15.31	-	-		3.33	31.69
	Yendi	-	-	-	-	-	-	-
Northern	Gushiegu	-	-	-	-	-	-	-
	Kassena Nankana East	-	-	-	-	62.50	-	-
Upper East	Bawku Municipal	-	-	-	-	-	-	-
		-	-	-	-	-	-	-
Upper West	Sisala East	-	-	-	-	-	-	-
Average		**38.00**	**21.91**	**26.30**	**21.63**	**39.59**	**7.32**	**31.69**

Health

Appendix 3.5.1 Number of holders who missed part day's work due to ill health

Districts	Holders missing part day's work due to ill health		Total
	YES	NO	
Prestea	3	6	9
Bia	37	120	157
Mfanstiman	24	98	122
Assin North	38	150	188
Ga West	8	46	54
Ga East	18	137	155
Keta	42	85	127
West Akim	22	43	65
Atiwa	27	113	140
Amansie West	10	87	97
Sekyere AP	34	83	117
Dormaa East	21	143	164
Techiman	20	146	166
Yendi	3	168	171
Gushegu	25	98	123
Kassena	29	131	160
Bawku	57	80	137
Sissala East	10	77	87
Total	**428**	**1811**	**2239**

Appendix 3.5.1.2 Number of holders who missed part day's work due to ill health of HH member

Districts	Holders missing part day's work due to ill health of HH member		Total
	YES	NO	
Prestea	6	2	8
Bia	15	135	150
Mfanstiman	14	108	122
Assin North	55	133	188
Ga West	4	54	58
Ga East	8	147	155
Keta	21	88	109
West Akim	19	45	64
Atiwa	24	110	134
Amansie West	8	86	94
Sekyere AP	21	86	107
Dormaa East	5	157	164
Techiman	16	148	164
Yendi	4	169	173
Gushegu	18	100	118
Kassena	18	104	122
Bawku	45	92	137
Sissala East	2	84	86
Total	**303**	**1850**	**2153**

Appendix 3.6 Holders Cropping various Commodities during the Minor Season

		District													
		PRESTEAHV	BIA	MFANTSIMAN	ASSIN NORTH	GA WEST	GA EAST	KETA	WEST AKIM	ATIWA	AMANSIE WEST	SEKYEREAP	DORMAA EAST	TECHIMAN	KASSENANE	Total
Crop	Cabbage	0	0	0	0	0	7	0	0	1	0	0	0	2	0	10
	Cocoa Hybrid	9	0	0	0	0	0	0	17	0	0	0	0	0	0	26
	Cola	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Coconut	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
	Cocoa Local	3	16	0	0	0	0	0	16	19	0	1	0	0	0	55
	Cowpea	0	0	0	0	0	0	0	0	0	0	0	1	10	0	11
	Carrots	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4
	Cashew	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	Cassava	22	1	3	5	32	18	33	61	16	3	6	3	26	0	229
	Cocoyam	0	0	0	3	0	0	0	5	21	0	0	2	1	0	32
	Garden Eggs	0	0	4	3	0	2	0	0	0	1	0	0	1	0	11
	Groundnuts	0	0	0	0	0	0	1	0	0	0	0	0	0	1	2
	Mango	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	Millet	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	Maize	5	0	10	15	43	30	47	23	47	9	29	38	98	4	398
	Oranges	0	0	0	0	1	0	0	6	3	0	0	0	0	0	10
	Okro	1	0	2	2	10	17	23	0	0	0	0	2	10	1	68
	Onion	0	0	0	0	0	0	2	0	0	0	0	0	0	1	3
	Oil Palm	5	1	0	0	1	0	0	17	3	0	0	0	0	0	27
	Other Crops	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1

