Liberia Agriculture Census 2024

HOUSEHOLD REPORT

Liberia Institute of Statistics and Geo-Information Services (LISGIS)
Monrovia, Liberia

Ministry of Agriculture (MOA)
Monrovia, Liberia

February, 2025

50x2030

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DATA SOURCES AND AVAILABILITY

LAC-2024 Final Report is available online at: https://lisgis.gov.lr/census.php
Additional information from the LAC-2024 can be obtained from the Liberia Open Data Portal via: https://liberia.opendataforafrica.org/data#topic=Agriculture

In addition, information not available in the LAC-2024 Final Report and on the Open Data Portal may be obtained from the LISGIS Head Quarters.

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RELATED LINK

The LAC-2024 microdata can be obtained from:
https://microdata.lisgislr.org/index.php/catalog/?page=1&ps=15

CITATION REQUIREMENT AND FORMAT GUIDANCE

Liberia Institute of Statistics and Geo-Information Services (LISGIS), Liberia Agriculture Census 2024 Final Report, February 2025.

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FOREWORD

The Liberia Agriculture Census 2024 (LAC-2024) marks a significant step in modernizing and expanding the nation's agricultural data collection, reflecting the country's commitment to strengthening its agricultural sector. Conducted by the Liberia Institute of Statistics and Geo-Information Services (LISGIS) in collaboration with the Ministry of Agriculture (MOA) and other key partners, LAC-2024 is Liberia's first comprehensive digital agriculture census. It aimed to collect structural information on various aspects of agricultural households, non-households and communities and their activities, including crop and livestock production activities, household demographics, land use, and access to infrastructure and resources. Given that the last agriculture census was conducted in 1972, this updated census fills a vital gap, providing data that is critical for policy formulation, planning, and decision-making within Liberia's agriculture sector.

It is my fervent hope that this report will provide all data users, including policymakers, planners and researchers involved in the agricultural sector with the necessary information to understand the current state of agriculture in Liberia at the household level. I believe that the results of the LAC-2024 will help to improve the prevailing conditions faced by agricultural households in Liberia.

On behalf of the Government of Liberia, I wish to express my appreciation for the financial and technical support provided by the World Bank, FAO and IFAD through the Harmonizing and Improving Statistics in West Africa Project (HISWAP) and the 50x2030 Initiative. I would like to extend my sincere gratitude to all members of the census steering committee (headed by the Minister of Agriculture), professional staff of the Liberia Agriculture Census Technical Working Group (comprising staff from LISGIS, MOA, CDA, NaFAA and the FAO). I also want to appreciate all National, Regional and HQ monitors, County Inspectors, Data Quality Assurance Officers, Team Supervisors and field enumerators for their dedicated services. Certainly, without such dedication, the census would not have been successful.

Finally, I want to appreciate all the respondents for their time and valuable responses which cumulated into the results of the census, other persons and institutions, particularly the general public and private sector actors for their support in ensuring the successful implementation of the LAC-2024.

Hon. Richard F. Ngafuan
Director General
Liberia Institute of Statistics and Geo-Information Services

PREFACE

The importance of data for evidence-based decision making to inform agriculture development is invaluable. Quality data is needed across all spectrums of agriculture value chains to inform government, commercial parties, and development partners' actions within the agriculture sector. Beyond the national government level, county authorities also need reliable data to develop their strategic plans.

The Liberia Agriculture census 2024 undertaken by the Liberia Institute of Statistics and Geo-information services (LISGIS) in collaboration with the Ministry of Agriculture through funding from the HISWA PROJECT and with technical support from the Food and Agriculture Organization of the United Nations (FAO) captured data on agriculture households within the crop, livestock, fishery and aquaculture sub-sectors; also, the census collected important information on technologies, equipment and tools currently been used, land tenures status, processing facilities and many structural issues of the agriculture sector. The census's capture of agriculture households across the country to support and enrich the master sample frame is important for future research samples and comparability of results.

It is my fervent hope that this **Liberia Agriculture Census 2024 Household Report** will provide information about the agricultural sector to all relevant stakeholders including the government, development partners, international and inter-governmental organizations, private-sector actors, policy makers, and planners to support the development of the agriculture sector in Liberia. We encourage all stakeholders, with an aim of improving the agriculture sector either through support of inputs, promotion of agro-processing for industrial value-chain development or for improved farmers' livelihood, to utilize the findings of this household assessment as additional guidance for intervention designs, agricultural planning, implementation, monitoring and reporting about the sector. The findings are also important for setting benchmarks for many of the structural issues affecting the agriculture sector.

Special appreciation goes to our development partners for the financial and technical supports provided to these initiatives to close the data gaps in agriculture and rural statistics. Also, I acknowledge and appreciate the leadership and teams from LISGIS, and our team from MOA for their invaluable efforts. I also acknowledge and appreciate the efforts of the field staffs and all those who went near and far to ensure that the data were adequately captured. Finally, I appreciate all the farmers and respondents who accepted and provided insights which culminated into findings from the Liberia Agriculture Census. Let us continue these coordination and collaborations in producing important statistics that are needed for the development of the sector.

J. Alexander Neutah, PhD
Minister, Ministry of Agriculture
Republic of Liberia

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LIST OF ABBREVIATIONS AND ACRONYMS

Agri-HHs	Agricultural HHs
Agri-MACs	Agricultural line Ministries, Agencies and Commissions
CDA	Cooperative Development Agency
CARI	Central Agriculture Research Institute
FDA	Forestry Development Authority
FAO	Food and Agriculture Organization of the United Nations
GPS	Global Positioning System
HHs	Households
HISWAP	Harmonizing and Improving Statistics in West Africa Project
IFAD	International Fund for Agriculture Development
LISGIS	Liberia Institute of Statistics and Geo-Information Services
LACRA	Liberia Agriculture Commodity Regulatory Authority
LAC	Liberia Agriculture Census
MACs	Ministries, Agencies and Commissions
MOA	Ministry of Agriculture

EXECUTIVE SUMMARY

The Liberia Agriculture Census 2024 (LAC-2024) marks a transformative step in agricultural data collection for Liberia. Conducted by the Liberia Institute of Statistics and Geo-Information Services (LISGIS) in collaboration with the Ministry of Agriculture (MOA) and other key stakeholders, this was the first comprehensive digital agriculture census in Liberia's history. Spanning all 15 counties and 160 statistical districts, the census provides detailed insights into the socio-demographic and agricultural practices of Liberia's farming households.

The census identified **338,492** agricultural households, accounting for over **1.3** million individuals. The findings revealed that **99%** of agricultural households practice crop cultivation, with rice (cultivated by **56.3%** of households) and cassava (cultivated by **45.9%** of households) being the most commonly cultivated crops. Poultry farming is the second most common agricultural activity **(27,417** households**)**, followed by livestock rearing **(20,156** households). Despite the predominance of crop cultivation, irrigation remains underutilized, with usage on only **8.0%** of holdings.

Land ownership and tenure remain deeply rooted in traditional practices, with **59.8%** of agricultural land inherited. The census also highlighted critical gender dynamics, as **64.5%** of agricultural households are male-headed, and female-headed households showed lower levels of formal education **(64.5%** with no formal education compared to **38.3%** of males).

Poultry and livestock rearing, while practiced by fewer households, remains a significant source of livelihood. Chickens and Goats dominate, respectively, with **48,245** households rearing chickens **(444,148** total chickens) and **13,459** households rearing goats **(67,767** total goats).

In terms of agricultural inputs, the census revealed a reliance on traditional tools. Manually operated equipment such as cutlasses (used by **94.1%** of households) and hand hoes (used by **87.2%** of households) dominates, with farmers rarely using mechanized farming tools. Fertilizer usage is also limited, with only **11.3%** of households reporting use, and this varies widely by county.

Significant challenges were noted in housing and infrastructure. About 44.2 percent of agricultural households used mud and sticks for the outerwall of their housing units, 34.1 percent used mud and bricks for the same purpose while 60.3 percent of them used mud to construct their floors. The used of mud as the primary floor materials for agricultural housing units possess significant health risks to household members, especially for children.

Agricultural households in Liberia have reasonable access to drinking water sources but face difficulties accessing sanitation facilities and healthcare. While **89%** of households have access to drinking water within 20 minutes, over half **(54.2%)** of households lack basic sanitation facilities, relying on open defecation. Accessibility to healthcare is also a concern, with **51.7%** of households traveling an hour or more to reach the nearest health facility. These conditions underscore the socio-economic challenges faced by agricultural households in Liberia.

The LAC-2024 provides a robust foundation for addressing these challenges and fostering sustainable development within Liberia's agriculture sector. Its findings are invaluable for policymakers, development partners, and stakeholders aiming to improve food security, agricultural productivity, and rural livelihoods.

INTRODUCTION

a. Rationale

The Liberia Agriculture Census 2024 (LAC-2024) is a landmark initiative aimed at providing comprehensive, reliable, and up-to-date data on the structure and characteristics of Liberia's agricultural sector. This census is crucial for evidence-based policymaking, investment planning, and monitoring of the agricultural sector's performance.

Liberia's agricultural sector remains a vital component of the national economy, employing a significant portion of the population and serving as a key driver of food security, rural livelihoods, and economic growth. However, the sector faces numerous challenges, including outdated data on agricultural holdings, limited information on farming practices, and a lack of precise statistics on livestock, fisheries, and forestry. The census seeks to address these data gaps by leveraging digital tools and international best practices, ensuring that the country's agriculture policies and development programs are based on accurate and timely information.

The LAC-2024 represents Liberia's first fully digital agriculture census, utilizing Computer-Assisted Personal Interviewing (CAPI) technology to enhance data quality and efficiency. It aligned with the methodological framework recommended by the Food and Agriculture Organization (FAO) and was supported by the World Bank's Harmonizing and Improving Statistics in West Africa (HISWA) Project and the 50x2030 Initiative.

b. Scope

The Liberia Agriculture Census 2024 covered all major agricultural activities in the country, including:

- Crop production (food and cash crops)
- Livestock rearing (cattle, poultry, goats, pigs, etc.)
- Forestry (timber, non-timber forest products, and conservation practices)
- Aquaculture and fisheries

The census targeted all agricultural establishments**,** including:

- Households engaged in agricultural activities
- farmer-based organizations
- Commercial agricultural enterprises**,** such as agricultural concessions, cooperatives, and private farms
- Communal farms and institutional farming initiatives

Geographically, the census spanned all 15 counties and 160 statistical districts of Liberia, utilizing a stratified cluster sampling approach based on enumeration areas (EAs) from the 2022 National Population and Housing Census (NPHC)**.** The census methodology ensured representative data collection across urban and rural areas.

c. Objectives

The primary objective of the Liberia Agriculture Census 2024 was to collect structural and up-to-date statistics on the country's agricultural sector to support policy formulation, program development, and decision-making. Specifically, the census aims to:

1. Provide accurate and reliable data on agricultural activities, including crop production, livestock, poultry, forestry, and aquaculture.
2. Assess the structure and characteristics of agricultural holdings, including land use, farm size, production methods, and technology adoption.
3. Analyze the socioeconomic conditions of agricultural households**,** including housing ownership, condition of housing units, and access to services.
4. Identify challenges and opportunities in the agricultural sector to inform targeted interventions and development strategies.
5. Develop a Master Sampling Frame for future agricultural surveys, enabling more efficient and cost-effective data collection.

d. Census Questionnaires

To achieve the above objectives, the LAC-2024 employed three questionnaires; household, non-household and community questionnaires. These questionnaires were used to collect a wealth of information in the agricultural sector. The results of the LAC-2024 are summarized in three separate reports based on these questionnaires. These include: Household, Community and Non-household report.

e. The Current Report and Its Objective

This report presents the main results of the LAC-2024 household sector. Its objective is to provide deeper understanding on the socio-demographic characteristics of agricultural households in Liberia and the various agricultural activities practiced by these households. The report also presents the various forms of labor, inputs, tools and equipment used by Liberia's agricultural households.

DEFINITION OF KEY TERMS

Agricultural Household: an agricultural household is defined as a household with at least one member practicing agricultural activities (crop cultivation, livestock, poultry, aquaculture, forestry production) which are one of the sources of the family's livelihood or income. In other words, to be considered an agricultural household, a household must derive part of its livelihood or income from agriculture. In the context of the LAC-2022/2023, one additional criterion was added. That is, a household must have practiced agriculture activity during the 2022/2023 farming year to be considered an agriculture household.

Agricultural holder: civil person, group of civil persons or juridical person who makes the major decisions regarding resource use and exercises management control over the agricultural holding operation.

Agricultural holding: economic unit of agricultural production under single management comprising all livestock kept and all land used wholly or partly for agricultural production purposes, without regard to title, legal form or size.

Census reference year: usually a period of twelve months, either a calendar year or an agricultural year, generally encompassing the various time reference dates or periods of data collection for individual census items. The LAC-2022/2023 reference year is from November 2022 to December 2023.

Green house: an enclose structure, sometime a building or tank in which plants are grown that need protection from cold weather.

Hectare: is a measurement of an area of land which is equal to 10,000 square meters, or 2.471 acres.

Household: person or group of persons who USUALLY SLEEP in the same dwelling and taken their MEALS TOGETHER, recognize the same person(s) as their head.

Household Member: any person that either was part of the household for at least 6 of the 12 months preceding the interview or was currently part of the household with a view of spending at least 6 months one day. A household member can be both family and non-family.

Irrigation: action of purposely providing land with water, other than rain, for improving pastures or crop production.

Land tenure: arrangements or rights under which the holder operates the land making up the holding.

Legal status of the holder: juridical aspects under which an agricultural holding is operated.

Livestock: all animals kept or reared in captivity mainly for agricultural purposes. In the LAC-2022/2023, households that consider their animal (s) as not been part of their livelihood activity or income were not considered as livestock producing households.

Natural or Civil Persons: a human being, as opposed to a "legal" person, which is an entity or group considered collectively as a single individual for legal purposes.

Poultry: all birds kept or reared in captivity or domesticated mainly for agricultural purposes. In the LAC-2022/2023, households that consider their bird(s) as not been part of their livelihood activity or income were not considered as poultry producing households.

Parcel: any piece of land of one land tenure type, entirely surrounded by other land, water, road, forest or other features not forming part of the holding or forming part of the holding under a different land tenure type.

Plot: part or whole of a field on which a specific crop or crop mixture is cultivated.

METHODOLOGY

The Liberia Agriculture Census 2024 (LAC-2024) adopted the recommendations of the World Programme for the Census of Agriculture 2020 (WCA 2020). In particular, the (WCA 2020) recommends a new agriculture census modality for countries planning to conduct regular agricultural surveys after the census, called the Integrated Census/Survey Modality. As a beneficiary of the 50x2030 Initiative, the Integrated Census/Survey Modality was a suitable option for Liberia, since the Initiative aims to support the country in the implementation of regular agriculture surveys programs.

