PRODUCTION EESTIMATES OF MAJORR CROPS ANND ANIMALS 2009

Supported by

FAO EU Food Facility Africa Rice Center Centrall Agriculture Research Institute

TABLE OF CONTENTS

2009 CROP SURVEY

FOREWORD

The initiative to conduct agricultural production survey is in support of government agricultural development plan. This is true, because the bulk of the population in the country derives its means and sources of livelihood from agricultural activities. The nation depends on agricultural production for the achievement of food security. Because of the unique position agriculture holds in the life of the country, its promotion has been one of the primary concerns of the Government. Planning for agricultural development usually requires a wide range of statistical data covering the different sectors of the economy relevant to agricultural productivity. Thus, regular collection of agricultural data is of great importance.

Since the establishment of the Division of Statistics in 1975 in the Ministry of Agriculture, series of annual agricultural surveys for major crops have been conducted up to 1989. The Division had provided reliable agricultural statistics that satisfied demands for data. Unfortunately, because of the civil war and its consequences, such surveys were not conducted from 1990 to 2000.

As a result of relative peace in 2001 in the country, the Government decided to rehabilitate the Agricultural Statistical System. Under the Technical Cooperation Program (TCP) of the United Nations Food and Agriculture Organization (UNFAO) appropriate methodologies for agricultural annual surveys were developed and a baseline survey was conducted in 2001 aimed at rehabilitating the Agricultural Statistical System. However, due to the 2003 civil crisis, the established system collapsed. Considering the need for agricultural statistics, efforts were made to reactivate the agricultural survey. This publication presents the results of the 2009 crop survey jointly conducted by the Ministry of Agriculture (MOA) and Liberia Institute of Statistics and

Geo-Information Services (LISGIS), the 17of the series and the second since the democratically elected Government of Unity Party headed by Her Excellency Madam Ellen Johnson-Sirleaf.

Dr. Florence A. Chenoweth
MINISTER OF AGRICULTURE

ACKNOWLEDGEMENT

The Ministry of Agriculture through its Division of Statistics conducted the 2009/2010 Annual Agricultural Survey (AAS) with the primary objective of providing agricultural data for agricultural development planning. A nation-wide survey of this type requires a great deal of efforts, cooperation, a high level of commitment by the Government and its Development Partners as well as technical as well as administrative supports. It has been a difficult task and has taken a combined effort of many individuals and institutions to provide the inputs needed to produce this report

Accordingly, we wish to sincerely extend our thanks and appreciations to those who have contributed in making the 2009/2010 Agricultural Survey a very successful one. We are particularly grateful to Mr. Syed Abdul Razak, Emergency Coordinator of Food and Agriculture Organization of the United Nations who exerted some efforts in mobilizing resources which enabled the survey team to successfully accomplish the training and data collection activities of the survey. Our appreciation goes to Dr. Florence A. Chenoweth, the Minister of Agriculture and Hon. James B. Logan, Deputy Minister for Planning and Development for their administrative and moral support. Special mention is due to Dr. T. Edward Liberty, Director-General for Liberia Institute of Statistics and Geo-Information Services (LISGIS) whose painstaking proofreading of the report resulted to many constructive suggestions and for his administrative as well as technical guidance during the survey activities. Gratitude is expressed to ZOA, CONCERN and Africa Rice through CARI for their logistical and material support.

We are indebted to the Local Government Authorities who assisted our field personnel in the form of interpreting, logging, escorting and introducing them to the farmers. Principal contributors were the selected farmers who have cooperated, opened to dialogue about their agricultural and basic socio-economic activities. They deserve credit and acknowledgement. Gratitude is expressed to the field personnel of the Ministry of Agriculture (MOA) and the Liberia Institute of Statistics and Geo-Information Services (LISGIS) whose dedications and sacrifices have made the field activities of the 2009/2010 Agricultural Survey possible despite of several constraints. So many people have contributed to this report, and it is difficult and impossible to thank them individually. However, we extend thanks and appreciation to those individuals and Institutions who are not mentioned here at all.

Mr. Reginald W. Fannoh
DIRECTOR, STATISTICS DIVISION
MINISTRY OF AGRICULTURE

Fact Sheet

DESCRIPTION	BOTH SEXES		MALE	FEMALE	PERCENT		
	Number				Percent	Male	Female
1. Agricultural Population	1,673,960	100.0	855,100	818,860	51.1		48.9
Age Category							
< 10 Years	344,840	20.6	186,210	158,630	54.0		46.0
10 -19 Years	319,730	19.1	159,230	160,500	49.8		50.2
20 -29 Years	254,440	15.2	142,490	111,950	56.0		44.0
30 -39 Years	269,500	16.1	136,900	132,600	50.8		49.2
40 -49 Years	264,490	15.8	129,070	135,420	48.8		51.2
50 Years & over	220,960	13.2	101,200	119,760	45.8		54.2
	Number	% Agric Hh					
2. Agricultural Households	289,550						
Rice producing households	232,200	80.2					
Cassava producing households	118,980	41.1					
Livestock rearing households	64,290	22.2					
Poultry raising households	123,290	42.6					
	Number	% Tot. Area					
3. Area Under Food Crops	310,790	100.0					
Rice areas in hectares	247,580	79.7					
Cassava areas in hectares	63,210	20.3					
	Metric tons	% Tot. Prod					
4. Food Crop Production	788,300	100.0					
Paddy rice	293,000	37.2					
Fresh cassava	495,300	62.8					
	Number	% Tot Heads					

5. Livestock and Poultry Production	1,009,340	100.0				
Heads of livestock	195,170	19.3				
Heads of poultry	814,170	80.7				

List of Tables and Figures

ACRONYMS

AAS Annual Agricultural Survey

AH Agricultural Household

AP Agricultural Population

CH Cassava Household

EA Enumeration Area

FAO Food and Agriculture Organization

HoH Heads of Household

HRF Holder's Rice Farm

LH Livestock Household

LISGIS Liberia Institute of Statistics and Geo-Information Services

MOA Ministry of Agriculture

PH Poultry Holder

PSU Primary Sampling Unit

RH Rice Household

SSU Secondary Sampling Unit

TCP Technical Cooperation Program

UNFAO United Nations Food and Agriculture Organization

Executive Summary

Introduction

This summary provides an insight into the key components of the 2009/2010 Annual Agricultural Survey results. The document highlights major characteristics of agricultural activities including production of food crops and livestock. The overall objective of the publication is to provide statistics on food and agriculture activities for effective planning and monitoring of the agricultural sector.

Methodology

The sample design for the survey was a multi-stage sampling with: (a) Enumeration Areas (EAs) as primary sampling units (PSUs), (b) Agricultural Holders (Ahs) within EA as secondary sampling units (SSUs), (c) Holders' Rice Farms (HRFs) as tertiary sampling unit, and (d)

Experimental plots for crop-cutting in selected farms as the ultimate stage-sampling unit. The sampling design was adopted with each county as domain of study.

Three (3) sets of questionnaires were developed and administered, namely: Households listing questionnaire, Holders' questionnaire and Field and Yields measurement questionnaires. These questionnaires were used to probe only those households with member participating in agricultural activities. Each completed questionnaire was scrutinized in the field and further scrutiny was done in the central office. Range and internal consistency checks were adopted.

Key Findings

The population that lived in agricultural households was estimated at 1,673,960 with 855,100 (51.1%) male and 818,860 (48.9 %) female. The youth in the age range 10 – 29 years ranked the highest with 574,170 which constituted more than one-third (34.3 %) of the total agricultural population, followed by the young children of less than 10 years with a total of 344,840 (20.6 %) . By contrast, the elderly age 50 years and over accounted for 13.2 percent, while the active labor force with age (30 – 49 years) accounted for 31.9 percent. This shows that the bulk of the populations in agricultural households were children, followed by the young adult and the least were elderly.

The total number of agricultural households was estimated at 289,550, which constitutes 85.3 percent of the rural households. Of this number 80.2 percent involved in rice production, 41.1 percent in cassava production, 22.2 percent in livestock production and 42.6 percent in the production of poultry. This analysis shows that more households are engaged in rice farming. Nearly all of the livestock and poultry are produced by households through the free range system. In terms of proportion, there is no difference in the number of agricultural households involved in the production of crops and animal rearing compared to 2008.
The production of rice was estimated at 293,000 metric tons. This estimate is 1.9 percent less than pre-war (1988), 33.4 percent and 5.0 percent more than 2001 and 2008, respectively. Area of rice harvested during the 2009/2010 crop year was estimated at 247,580 hectares with an average farm size of 1.0 hectare. Cassava production was estimated at 495,300 metric tons. This estimate is above pre-war (1988) and 2001 by 20.9 percent and 32.6 percent, respectively. However, the estimate is 0.2 percent less than 2008. The area harvested for cassava was estimated at 63,210 hectares with an average farm size of 0.5 hectare.

The total number of livestock reared was estimated at 195,170, which is 1.2 percent more than 2008 excluding rabbits and 23.9 percent less than pre-war (1988). Number of poultry raised was estimated at 814,170. This estimate is 6.8 percent more than pre-war (1988) and 1.8 percent less than 2008.

The most prevalent production constraints identified during the 2009 crop survey included: lack of farming tools, pest, lack of seeds, late rain, lack of extension service, lack of farm labor and plant diseases among others. Majority (12 %) of the rice producing households complaint about lack of farming tools followed by the households with the problems of pest (8.6 %) and rice seeds (7.9 %). The most prevalent pest identified included birds, ground hogs, termites, weeds

and insects. Among the pest, ground hogs ranked the highest with 13.3 percent followed by birds, termites and weeds with 12.8 percent, 7.8 percent, 7.3 percent and 3.5 percent, respectively of the total rice producing households that complaint of pest.