	Pepper (Sweet)	0	0	0	4	1	8	0	0	1	0	0	0	0	0	14
	Pepper (Hot)	0	0	2	0	1	0	14	1	0	0	0	0	5	3	26
	Plantain	12	4	0	2	6	0	0	7	26	3	3	0	3	0	66
	Pineapples	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
	Pigeon Peas	1	0	0	0	0	0	0	0	1	0	0	1	0	3	6
	Rubber	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Rice	0	0	0	0	0	0	0	0	0	0	2	0	0	18	20
	Sugar Cane	0	0	0	0	3	1	18	0	0	0	0	0	0	0	22
	Sorghum	0	0	0	0	0	0	1	0	0	0	0	0	0	1	2
	Shallots	0	0	0	0	0	0	32	0	0	0	0	0	0	0	32
	Sheanut	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	Sweet Potato	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
	Tomato	0	0	1	4	0	2	5	0	0	1	2	1	4	4	24
	Watermelon	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	Yam	0	0	0	0	0	0	0	1	0	0	2	0	0	0	3
Total		**60**	**22**	**22**	**38**	**104**	**88**	**181**	**154**	**139**	**17**	**45**	**48**	**160**	**38**	**1116**

Appendix 3.6 Production, Utilization and Sale of Various Crops

District	Crop	Total	Home Consumption	Payment in Kind for Labour	Sold
PRESTEA HV	Cocoa Hybrid	1,344	529	448	367
	Cocoa Local	192	64	64	64
	Maize	2,575	425	-	2,150
	Oil Palm	320	107	107	107
BIA	Cocoa Local	5,040	-	1,163	3,877
MFANTSIMAN	Oil Palm	450	75	75	300
	Garden Eggs	165	-	-	165
	Maize	900	600	-	300
	Okro	200	-	-	200
	Pepper (Hot)	249	-	75	174
	Tomato	20	7	-	13
ASSIN NORTH	Garden Eggs	75	-	-	75
	Maize	1,650	600	-	1,050
	Cassava	1,584	-	90	1,494
	Maize	5,959	1,615	201	4,143
	Okro	506	47	36	424
	Other Crops	12	4	-	8
	Pepper (Sweet)	100	-	-	100
	Plantain	665	299	-	366

	Pineapples	8,000	-	-	8,000
	Sugar Cane	282	47	-	235
GA EAST	Cabbage	8,772	370	-	8,402
	Okro	80	20	-	60
	Pepper (Sweet)	385	-	-	385
	Watermelon	750	120	90	540
KETA	Carrots	650	-	-	650
	Groundnuts	306	-	120	186
	Maize	9,706	2,255	4,649	2,802
	Okro	850	-	-	850
	Pepper (Hot)	348	18	-	330
	Shallots	3,180	-	-	3,180
WEST AKIM	Cocoa Hybrid	4,160	-	1,828	2,332
	Cocoa Local	3,160	-	1,078	2,082
	Cassava	2,460	660	960	840
	Cocoyam	1,080	216	324	540
	Maize	4,660	2,687	1,019	955
	Oranges	5,000	-	2,500	2,500
	Oil Palm	23,700	913	12,590	10,198
	Pepper (Hot)	600	86	257	257
	Plantain	1,765	444	411	910
ATIWA	Cabbage	2,700	-	-	2,700
	Cocoa Local	8,536	-	-	8,536

	Maize	18,183	3,645	157	14,381
	Oranges	15,200	2,289	-	12,911
	Oil Palm	5,100	110	-	4,990
	Pepper (Sweet)	200	-	-	200
	Pigeon Peas	621	81	-	540
AMANSIE WEST	Cassava	80	16	16	48
	Garden Eggs	3,625	50	75	3,500
	Maize	1,027	579	84	364
	Plantain	115	74	-	41
	Tomato	400	50	-	350
SEKYERE AP	Maize	35,255	4,888	-	30,367
	Rice	3,600	-	-	3,600
	Tomato	952	-	-	952
	Yam	220	220	-	-
DORMAA EAST	Maize	6,465	663	55	5,747
	Okro	400	20	-	380
	Pigeon Peas	150	15	-	135
	Tomato	1,575	75	-	1,500
TECHIMAN	Cabbage	3,600	-	150	3,450
	Cowpea	3,025	605	264	2,156
	Garden Eggs	405	27	-	378
	Maize	94,570	18,242	572	75,756

	Okro	900	30	-	870
	Pepper (Hot)	1,265	5	-	1,260
	Tomato	3,536	109	-	3,427
KASSENA NE	Pigeon Peas	780	-	-	780
	Rice	3,200	565	659	1,976
	Tomato	270	-	-	270