With this methodology, Liberia decided to conduct a "light census" focused on structural and essential data. Other data (non-structural) that are needed will be incorporated in the modules of the integrated survey programs. As mentioned above, the census was a sample census. This section presents a summary of the census sampling methodology.

a. Estimation domains

The estimation domains are administrative areas from which reliable estimates are expected. In Liberia, the administrative areas used by LISGIS for statistical purposes are counties, district, clan/community/ward, enumeration areas and localities (including towns and villages). The sample size of the LAC-2024 allows reporting key structural agricultural statistics at the statistical district level.

b. Population units

The population units of the LAC-2024 are households with at least one member practicing own account agricultural activity (ies), also called "farming households". However, all households in selected EAs were interviewed to ensure a complete identification of farming households.

c. Sampling units and sampling frame

Sampling units were the enumeration areas (EAs), and the sampling frame consisted of the full list of EAs developed by the Liberia Institute of Statistics and Geo-Information Services (LISGIS) in the framework of the 2022 National Population and Housing Census (2022 NPHC). The sample frame included the number of farming households listed in each EA during the 2022 NPHC. Furthermore, the frame classified EAs into urban/rural areas.

d. **Sampling method**

A stratified cluster sampling method was used.

e. Stratification

The sampling frame was stratified by urban/rural criteria in each district (estimation domain/analytical stratum).

f. Sample size, allocation, and selection method

In adequacy with budget availability, a large sample of 4,800 EAs was considered for the LAC-2024. The sample was allocated in strata (districts, urban/rural) proportionally to the numbers of farming households computed in the frame. In total, about 78.8% of the sample was allocated to rural areas. The

stratified sample of EAs was selected with a probability proportional to the number of farming households at EA level.

Table 1. Sample Size Allocation by Urban/Rural and County

County	Urban		Rural		Total	
	sample	%	sample	%	Sample	%
Bomi	16	9.7	149	90.3	165	100
Bong	114	16.1	594	83.9	708	100
Gbarpolu	10	7.0	133	93.0	143	100
Grand Bassa	24	6.4	349	93.6	373	100
Grand Cape Mount	22	12.4	155	87.6	177	100
Grand Gedeh	75	28.0	193	72.0	268	100
Grand Kru	5	4.4	109	95.6	114	100
Lofa	116	16.5	586	83.5	702	100
Margibi	56	27.5	148	72.5	204	100
Maryland	27	20.1	107	79.9	134	100
Montserrado	330	66.1	169	33.9	499	100
Nimba	162	17.6	757	82.4	919	100
River Cess	4	2.8	140	97.2	144	100
River Gee	47	35.9	84	64.1	131	100
Sinoe	8	6.7	111	93.3	119	100
Total	1,016	21.2	3,784	78.8	4,800	100

g. Distribution of frame population and sample coverage

The distribution of the numbers of farming households at district and EA levels was quite skewed. At district level, about 56.3% of the districts (90 out of 160) contributed to more than 90% of the country's farming households. At EA level, about 50.2% of the frame's EAs (6,194 out of 12,335) contributed to more than 90% of the country's farming households. With the proportional allocation and probability proportional to the number of farming households' methods, the selected probabilistic sample of EAs represents about 39% of the EAs in the frame and covers more than 75% of the farming households in Liberia.

Table 2. Coverage of Sample by County

County	Total EAs	sample size of EAs	Proportion of frame EAs covered by the sample (%)	Proportion of farming households covered by the sample (%)
Bomi	300	165	55.0	82.8
Bong	1,107	708	64.0	87.1
Gbarpolu	266	143	53.8	73.5
Grand Bassa	878	373	42.5	68.5
Grand Cape Mount	400	177	44.3	72.9
Grand Gedeh	418	268	64.1	86.7
Grand Kru	231	114	49.4	75.6
Lofa	946	702	74.2	86.5
Margibi	774	204	26.4	54.8
Maryland	333	134	40.2	74.3
Montserrado	4,328	499	11.5	35.1
Nimba	1,494	919	61.5	83.9
River Cess	258	144	55.8	74.9
River Gee	264	131	49.6	73.0
Sinoe	338	119	35.2	62.5
Total	**12,335**	**4,800**	**38.9**	**75.1**

h. **Estimation procedures and sampling error**

The sample design is a stratified cluster sampling with enumeration areas (EAs) as clusters and farming households as units of interest.

Notation

h = stratum

H = total number of strata

i = EA

N = total number of EAs

I_h= total number of EAs in the r^{th} stratum

j = farming household

M_{hi}= total number of farming households that will be actually listed in the i^{th} EA

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

F_{hi}= total number of farming households of the i^{th} EA in the sampling frame

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

n_h= number of sampled EAs selected in stratum h

m_{hi}= number of sample farming households selected in i^{th} EA in stratum *h*

y_{hij}= value of the target variable *Y* observed on the j^{th} farming household, in i^{th} EA in stratum *r*

i. Estimators

The probability of selecting the farming household j in the sample is the probability of selection of the EA i in which it is located ($n_h \frac{F_{hi}}{F_h}$).

Thus, the design weight assigned to the farming household *j* selected in the i^{th} EA in stratum h is:

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

The design weights will be adjusted and calibrated as needed.

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

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

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

- *Simple mean*

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

- *Weighted sample mean*

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

Variance

A simple approximate estimation of the variance can be obtained with the following estimator, provided by Särndal, Swensson, and Wretman (1992, p. 154), which overestimates the actual variance as it considers a selection of cluster with replacement.

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

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

An approximate estimator of the variance of the mean is:

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

Coefficient of variation of the total

$$\widetilde{CV}\left(\hat{Y}\right) = \frac{\sqrt{\tilde{V}\left(\hat{Y}\right)}}{\hat{Y}}$$

Coefficient of variation of the mean

$$\widetilde{CV}\left(\hat{\bar{Y}}\right) = \frac{\sqrt{\tilde{V}\left(\hat{\bar{Y}}\right)}}{\hat{\bar{Y}}}$$

j. Census Tools

The census questionnaires and field staff manuals were designed to collect data from agricultural households, non-households (concessions, cooperatives, communal farms, etc.) and communities. The census data was collected using Computer Assisted Personal Interview (CAPI), specifically the CSPro application. Electronic copy of enumeration maps was integrated into the CAPI application to enable field staff easily identify their assigned EAs.

k. Data Quality Assurance

The data quality assurance began with the robust training of field staff. In addition to the training, several data quality assurance mechanisms were instituted to ensure that high quality data were collected.

Firstly, the census technical team ensured that the necessary logical functions were integrated into the CAPI application to identify and prevent inconsistencies during data collection.

Secondly, the census technical team implemented a pretesting exercise of the census questionnaires as well as a pilot census. These activities ensured that the functionality and logical flow of the questionnaires and tablets were tested and the necessary adjustments were made to guarantee data quality.

Thirdly, the LAC-2024 dashboard was setup to monitor the flow of data in real time. It had indicators of the mapping (listing) and enumeration of EAs and households. The dashboard enabled the census technical team to evaluate teams' coverage of EAs and households. Five Headquarters (HQ) Monitors were assigned to keep monitoring the dashboard and identifying any error in data submission from field teams. Also, a robust field monitoring by National and Regional monitors as well as County Inspectors and Data Quality Assurance Officers ensured that data collectors were always in their assigned areas administering the census questionnaires. Data collectors easily received technical assistance to avoid potential errors in data capture.

Lastly, GPS coordinates were captured before and after the administration of the questionnaires. These coordinates allow the census technical team to use GIS technology to ensure that teams visited all localities and households within their assigned EAs. A team's work was considered completed if all structures within its assigned EAs had GPS coordinates attached.

KEY FINDINGS

There are about **338,492** agricultural households in Liberia, largely concentrated in **Nimba (21.4 percent), Bong (16.7 percent) and Lofa (12.7 percent)** counties. The households are mostly headed by **Male (64.5 percent).** Most households have holdings which are owned by natural or civil persons[1] and are not registered **(84.8 percent).** The majority (**64.5 percent**) of Female-headed households have no level of education compared to their male counterpart (**38.3 percent**).

The dominant agricultural activity practiced across all households is **crop cultivation, 99 percent**. **Rice** and **cassava** are the most cultivated crops by households, **56.3** and **45.9** percent, respectively.

Poultry is the second most common agricultural activity in Liberia. **Chicken (**including **broilers, layers, and pullets/DOCs)** is the type of poultry mostly reared by households across all counties. The total number of chickens reported by poultry households was **444,148.**

The most common livestock type raised by households is goat. A total of **13,459** households reported raising goats. The total number of goats reported by these households was **67,767.**

Only **8.0** percent of household holdings used irrigation. At the household level, about **6,662.1 hectares** of cultivated lands were under irrigation.

Most of the households **(about 72.9 percent)** used hired laborers for crop production activities. Men were mostly hired for crop production activities compared to women and children. The hiring of children to work in crop production activities was mostly practiced in **Grand Kru** and **Lofa c**ounties.

Land used for agricultural activities was mostly **inherited (59.8 percent)**. In a few cases, land was acquired through the government **(0.5 percent).**

The most used type of tool/equipment on the holdings is **manually operated tools**, specifically **hand hoe** and **cutlass,** used by **87.2** and **94.1 percent** of holdings, respectively.

Only **8.2** percent of holdings in Liberia used greenhouse or high shelter. Greenhouse or high shelter use is more pronounced in Grand Cape Mount county **(56.0 percent).**

[1] The term "natural or civil person" refers to a living human being, with certain rights and responsibilities as apposed to a group or institution (i.e., partnership).

CHAPTER 1: CHARACTERISTICS OF AGRICULTURAL HOUSEHOLDS

This chapter presents information on the total size and composition of agricultural households, holders, and population during Liberia's 2022/2023 farming season. It examines demographic characteristics such as the age, sex, and educational level of household heads. The chapter also provides information on the legal status of holdings owned or operated by agricultural households in Liberia.

1.1. SOCIO-DEMOGRAPHIC PROFILE OF AGRICULTURAL HOUSEHOLDS

Liberia has an agricultural population of over 1 million, with holders more numerous than households. There are about 338,492 households engaged in agricultural activities across the country, comprising 499,732 crop-cultivating holders. Thus, Liberia has approximately two holders cultivating crop per household and an average agricultural household size of four persons per household. The majority of agricultural households are located in rural areas (79.7 percent).

1.1.1. Distribution of Agricultural Households, Holders and Household Members

Disparities in Size of Agricultural Households, Holders and Household Members.

There is a significant variation in the number of households, holders, and household members across different counties in Liberia, reflecting diverse population densities and economic activities. Nimba is the most significant in terms of agricultural households, crop-cultivating holders, and household members, indicating a high concentration of agricultural activities. The County has a total of 72,604 households, 129,096 crop-cultivating holders and 334,905 household members. Agriculture households, crop cultivating holders, and household members accounted for 21.4%, 25.8%, and 24.1% respectively. Bong County follows with 16.7% of households and 17.8% of the agricultural population. In terms of number of crop-cultivating holders, Lofa ranks second to Nimba with 87,297 holders, constituting 17.5%. On the other end of the spectrum, Maryland, Sinoe, and Grand Kru counties have the smallest numbers in all three metrics, collectively contributing a minor portion to the overall figures.

Table 3. Agricultural households, holders, and household members by county

County	Households		Holders		Household Members	
	Number	Percent	Number	Percent	Number	Percent
Bomi	13,628	4.0	14,865	3.0	49,419	3.6
Bong	56,536	16.7	81,705	16.3	246,723	17.8
Gbarpolu	11,288	3.3	15,350	3.1	40,000	2.9
Grand Bassa	30,578	9.0	34,685	6.9	108,414	7.8
Grand Cape Mount	15,165	4.5	17,576	3.5	56,812	4.1
Grand Gedeh	12,324	3.6	13,671	2.7	49,215	3.5
Grand Kru	7,201	2.1	10,159	2.0	31,746	2.3
Lofa	43,090	12.7	87,297	17.5	182,674	13.2
Margibi	15,319	4.5	16,187	3.2	49,119	3.5
Maryland	5,199	1.5	5,955	1.2	18,543	1.3
Montserrado	30,674	9.1	35,857	7.2	117,513	8.5
Nimba	72,604	21.4	129,096	25.8	334,905	24.1
Rivercess	11,406	3.4	22,402	4.5	46,219	3.3
River Gee	7,465	2.2	7,839	1.6	27,738	2.0
Sinoe	6,015	1.8	7,089	1.4	28,009	2.0

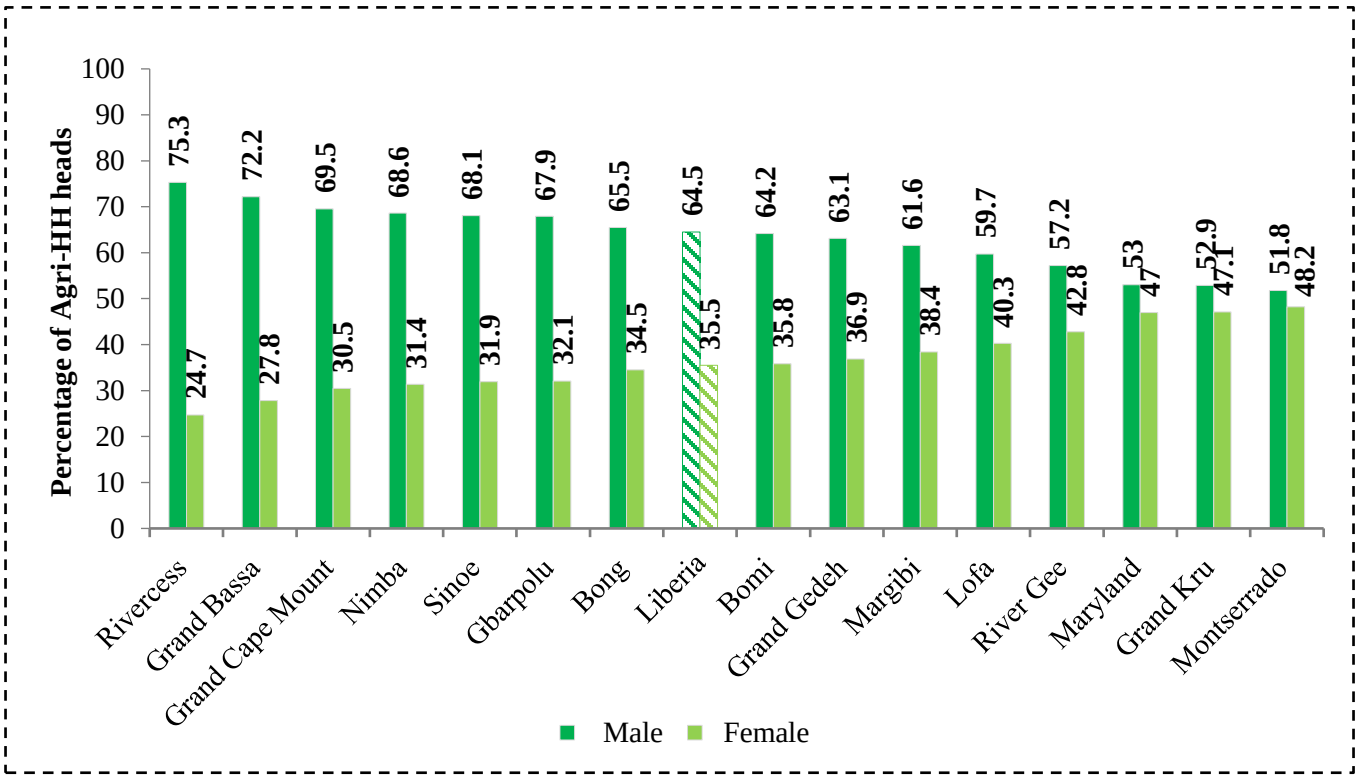
County	Households		Holders		Household Members	
	Number	Percent	Number	Percent	Number	Percent
Total	338,492	100	499,732	100	1,387,049	100

1.1.2. Sex of Household Head

Males Dominate agricultural households' Headship

The distribution of heads of agricultural households in Liberia shows a predominance of male leadership. In fact, at the national level, male-headed agricultural households account for 64.5% of the total. Female headship is more pronounced in Montserrado, Grand Kru and Maryland counties and less common in Rivercess and Grand Bassa counties (see **Figure 1**).