Introduction

In recognition of the increasing demand for reliable agricultural data, the Ministry of Agriculture (MOA) in collaboration with the Liberia Institute of Statistics and Geo-Information Services (LISGIS) has taken a positive step towards rehabilitating the Agricultural Statistics System with financial assistance from the Food and Agriculture Organization of the United Nations (UNFAO). Crop production data are considered to be the most important agricultural information for the monitoring of the Poverty Reduction Strategy (PRS) and Millennium Development Goals (MDGs). This report presents results of the 2009/2010 crop survey.

The report is organized into three parts. Part one discusses the objectives and methodology of the survey. The second part provides national estimates for major items, including rice, cassava, livestock and poultry production, agricultural households, heads of agricultural households, members of agricultural households and cereal (rice) balance sheet. Part three provides estimates at the county level, which included rice and cassava production, rice and cassava producing households, livestock and poultry rearing households, heads of livestock and poultry, agricultural households, heads of agricultural households and members of agricultural households.

Part 1: **Survey Objectives and Methodology**

1.1. Objectives

The **immediate objectives** of the survey are as follows:

. • Assess the current levels of farming households and population;
. • Provide gender-disaggregated agricultural statistics on key agricultural activities;
. • Provide statistics for locally produced commodities, mainly food and livestock;
. • Develop a "user-friendly agricultural database to include major indicators for food security

1.2. Terms and Definitions

. • **Enumeration Area (EA)-**a geographical area delineated by the Liberia Institute for Statistics and Geo-Information Services (LISGIS) in the 2008 National Population and Housing Census. Each EA may contain one or more towns/villages with 75 – 125 households.
. • **Building-**any kind of structure or house made of bricks, stone, timber /wood, cement, mat or mud with a roof made of thatch, zinc, concrete where People live or may live.
. • **Town/Village**-one or more building grouped together having a distinct name and a chief.
. • **Household -**a group of persons living together and eating from the same pot

regardless of whether they live in one building and are responsible to the Same head. .

. • **Head of Household (HoH)-**the person responsible for providing the daily needs for members of the households. In the decision of food security, they share with their spouse (if any) the long-term hopes and fears for the availability of household supplies.

. • **Agricultural Household (AH)-**a household in which any member is actively growing crop(s) or raising livestock or poultry**.**

. • **Agricultural Population (AP)**-all people residing permanently in the agricultural households including those temporarily absent for less than three months and excluding visitors in the household for less than three months.

. • **Livestock Holder (LH)-**any holder raising five or more heads of livestock (cattle, goats, sheep, pigs,)

. • **Poultry Holder (PH)-**any holder raising ten or more heads of poultry (Chicken, ducks)

. • **Holder-**any member of a household who operates a farm in his or her own right (means that the person is independent in making decisions concerning the operations regardless whether he/she owns the land, rent it from others or squats on it).

. • **Respondent-**any reliable or knowledgeable member of the household who is in the position to answer survey questions. He/she might be the head of the household or any member appointed by him/her. There may be more than one respondent answering different set of questions in consultation with each other.

. • **Holding (Farm)-**a piece of land used for agricultural production operated or managed by one person/holder or in some cases jointly operated or managed by two or more holders.

. • **Field**-a piece of cultivated land carrying one crop or mixture of crops. It may be a parcel or part of land. It may make up an entire holding or only part of the holding. In some cases farm may be used as a farm

. • **Crop Mixture**-a combination of crops planted within the same plot. They do not need to be planted and harvested at the same time.

. • **Plot**-part of a field used for yield measurement or density studies.

1.3 Methodology

The sample design for the 2009 crop survey was a multi-stage sampling with the following features: (a) Enumeration Areas (EAs) as the primary sampling units (PSUs), (b) Agricultural Holders (Ahs) within EA as the secondary sampling units (SSUs), (c) Holders' Rice Farms (HRFs) as the tertiary sampling unit, and (d) Experimental plots for crop-cut in selected farms as the ultimate stage-sampling unit. The sampling plan was adopted with each county as domain of study. The survey was designed purposely to collect rice data

Description of the Sampling Frame: For the first stage of sampling, the basic frame consists of a list of Enumeration Areas (EAs) from Liberia Institution of Statistics and Geo-Information Services (LISGIS). These EAs were delineated as a result of the 2008 National Population and Housing Census. According to the 2008 frame, number of households for each EA was indicated, and from this list, EAs were selected within county using systematic sampling. The

sample was designed with a total sample size of 100 EAs for the country from the total of 4,510 rural EAs. The sample size was derived based on the amount of resources (time and money) available.

For the second stage of sampling, the basic frame consisted of a list of holders. Enumeration areas, which were selected at the first stage of sampling, were canvassed; that is agricultural households counts were made within EA and recorded on a listing form. Based on the quick canvassing results, a list of holders was prepared and the number of farms for each holder recorded. From the listing record of holders for each sample EA, a systematic sample of fifteen (15) holders was taken. The holders selected constituted the sample of farming households that were interviewed.

For the third stage sampling, the basic frame consisted of rice and cassava farms for holders selected at the second stage. From the listing record of rice and cassava farms a sample of eight .(8) farms for rice and five (5) farms for cassava were selected for area measurement. The selection of these farms was done using systematic sampling.

For the ultimate stage of sampling, the basic frame consisted of a list of rice and cassava farms selected at the third stage for area measurement. A sample of five (5) farms for rice and three (3) farms for cassava was taken using simple random sampling without replacement. The farms selected constituted the sample of farms for yield estimates. Conventional survey method was used with a well-prepared questionnaire and forms including field manual. Different forms and questionnaires used included Enumeration Area Listing Form, Farm Measurement Form, Holders and Crop Cutting Questionnaires.

Area and Yield Measurements: Enumerators were provided with GPSs. which were used to take measurements of the farms by taking coordinates of the parameters of the farms. Circular plots were laid using a twine of 5 feet long for rice and 7 feet long for cassava as radius of the circle. The entire crops in the sample plots in each farm were carefully harvested in single day. The total harvests were weighed and the weight recorded using drying method for rice. Fresh weight for cassava was taken.

Part 2: **National Estimates**

2.1. **Rice and Cassava Hectares and Production**

The volume of paddy rice and fresh cassava produced in Liberia for 2009/2010 is given in Table 2.1 below. According to the table, total production (both rice and cassava) was estimated at 788,300 metric tons with an increase of 1.7 percent on the total of 775,290 metric tons in 2008 and an increase of 33.1 percent and 11.3 percent on the totals of 592,430 metric tons and 708,470 metric tons in 2001 and during the pre-war (1988) respectively.

As per the table, production of rice was estimated at 293,000 Metric tons (paddy) during the 2009/2010 crop season in Liberia. This estimate was 5.0 percent more than 2008, 33.8 percent more than 2001 and 1.9 percent less than pre-war (1988) when 279,000 metric tons, 219,040 metric tons and 298,630 metric tons were produced respectively. Cultivated land area (field)

harvested in rice was estimated at 247,580 hectares with an average yield of 1,183 kilograms per hectare. This estimate was 11.2 percent, 45.2 percent and 5.0 percent more than 2008, 2001 and the pre-ward (1988) when 222,670, 170,480 and 235,760 hectares were harvested respectively.

The production of cassava was estimated at 495,300 metric tons during the 2009/2010 crops season. This estimate was 32.6 percent and 20.9 percent more than 2001 and pre-war (1988) and 0.2 percent less than 2008 when 373,390 metric tons, 409,840 metric tons and 496,290 metric tons were produced respectively. Area of cassava harvested was estimated at 63,210 hectares with an average yield of 7,835 kilograms. This estimate was 31.9 percent, 21.2 and 10.2 percent more than 2001, pre-war (1988) and 2008 when 47,930, 52,160 and 57,360 hectares respectively were harvested.

Table 2.1 further presents that total number of farms (both rice and cassava) was 366,400. Compared to pre-war (1988), 2001 and 2008 this estimate depicts a significant increase of 4.9 percent, 50.5 percent and 24.2 percent when 349,380 farms, 243,450 farms and 295,060 farms were cultivated respectively. According to the results of the survey, the number of rice farms reported was 245,840. This estimate was about 70.4 percent of 2001 and 35.8 percent of pre-war (1988) and 6.1 percent above 2008. The average farm size for rice was estimated at 1.0 hectare. The number of cassava farms reported in 2009 was estimated at 120,560. This estimate was about 21.5 percent, 5.7 percent and 2.4 percent more than 2001, pre-war (1988) and 2008 respectively.