Appendix 3.6.12 Point of Sale of Commodities

District	Commodity	Farm		Holder Residence		Local Market		Market in Other Town		Wholesale Market		Assembling Point		Other	
		Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
PRESTEA HV	Cocoa Hybrid	0	0.0%	4	66.7%	1	16.7%	1	16.7%	0	0.0%	0	0.0%	0	0.0%
	Cocoa Local	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Cassava	0	0.0%	0	0.0%	11	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Maize	1	20.0%	1	20.0%	3	60.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Oil Palm	0	0.0%	2	66.7%	0	0.0%	0	0.0%	0	0.0%	1	33.3%	0	0.0%
	Plantain	0	0.0%	0	0.0%	2	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
BIA	Cocoa Local	0	0.0%	0	0.0%	0	0.0%	0	0.0%	7	87.5%	0	0.0%	1	12.5%
	Oil Palm	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Plantain	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
MFANTSIMAN	Garden Eggs	0	0.0%	0	0.0%	3	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Maize	1	50.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Okro	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Pepper (Hot)	0	0.0%	2	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Tomato	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
ASSIN NORTH	Garden Eggs	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Maize	3	42.9%	2	28.6%	0	0.0%	1	14.3%	0	0.0%	0	0.0%	1	14.3%
	Okro	0	0.0%	1	50.0%	0	0.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%
	Pepper (Sweet)	0	0.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%
	Tomato	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
GA WEST	Cassava	1	33.3%	2	66.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

	Maize	3	21.4%	9	64.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	14.3%
	Okro	4	44.4%	5	55.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Other Crops	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Pepper (Sweet)	0	0.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%
	Pepper (Hot)	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Plantain	1	33.3%	1	33.3%	1	33.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Pineapples	1	50.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	50.0%
	Sugar Cane	2	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
GA EAST	Cabbage	7	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Garden Eggs	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Maize	6	66.7%	3	33.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Okro	14	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Pepper (Sweet)	8	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Tomato	2	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Watermelon	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
KETA	Carrots	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Cassava	2	66.7%	1	33.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Groundnuts	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Maize	1	4.8%	18	85.7%	1	4.8%	0	0.0%	0	0.0%	0	0.0%	1	4.8%
	Okro	11	78.6%	2	14.3%	1	7.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Pepper (Hot)	7	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Sugar Cane	3	27.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	8	72.7%
	Shallots	0	0.0%	1	8.3%	11	91.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Tomato	3	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
WEST AKIM	Cocoa Hybrid	0	0.0%	2	18.2%	0	0.0%	0	0.0%	0	0.0%	9	81.8%	0	0.0%

	Cocoa Local	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	9	100.0%	0	0.0%
	Cassava	16	94.1%	1	5.9%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Cocoyam	2	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Maize	1	12.5%	7	87.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Oranges	4	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Oil Palm	4	44.4%	5	55.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Pepper (Hot)	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Plantain	2	40.0%	3	60.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
ATIWA	Cocoa Local	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3	33.3%	6	66.7%
	Maize	1	2.7%	26	70.3%	7	18.9%	1	2.7%	1	2.7%	0	0.0%	1	2.7%
	Oranges	3	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Oil Palm	2	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Pepper (Sweet)	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Pigeon Peas	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
AMANSIE WEST	Cassava	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Garden Eggs	0	0.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%
	Maize	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%
	Plantain	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Tomato	0	0.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%
SEKYERE AP	Maize	7	38.9%	8	44.4%	2	11.1%	1	5.6%	0	0.0%	0	0.0%	0	0.0%
	Rice	0	0.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%
	Tomato	0	0.0%	0	0.0%	2	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
DORMAA EAST	Maize	1	8.3%	9	75.0%	2	16.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Okro	0	0.0%	0	0.0%	2	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Pigeon Peas	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Tomato	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

TECHIMAN	Cabbage	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Cowpea	0	0.0%	1	33.3%	1	33.3%	1	33.3%	0	0.0%	0	0.0%	0	0.0%
	Garden Eggs	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Maize	11	25.6%	17	39.5%	6	14.0%	4	9.3%	4	9.3%	1	2.3%	0	0.0%
	Okro	2	22.2%	2	22.2%	5	55.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Pepper (Hot)	1	20.0%	3	60.0%	1	20.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Tomato	3	75.0%	0	0.0%	1	25.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
KASSENA NE	Pepper (Hot)	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Pigeon Peas	2	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Rice	0	0.0%	0	0.0%	5	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Tomato	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