Figure 1. Distribution of agricultural household heads by sex and county (in %)



1.1.3. Level of Education of Household Head

Large Proportion of Agricultural Household Heads have No Formal Education

Large number of agricultural household heads in Liberia are characterized by high illiteracy rates. About 48 percent of them have no formal education (see ***Table 4***). There is a pronounced gender disparity in education levels among household heads, with females being less educated than males across all levels. The most noticeable disparity is at the level of no formal education, where 64.5 percent of females compared to 38.3 percent of males have no formal education. Very few household heads have vocational or tertiary education, indicating limited access to higher education opportunities.

Table 4. Distribution of household head by sex and education level

Level of Education	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
None	82,305	38.3	79,569	64.5	161,875	47.8
Elementary	37,200	17.3	18,582	15.1	55,781	16.5
Junior High	35,863	16.7	11,325	9.2	47,187	13.9
Senior High	42,384	19.7	10,172	8.2	52,556	15.5
Vocational	4,138	1.9	853	0.7	4,991	1.5
Tertiary	9,820	4.6	2,144	1.7	11,964	3.5
Other specify	3,430	1.6	707	0.6	4,137	1.2
Total	**215,140**	**100**	**123,428**	**100**	**338,492**	**100**

1.1.4. Gender Composition of Agricultural Population

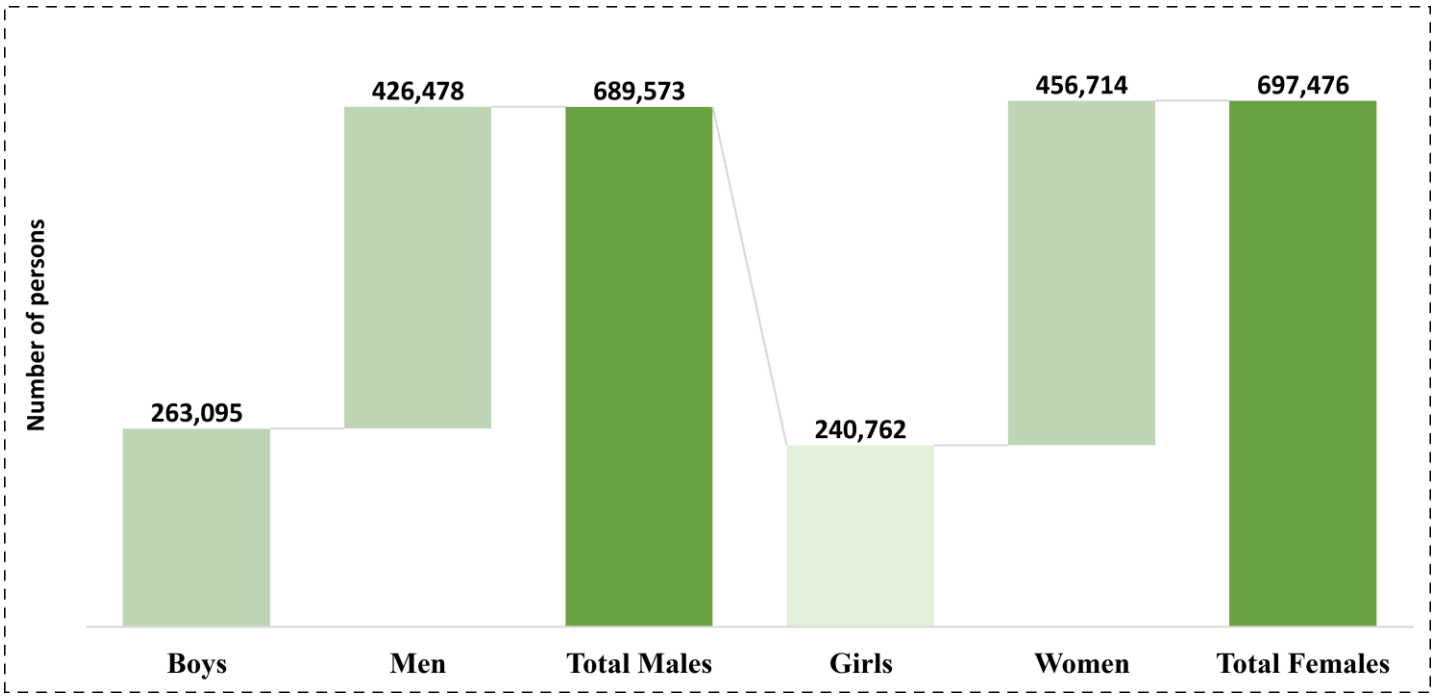
The Gender Distribution of the Agricultural Population is Relatively Balanced

The gender distribution of the agricultural population is quite balanced, with a slight majority in the favor of females. **Figure 2** below shows the total number of males (689,573) and females (697,476) in the agricultural population. This balance is critical for understanding the labor division and potential resource allocation within agricultural households.

The agricultural population is composed of 503,857 children[2] and 883,192 adults[3]. This indicates a larger adult population in agricultural households, which suggest a robust workforce presence.
Among the children, there are more boys (263,095) than girls (240,762), while among the adults, there are more women (456,714) than men (426,478). The slightly higher number of females in the total agriculture population might imply a significant role for women in agriculture, both in terms of labor and household management.

[2] Children in this report refers to individuals below 15 years old. Male children are considered boys while female children are considered girls.
[3] Adult in this report refers to individuals 15 years old and above. Male adults are considered Men while female adults are considered women.

Figure 2. Number of agricultural household members by gender

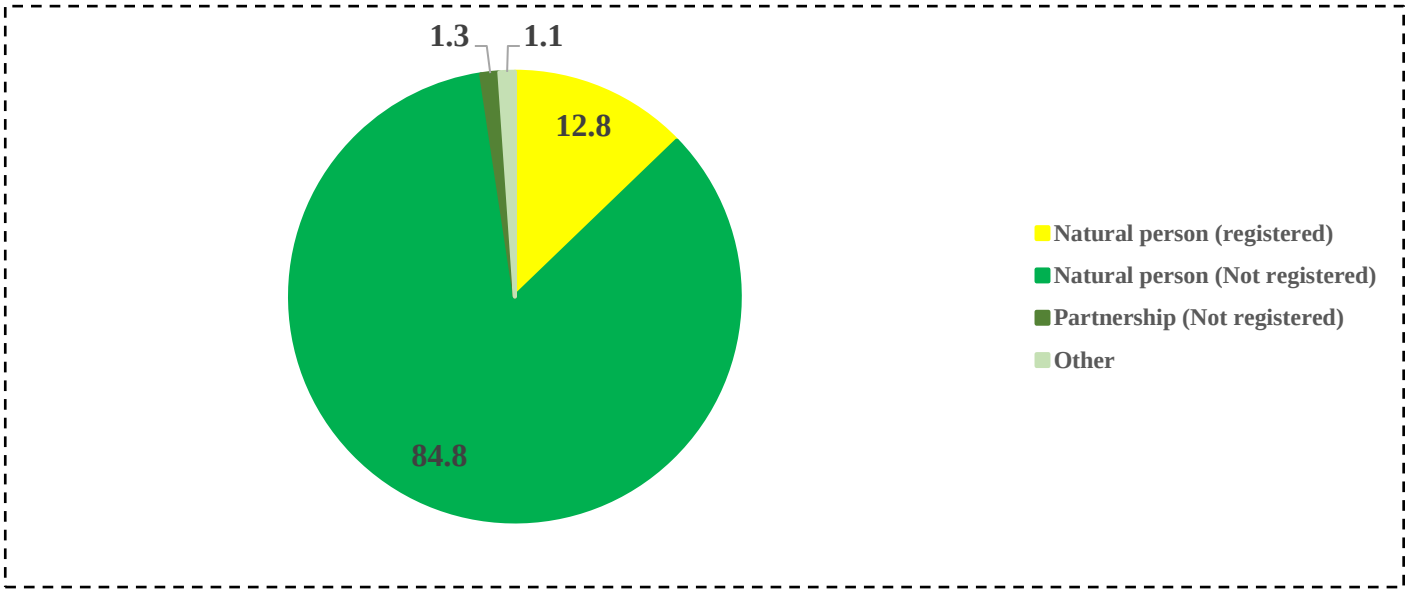


1.1.5. Legal Status of Agricultural Holding

Dominance of Non-registered Holdings of Natural or Civil Persons in Agricultural

There is a high prevalence of non-registered holdings in Liberia. About 85 percent of the agricultural households have their holdings as natural/civil persons (not registered). This indicates that the vast majority of households have not formally registered their holdings. ***Figure 3*** shows that only 12.8 percent of the households have registered their holdings.

Figure 3. Percent Distribution of households by legal status of their holdings



1.2. AGRICULTURAL HOUSEHOLDS MEMBERS' LIVING CONDITIONS

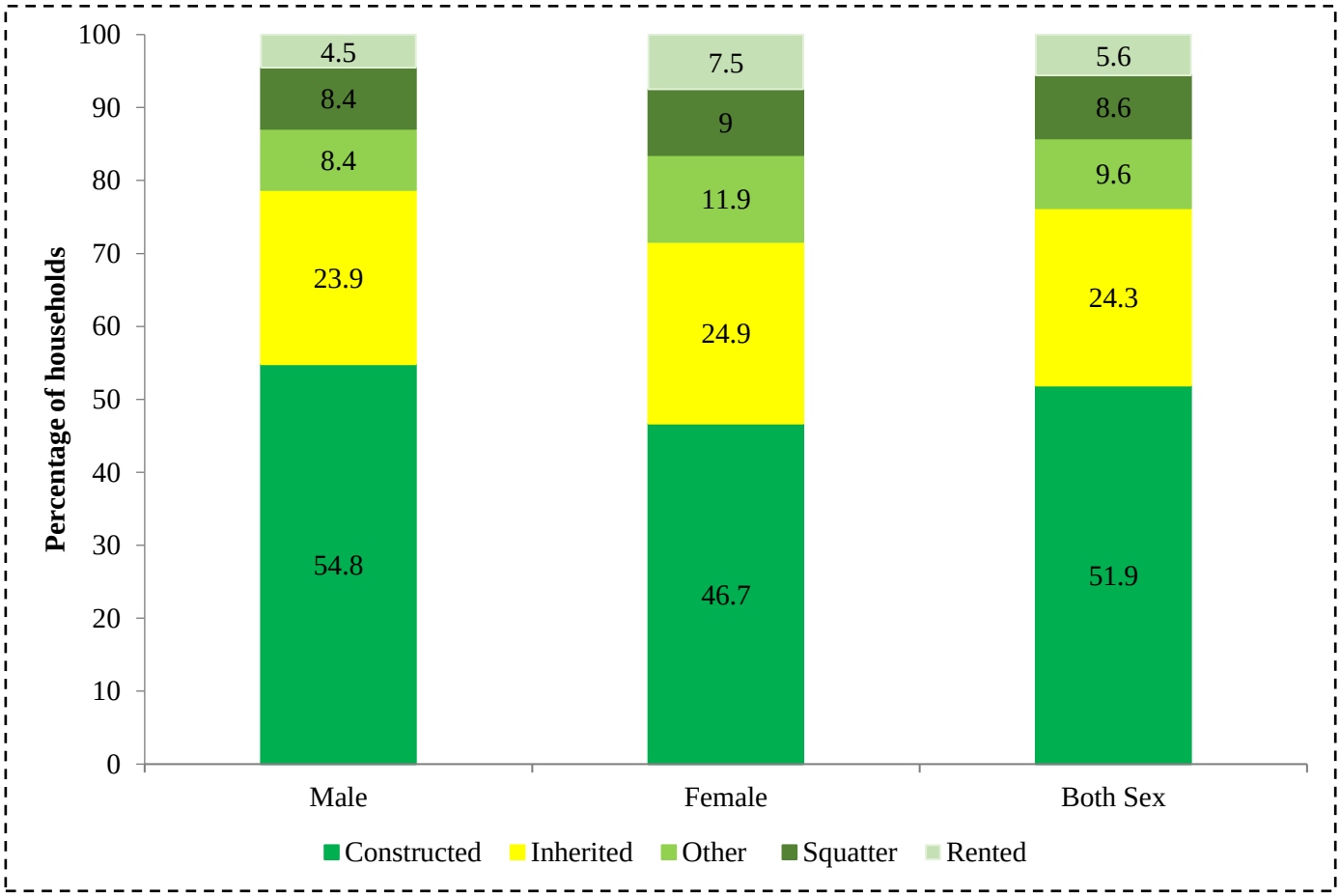
This section analyzes the housing characteristics of agricultural households to understand their members' living conditions. It provides information on housing ownership, repair needs, main source of drinking water, fuel for light and cooking, type of human waste disposal system, and the average time taken to the nearest source of drinking water, primary school, and health facility.

1.2.1. Ownership Status of Housing Unit

Agricultural Households mostly Construct their Homes

Agricultural households in Liberia are mostly owner-occupied. The majority of households, both male-headed (54.8%) and female-headed (46.7%), have constructed their homes. This indicates a strong preference or necessity for building their own residences. Inheritance of housing is the second most common type of ownership for both male (23.9%) and female (24.9%) heads, suggesting that traditional inheritance practices play an important role in property acquisition. Rented and Squatter housing units are more common among female-headed households than male-headed households (see **Figure 4**), possibly indicating different economic circumstances or access to ownership. Other types of ownership, including government provided and purchased housings are less common.