Table 2.1: Rice and Cassava Hectares and Production

Crop/Area	Unit	YEAR			PERCENT CHANGE			
		2009	2008	2001	1988	2008	2001	1988
Production								
Paddy Rice	Metric tons	293,000	279,000	219,040	298,630	5.0	33.8	-1.9
Fresh Cassava	Metric tons	495,300	496,290	373,390	409,840	-0.2	32.6	20.9
Total	Metric tons	788,300	775,290	592,430	708,470	1.7	33.1	11.3
Area Harvested								
Rice	Hectares	247,580	222,670	170,480	235,760	11.2	45.2	5.0
Cassava	Hectares	63,210	57,360	47,930	52,160	10.2	31.9	21.2
Total	Hectares	310,790	280,030	218,410	287,920	11.0	42.3	7.9
Yields per Ha								
Rice	Kilograms	1,183	1,253	1,285	1,270	-5.6	-7.9	-6.9
Cassava	Kilograms	7,835	8,652	7,790	7,860	-9.4	0.6	-0.3
Farms								
Rice Farms	Number	245,840	231,650	144,240	181,030	6.1	70.4	35.8
Cassava Farms	Number	120,560	117,730	99,210	114,030	2.4	21.5	5.7
Total	Number	366,400	349,380	243,450	295,060	4.9	50.5	24.2

2.2. **Livestock and Poultry Production**

Most of the livestock and poultry enumerated are produced in the backyards of the traditional farmers. The table 2.2 below depicts the results of the survey on livestock and poultry production. According to the table, total number of livestock reared in 2009/2010 excluding rabbits was estimated at 195,170. This estimate was 1.2 percent more than 2008 and 23.9 percent less than pre-war (1988) when 192,820 and 256,500 heads of livestock were reported respectively.

The heads of cattle reared were estimated at 8,370 and other estimates included 75,330 heads of goats, 43,470 sheep as well as 68,000 pigs in 2008. The heads of cattle estimated were 43.6 percent less than pre-war (1988); The number of goats estimated was 18.7 percent more than 2008 and 41.5 percent less than pre-war(1988), and number of sheep was 0.5 more than 2008 and 28.2 percent less than pre-war (1988). The heads of pigs estimated were 12.5 percent less than 2008 and 29.7 percent more than pre-war (1988).

Table 2.2 further presents number of poultry raised by type. It is the most common domestic birds reared in the country mainly for household consumption and for cash. The most common poultry are chickens and ducks. Heads of poultry were estimated at 814,170 showing a decrease of 1.8 percent as compared to 2008 and an increase of 6.8 percent above pre-war (1988). Heads of chickens reported raising were estimated at 774,960, indicated 1.3 percent less than 2008 and 7.1 percent more than pre-war when 785,010 and 723,390 heads were reported respectively. Number of ducks reported raising was estimated at 39,210 with a decrease of 10.1 and an increase of 0.1 percent compared to 2008 and pre-war (1988) respectively.

Table 2.2: Livestock and Poultry Production **Animal**	**Unit**	**YEAR**			**PERCENT CHANGE**	
		2009	**2008**	**1988**	**2008**	**1988**
Livestock						
Cattle	Heads	8,370	8,370	14,830	0.0	-43.6
Goats	Heads	75,330	63,460	128,670	18.7	-41.5
Sheep	Heads	43,470	43,270	60,560	0.5	-28.2
Pigs	Heads	68,000	77,720	52,440	-12.5	29.7
Total	Heads	195,170	192,820	256,500	1.2	-23.9
Poultry						
Chickens	Heads	774,960	785,010	723,390	-1.3	7.1
Ducks	Heads	39,210	43,670	39,190	-10.2	0.1
Total	Heads	814,170	828,680	762,580	-1.8	6.8

2.3. **Food Crops Production and Animal Rearing Household**

Number of households in which at least a member is actively engaged in crop(s) production or involved in livestock or poultry rearing is given in Table 2.3. According to the table the total agricultural household in 2009 excluding peri-urban was estimated at 289,550. Of this number, the households reported producing rice were estimated at 232,200, producing cassava were estimated at 118,980 and reported rearing livestock and poultry were 64,290 and 123,290 respectively. These estimates constituted 80.2 percent for rice, 41.1 percent for cassava, 22.2

percent for livestock and 42.6 percent for poultry of the total agricultural households. In addition, the table shows percent change between 2009 and 2008, 2001 as well as pre-war (1988). There was a significant increase in the number of agricultural households, rice producing households and households reported growing cassava as compared to 2001 by 90.6 percent, 83.1 percent and 32.7 percent respectively. Compared to pre-war(1988) there was also significant increase in the number of agricultural households, rice producing households, cassava producing households, households rearing livestock and poultry by 60.6 percent, 49.6 percent, 15.5 percent,
38.7 and 28.0 percent respectively. The table further shows that the estimates of agricultural households, rice producing households, cassava producing households and poultry rearing households were 5.6 percent, 0.4 percent,1.1 percent and 5.3 percent respectively, more than 2008.

Table 2.3: Food Crop and Animal Rearing Households Items	YEAR				PERCENT CHANGE		
	2009	**2008**	**2001**	**1988**	**2008**	**2001**	**1988**
Agricultural Household	289,550	274,070	151,940	180,290	5.6	90.6	60.6
Rice Producing Hh	232,200	231,370	126,840	155,180	0.4	83.1	49.6
Cassava Producing Hh	118,980	117,730	89,680	103,050	1.1	32.7	15.5
Livestock Rearing Hh	64,290	65,470	N/A	46,350	-1.8	N/A	38.7
Poultry Raising Hh	123,290	117,120	N/A	96,330	5.3	N/A	28.0

2.4. **Members of Agricultural Households**

Data with regard to the number of people living in agricultural households were collected and processed. Table 2.4 below presents the results. According to the table members of the agricultural households were estimated at 1,673.960. Of this estimate, male population constituted 51.1 percent and female population 48.9 percent. The table further displays the age distribution of the households' members. As per the table members with age less than 10 years accounted for 20.6 percent of the total agricultural households' members, followed by the age groups 10 – 19 years with 19.1 percent, 30 – 39 years with 16.1 percent and 40 – 49 years with
15.8 percent. Next are the age groups 20 – 29 years with 15.2 percent and 50 years+ with 13.2 percent.

The table further depicts that the female members of the households ranked the highest within the age groups 50 years, 40 -49 years and 10 – 19 years with 54.2 percent, 51.2 percent and 50.2 percent respectively.

Table 2.4: Distribution of agricultural household members by age and sex **Age**	**Both Sexes**		**Male**		**Female**		**Percent**	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Male**	**Female**

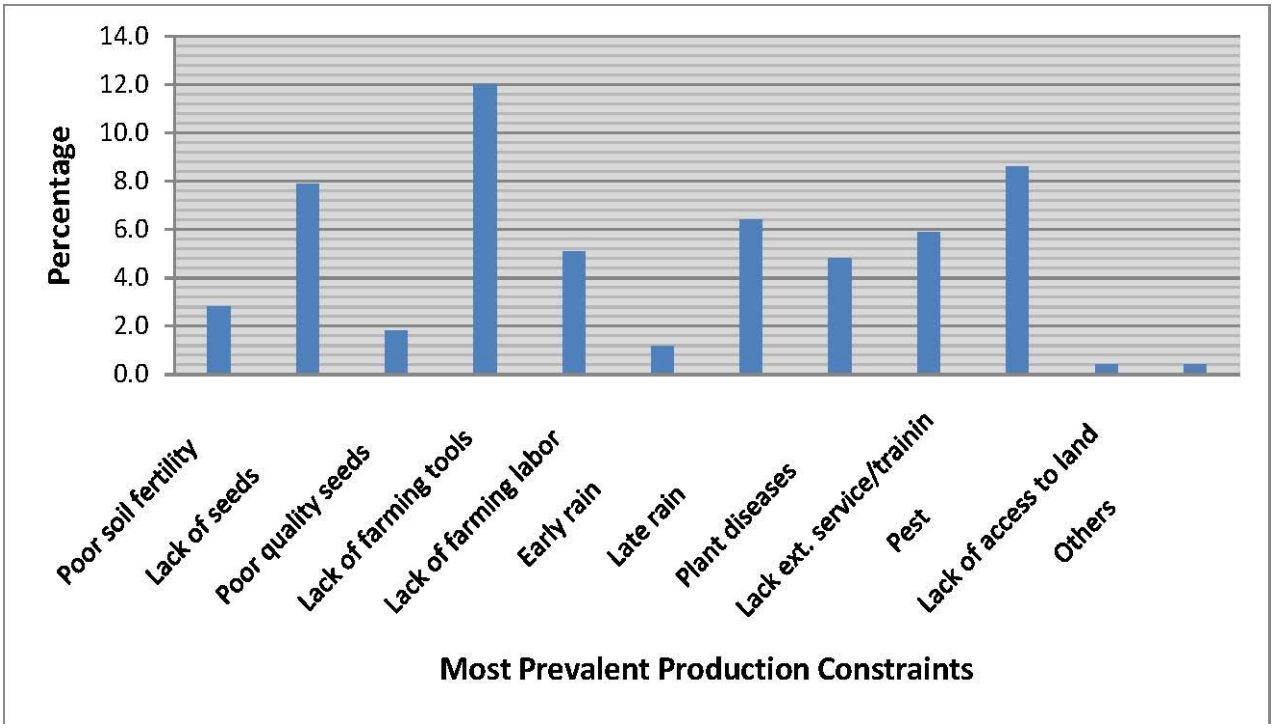
Category								
Liberia	1,673,960	100.0	855,100	100.0	818,860	100.0	51.1	48.9
0 -9 years	344,840	20.6	186,210	21.8	158,630	19.4	54.0	46.0
10 -19 years	319,730	19.1	159,230	18.6	160,500	19.6	49.8	50.2
20 -29 years	254,440	15.2	142,490	16.7	111,950	13.7	56.0	44.0
30 -39 years	269,500	16.1	136,900	16.0	132,600	16.2	50.8	49.2
40 -49 years	264,490	15.8	129,070	15.1	135,420	16.5	48.8	51.2
50 years+	220,960	13.2	101,200	11.8	119,760	14.6	45.8	54.2

2.5. **Most Prevalent Production Constraints**

The 2009 crop survey collected information on production constraints. Figure 1 depicts the most prevalent ones, which included: lack of farming tools, pest, lack of seeds, late rain, lack of extension service, lack of farm labor and plant diseases among others. According to the figure, the bulk (12 %) of the rice producing households complaint about lack of farming tools followed by the households with the problems of pest (8.6 %) and seeds (7.9 %).