Appendix 3.9.6.1 Number of Fields for Which Rented Equipment was Used for Sowing/Planting

District	Count			Percentage	
	Yes	No	Total	% Yes	% No
Prestea Huni Valley	12	0	12	100.0%	0.0%
Bia	0	284	284	0.0%	100.0%
Mfantsiman	3	18	21	14.3%	85.7%
Assin North	1	262	263	0.4%	99.6%
Ga East	0	94	94	0.0%	100.0%
Keta	3	169	172	1.7%	98.3%
West Akim	1	110	111	0.9%	99.1%
Atiwa	0	98	98	0.0%	100.0%
Amansie West	1	0	1	100.0%	0.0%
Sekyere AP	0	31	31	0.0%	100.0%
Dormaa East	0	395	395	0.0%	100.0%
Techiman	0	225	225	0.0%	100.0%
=Kassena NE	0	193	193	0.0%	100.0%
Bawku M	0	20	20	0.0%	100.0%
Total	**21**	**1,899**	**1,920**	**1.1%**	**98.9%**

Appendix 3.9.6.2 Number of Fields for Which Rented Equipment was Used for Fertilizing

District	Count			Percentage	
	Yes	No	Total	% Yes	% No
Prestea Huni Valley	11	1	12	91.7%	8.3%
Bia	2	282	284	0.7%	99.3%
Mfantsiman	2	19	21	9.5%	90.5%
Assin North	2	261	263	0.8%	99.2%
Ga East	1	93	94	1.1%	98.9%
Keta	0	175	175	0.0%	100.0%
West Akim	0	110	110	0.0%	100.0%
Atiwa	1	98	99	1.0%	99.0%
Sekyere AP	1	31	32	3.1%	96.9%
Dormaa East	0	395	395	0.0%	100.0%
Techiman	0	224	224	0.0%	100.0%
Kassena NE	1	192	193	0.5%	99.5%
Bawku M	0	20	20	0.0%	100.0%
Total	**21**	**1,901**	**1,922**	**1.1%**	**98.9%**

Appendix 3.9.6.3 Number of Fields for Which Equipment Rental was Made for Pest Control

District	Count			Percentage	
	Yes	No	Total	% Yes	% No
Prestea Huni Valley	13	0	13	100.0%	0.0%
Bia	74	204	278	26.6%	73.4%
Mfantsiman	7	14	21	33.3%	66.7%
Assin North	23	241	264	8.7%	91.3%
Ga West	9	0	9	100.0%	0.0%
Ga East	1	93	94	1.1%	98.9%
Keta	10	173	183	5.5%	94.5%
West Akim	33	86	119	27.7%	72.3%
Atiwa	3	96	99	3.0%	97.0%
Sekyere AP	3	35	38	7.9%	92.1%
Dormaa East	1	391	392	0.3%	99.7%
Techiman	2	224	226	0.9%	99.1%
Kassena NE	1	191	192	0.5%	99.5%
Bawku M	0	20	20	0.0%	100.0%
Total	**180**	**1,768**	**1,948**	**9.2%**	**90.8%**

Appendix 3.9.6.4 Number of Fields for Which Rented Equipment was Used for Weed Control

District	Count			Percentage	
	Yes	No	Total	% Yes	% No
Prestea Huni Valley	11	0	11	100.0%	0.0%
Bia	5	270	275	1.8%	98.2%
Mfantsiman	7	14	21	33.3%	66.7%
Assin North	5	258	263	1.9%	98.1%
Ga West	18	0	18	100.0%	0.0%
Ga East	0	94	94	0.0%	100.0%
Keta	2	171	173	1.2%	98.8%
West Akim	20	99	119	16.8%	83.2%
Atiwa	2	99	101	2.0%	98.0%
Sekyere AP	32	24	56	57.1%	42.9%
Dormaa East	12	381	393	3.1%	96.9%
Techiman	6	220	226	2.7%	97.3%
Kassena NE	3	189	192	1.6%	98.4%
Bawku M	0	20	20	0.0%	100.0%

Total	**123**	**1,839**	**1,962**	**6.3%**	**93.7%**