Figure 4. Distribution of agricultural household heads by sex and ownership status of housing (in %)

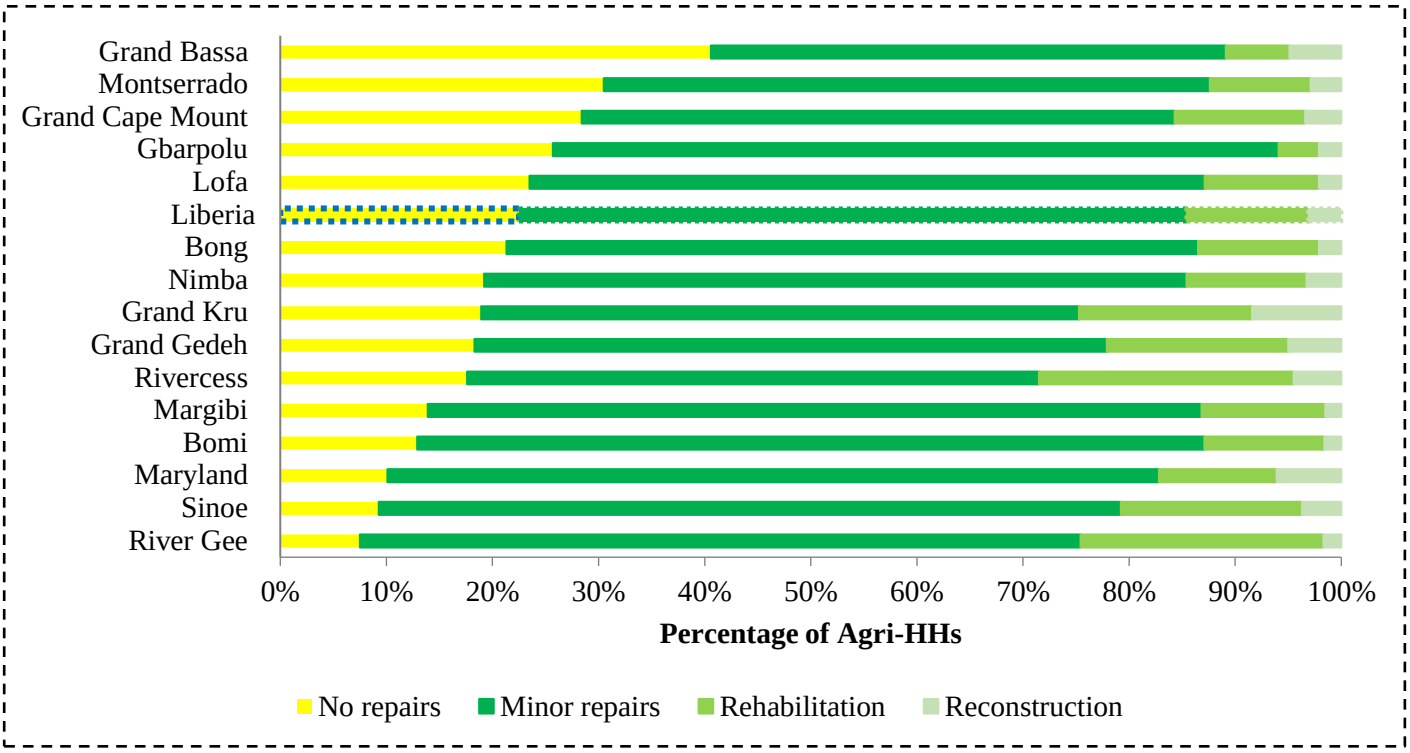


1.2.2. Repair Needs of Housing Unit

The Majority of Agricultural Households Reported Minor Repairs Needs in Their Housing Units.

The LAC-2024 results reviewed a prevalence of minor repair needs on agricultural housing units. The majority of households across all counties require minor repairs, with the overall percentage being 62.9 percent. This suggests that most agricultural households are in reasonably good condition but need some maintenance. A noticeable proportion of households reported no repair needs at all (22.5 percent). Grand Bassa (40.6 percent) and Montserrado (30.5 percent) have the highest percentages of households needing no repairs, indicating relatively better housing conditions in these counties. Grand Gedeh (17.1 percent) and Rivercess (24.0 percent) have notable percentages of households requiring rehabilitation, highlighting areas with more significant structural damage. It's also worth highlighting that reconstruction needs are relatively low overall, with the highest in Grand Kru (8.4 percent). This indicates that while some houses are in severe disrepair, they are not the majority.

Figure 5. Distribution of agricultural households by type of repair needs and county (in %)



1.2.3. Main Construction Materials of Housing Units

Agricultural Households Lived mostly in Housing Units with Outerwall and Floor made of Mud and Roof made of Zinc.

The LAC-2024 also collected information on other characteristics of agricultural housing, such as type of roof, outerwall and main floor materials of the housing Units. The results show that approximately 90.0 percent of agricultural households used zinc as the primary construction material for their roof, 44.2 percent used mud and sticks for the outerwall of their housing units, 34.1 percent used mud and bricks for the same purpose and 60.3 percent of households used mud to construct their floors.

Detail results of the characteristics of agricultural housing units are presented in appendices 2, 3 and 4 of

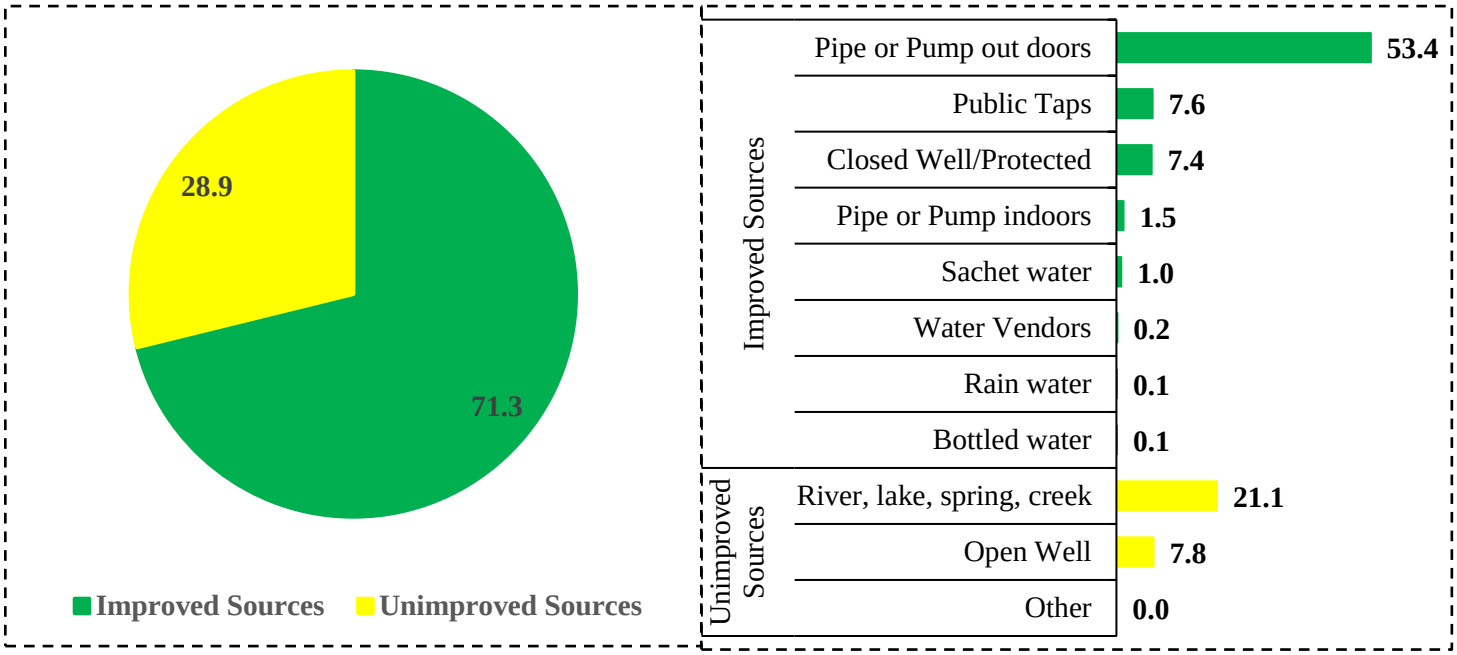
this report.

1.2.4. Main Source of Drinking Water

Preponderance of Agricultural Households Drinking from Improved Water Sources

In Liberia, there is a preponderance of agricultural households using an improved source of drinking water. There is widespread use of pipes or pumps as household main drinking water source. Figure 6 shows that most households (53.4 percent) rely on outdoor piped water, indicating the prevalence of shared or communal water systems. It also shows that a significant proportion of households (21.1 percent) depend on rivers, lakes, springs, and creeks, which may present concerns regarding water safety and reliability. It is also worth noting that reliance on groundwater sources is visible in Liberia, as protected wells and public taps serve 15.0 percent of agricultural households.

Figure 6. Percent distribution of agricultural households by main source of water supply for drinking

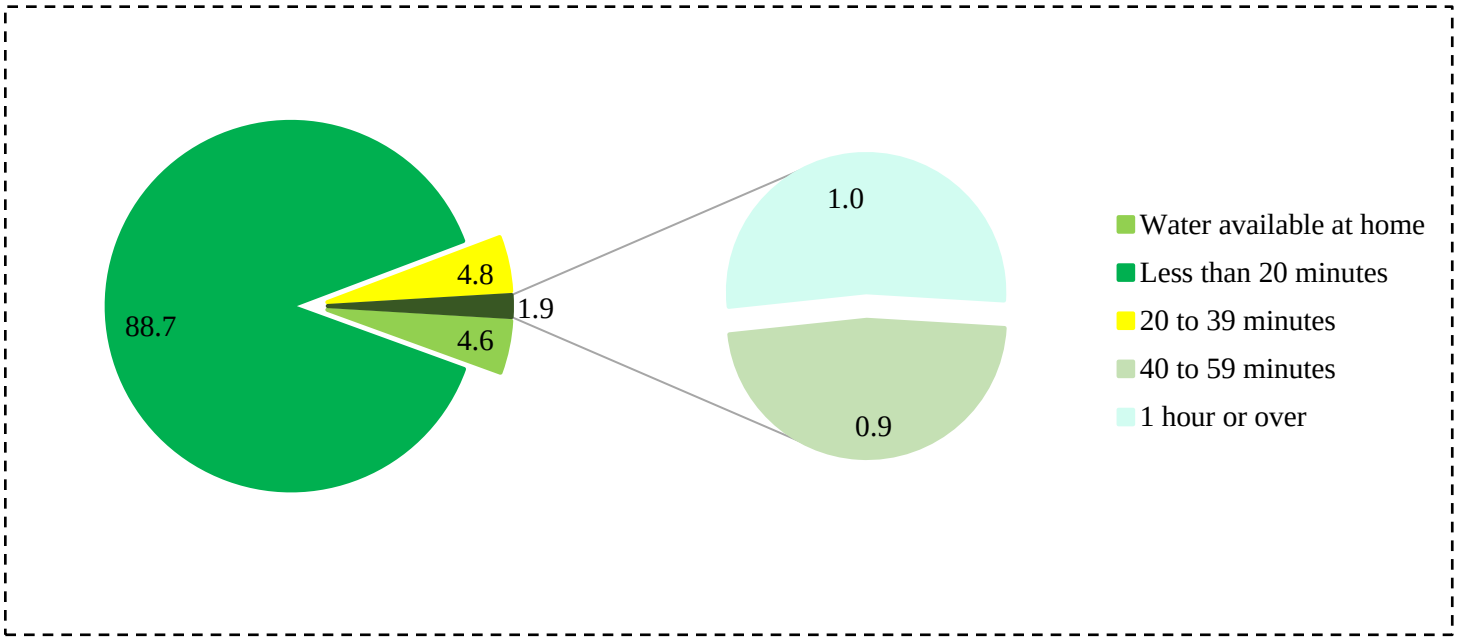


1.2.4. Walking-Time to Drinking Water Source

Reasonable Access to Drinking Water Sources

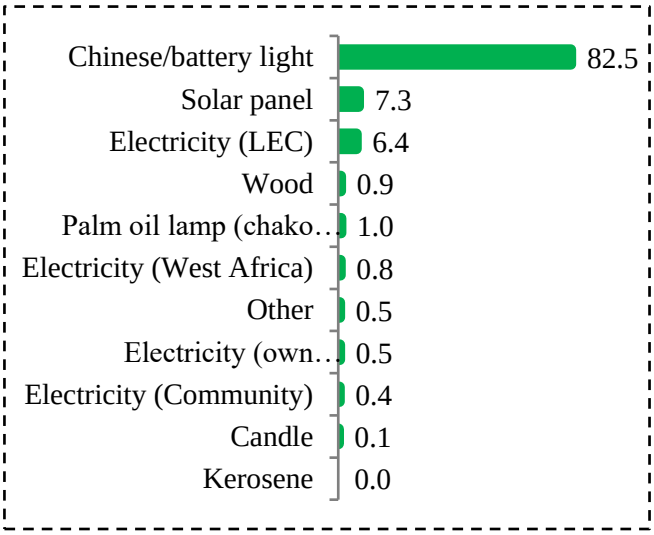
Drinking water sources are relatively accessible for most agricultural households, as many reported accessing water within 20 minutes. About 89 percent of agricultural households take less than 20 minutes to access the nearest drinking water source. Only 1.0 percent of households have to travel for an hour or more to access drinking water sources.

Figure 7. Distribution of agricultural households by time taken from home to the nearest source of drinking water (in %)



1.2.5. Main Source of Fuel for Lighting

Figure 8. Distribution of agricultural households by main source of fuel for lighting (in %)



Agricultural Households Depend largely on Battery Light for Lighting.

There is a widespread use of battery fuel for lighting in Liberia's agricultural households. Traditional sources of lighting such as kerosene lights[4], candles and palm oil lamps have been replaced with Chinese/battery lights. The majority of households (82.5 percent) rely on battery-powered lights, indicating a widespread use of portable lighting solutions. Solar panels are used by 7.3 percent of households, reflecting a notable adoption of renewable energy for lighting purposes. About 8.1 percent of households reported using electricity as source of lighting. Electricity provided by the Liberia Electricity Corporation (LEC) constitute 6.4 percent of this proportion. This suggest that agricultural households' access to electricity through the national grid is still limited.

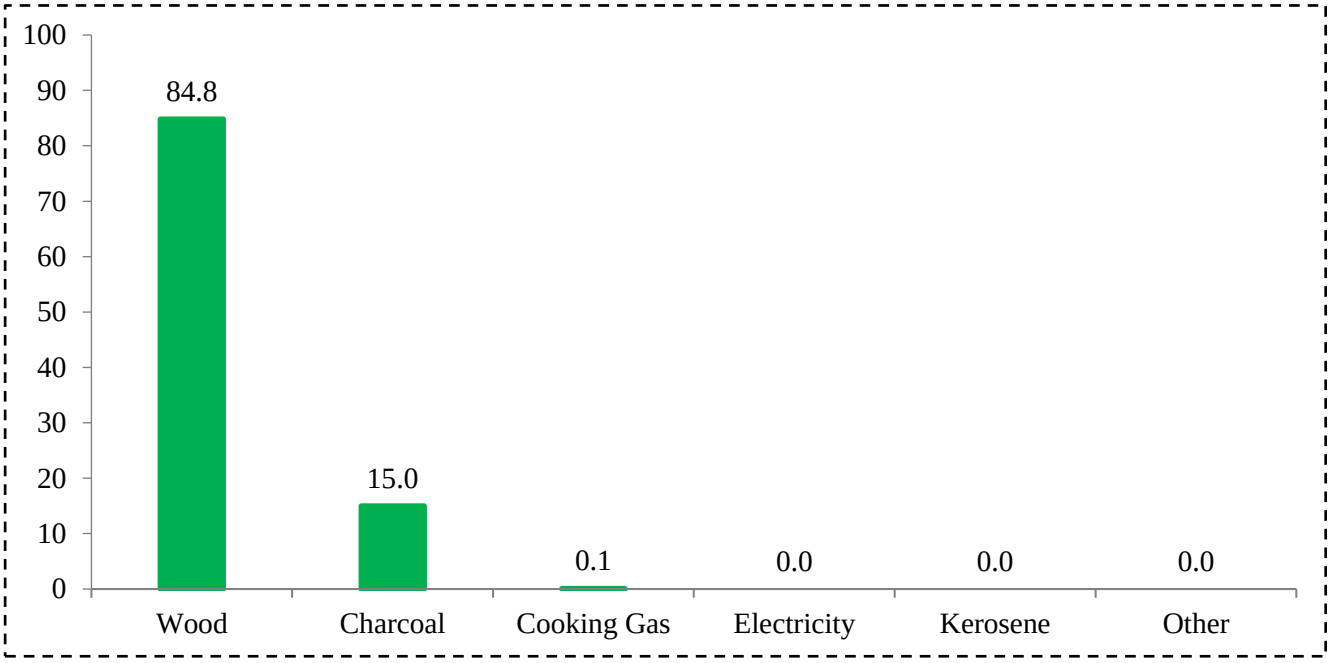
[4] The 0.0% shown for kerosene on the graph does not indicate that there were no households using kerosene. Rather, it signifies that the number of households who reported using kerosene are very low compare to the total number of households.