The figure further displays that 6.4 percent of the rice households complaint about late rain, while 5.9 percent, 5.1 percent and 4.8 percent confirmed lacking of extension services, farm labor and plant diseases respectively. Other most prevalent production constraints included poor soil fertility, poor quality seed, early rain and lack of access to land for which 2.8 percent, 1.8 percent, 1.2 percent and 0.4 percent respectively, of rice producing households' complaint about.

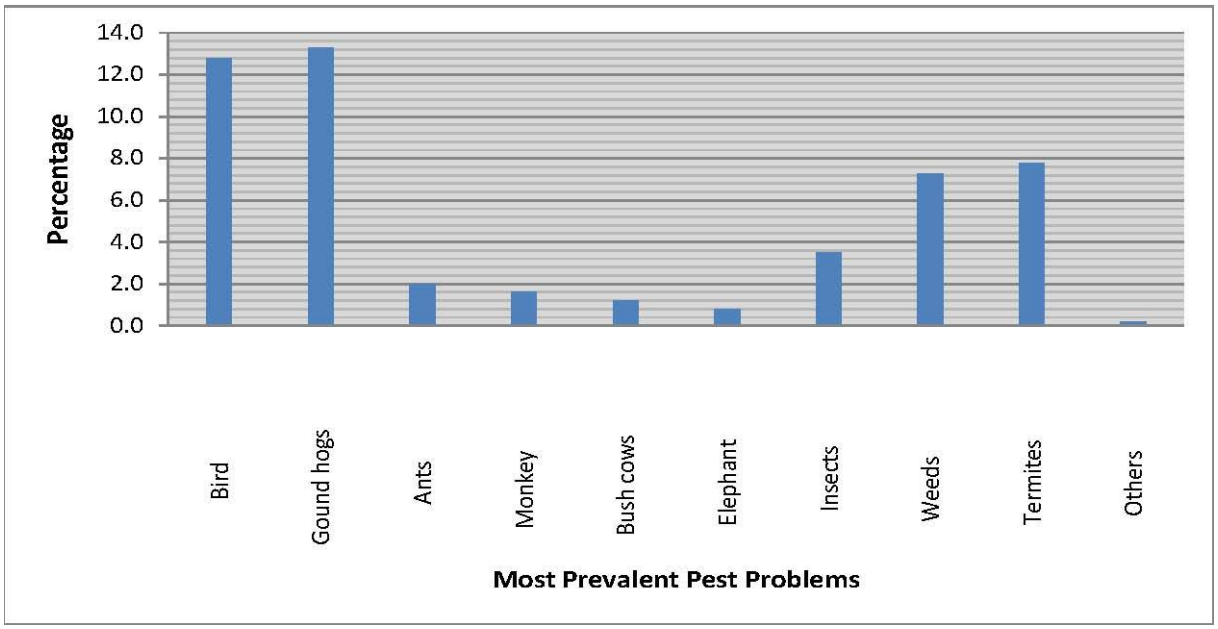
Figure 1: Percent Distribution of Rice Producing Households by most Prevalent Production Constraints



2.6. **Most Prevalent Pest Problems**

The most prevalent pest identified during the survey included birds, ground hogs, termites, weeds and insects among others. According to Figure 2, ground hogs ranked the highest with 13.3 percent, followed by birds, termites and weeds with 12.8 percent, 7.8 percent, 7.3 percent and 3.5 percent respectively of the total rice producing households' complaint of pest.

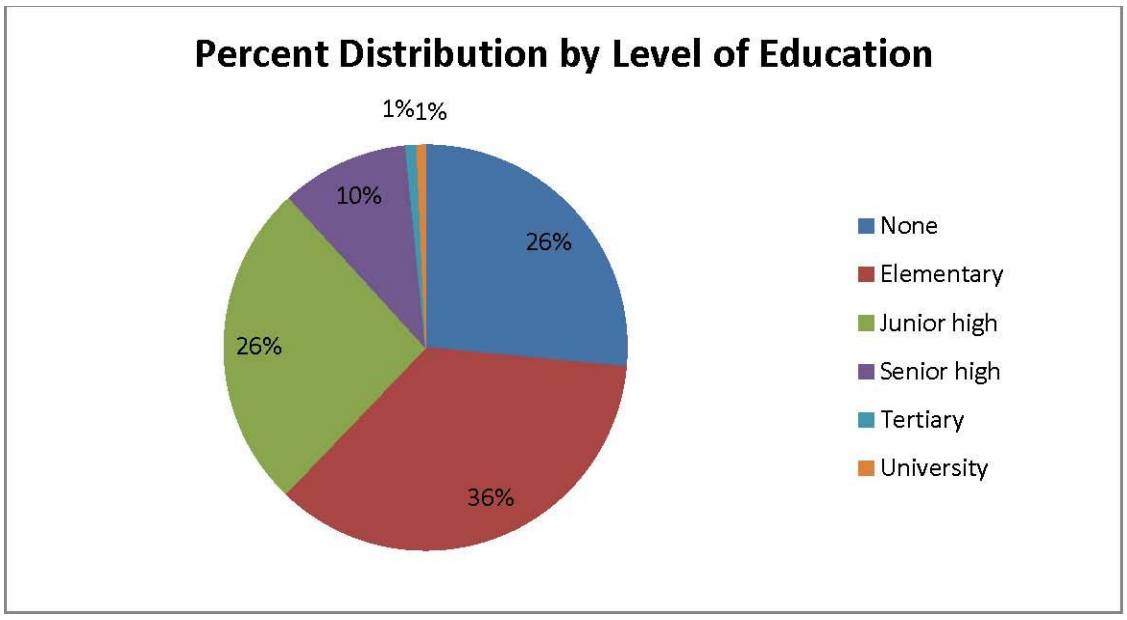
Figure 2: Percent Distribution of Rice Producing Households by Most Prevalent Pest Problem



2.7. **Educational Level of Agricultural Households' Heads**

Data on the level of education for the heads of agricultural households were considered important in the 2009 survey. The information collected and processed included heads of households with no formal education, with elementary education, junior high, senior high, tertiary and university education. Figure 3 below presents the results. According to the Figure, the total of 76,730 (26.5 %) heads of agricultural households had no formal education, 103,370(35.7 %) heads completed Elementary Education, 75,280 (26.0 %) heads finished Junior High, 29,530 (10.2 %) heads completed Senior High, 2,610 (0.9 %) heads obtained Tertiary Education and 2,030 (0.7 %) heads had university education.

Figure 3: Percent Distribution of Heads of Agricultural Households by Level of Education



2.8. Cereal (Rice) Balance Sheet

2.8.1. Element of the Cereal (Rice) Assessment

Population -According to the 2008 National Housing and Population Census, the population of Liberia is 3,476,608 with an annual growth rate of 2.1 percent. Using the growth rate, the population of Liberia for the year 2009 was estimated at 3,549,617.

Requirement -Rice comprises the bulk of the diet for nearly every Liberian. It is considered the most important food commodity in the country and consumed in quantities so large that current domestic supplies are inadequate to satisfy the demand. Achieving an acceptable balance is the most difficult problem facing the nation. Total needs (requirement) for rice for consumption was estimated at 425,954 metric tons with a per capita consumption of 120 kilograms.

From the total harvested production, seed rice for the following year and losses were calculated. An average of 10 percent of the actual harvest (rough rice) never reached to the process of milling, which represented post harvest losses. In addition, average of 2 percent of the available paddy is retained for seed. Thus, after seed retention and losses, paddy rice available for consumption was estimated at 257,840 metric tons. Using the milling rate of 65 percent, quantity of local rice milled was calculated at 167,600 metric tons, which constituted 39.3 percent of total requirement for rice as shown in table 2.5. That means, of the total demand for rice in 2009/2010, Liberian farmers supplied 39.3 percent and the balance 60.7 percent was imported

Importation of Rice -The volume of rice imported for the period was calculated at 260,924.92 metric tons. Of this quantity, 6,319.15 metric tons were non-commercial and the balance 254,605.77 metric tons were commercial. The opening stock was 59,514.5 metric tons. This quantity was kept by business traders.

Table 2.5: Ex-post 2009/2010 Cereal (Rice) Balance Sheet **ITEMS**	**UNIT**	**2009/2010**

Population	Number	3,549,617
DISPOSITION		
Total Production (Paddy)	Metric tons	293,000
Losses (10%)	Metric tons	29,300
Seed Rice Retention (2 %)	Metric tons	5,860
Paddy available for consumption	Metric tons	257,840
Local rice milled (65%)	Metric tons	167,600
Per Capita Consumption	Kilograms	120*
Needs -Requirement	Metric tons	425,954
Deficit (60.7 %)	Metric tons	258,354
IMPORTATION		
Opening stock	Metric tons	59,514.5
Commercial	Metric tons	254,605.77
Non-commercial	Metric tons	6,319.15
Balance stock	Metric tons	62,089.42

*Average annual consumption of rice producers, urban dwellers and both urban & rural dwellers.

Part 3: **County Estimates**

3.1. **Rice Hectares and Production**

Rice is the preferred staple of Liberians. Shifting or slash and burns cultivation dominate rice farming in the country. Over 90 percent of the rice produced was done through shifting cultivation on upland soil. Table 3.1 presents the quantity of paddy rice produced and land area cultivated for rice in 2009. According to the table, a total of 293,000 metric tons was produced, which is about 98.1 percent of its pre-war level when production was 298,760 metric tons. Rice, Liberian principal staple food is produced at a subsistence level primarily for households' consumption.

The table depicts that Nimba, Bong and Lofa counties ranked the highest in the 2009 rice production with 59,910 (20.4 %) metric tons, 55,740 (19.0 %) metric tons and 55,440 (18.9 %) metric tons respectively. The combined estimates of these three counties accounted for more than half (58.3 %) of the total production, followed by Gbarpolu with 14,900 (5.1%) metric tons, Grand Gedeh with 12,560 (4.3 %) metric tons and Grand Bassa with 12,530 (4.3 %) metric tons. Next were Sinoe with 11,500 (3.9 %) metric tons, Bomi with 10,640 (3.6 %) metric tons and Montserrado with 9,140 (3.1) metric tons. The rest of the counties have a percent share of the total production ranging from 2.5 percent to 3.0 percent.

The table further presents the total number of rice farms and hectares. According to the table, number of rice farms was estimated at 245,840. Of this number three (3) counties cultivated the

highest number of farms, namely: Nimba, Lofa and Bong reported cultivating 56,250, 38,900 and 38,800 farms respectively. The combined estimates of the three counties constituted 54.5 percent of the total number of farms. Next was Grand Bassa with 13,290, Gbarpolu with 12,500, Montserrado with 10,830 and Grand Kru with 10,130 farms, followed by Sinoe and Margibi with 9,760 and 9,440 farms respectively. The County with the least number of farms was River Gee with 6,100 farms. The rest of the counties reported number of farms ranged from 7,050 to 8,810.

The Area of rice harvested during the 2009 crop year was estimated at 247,580 hectares with an average farm size of 1.0 hectare. Nimba, Lofa and Bong counties had the largest harvested areas of rice with 53,020 (21.4 %) hectares, 44,000 (17.8 %) hectares and 43,890 (17.7 %) hectares respectively. Next were Gbarpolu and Grand Bassa counties with 12,960 (5.2 %) hectares and 12,530 (5.1 %) hectares respectively, followed by Grand Gedeh with 9,970 (4.0 %) hectares and Sinoe with 9,200 (3.7 %) hectares. The county with the least harvested area was River Gee with 6,900 (2.8 %) hectares.

Table 3.1: Rice Hectares, Yields per Hectare and Production by County, 2009 **County**	**RICE**						
	Hectares	**% of Tot.**	**Farm**	**Ha/Farm**	**Yields/Ha(Kg)**	**Prod. (Mt)**	% of Tot. Prod.
LIBERIA	**247,580**	**100.0**	**245,840**	**1.0**	**1,135**	**293,000**	**100.0**
Bomi	8,870	3.6	7,820	1.1	1,200	10,640	3.6
Bong	43,890	17.7	38,800	1.1	1,270	55,740	19.0
Gbarpolu	12,960	5.2	12,500	1.0	1,150	14,900	5.1
Grd. Bassa	12,530	5.1	13,290	0.9	1,000	12,530	4.3
Grd Cape Mount	7,960	3.2	7,050	1.1	1,080	8,600	2.9
Grd. Gedeh	9,970	4.0	8,810	1.1	1,260	12,560	4.3
Grd. Kru	8,590	3.5	10,130	0.8	1,120	9,620	3.3
Lofa	44,000	17.8	38,900	1.1	1,260	55,440	18.9
Margibi	7,120	2.9	9,440	0.8	1,180	8,400	2.9
Maryland	7,410	3.0	8,740	0.8	1,190	8,820	3.0
Montserrado	8,160	3.3	10,830	0.8	1,120	9,140	3.1
Nimba	53,020	21.4	56,250	0.9	1,130	59,910	20.4
River Cess	7,000	2.8	7,420	0.9	1,060	7,410	2.5
River Gee	6,900	2.8	6,100	1.1	1,130	7,790	2.7
Sinoe	9,200	3.7	9,760	0.9	1,250	11,500	3.9

3.2. **Cassava Hectares and Production**

Cassava farming is one of the main sources of income generation for rural farmers. It is the second staple food next to rice in Liberia. Many farmers produced large quantities of cassava and applied manual method to process their cassava in the form of gari, fufu, starch and other products for income purposes. Table 3.2 displays the volume of fresh cassava produced and area cultivated in 2009. According to the table, a total of 495,300 metric tons was produced, which is 20.8 percent more than the level of pre-war when production was estimated at 409,840 metric

tons and 0.2 percent less than 2008 when a total of 296,290 metric tons was estimated.

The table depicts that Nimba County ranked the highest in the 2009 cassava production with 105,940 metric tons, which constituted 21.4 percent of the total cassava production. Next were four counties, namely: Lofa with 46,200 (9.3 %) metric tons, Grand Bassa with 44,900 (9.1 %) metric tons, Bong with 43,950 (8.9 %) metric tons and Grand Gedeh with 35,800 (7.2 %) metric tons. The combined estimates of these four counties accounted for more than one-third (34.5 %) of the total production; followed by Margibi with 27,660 (5.6 %) metric tons, Maryland with 26,270 (5.3 %) metric tons, Montserrado with 25,560 (5.2 %) metric tons, River Gee with 22,090 (4.5 %) metric tons and River Cess County with 21,750 (4.4 %) metric tons. The rest of the counties had the estimates ranged from 15,810 (3.2 %) to 19,760 (4.0 %) metric tons.

The table further presents the total number of cassava farms and hectares. According to the table, number of cassava farms cultivated was estimated at 120,560. Of this number three (3) counties cultivated more farms in terms of number, namely: Nimba, Bong and Grand Bassa reported cultivating 21,600, 19,830 and 10,930 farms respectively. The combined estimates of the three counties accounted for more than two-fifth (43.4 %) of the total number of farms. Next were Lofa with 9,520 farms, Grand Kru with 7,930 farms, Margibi with 6,510 farms, Maryland with 6,510 farms and Montserrado with 6,070 farms, followed by Sinoe and Gbarpolu counties with 5,520 and 5,180 farms respectively. The County with the least number of farms was Grand Cape Mount with 3,360 farms.

The Area harvested for cassava during the 2009/2010 crop year was estimated at 63,210 hectares with an average farm size of 0.5 hectare. Nimba, Bong and Grand Bassa counties had the largest harvested areas of cassava with 12,640 (20.0 %) hectares, 6,570 (10.4 %) hectares and 6,030 (9.5 %) hectares. Next were Lofa, Grand Gedeh and Montserrado counties with 5,260 (8.3 %) hectares, 4,200 (6.6 %) and 4,160 (6.6 %) hectares respectively; followed by Margibi with 3,500 (5.5 %) hectares and Maryland with 3,230 (5.1 %) hectares. The counties with the least harvested areas were Grand Cape Mount, Gbarpolu, River Cess and Bomi with 2,230 (3.5 %) hectares, 2,340 (3.7 %) hectares, 2,400 (3.8 %) hectares and 2,460 (3.9 %) hectares respectively.

Prod. (Mt)	Table 3.2: Cassava Hectares, Yields per Hectare and Production by County, County			CASSAVA			% of Tot. Prod.	
		Hectares	% of Tot.	Farm	Ha/Farm	Yields/Ha(Kg)		
	LIBERIA	63,210	100.0	120,560	0.52	7,800	495,300	100.0
	Bomi	2,460	3.9	4,450	0.55	7,400	18,180	3.7

	Bong	6,570	10.4	19,830	0.33	6,690	43,950	8.9
	Gbarpolu	2,340	3.7	5,180	0.45	6,900	16,180	3.3
	Grd. Bassa	6,030	9.5	10,930	0.55	7,440	44,900	9.1
	Grd Cape Mount	2,230	3.5	3,360	0.66	7,100	15,810	3.2
	Grd. Gedeh	4,200	6.6	4,640	0.91	8,520	35,800	7.2
	Grd. Kru	2,800	4.4	7,930	0.35	9,010	25,250	5.1
	Lofa	5,260	8.3	9,520	0.55	8,790	46,200	9.3
	Margibi	3,500	5.5	6,900	0.51	7,890	27,660	5.6
	Maryland	3,230	5.1	6,510	0.50	8,120	26,270	5.3
	Montserrado	4,160	6.6	6,070	0.69	6,150	25,560	5.2
	Nimba	12,640	20.0	21,600	0.59	8,380	105,940	21.4
	River Cess	2,400	3.8	4,180	0.57	9,060	21,750	4.4
	River Gee	2,830	4.5	3,940	0.72	7,810	22,090	4.5
	Sinoe	2,560	4.0	5,520	0.46	7,720	19,760	4.0

3.3. **Rice and Cassava Producing Households**

The major food crop in Liberia is rice and second most is cassava. Table 3.3 depicts indicators on rice and cassava cultivation by county. According to the table, number of rice producing households was estimated 232,200, which constituted 80.2 percent of the total agricultural household. Relatively, agricultural households reported growing rice were significantly high in four counties: Grand Kru (97.3 %), Lofa (95.1 %), Sinoe (93.7 %) and River Cess (93.2 %). This indicates that 3 to 6 percent of the agricultural households in these counties did not involve in rice farming. Next to these counties were Bong (89.3 %), Maryland (88.6 %), Gbarpolu (87.7 %) and Nimba (84.3 %). Montserrado and Margibi Counties had relatively small proportions of agricultural households reported growing rice, which were estimated at 45.7 percent and 52.3 percent respectively. The rest of counties reported between 63.8 –78.9 percent.