1.2.6. Main Source of Fuel for Cooking

Wood and Charcoal are the Main Sources of Fuel for Cooking in Agricultural Households

Almost all the agricultural households in Liberia rely on wood or charcoal as their primary sources of cooking fuel. The agriculture census results show that 84.8 percent of households used wood as their primary cooking source, while 15.0 percent used charcoal for the same purpose. This situation indicates a strong dependency on traditional biomass fuels, often readily available in rural areas. It is important to note that these two sources of fuel for cooking contribute to deforestation and indoor air pollution. Only 0.1 percent of households use cooking gas as a source of fuel for cooking (see **Figure 9**[5]). This reflects a minimal adoption of cleaner fuel as an alternative source for cooking.

Figure 9. Percentage distribution of agricultural households by main source of fuel for cooking



1.2.7. Main Human Waste Disposal System

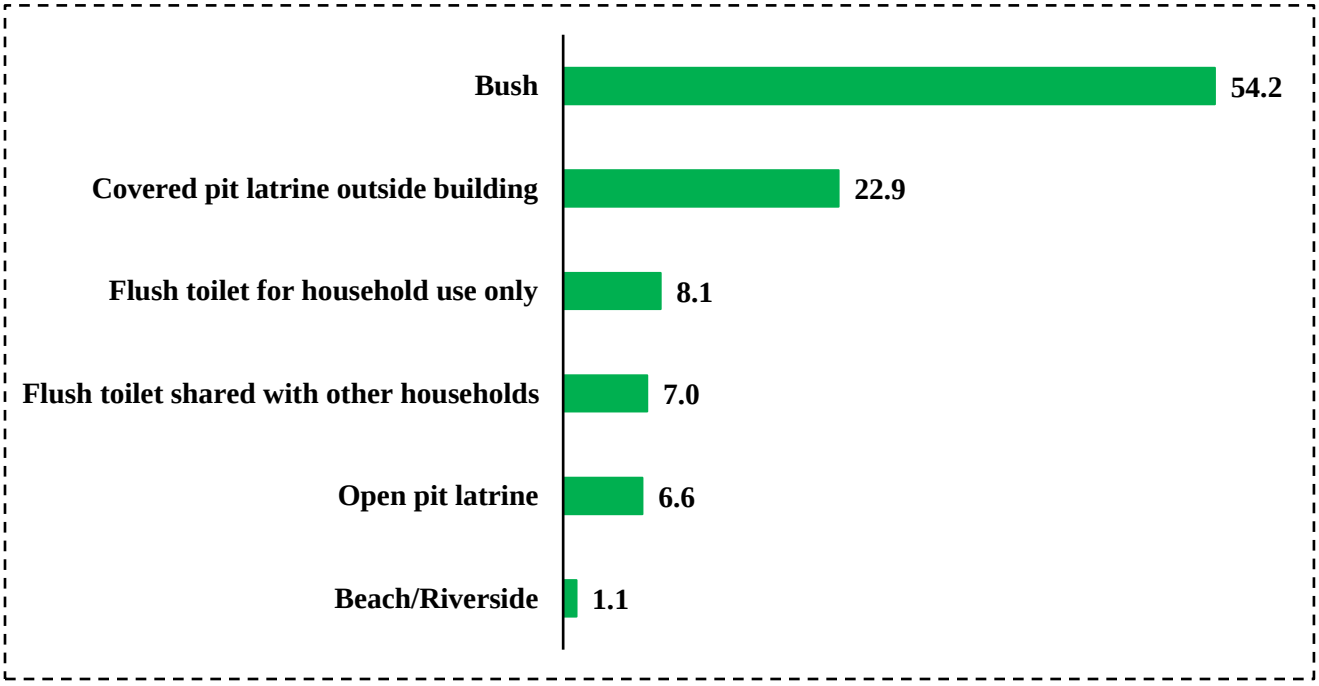
Many Agricultural Households lack access to basic sanitation facilities

The LAC-2024 result highlights significant sanitation challenges and the lack of access to basic sanitation facilities in many agricultural households. The result shows that there is a limited use of flush toilet among agricultural households. Only 15.1 percent of households used this type of human waste disposal system, with 7.0 percent of them

[5] The zeros shown in the graph are not true zeros but rather values obtained by dividing a very small number of households by the total households.

reporting shared flush toilet with other households. The data from the census revealed popularity of open defecation, with 54.2 percent of households using the bush as their main human waste disposal system.

Figure 10. Distribution of agricultural households by main type of human waste disposal system used (in %)



1.2.8. Distance to Health and Primary School Facilities

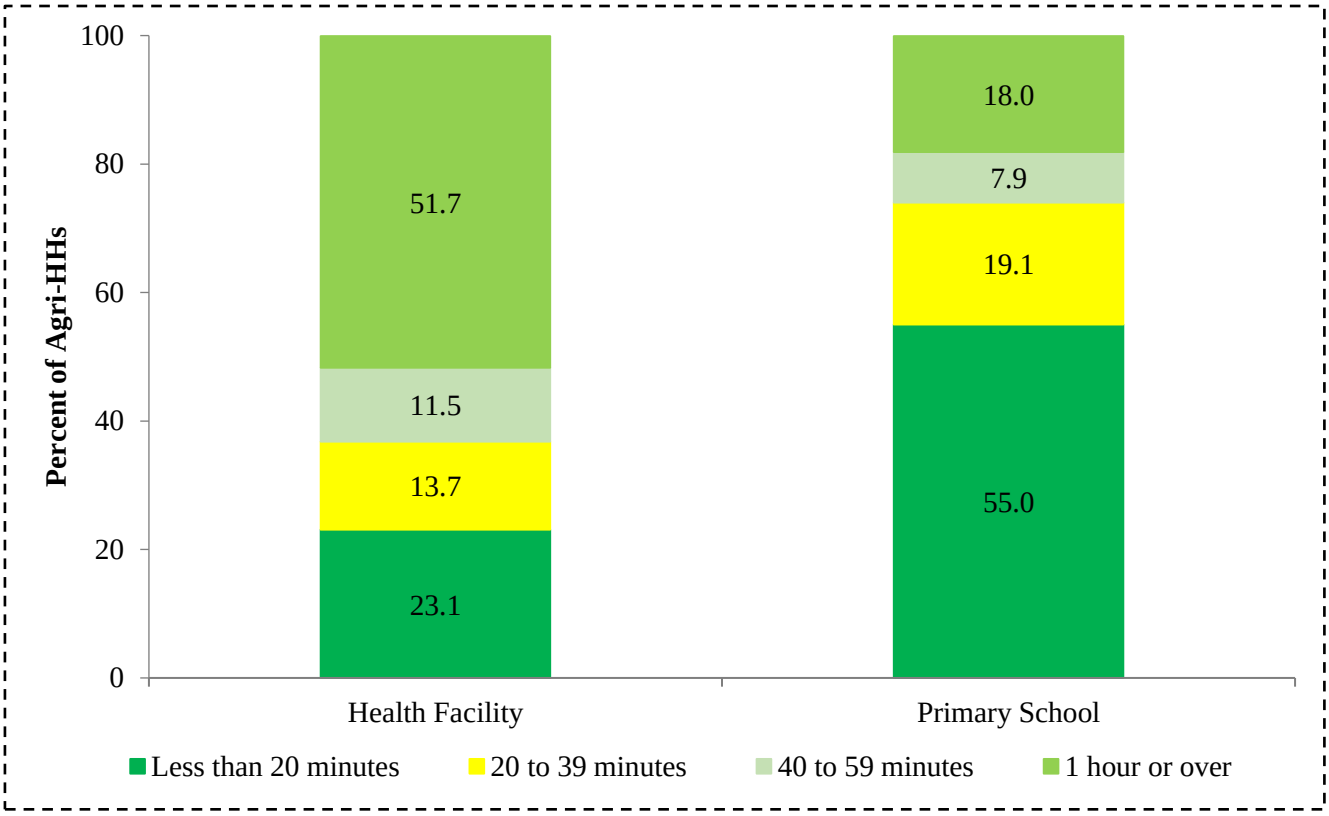
Majority of Agricultural Households have Challenges Accessing Health Facilities.

Accessibility to Health Facilities is a challenge for many agricultural households. Over half of the households (51.7 percent) experienced long travel times (1 hour or over) to access health facility by walking. This situation can delay access to urgent medical care and routine health services. The data suggests a critical need for healthcare infrastructure development in rural and underserved areas to reduce travel times and improve access to health services.

Most Agricultural Households have Reasonable Access to Primary Schools.

Regarding distance to the nearest primary school, there is a relatively good accessibility for a majority of households. In fact, more than half of the households (55.0 percent) have primary schools within a 20-minute walking distance from their dwelling. Nearly a fifth (19.1 percent) of households need between 20 to 39 minutes to reach a primary school, which is still a reasonable commuting time for children. However, a significant portion (18.0 percent) of households must travel an hour or more to access primary school, indicating substantial accessibility challenges for these households.

Figure 11. Distribution of agricultural households by time taken from home to the nearest primary school and health facility (in %)



CHAPTER 2: AGRICULTURAL ACTIVITIES

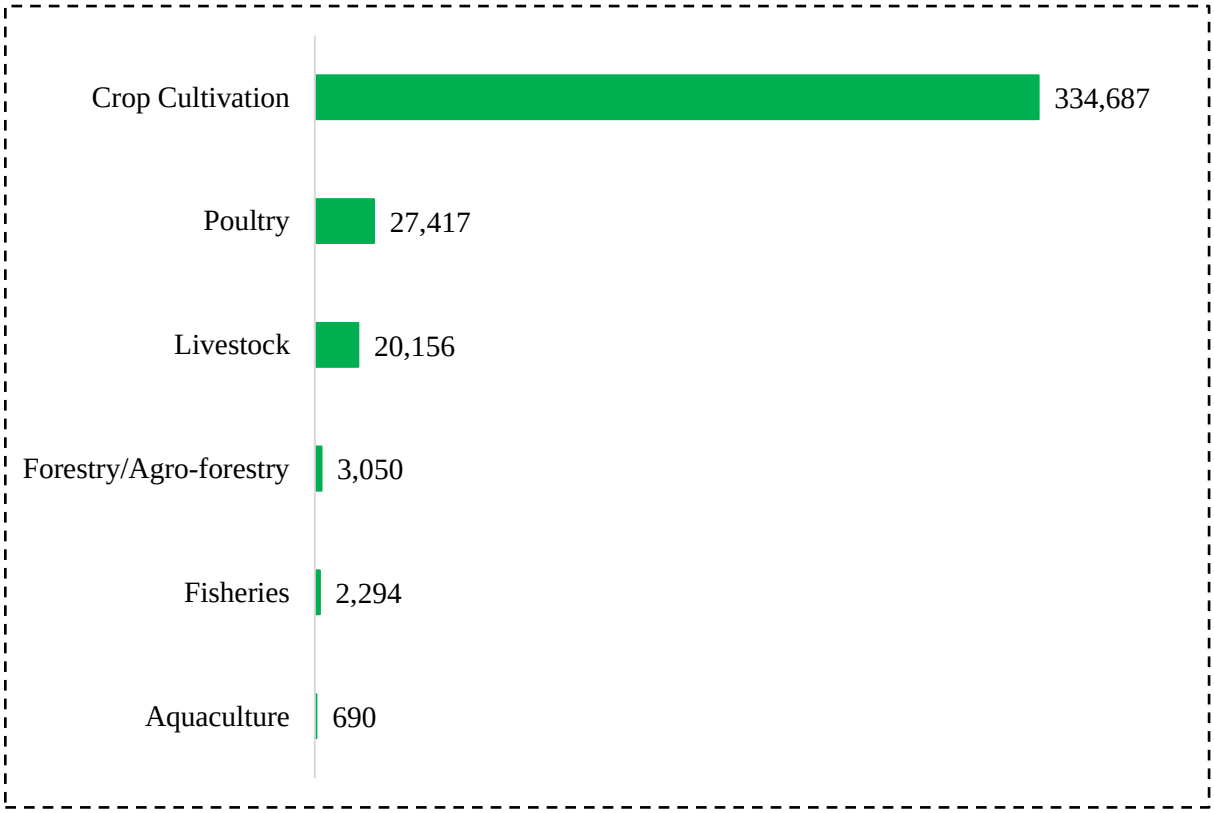
The results presented in this chapter discuss the agricultural activity of households during the Liberia 2022/23 farming season. The chapter presents data on the number of households practicing various agricultural activities, including crop cultivation, livestock, poultry rearing, fisheries, aquaculture, and forestry/Agro-forestry. It provides detailed information on the crops mainly grown by households and the type of livestock and poultry commonly raised. In addition, the chapter presents information on the number of parcels, plots, and cultivated areas in Liberia.

2.1. TYPES OF AGRICULTURAL ACTIVITIES OF THE HOUSEHOLDS

Almost all Agricultural Households in Liberia Practiced Crop Cultivation

Nearly all agricultural households in Liberia are involved in crop cultivation, suggesting it is a fundamental activity for most families. Of the 338,492 agricultural households, 334,687 practiced crop cultivation during the 2022/23 farming season, constituting 99 percent of agricultural households. Poultry is the second agricultural activity mostly practiced by agricultural households in Liberia (27,417), followed by Livestock (20,156). **Figure 12** shows that fewer households are involved with forestry/agroforestry, fisheries, and aquaculture.