The table further presents agricultural households reported growing cassava. Number of cassava producing households was estimated at 118,980 representing 41.2 percent of the total agricultural households. Percent share of the agricultural households engaged in cassava production during the 2009 crop season was relatively high in two counties, namely: Grand Kru (76.2 %) and Maryland (60 %); followed by Grand Bassa (54.0 %), Sinoe (53.0 %), River Cess (52.5 %) and Bong (50.2). The Counties with the lowest proportions were Lofa and Montserrado with 25.6 %

each. The rest of the counties reported between 35.6 – 48.5 percent.

Table 3.3: Rice and Cassava Producing Households by County,2009 County	RICE			CASSAVA				
	Households		Farm/100 Hh	Households		Farm/100 Hh		
	Number	As % Agric.			As % Agric.		Number	As % Agric.
LIBERIA	**232,200**	**80.2**	**103**	**118,980**	**41.1**	**101**		
Bomi	7,490	63.9	104	4,450	38.0	100		
Bong	35,270	89.3	110	19,830	50.2	100		
Gbarpolu	11,360	87.7	110	5,180	40.0	100		
Grand Bassa	13,290	72.2	100	9,940	54.0	110		
Grand Cape Mount	7,050	75.1	100	3,360	35.8	100		
Grand Gedeh	8,810	78.9	100	4,640	41.5	100		
Grand Kru	10,130	97.3	100	7,930	76.2	100		
Lofa	35,370	95.1	110	9,520	25.6	100		
Margibi	9,440	52.3	100	6,900	38.2	100		
Maryland	8,740	88.6	100	5,920	60.0	110		
Montserrado	10,830	45.7	100	6,070	25.6	100		
Nimba	51,140	84.3	110	21,600	35.6	100		
River Cess	7,420	93.2	100	4,180	52.5	100		
River Gee	6,100	75.0	100	3,940	48.5	100		
Sinoe	9,760	93.7	100	5,520	53.0	100		

3.4. **Livestock and Poultry Rearing Households** Almost all of the livestock and poultry are reared in the backyards through the system of free range. There are few livestock importers who are primarily importing for immediate slaughtering that were not considered in the data collection. Table 3.4 shows the number of traditional households reported rearing livestock and poultry. According to the table, number of agricultural households reported rearing livestock was estimated at 64,290, constituting 22.2 percent of the total agricultural households. Percentage shares of the agricultural households rearing livestock were relatively high in Grand Kru and Nimba counties. More than two-fifth of the agricultural households reported rearing livestock in Grand Kru County(48.4 %) and Nimba county (41.2 %), followed by Grand Gedeh (38.7 %), Sinoe (29.3 %), Bong (27.5 %) and River Gee (25.5 %). Counties with the least proportions were Bomi (2.3 %), Grand Bassa (5.0 %), Margibi (5.4 %), River Cess (6.3 %) and Gbarpolu (7.3 %). The rest of the counties reported between 11 – 20 % of the agricultural households.

Poultry raising is very popular in the rural communities. Primarily, poultry is used to supplement household diet and sometimes sold for cash. According to the table, the number of households reported raising poultry was estimated at 123,290, representing 42.6 percent of the total agricultural households. Percentage share of agricultural households raising poultry was significantly high in Grand Kru with 80.2 percent; followed by Grand Gedeh and Sinoe counties

with 75.2 percent and 66.2 percent respectively. The County with the lowest percentage share was Bomi (5.8 %). The rest of the counties reported between 20.2 – 58.5 % of the agricultural households.

Table 3.4: Livestock and Poultry Rearing Households by County, 2009	Livestock Household		Poultry Household		Number(Heads)	
County	**Number**	**% of Agric Hh**	**Number**	**% of Agric Hh**	**Livestock**	**Poultry**
LIBERIA	64,290	22.2	123,290	42.6	195,170	814,170
Bomi	270	2.3	680	5.8	560	4,820
Bong	10,860	27.5	23,110	58.5	35,420	122,700
Gbarpolu	940	7.3	3,330	25.7	2,350	18,690
Grd. Bassa	920	5.0	2,430	13.2	2,700	15,640
Grd Cape Mount	1,050	11.2	3,340	35.6	520	23,160
Grd. Gedeh	4,320	38.7	8,400	75.2	12,250	58,450
Grd. Kru	5,040	48.4	8,350	80.2	11,030	57,500
Lofa	4,280	11.5	14,620	39.3	14,030	101,400
Margibi	970	5.4	6,230	34.5	4,810	42,300
Maryland	1,990	20.2	2,220	22.5	6,260	13,760
Montserrado	3,030	12.8	12,680	53.5	8,830	93,520
Nimba	25,000	41.2	24,750	40.8	83,200	171,890
River Cess	500	6.3	1,610	20.2	1,000	10,350
River Gee	2,070	25.5	4,640	57.1	5,550	35,220
Sinoe	3,050	29.3	6,900	66.2	6,660	44,770

3.5. **Heads of Livestock and Poultry** Table 3.8 shows heads of livestock (traditional) recorded in 2009. According to the table, there were more goats than the other livestock with a total of 75,330 heads, followed by pigs with a total of 68,000 heads, sheep and cattle with the totals of 43,470 and 8,370 heads respectively. Of the total number of goats, Nimba County reported having more than the other counties with 27,610 (36.6 %) heads, followed by Bong County with 12,620 (16.7 %) heads. The estimates of these two counties accounted for more than half (53.3 %) of the total number of goats reported. Next higher livestock rearing counties in relative term were Grand Gedeh with 8,160 (10.8 %) heads, Grand Kru with 7,220 (9.6 %) heads and Lofa with 5,870 (7.8 %) heads. The counties reported the higher number of pigs were Nimba and Bong with 33,990 (50.0 %) and 13,870 (20.4 %) heads respectively, followed by Montserrado with 5,950 (8.7 %) and Lofa with 3,630 (5.3 %). Nimba again reported more than two-fifth (43.5 %) of the total number sheep, which constituted the highest (18,900 heads). Next were two counties, namely: Bong with 6,120 (14.1 %) heads and Lofa with 4,210 (9.7 %) heads. Bong County ranked the highest in cattle rearing with 2,810 (33.6 %) heads, followed by Nimba County with 2,700 (32.3 %) heads.

Table 3.8 further presents the heads of poultry. The survey considered chickens and ducks.

According to the table, the number of chickens reported totaled 774,960 and ducks was estimated at 39,210 heads. Nimba County ranked the highest for the counties reported raising chicken with 158,990 (20.5 %) heads, followed by Bong County with 117,840 (15.2 %) heads. Next were four counties, namely: Lofa with 95,480 (12.3 %) heads, Montserrado with 90,140 (11.6 %) heads, Grand Gedeh with 56,770 (7.3 %) heads and Grand Kru with 56,700 (7.3 %) heads. For the counties reported raising ducks, Nimba County ranked the highest with 12,900 (32.9 %), followed by three counties: Lofa with 5,920 (15.1 %) heads, Bong with 4,860 (12.4 %) heads and Montserrado with 3,380 (8.6 %).

Table 3.5: Heads of Livestock and Poultry by Type and by County,2009

County	Heads (Number) of Livestock				Heads (Number) of Poultry	
	Cattle	Goats	Sheep	Pigs	Chickens	Ducks
LIBERIA	8,370	75,330	43,470	68,000	774,960	39,210
Bomi	110	70	270	110	4,720	100
Bong	2,810	12,620	6,120	13,870	117,840	4,860
Gbarpolu	20	1,090	1,200	40	18,590	100
Grd. Bassa		1,410	300	990	14,980	660
Grd Cape Mount	40	320	120	40	21,840	1,320
Grd. Gedeh	680	8,160	2,370	1,040	56,770	1,680
Grd. Kru	960	7,220	1,890	960	56,700	800
Lofa	320	5,870	4,210	3,630	95,480	5,920
Margibi	120	920	930	2,840	39,830	2,470
Maryland	120	3,020	2,090	1,030	12,460	1,300

Montserrado	70	920	1,890	5,950	90,140	3,380
Nimba	2,700	27,610	18,900	33,990	158,990	12,900
River Cess	30	310	120	540	9,500	850
River Gee	200	3,520	1,620	210	34,020	1,200
Sinoe	190	2,270	1,440	2,760	43,100	1,670

3.6. **Rural and Agricultural Households**

Table 3.9 depicts the distribution of rural households by agriculture and non-agriculture. According to the table, the total number of rural households was estimated at 339,340. Of this number, 289,550 households were agricultural, about 85.3 percent of the rural, while 49,790 (14.7 %) households were reported non-agricultural. In actual terms, Nimba County had a much higher numer of agricultural households compared to the other counties with, Bong and Lofa had a much higher number of agricultural households compared to the other counties with 60,670 (20.9 %), followed by Bong County with 39,500 (13.6 %) and Lofa County with 37,190 (12.8 %). Next were Montserrado with 23,700 (8.2 %), Grand Bassa with 18,410 6.4 %) and Margibi County with 18,060 (6.2 %). The least was River Cess County with 7,960 (2.7 %). The rest of the counties ranged from 8,130 (2.8 %) to 12,950 (4.5 %) agricultural households

The table further depicts that, 90.6 to 96.3 percent of the rural households in Maryland, Grand Kru, Gbarpolu, Bong, Sinoe, River Cess and Lofa reported engaging in agricultural activities during the 2009 crop survey. Of these counties, Lofa ranked the highest with 96.3 percent, followed by River Cess with 93.6 percent, Sinoe with 93.0 percent, Bong with 92.8 percent and Gbarpolu & Grand Kru with 91.0 percent each. Margibi, Montserrado and Grand Cape Mount counties ranked the least with 64.5, 71.6 and 74.5 percent respectively. The rest of the counties ranged from 80 percent to 87.4 percent.

Table 3.6: **Rural and Agricultural Households by County,2009**

	Rural Household		**Agricultural Household**			**Non-Agric. Household**	
COUNTY	**Number**	**As % of Tot.**	**Number**	**As % of Rural**	**% of Tot.**	**Number**	**% of Tot.**
LIBERIA	339,340	**100.0**	289,550	**85.3**	**100.0**	**49,790**	**100.0**
Bomi	14,100	**4.2**	11,720	**83.1**	**4.0**	**2,380**	**4.8**
Bong	42,570	**12.5**	39,500	**92.8**	**13.6**	**3,070**	**6.2**
Gbarpolu	14,230	**4.2**	12,950	**91.0**	**4.5**	**1,280**	**2.6**
Grd. Bassa	21,330	**6.3**	18,410	**86.3**	**6.4**	**2,920**	**5.9**
Grd Cape Mount	12,600	**3.7**	9,390	**74.5**	**3.2**	**3,210**	**6.4**
Grd. Gedeh	13,960	**4.1**	11,170	**80.0**	**3.9**	**2,790**	**5.6**
Grd. Kru	11,440	**3.4**	10,410	**91.0**	**3.6**	**1,030**	**2.1**
Lofa	38,620	**11.4**	37,190	**96.3**	**12.8**	**1,430**	**2.9**
Margibi	28,000	**8.3**	18,060	**64.5**	**6.2**	**9,940**	**20.0**
Maryland	10,890	**3.2**	9,870	**90.6**	**3.4**	**1,020**	**2.0**

Montserrado	33,100	**9.8**	23,700	**71.6**	**8.2**	**9,400**	**18.9**
Nimba	69,500	**20.5**	60,670	**87.3**	**21.0**	**8,830**	**17.7**
River Cess	8,500	**2.5**	7,960	**93.6**	**2.7**	**540**	**1.1**
River Gee	9,300	**2.7**	8,130	**87.4**	**2.8**	**1,170**	**2.3**
Sinoe	11,200	**3.3**	10,420	**93.0**	**3.6**	**780**	**1.6**

3.7. **Heads of Agricultural Households**

Agricultural households were used to collect agricultural data; thus, it is necessary and important to analyze the data on the heads of households. Table 3.10 presents the number of agricultural households' heads differentiated by gender. According to table, number of agricultural households' heads was estimated at 289,550. Of this number, male-headed households were 227,370 and female-headed 62,180. This means in relative terms that 21.5 percent of the agricultural households was headed by females while 78.5 percent headed by males. Female-headed agricultural households were relatively high in three counties, namely: Lofa with 32.5 percent, Grand Gedeh with 32.3 percent and Grand Cape Mount with 30.0 percent. Next were River Gee with 29.2 percent, Bomi with 24.0 percent, Gbarpolu and Grand Bassa with 20.8 percent each and Montserrado with 20.6 percent; followed by Grand Kru with 19.7 percent, Sinoe with 19.2 percent, Nimba with 18.0 percent and Bong with 17.5 percent. The county with the least female-headed agricultural households was Margibi with 12.0 percent

Of the total number of male-headed agricultural households between counties, Nimba County ranked the highest with 21.9 percent, followed by Bong with 14.3 percent and Lofa with 11.0 percent. The rest of the counties ranged from 2.5 percent to 8.3 percent of the total male-headed agricultural households. Of the female-headed agricultural households between counties, Lofa County ranked the highest with 19.4 percent, followed by Nimba County with 17.6 percent and Bong County with 11.1 percent. The rest of the counties ranged from 1.7 percent to 7.8 percent.

Table 3.7: Heads of Agricultural Households by Sex and by County, 2009	Both Sexes		Male		Female		Percent	
County	Number	Percent	Number	Percent	Number	Percent	Male	Female
LIBERIA	289,550	100.0	227,370	100.0	62,180	100.0	78.5	21.5
Bomi	11,720	4.0	8,910	3.9	2,810	4.5	76.0	24.0
Bong	39,500	13.6	32,590	14.3	6,910	11.1	82.5	17.5
Gbarpolu	12,950	4.5	10,260	4.5	2,690	4.3	79.2	20.8
Grd. Bassa	18,410	6.4	14,580	6.4	3,830	6.2	79.2	20.8
Grd Cape Mount	9,390	3.2	6,570	2.9	2,820	4.5	70.0	30.0
Grd. Gedeh	11,170	3.9	7,560	3.3	3,610	5.8	67.7	32.3
Grd. Kru	10,410	3.6	8,360	3.7	2,050	3.3	80.3	19.7
Lofa	37,190	12.8	25,100	11.0	12,090	19.4	67.5	32.5
Margibi	18,060	6.2	15,890	7.0	2,170	3.5	88.0	12.0
Maryland	9,870	3.4	7,890	3.5	1,980	3.2	79.9	20.1

Montserrado	23,700	8.2	18,820	8.3	4,880	7.8	79.4	20.6
Nimba	60,670	21.0	49,750	21.9	10,920	17.6	82.0	18.0
River Cess	7,960	2.7	6,910	3.0	1,050	1.7	86.8	13.2
River Gee	8,130	2.8	5,760	2.5	2,370	3.8	70.8	29.2
Sinoe	10,420	3.6	8,420	3.7	2,000	3.2	80.8	19.2

3.8. **Members of Agricultural Households**

Reliable statistical data are indispensable when a Nation is making serious efforts to improve nutritional status and living standards of its people. The number of people found in households in which at least a member is engaged in agricultural activity is given in Table 3.11. According to the table, members of agricultural households were estimated at 1,673,960. Of this number, male population was estimated at 831,660 (49.8 %) and the female population was estimated at 842,300 (50.2 %). Females present a slightly higher number compared to males in agricultural households during the 2009 agricultural survey.

The table further depicts the percent share of male and female households' members within county. Percentage shares of female population are relatively high in seven (7) counties namely: Lofa (52.3 %), Maryland (51.7 %), Grand Bassa (51.4 %), Bomi and Bong (51.0 % each), Nimba (50.5 %) and Gbarpolu (50.4 %). On the other hand proportions of male population were relatively high in eight (8) counties. These counties included Grand Gedeh (53.0 %), Grand Cape Mount (52.1 %), Sinoe (51.3 %), Grand Kru (51.0 %), Margibi (50.9 %), Montserrado and River Cess (50.6 % each) and River Gee (50.2 %).

Table 3.8: Members of Agricultural Households by Sex and by County, 2009 County	Agricultural Households' Members							
	Both Sexes		Male		Female		Percent	
	Number	Percent	Number	Percent	Number	Percent	Male	Female
LIBERIA	1,673,960	100.0	831,660	100.0	842,300	100.0	49.8	50.2
Bomi	60,940	3.6	29,860	3.6	31,080	3.7	49.0	51.0
Bong	217,250	13.0	106,450	12.8	110,800	13.2	49.0	51.0
Gbarpolu	71,220	4.3	35,320	4.2	35,900	4.3	49.6	50.4
Grd. Bassa	90,210	5.4	43,840	5.3	46,370	5.5	48.6	51.4
Grd Cape Mount	49,770	3.0	25,930	3.1	23,840	2.8	52.1	47.9
Grd. Gedeh	77,070	4.6	40,850	4.9	36,220	4.3	53.0	47.0
Grd. Kru	71,830	4.3	36,630	4.4	35,200	4.2	51.0	49.0
Lofa	223,140	13.3	106,440	12.8	116,700	13.9	47.7	52.3
Margibi	95,720	5.7	48,720	5.9	47,000	5.6	50.9	49.1
Maryland	59,220	3.5	28,600	3.4	30,620	3.6	48.3	51.7
Montserrado	130,350	7.8	65,960	7.9	64,390	7.6	50.6	49.4
Nimba	364,020	21.7	180,190	21.7	183,830	21.8	49.5	50.5
River Cess	41,390	2.5	20,940	2.5	20,450	2.4	50.6	49.4
River Gee	52,030	3.1	26,120	3.1	25,910	3.1	50.2	49.8