Figure 12. Number of agricultural households by agricultural activities practiced



2.2. CROP CULTIVATION

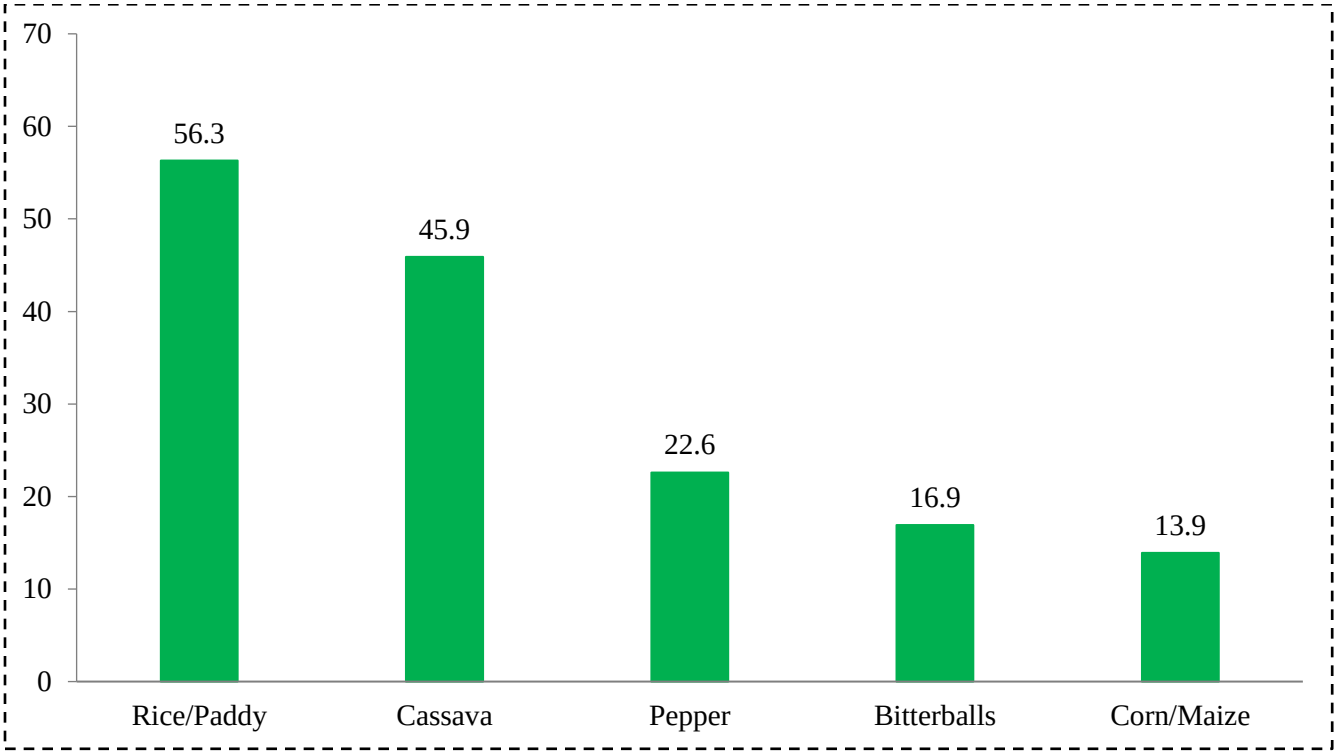
Crop cultivation is the main agricultural activity in Liberia. It provides food and income for a significant portion of the population. The LAC-2024 collected data on the type of crops grown by farmers in Liberia, including temporary and permanent cash crops. This section presents the results on the crops commonly grown by agricultural households in Liberia.

2.2.1 Main Crops Cultivated

Dominance of Rice and Cassava producing households

Figure 13 shows the five (5) most cultivated crops in Liberia and the percentage of households cultivating each. Rice and Cassava are the most widely cultivated crops among agricultural households. This result indicates that these two crops are staple foods and essential to the diet and food security of the population. The high percentage of households cultivating rice (56.3 percent) and Cassava (45.9 percent) suggests their critical role in both subsistence farming and possibly in local markets. Pepper (22.6 percent), Bitterballs (16.9 percent) and Corn (13.9 percent) are also essential crops cultivated by agricultural households, though less widely cultivated than Rice and Cassava.

Figure 13. Percentage of Agricultural Households that Cultivated Major Crops

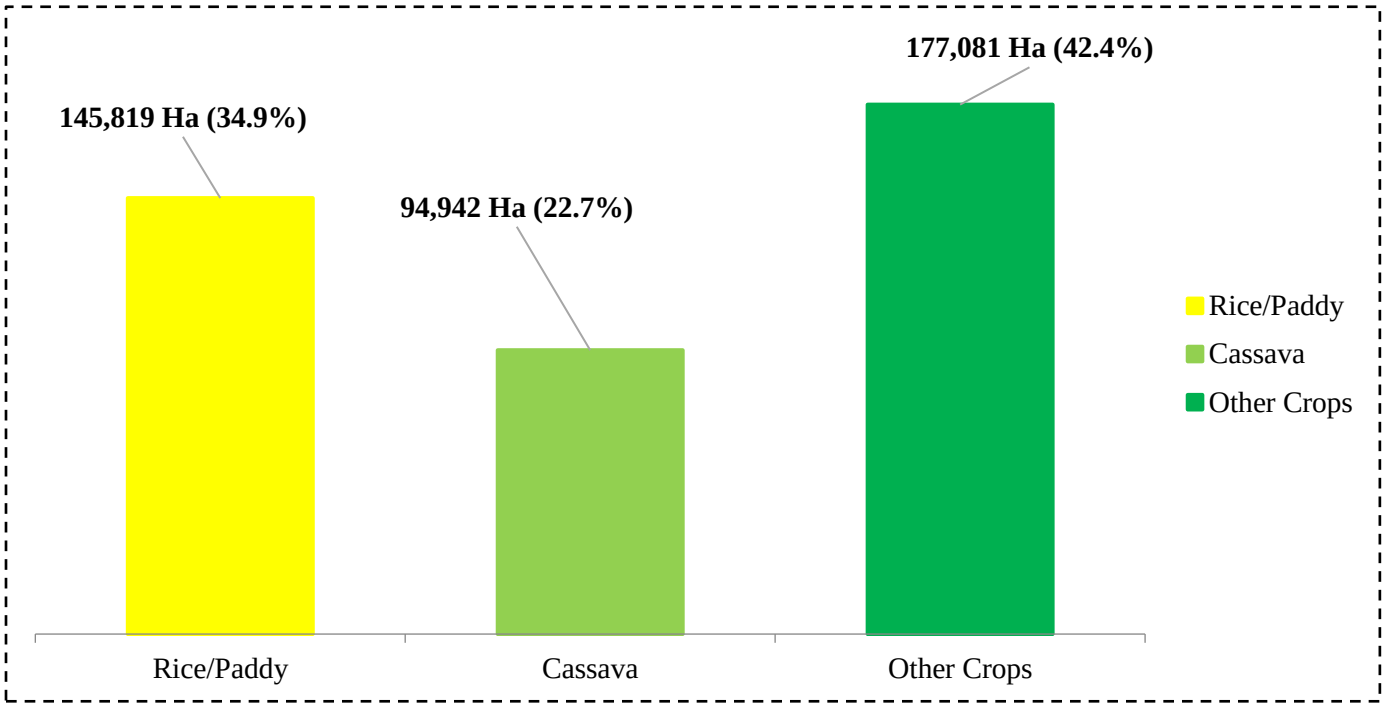


2.2.2. Cultivated Area

Attribution of Large Number of Cultivated Areas to Rice and Cassava

The majority of cultivated areas reported by agriculture households were used for rice and cassava cultivation. About 417,841 hectares of land was cultivated with various crops, with rice accounting for 145,819 hectares (or 34.9 percent) and cassava accounting for 94,942 hectares (or 22.7 percent). Thus, rice and cassava alone accounted for about 58 percent of the total cultivated area (see **Figure 14**).

Figure 14. Distribution of Total Cultivated Area by Crop (in Hectares and Percent)



2.2.3. Crop Preference

Diversity in Crop Cultivation across Liberia

Table 5 presents the county-level distribution of households cultivating each of the five major crops. The table reviews several aspects of agricultural practices in Liberia, including the dominance of specific crops in certain counties, regional crop preferences, counties with balanced crop cultivation, and those with lower agricultural activities.

Concerning the dominance of specific crops in certain counties, Nimba County shows the highest percentage of households cultivating Rice (26.4%), Cassava (26.6%), and Pepper (18.5%). Bong County leads in the cultivation of Bitterballs (24.8%) and Corn/Maize (26.6%) and also has a significant proportion of households growing Rice (20.0%) and Pepper (23.4%). Lofa county also shows high percentage of households cultivating Rice (17.1%), Pepper (16.5%), and Bitterballs (17.7%), indicating a focus on these crops. Montserrado is notable for Corn cultivation (18.3%) but lower in Rice (1.2%) and other crops than Nimba and Bong. Analysis of balanced crop cultivation shows that Grand Bassa and Grand Cape Mount counties display more balanced percentages across the major crops, indicating diversified agricultural practices. Regarding counties with lower agricultural activities,

Maryland County shows the lowest percentages across all crops, particularly Rice (0.8%) and Corn (0.4%). Sinoe and River Gee counties also show low percentages across all crops.

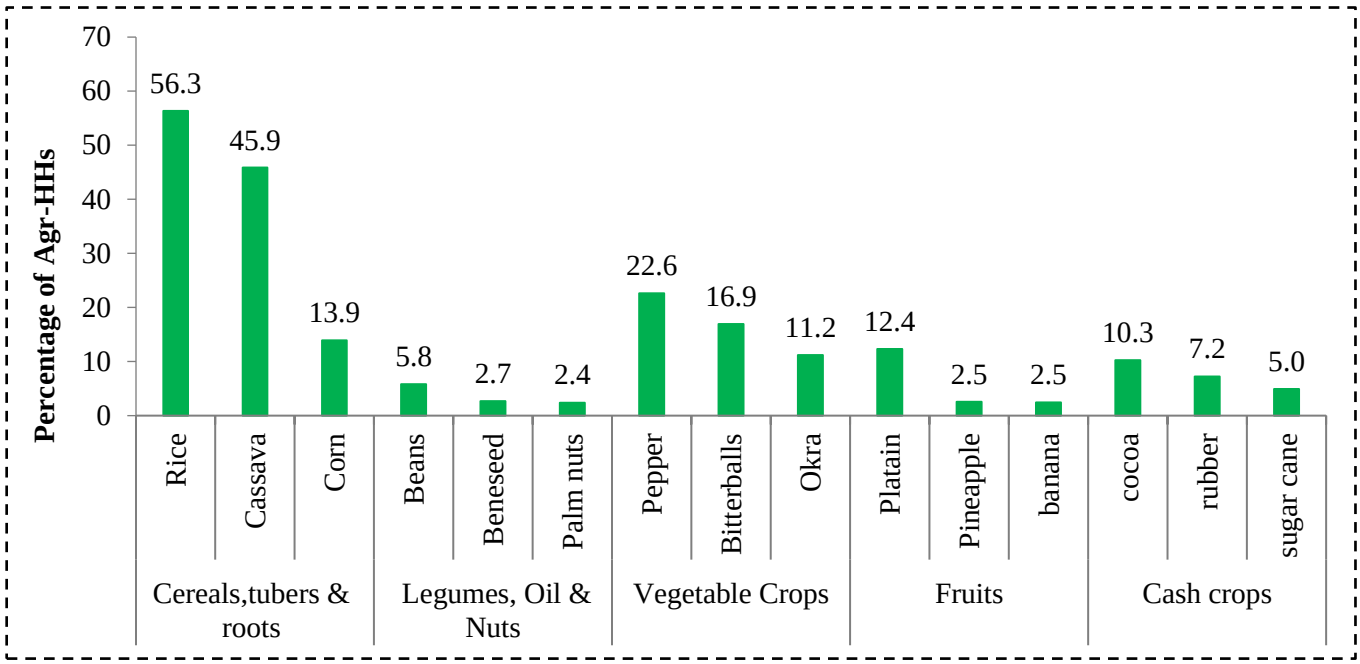
Table 5. Percentage of Agricultural Households Cultivating Major Crops by County

County	Rice/Paddy	Cassava	Pepper	Bitterballs	Corn/Maize
Bomi	2.6	5.6	3.3	4.3	2.7
Bong	20.0	12.7	23.4	24.8	26.6
Gbarpolu	4.6	2.5	4.4	4.0	1.3
Grand Bassa	7.3	12.9	9.3	9.8	5.0
Grand Cape Mount	3.5	6.6	5.2	6.7	3.5
Grand Gedeh	4.0	2.9	2.3	1.8	2.5
Grand Kru	2.5	3.6	2.4	2.8	1.7
Lofa	17.1	3.4	16.5	17.7	17.3
Margibi	2.2	5.0	2.1	2.2	5.4
Maryland	0.8	1.6	0.6	0.6	0.4
Montserrado	1.2	8.2	3.9	3.8	18.3
Nimba	26.4	26.6	18.5	13.1	10.3
Rivercess	4.0	5.1	5.7	6.4	2.0
River Gee	2.2	1.0	0.9	0.7	1.1
Sinoe	1.5	2.3	1.6	1.2	1.8
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Beans, Plantain, and Cocoa top the list of legumes/oil/nuts, fruits, and cash crops, respectively

The LAC-2024 gathered data on the cultivation of various crops according to the group to which they belong. Information was therefore collected on crops belonging to cereal/tubers/roots, legumes/oil/nuts, vegetables, fruits, and cash crops. **Figure 15** shows the percentage of agricultural households that cultivated the three most important crops in each crop group. The dominant crops in the cereal/tubers/roots and vegetables groups have already been discussed. Furthermore, the data shows that Beans, Plantain, and Cocoa top the list of legumes/oil/nuts, fruits, and cash crops, respectively. About 5.8 percent of households cultivated beans, 12.4 percent cultivated plantain, and 10.3 percent cultivated cocoa during the 2022/23 farming season.

Figure 15. Percentage of Agricultural Households Cultivating Majors Crops by Group



2.2.4. Irrigation and Greenhouse or High Shelter Usage in Crop Cultivation

Low Usage of Irrigation and Greenhouse or High Shelter Farming Techniques

Irrigation and greenhouse farming practices are generally less common among agricultural households. Nationally, households reported using irrigation on only 8.0 percent of agricultural holdings. Irrigation usage is more prevalent among agricultural households in Montserrado, as 27.4 percent of holdings in the county were under irrigation. The prevalence of irrigation usage was also noticed in Margibi county, with 24.4 percent of the county's holdings using irrigation. The lowest prevalence of irrigation used on holdings within a given county are observed in Maryland and Rivercess counties.

In terms of greenhouse or high shelter use, 78,866 (constituting 8.2 percent) holdings were under greenhouse or high shelter during the 2022/2023 farming season. Greenhouse or high shelter usage was more pronounced in Grand Cape Mount county, as 56.0 percent of holdings in the county were under greenhouse or high shelter. Gbarpolu county came second in the usage of greenhouse or high shelter, with 17.7 percent of the county holdings under this type of agricultural practice. River Gee and Grand Bassa counties recorded the lowest usage of greenhouse or high shelter usage on holdings.

Table 6. Holdings using irrigation and Greenhouse or High shelter by county

County	Total Number of holdings	Holdings using Irrigation		Holdings using Greenhouse or High shelter	
		Number	percent	Number	percent
Liberia	966,449	**77,515**	**8.0**	**78,866**	**8.2**
Bomi	28,277	1,355	4.8	2,477	8.8
Bong	172,751	16,784	9.7	10,457	6.1
Gbarpolu	30,909	5,036	16.3	5,463	17.7
Grand Bassa	80,268	2,736	3.4	1,426	1.8
Grand Cape Mount	43,269	3,268	7.6	24,213	56
Grand Gedeh	26,239	1,809	6.9	3,035	11.6
Grand Kru	21,514	318	1.5	1,013	4.7
Lofa	155,859	5,327	3.4	7,844	5
Margibi	25,480	6,208	24.4	1,184	4.6
Maryland	8,605	117	1.4	210	2.4
Montserrado	76,331	20,937	27.4	5,040	6.6
Nimba	227,899	11,495	5	13,110	5.8
Rivercess	41,629	566	1.4	1,447	3.5
River Gee	12,424	258	2.1	207	1.7
Sinoe	14,995	1,302	8.7	1,742	11.6

2.2.5. Cropping System

Mixed or intercropping method of cultivation dominates Liberia agriculture at the household level.

Table 7 illustrates the distribution of agricultural holdings by cultivation methods across Liberia's 15 counties, showing a clear national preference for mixed or intercropped farming (60.9 percent of holdings) over pure stand (39.1 percent of holdings). Most counties follow this trend, with Grand Kru (83.0 percent of holdings under mixed crops) and Gbarpolu (80.8 percent of holdings under mixed crops) displaying exceptionally high levels of intercropping. Margibi and Montserrado counties strongly prefer pure stand cultivation, with 84.7 percent of holdings and 72.0 percent of holdings under pure stand, respectively. These two counties appeared to have different agricultural practices, crop types, or land use patterns influencing their preference for pure stand methods.

Table 7. Percent Distribution of Holdings by Cultivation Method and County

County	Pure Stand	Mixed/Intercropped
Bomi	43.6	56.4
Bong	34.7	65.3
Gbarpolu	19.2	80.8
Grand Bassa	41.5	58.5
Grand Cape Mount	28.5	71.5
Grand Gedeh	40.3	59.7
Grand Kru	17.0	83.0
Lofa	30.3	69.7
Margibi	84.7	15.3
Maryland	57.5	42.5
Montserrado	72.0	28.0
Nimba	39.6	60.4
Rivercess	26.3	73.7
River Gee	49.1	50.9
Sinoe	33.2	66.8
Liberia	**39.1**	**60.9**

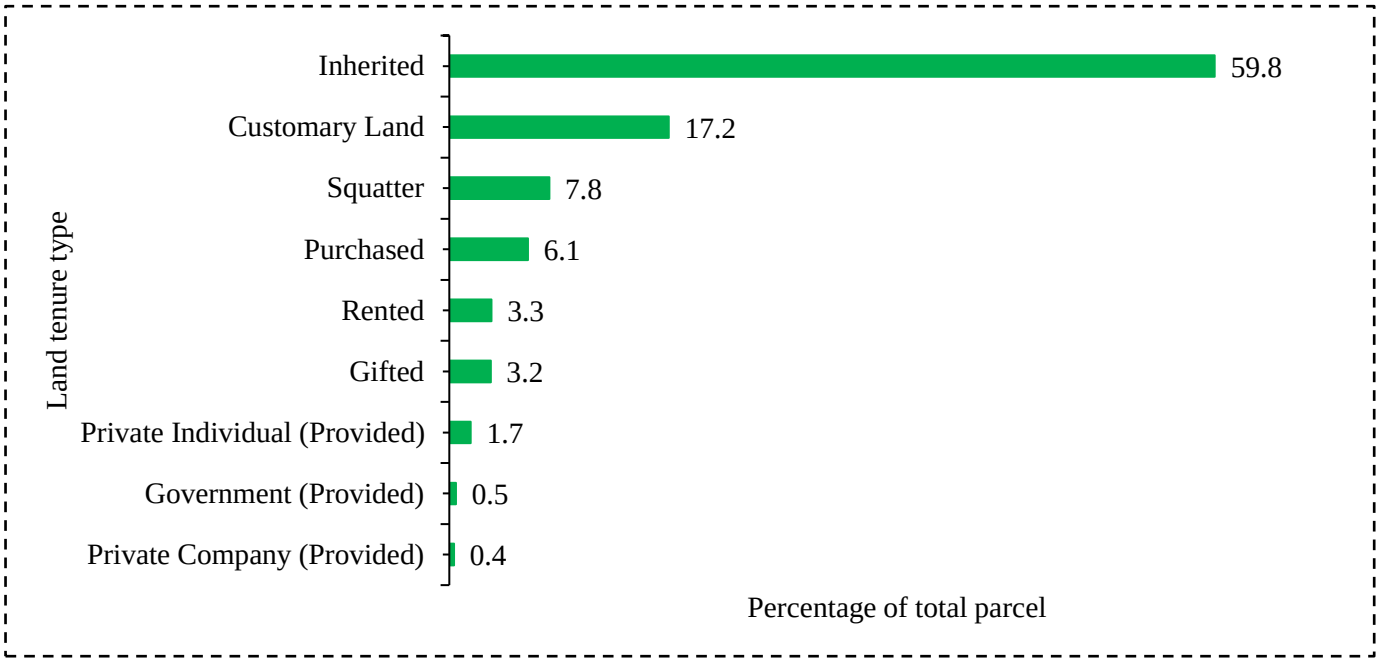
2.2.6. Land Tenure

Dominance of Inheritance and Customary Lands for Crop Cultivation across Liberia.

Agricultural households in Liberia reported 1,057,950 parcels during the LAC-2024.

Figure 16 presents the percentage distribution of these agricultural parcels by land tenure type. It shows that inheritance is the predominant form of land tenure, accounting for 59.8 percent of all parcels. This suggests that most land for agricultural use is family-owned and passed down through generations, reflecting strong traditional practices in land ownership. Customary land follows as the second most common type, representing 17.2 percent. Together, inherited and customary land ownership constitute 77 percent of all parcels use in agriculture cultivation, while the remaining proportion is spread across the other tenure types such as squatter (7.8 percent), purchased (6.1 percent), rented (3.3 percent), and gifted (3.2 percent) with each holding relatively smaller shares. Land provided by private companies (0.4 percent) is the least tenure type used.

Figure 16. Percent distribution of parcels by land tenure type



2.2.6. Average Number of Agricultural Parcels and Plots Used in Crop Cultivation

Agricultural Parcels in Liberia has an Average of Two Plots.

The division of farmlands into subdivisions called plots is not commonly practice by most agricultural households in Liberia. As shown earlier, mixed or intercropped cultivation method is mostly practice in many counties. Farmers prefer to plant several crops on the same plot of land, without subdividing it. At the national level, the average number of plots per parcel is 1.7. The county level analysis shows that Grand Cape Mount has the highest average with 3.0 plots per parcel. In contrast, Montserrado county, the most urbanized county, has the lowest average at 0.3 plots, which may reflect limited agricultural activity due to urban land use. Lofa (2.5) and Grand Gedeh (2.2) also report higher averages (see appendix 5). Others counties like Margibi (0.9) and Grand Kru (1.0) have relatively fewer plots per parcel.

Agricultural Households in Grand Gedeh County used more Parcels than any other County.

The average number of parcels used by agricultural households in Grand Gedeh County is almost twice the national average. While the average number of parcels used by agricultural households in Liberia is 4.4, agricultural households in Grand Gedeh County used about 7.2 parcels during the reference farming season. Nimba County also shows a high average number of parcels per household, 6.2 parcels. Grand Kru County has the lowest average, with just 1.4 parcels, indicating more limited land engagement in agriculture. Except for Bong, Grand Cape Mount, and Rivercess counties (each reported average parcels per household of 4.5), all the other counties are below the national average.

Table 8. Average Parcel Utilization by County

COUNTY	AVERAGE PARCEL PER HH
Bomi	3.3
Bong	4.5
Gbarpolu	2.9
Grand Bassa	3.2
Grand Cape Mount	4.5
Grand Gedeh	7.2
Grand Kru	1.4
Lofa	4.0
Margibi	3.6
Maryland	2.5
Montserrado	2.3
Nimba	6.2
Rivercess	4.5
River Gee	3.0
Sinoe	2.9
TOTAL	**4.4**

2.2.7. Size of Agricultural Holdings

Disparities in households use of agricultural land in Liberia

The data on cultivated area and average hectares per household across Liberia's counties highlights both the extent of agricultural land use and variation in landholding sizes. Nimba has the highest cultivated area at 101,977 hectares, with an average of 1.4 hectares per household, indicating a larger-scale farming capacity. Lofa also shows extensive cultivation at 88,066 hectares and a relatively high average of 2.0 hectares per household, suggesting a greater allocation of land per farming household compared to other counties. In contrast, counties such as Montserrado (6,451 hectares, 0.2 per household) and Maryland (2,831 hectares, 0.5 per household) have smaller cultivated areas and landholding sizes, likely due to urbanization or limited arable land. The national average of 1.2 hectares per household reflects modest land sizes typical for subsistence farming, but the regional variations underline different agricultural potentials and land use patterns across the country.

Table 9. Cultivated Area and Average Landholding Size per Household by County

County	Cultivated Area (in Ha)	Average Number of Ha per HHs
Bomi	13,850	1.0
Bong	75,370	1.3
Gbarpolu	14,959	1.3
Grand Bassa	29,674	1.0
Grand Cape Mount	31,044	2.1
Grand Gedeh	15,731	1.3
Grand Kru	5,894	0.8
Lofa	88,066	2.0
Margibi	7,152	0.5
Maryland	2,831	0.5
Montserrado	6,451	0.2
Nimba	101,977	1.4
Rivercess	14,139	1.2
River Gee	5,068	0.7
Sinoe	5,636	0.9
Liberia	**417,841**	**1.2**

2.3. LIVESTOCK AND POULTRY REARING

As mentioned previously, poultry and livestock rearing are Liberia's second and third most practiced agricultural activities, respectively Although practiced by only 8.1 and 6.0 of households, respectively, these sub-sectors contribute substantially to household food security, rural incomes, and economic development. Livestock such as goats, pigs, sheep, and cattle play essential roles in the livelihoods of some Liberian households, providing meat, milk, hides, and other by-products. Poultry farming, which includes rearing chickens, ducks, and other birds, is practiced by agricultural households, often serving as an easily accessible source of protein and income generation. Importantly, poultry and livestock rearing also play a significant role in supporting subsistence farming, underlining their crucial importance in Liberia's agricultural sector. This section presents the distribution of households engaged in livestock and poultry farming in Liberia and the corresponding number of each type they raised.

2.3.1. Types of Livestock Raised

Large number of goats and pigs in the country

Goats and pigs are the most common types of livestock raised in Liberia. More than thirteen thousand four hundred households reported raising goats, representing 66.8 percent of households raising livestock. The census recorded a total of 67,767 goats in the 13,459 households. Thus, the average number of goats per household rearing goat in Liberia is approximately five. This result suggests that

goat rearing is likely a small-scale or subsistence farming activity for most farmers rather than large-scale commercial goat farming.

Pigs are the second most raised livestock type among households involved in livestock rearing. On average, each household engaged in pig rearing raises about nine. This result suggests that pig farming is practiced widely among livestock farmers, combining subsistence and commercial purposes. The high number of pigs (54,848) relative to the number of households (5,930) indicates that some households may be involved in pig farming at a commercial or semi-commercial scale.

While fewer households (1,028) raise cattle than goats, pigs, and sheep, those involved in cattle rearing raise an average of about four cattle each. This result indicates that cattle rearing may be concentrated among more specialized or wealthier farmers, as cattle require more resources (land, water, feed) to raise. Cattle, specifically cows, are valuable for meat in Liberia. However, lower household involvement suggests it may be more capital-intensive for many livestock farmers.

Table 10. Number of Households and Livestock by Type of Livestock Raised

Livestock Type	Number of Households	Number of Livestock Raised
Cattles	1,028	4,446
Goats	13,459	67,767
Sheep	4,359	20,913
Rabbits	129	1,656
Pigs	5,930	54,848

2.3.2. Types of Poultry Raised

Chicken farming, the most common type of poultry farming in Liberia

Chickens are the most commonly raised poultry in Liberia. In fact, the LAC-2024 results reviewed that 48,245 households raised chickens during the past 12 months preceding the census. These households reported a total of 444,148 chickens. Ducks are the second most common poultry type, with significantly fewer households engaged (2,591) and 23,292 ducks raised.

Table 11. Number of Households and Poultry by Type of Poultry Raised

Poultry Type	Number of households	Number of Poultry raised
Chickens	48,245	444,148
Ducks	2,591	23,292
Guinea Fowls	236	2,169
Pigeons	149	2,613
Other – Geese (specify example)	411	14,319

CHAPTER 3: AGRICULTURAL LABOUR, INPUT AND EQUIPMENT

This chapter examines the workforce, agricultural inputs, tools, and equipment used in Liberia's agricultural sector at the household level. It provides data on households' usage of an extended workforce (hired labour) and family members for crop cultivation. Fertilizers, greenhouses, and high shelter usage are also highlighted in this chapter. In addition, the chapter presents data on the various types of tools and equipment used by holdings at the household level.

3.1. AGRICULTURAL LABOUR

The Liberia agriculture census 2024 collected data on the type and number of workers (whether hired or family members) used for crop cultivation activities, including land preparation, planting, weeding, fencing, and harvesting. In addition, the number of days and number of hours per day worked during the farming year by hired persons (that could be men, women or children) were captured. The information gathered from the responses of households is summarized in this section. It is important to note the possibility that several different households could hire the services of the same person(s), thus leading to double counting. Therefore, the data presented in this section on workers represents the total number of hiring and not the number of persons hired.

3.1.1. Type of Labor Used in Crop Production Activities

Workforce for crop production activities mainly hired

Agriculture households in Liberia rely heavily on hired labor for crop cultivation. Approximately 73 per cent of households reported hiring workers during the 2022/2023 farming season. Hiring of extended workers for crop cultivation is more pronounced in Lofa (92.2 percent), Nimba (84.1 percent), Gbarpolu (80.4 percent) and Bong (78.3 percent) counties. Montserrado county reported the highest percentage (56.0 percent) of households relying on family labor for crop cultivation followed by Grand Kru (52.7 percent) and Rivergee (51.7 percent) counties.

Table 12. Distribution of agricultural households by type of labour input used for crop production activities and county

County	Hired workers		Family members		Total	
	Number	Percent	Number	Percent	Number	Percent
Bomi	9,778	71.1	3,978	28.9	13,756	100
Bong	44,253	78.3	12,271	21.7	56,524	100
Gbarpolu	9,073	80.4	2,214	19.6	11,286	100
Grand Bassa	21,329	69.8	9,244	30.2	30,573	100
Grand Cape Mount	9,757	64.3	5,407	35.7	15,164	100
Grand Gedeh	7,583	61.6	4,734	38.4	12,318	100
Grand Kru	3,407	47.3	3,793	52.7	7,200	100
Lofa	39,721	92.2	3,357	7.8	43,078	100
Margibi	7,827	51.1	7,489	48.9	15,316	100
Maryland	2,847	54.8	2,351	45.2	5,199	100
Montserrado	13,485	44.0	17,132	56.0	30,617	100
Nimba	61,018	84.1	11,563	15.9	72,580	100
Rivercess	8,774	76.9	2,630	23.1	11,404	100
River Gee	3,601	48.3	3,860	51.7	7,461	100
Sinoe	4,275	71.1	1,740	28.9	6,015	100
TOTAL	**246,729**	**72.9**	**91,763**	**27.1**	**338,492**	**100**

3.1.2. Size of Daily Hiring

Over 8 million hiring occurred in Liberia's agricultural household sector

The agricultural census results show that many daily hirings occurred in Liberia's agricultural sector at the household level during the 2022/2023 farming season. Agricultural households reported a total of 8,035,745 hiring during the reference period, with an average of 23.7 hiring per agriculture household. This result suggests that agriculture at the household level is a potential source of job creation, especially for rural dwellers.