Sinoe	69,800	4.2	35,810	4.3	33,990	4.0	51.3	48.7

Appendix Table : Distribution of agricultural household members by age and sex

	Both Sexes		Male		Female		Percent	
County	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Male**	**Female**
Bomi	**60,940**	**100**	**29,860**	**100**	**31,080**	**100**	**49.0**	**51.0**
0 -9 years	13,870	22.8	6,420	21.5	7,450	24.0	46.3	53.7
10 -19 years	13,360	21.9	6,210	20.8	7,150	23.0	46.5	53.5
20 -29 years	12,350	20.3	5,200	17.4	7,150	23.0	42.1	57.9
30 -39 years	10,660	17.5	6,000	20.1	4,660	15.0	56.3	43.7
40 -49 years	5,200	8.5	2,090	7.0	3,110	10.0	40.2	59.8
50 years+	5,500	9.0	3,940	13.2	1,560	5.0	71.6	28.4
Bong	**217,250**	**100**	**106,450**	**100**	**110,800**	**100**	**49.0**	**51.0**
0 -9 years	32,110	14.8	16,600	15.6	15,510	14.0	51.7	48.3
10 -19 years	38,660	17.8	19,270	18.1	19,390	17.5	49.8	50.2
20 -29 years	32,350	14.9	16,390	15.4	15,960	14.4	50.7	49.3
30 -39 years	39,360	18.1	20,970	19.7	18,390	16.6	53.3	46.7
40 -49 years	42,390	19.5	20,230	19.0	22,160	20.0	47.7	52.3
50 years+	32,380	14.9	12,990	12.2	19,390	17.5	40.1	59.9
Gbarpolu	**71,220**	**100.0**	**35,320**	**100.0**	**35,900**	**100.0**	**49.6**	**50.4**
0 -9 years	27,360	38.4	12,710	36.0	14,650	40.8	46.5	53.5
10 -19 years	11,260	15.8	7,060	20.0	4,200	11.7	62.7	37.3
20 -29 years	12,000	16.8	6,000	17.0	6,000	16.7	50.0	50.0
30 -39 years	9,560	13.4	3,890	11.0	5,670	15.8	40.7	59.3
40 -49 years	6,160	8.6	3,180	9.0	2,980	8.3	51.6	48.4
50 years+	4,880	6.9	2,480	7.0	2,400	6.7	50.8	49.2
Grand Bassa	**90,210**	**100**	**43,840**	**100**	**46,370**	**100.0**	**48.6**	**51.4**
0 -9 years	32,080	35.6	16,310	37.2	15,770	34.0	50.8	49.2
10 -19 years	18,430	20.4	9,250	21.1	9,180	19.8	50.2	49.8
20 -29 years	14,650	16.2	5,610	12.8	9,040	19.5	38.3	61.7
30 -39 years	9,780	10.8	3,990	9.1	5,790	12.5	40.8	59.2
40 -49 years	9,730	10.8	5,740	13.1	3,990	8.6	59.0	41.0
50 years+	5,540	6.1	2,940	6.7	2,600	5.6	53.1	46.9
Grand Cape Mount	**49,770**	**100**	**25,930**	**100**	**23,840**	**100.0**	**52.1**	**47.9**
0 -9 years	17,420	35.0	9,100	35.1	8,320	34.9	52.2	47.8
10 -19 years	11,080	22.3	5,840	22.5	5,240	22.0	52.7	47.3
20 -29 years	5,490	11.0	2,510	9.7	2,980	12.5	45.7	54.3
30 -39 years	5,700	11.5	2,510	9.7	3,190	13.4	44.0	56.0
40 -49 years	4,070	8.2	2,420	9.3	1,650	6.9	59.5	40.5

50 years+	6,010	12.1	3,550	13.7	2,460	10.3	59.1	40.9
Grand Gedeh	**77,070**	**100**	**40,850**	**100**	**36,220**	**100**	**53.0**	**47.0**
0 -9 years	28,270	36.7	15,190	37.2	13,080	36.1	53.7	46.3
10 -19 years	13,760	17.9	8,620	21.1	5,140	14.2	62.6	37.4
20 -29 years	8,740	11.3	5,230	12.8	3,510	9.7	59.8	40.2
30 -39 years	7,450	9.7	3,720	9.1	3,730	10.3	49.9	50.1
40 -49 years	11,660	15.1	5,350	13.1	6,310	17.4	45.9	54.1
50 years+	7,190	9.3	2,740	6.7	4,450	12.3	38.1	61.9
Grand Kru	**71,830**	**100**	**36,630**	**100**	**35,200**	**100**	**51.0**	**49.0**
0 -9 years	24,670	34.3	13,440	36.7	11,230	31.9	54.5	45.5
10 -19 years	20,600	28.7	11,800	32.2	8,800	25.0	57.3	42.7
20 -29 years	10,490	14.6	3,660	10.0	6,830	19.4	34.9	65.1
30 -39 years	5,290	7.4	2,860	7.8	2,430	6.9	54.1	45.9
40 -49 years	6,770	9.4	3,040	8.3	3,730	10.6	44.9	55.1
50 years+	4,010	5.6	1,830	5.0	2,180	6.2	45.6	54.4
Lofa	**223,140**	**100**	**106,440**	**100**	**116,700**	**100**	**47.7**	**52.3**
0 -9 years	60,900	27.3	34,060	32.0	26,840	23.0	55.9	44.1
10 -19 years	51,530	23.1	22,350	21.0	29,180	25.0	43.4	56.6
20 -29 years	43,660	19.6	19,160	18.0	24,500	21.0	43.9	56.1
30 -39 years	27,940	12.5	12,770	12.0	15,170	13.0	45.7	54.3
40 -49 years	18,920	8.5	9,580	9.0	9,340	8.0	50.6	49.4
50 years+	20,190	9.0	8,520	8.0	11,670	10.0	42.2	57.8
Margibi	**95,720**	**100**	**48,720**	**100**	**47,000**	**100**	**50.9**	**49.1**
0 -9 years	30,970	32.4	17,340	35.6	13,630	29.0	56.0	44.0
10 -19 years	26,970	28.2	11,930	24.5	15,040	32.0	44.2	55.8
20 -29 years	11,930	12.5	6,290	12.9	5,640	12.0	52.7	47.3
30 -39 years	13,120	13.7	4,190	8.6	8,930	19.0	31.9	68.1
40 -49 years	7,880	8.2	6,000	12.3	1,880	4.0	76.1	23.9
50 years+	4,850	5.1	2,970	6.1	1,880	4.0	61.2	38.8
Maryland	**59,220**	**100**	**28,600**	**100**	**30,620**	**100**	**48.3**	**51.7**
0 -9 years	11,970	20.2	6,460	22.6	5,510	18.0	54.0	46.0
10 -19 years	9,020	15.2	4,430	15.5	4,590	15.0	49.1	50.9
20 -29 years	11,300	19.1	6,090	21.3	5,210	17.0	53.9	46.1
30 -39 years	9,510	16.1	4,610	16.1	4,900	16.0	48.5	51.5
40 -49 years	4,240	7.2	2,400	8.4	1,840	6.0	56.6	43.4
50 years+	13,180	22.3	4,610	16.1	8,570	28.0	35.0	65.0
Montserrado	**130,350**	**100**	**65,960**	**100**	**64,390**	**100**	**50.6**	**49.4**
0 -9 years	58,140	44.6	34,960	53.0	23,180	36.0	60.1	39.9

10 -19 years	22,140	17.0	10,550	16.0	11,590	18.0	47.7	52.3
20 -29 years	16,210	12.4	4,620	7.0	11,590	18.0	28.5	71.5
30 -39 years	20,160	15.5	8,570	13.0	11,590	18.0	42.5	57.5
40 -49 years	7,820	6.0	3,960	6.0	3,860	6.0	50.6	49.4
50 years+	5,880	4.5	3,300	5.0	2,580	4.0	56.1	43.9
Nimba	**364,020**	**100**	**180,190**	**100**	**183,830**	**100**	**49.5**	**50.5**
0 -9 years	74,530	20.5	41,440	23.0	33,090	18.0	55.6	44.4
10 -19 years	65,630	18.0	27,030	15.0	38,600	21.0	41.2	58.8
20 -29 years	50,710	13.9	37,840	21.0	12,870	7.0	74.6	25.4
30 -39 years	54,640	15.0	25,230	14.0	29,410	16.0	46.2	53.8
40 -49 years	60,190	16.5	23,420	13.0	36,770	20.0	38.9	61.1
50 years+	58,320	16.0	25,230	14.0	33,090	18.0	43.3	56.7
River Cess	**41,390**	**100**	**20,940**	**100**	**20,450**	**100**	**50.6**	**49.4**
0 -9 years	8,420	20.3	4,190	20.0	4,230	20.7	49.8	50.2
10 -19 years	13,710	33.1	6,080	29.0	7,630	37.3	44.3	55.7
20 -29 years	6,850	16.5	4,190	20.0	2,660	13.0	61.2	38.8
30 -39 years	6,200	15.0	2,090	10.0	4,110	20.1	33.7	66.3
40 -49 years	4,540	11.0	2,720	13.0	1,820	8.9	59.9	40.1
50 years+	1,670	4.0	1,670	8.0	-	0.0	100.0	0.0
River Gee	**52,030**	**100.0**	**26,120**	**100.0**	**25,910**	**100.0**	**50.2**	**49.8**
0 -9 years	19,210	36.9	7,840	30.0	11,370	43.9	40.8	59.2
10 -19 years	13,700	26.3	8,620	33.0	5,080	19.6	62.9	37.1
20 -29 years	7,780	15.0	3,920	15.0	3,860	14.9	50.4	49.6
30 -39 years	4,810	9.2	1,830	7.0	2,980	11.5	38.0	62.0
40 -49 years	3,390	6.5	1,830	7.0	1,560	6.0	54.0	46.0
50 years+	3,140	6.0	2,080	8.0	1,060	4.1	66.2	33.8
Sinoe	**69,800**	**100**	**35,810**	**100**	**33,990**	**100**	**51.3**	**48.7**
0 -9 years	15,100	21.6	7,990	22.3	7,110	20.9	52.9	47.1
10 -19 years	16,190	23.2	8,950	25.0	7,240	21.3	55.3	44.7
20 -29 years	16,890	24.2	9,920	27.7	6,970	20.5	58.7	41.3
30 -39 years	11,950	17.1	3,220	9.0	8,730	25.7	26.9	73.1
40 -49 years	6,050	8.7	2,790	7.8	3,260	9.6	46.1	53.9
50 years+	3,620	5.2	2,940	8.2	680	2.0	81.2	18.8