Table 13 shows the percentage distribution of hirings by gender across Liberia's counties. Out of the total 8,035,745 hirings done by agricultural households, hiring of men was most common, accounting for 54.6% nationally, followed by women with 41.1%. Hiring children (under 15 years old) at the national level was relatively less common.

At the county level, the trend is the same: with more men hired than women and children in all counties. The hiring of women for work in agricultural activities is more pronounced in Sinoe (48.0 percent) and Bong (46.3 percent) counties compared to other counties. The hiring of children for daily work in agricultural activities is more common in Grand Kru (7.2 percent) and Lofa (6.6 percent) counties and less common in Margibi (0.7 percent) and Sinoe (1.4 percent) counties.

Table 13. Percentage distribution of hiring by gender and county

County	MEN	WOMEN	CHILDREN	TOTAL
Bomi	76.2	20.5	3.3	100
Bong	51.8	46.3	1.9	100
Grand Bassa	59.6	37.0	3.4	100
Grand Cape Mount	85.5	11.8	2.7	100
Grand Gedeh	56.3	40.3	3.4	100
Grand Kru	46.9	45.9	7.2	100
Lofa	51.8	41.6	6.6	100
Margibi	62.2	37.1	0.7	100
Maryland	51.3	42.8	5.9	100
Montserrado	66.7	31.6	1.7	100
Nimba	53.9	41.6	4.5	100
Rivercess	61.8	32.2	6.0	100
Sinoe	50.5	48.0	1.4	100
River Gee	61.5	35.8	2.8	100
Gbarpolu	52.1	45.5	2.4	100
Liberia	**54.6**	**41.1**	**4.3**	**100**

3.2. FERTILIZERS AND EQUIPMENT USAGE

The LAC-2024 inputs and equipment modules collected data on the prevalence of fertilizer usage among agricultural households in Liberia and their usage of manual and machine-power tools and equipment. This section offers insight into the state of agriculture at the household level and the type of resources employed by agricultural households.

3.2.1. Fertilizers Usage

Fertilizers usage among agricultural households is relatively low

Most agriculture households in Liberia reported not using any form of fertilizers during the 2022/2023 farming season. At the national level, only 38,253 agricultural households reported using some form of fertilizer, constituting 11.3 percent of the total agricultural households. Fertilizer uses among agricultural households varied considerably by county. As illustrated in **Table 14**, Montserrado County reported the highest fertilizer usage, with 50.6 of the county's agricultural households using some form of fertilizers. This was followed by Bong (18.1 percent) and Margibi (15.1 percent). By contrast, Grand Kru County recorded the lowest usage rate at only 0.2 percent, followed by Sinoe (1.1 percent) and Gbarpolu (1.7 percent).

Table 14. Distribution of Agricultural Households Using Fertilizers by County

County	Number	Percent of County Total
Bomi	851	6.2
Bong	10,211	18.1
Grand Bassa	893	2.9
Grand Cape Mount	638	4.2
Grand Gedeh	220	1.8
Grand Kru	12	0.2
Lofa	2,527	5.9
Margibi	2,321	15.1
Maryland	135	2.6
Montserrado	15,536	50.6
Nimba	4,039	5.6
Rivercess	442	3.9
Sinoe	65	1.1
River Gee	176	2.4
Gbarpolu	186	1.7
Total	**38,253**	**11.3**

3.2.1. Equipment Usage

Cutlass and hand hoe, the main tools used by almost all the agricultural households

Manually operated equipment are the main tools used by agricultural households in Liberia, reflecting a predominantly labor-intensive farming approach. Table 14 shows the types and prevalence of these tools, which are integral to household farming operations. Cutlass was the most widely used tool, with (94.1 percent) of households employing it, followed closely by the hand hoe (87.2 percent). These tools are essential for tasks such as land clearing, planting, and basic field maintenance.

Other commonly used tools included the axe, used by 52.0 percent of households, filling/file (used by 51.5 percent), and shovel (used by 21.5 percent). Notably, less common equipment such as the wheelbarrow (4.9), whipper (4.1), and saw/power saw (2.7) had relatively low usage rates.

Table 15. Distribution of Agricultural Households Using Manually Operated Equipment by type

Equipment	Number	Percent
Hand Hoe	295,019	87.2
Cutlass	318,434	94.1
Shovel	72,627	21.5
Digger	58,012	17.1
Axe	175,852	52.0
Rake	41,839	12.4
Filling/File	174,438	51.5
Whipper	13,779	4.1
Wheel Barrow	16,458	4.9
Saw/Power Saw	9,062	2.7

Liberia agricultural households reported using Large number of cutlasses and hand hoes during the 2022/2023 farming season.

Table 16 presents the total number of manually operated tools or equipment used by agricultural households during the 2022/2023 farming year. Agriculture households reported owning or using about 2.1 million cutlasses and 1.9 million hand hoes. This result shows that, on average, each agricultural household in Liberia has approximately six cutlasses and six hand hoes.

Table 16. Manually Operated Equipment Used by Agricultural Households

Manually operated equipment	Total Number	Average Number per Household
Hand Hoe	1,934,502	5.7
Cutlass	2,062,362	6.1
Shovel	208,570	0.6
Digger	166,844	0.5
Axe	649,100	1.9
Rake	110,221	0.3
Filling/File	669,376	2.0
Whipper	52,516	0.2
Wheel Barrow	31,719	0.1
Saw/Power saw	11,234	0.0

Usage of machine-powered equipment for various household farm activities is very low.

The Liberia agricultural sector at the household level is dominated with rudimentary tools and equipment. As shown by the LAC-2024 results, there is low usage of machine-powered equipment for various farm activities. The most common type of machine-powered equipment used by agricultural households in Liberia is sprayers, used by 0.78 percent of households for crop maintenance. Similarly, grain cleaners and threshers are relatively more common in post-harvest activities, utilized by 0.38 percent and 0.36 percent of households, respectively.

Mechanized Equipment for land preparation and planting, such as ploughs and power tillers, had minimal frequency of utilization, accounting for just 0.02 percent of households. For livestock production, milking machines and milk coolers are scarcely used, each by only 0.01 percent of households. Overall, these figures suggest that mechanized agriculture is underdeveloped at the household level.

Table 17. Households Using Machine-Powered Equipment

Machine-powered equipment	Total Number	Percent
Land preparation and Planting		
Ploughs	83	0.02
Power tillers	79	0.02
Seed/fertilizer drills	324	0.10
Broadcast seeders	269	0.08
Crop maintenance		
Manure spreaders	122	0.04
Fertilizer broadcasters	182	0.05
Sprayers	2,638	0.78
Crop harvesting		
Hay rakes	292	0.09
Combine harvesters	439	0.13
Reaper-binders	73	0.02
Post-harvest		
Threshers	1,210	0.36
Grain cleaners	1,288	0.38
livestock production		
Milking machines	33	0.01
Milk coolers	33	0.01

CONCLUSION AND RECOMMENDATIONS

Conclusion

Liberia's agricultural sector is a major contributor of its economy and a lifeline for many households, especially in rural areas. The LAC-2024 household report highlights a highly traditional agricultural system with significant reliance on manual tools, small-scale landholdings, and staple crop cultivation. Despite the sector's potential, several challenges persist:

1. **Socio-economic Vulnerabilities**: Female-headed households face significant educational and economic disadvantages, while agricultural households experience critical gaps in infrastructure, including access to healthcare and sanitation.
2. **Underutilized Land and Resources**: A significant proportion of agricultural households operate on inherited land with limited investments in productivity-enhancing inputs like fertilizers and advanced farming methods.
3. **Limited Mechanization and Modernization**: The overwhelming reliance of agricultural households on traditional farming tools (cutlasses and hoes) and low adoption of mechanized equipment and irrigation techniques hinder productivity.

In conclusion, the findings of the LAC-2024 underscore the need for a multifaceted approach to agricultural development in Liberia. By addressing the sector's challenges and leveraging its strengths, Liberia can enhance food security, improve rural livelihoods, and drive inclusive economic growth. The government, in collaboration with partners, must act decisively to implement the following recommendations and transform Liberia's agriculture sector into a resilient and prosperous domain.

Recommendations

1. **Enhance Gender Inclusion and Education**:
    - Implement programs to improve literacy and vocational training among female farmers to bridge the gender gap.
    - Promote women's participation in agricultural cooperatives and leadership roles.
2. **Invest in Rural Infrastructure**:
    - Prioritize rural infrastructure projects, including roads, healthcare facilities, and clean water systems, to improve access and reduce vulnerabilities.
    - Collaborate with development partners to address sanitation challenges and promote hygiene education.
3. **Expand Extension Services**:
    - Strengthen agricultural extension services to provide farmers with training on modern practices, including crop diversification and climate-resilient farming.
    - Utilize digital platforms to disseminate real-time agricultural information.
4. **Promote Mechanization and Input Accessibility**:
    - Provide subsidies or financial schemes to enable smallholder farmers to acquire mechanized equipment.
    - Strengthen access to affordable fertilizers, quality seeds, and irrigation systems, particularly in counties with low adoption rates.
5. **Leverage Partnerships and Data**:
    - Foster partnerships with international organizations and private sector stakeholders to attract investments and technical expertise.
    - Utilize census data to develop targeted interventions tailored to regional and demographic needs.

APPENDIX

APPENDIX A: STATISTICAL TABLES

Appendix 1: Percent Distribution of Agricultural Households by the Type of Repair Needs

County	No repairs	Minor repairs	Rehabilitation	Reconstruction	Total Households	Total
Bomi	12.9	74.1	11.3	1.6	13,628	100
Bong	21.3	65.1	11.4	2.1	56,536	100
Gbarpolu	25.7	68.4	3.8	2.1	11,288	100
Grand Bassa	40.6	48.5	6.0	4.9	30,578	100
Grand Cape Mount	28.4	55.9	12.3	3.4	15,165	100
Grand Gedeh	18.3	59.6	17.1	5.0	12,324	100
Grand Kru	18.9	56.4	16.3	8.4	7,201	100
Lofa	23.5	63.7	10.8	2.1	43,090	100
Margibi	13.9	73.0	11.7	1.5	15,319	100
Maryland	10.0	72.7	11.1	6.1	5,199	100
Montserrado	30.5	57.1	9.5	2.9	30,674	100
Nimba	19.2	66.2	11.3	3.3	72,604	100
Rivercess	17.6	53.9	24.0	4.5	11,406	100
River Gee	7.5	68.0	22.9	1.7	7,465	100
Sinoe	9.3	70.0	17.1	3.7	6,015	100
Total	**22.5**	**62.9**	**11.5**	**3.1**	**338,492**	**100**

Appendix 2: Main Construction Materials for the Roof of Agricultural Housing Unit

Roofing Material	Total		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
Concrete	1,295	0.4	730	0.3	565	0.5
Tiles	1,458	0.4	993	0.5	464	0.4
Asbestos	395	0.1	206	0.1	188	0.2
Zinc	304,041	89.8	190,510	88.6	113,531	92.0
Tarpaulin	1,024	0.3	724	0.3	300	0.2
Bamboo Leaves	30,221	8.9	21,929	10.2	8,292	6.7
Other	58	0.0	48	0.0	12	0.0
Total	**338,492**	**100**	**215,140**	**100**	**123,352**	**100**

Appendix 3: Main Construction Materials for the Outer Wall of Agricultural Housing Unit

Walls Materials	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
Stone, Concrete	9,541	4.4	6,959	5.6	16,500	4.9
Cement Blocks	19,123	8.9	16,241	13.2	35,364	10.4
Clay Bricks	8,511	4.0	5,825	4.7	14,336	4.2
Zinc or Iron	1,930	0.9	2,134	1.7	4,063	1.2
Wood or Board	498	0.2	271	0.2	769	0.2
Mud & Bricks	75,233	35.0	40,738	33.0	115,971	34.3
Mud & Stick	99,300	46.2	50,722	41.1	150,022	44.3
Reed, Bamboo, Grass or mat	952	0.4	441	0.4	1,393	0.4
Other	54	0.0	20	0.0	74	0.0
Total	**215,140**	**100**	**123,352**	**100**	**338,492**	**100**

Appendix 4: Main Construction Materials for the Floor of Agricultural Housing Unit

Main Floor Materials	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
Concrete/Cement	73,682	34.2	47,138	38.2	120,820	35.7
Tiles	4,992	2.3	5,338	4.3	10,330	3.1
Wood	1,339	0.6	870	0.7	2,208	0.7
Mud	134,706	62.6	69,806	56.6	204,512	60.4
Other	23	0.0	16	0.0	39	0.0
Beach/river side	398	0.2	184	0.1	582	0.2
Total	**215,140**	**100**	**123,352**	**100**	**338,492**	**100**

Appendix 5. Average Number of Farming Plots Operated by county

COUNTY	AVERAGE PLOT
Bomi	1.9
Bong	1.7
Gbarpolu	1.9
Grand Bassa	1.6
Grand Cape Mount	3.0
Grand Gedeh s	2.2
Grand Kru	1.0
Lofa	2.5
Margibi	0.9
Maryland	1.2
Montserrado	0.3
Nimba	1.6
Rivercess	1.6
River Gee	1.5
Sinoe	1.7
LIBERIA	**1.7**

APPENDIX B: LIST OF LAC-2024 STEERING COMMITTEE MEMBERS

SN	Institutions
1	Ministry of Agriculture
2	Liberia Institute of Statistics and Geo-Information Services (LISGIS)
3	Ministry of Finance and Development Planning
4	Ministry of Gender, Children & Social Protection
5	Ministry of Internal Affairs
6	National Fisheries and Aquaculture Authority
7	Cooperative Development Agency
8	Liberia Agriculture Commodity Regulatory Authority
9	Forestry Development Authority
10	Central Agriculture Research Institute
11	Environmental Protection Agency
12	National Food Assistance Agency
13	National Bureau of Concession
14	National Disaster Management Agency
15	Liberia Land Authority
16	Action Against Hunger
17	Scale Up Nutrition Secretariat University of Liberia Agriculture College
18	Farmers Union Network of Liberia

APPENDIX C: LIST OF LAC COORDINATING COMMITTEE MEMBERS

SN	Institutions
1	Minister for Planning and Development, MOA
2	Liberia Institute of Statistics and Geo-Information Service (LISGIS)
3	National Fishery and Aquaculture Authority
4	Forestry Development Authority
5	Central Agriculture Research Institute
6	Cooperative Development Agency
7	Liberia Agriculture Commodity Regulatory Authority
8	National Food Assistance Agency
9	Farmers Union Network of Liberia

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