SIERRA LEONE ANNUAL AGRICULTURAL SURVEY REPORT 2024

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FOREWORD

The Government of Sierra Leone, through its Medium-Term National Development Plan (MTNDP) 2024–2030, envisions a resilient and inclusive transformation of the nation's economy anchored on food security, human capital, and sustainable livelihoods. At the heart of this transformation lies the agricultural sector, Sierra Leone's most vital engine for job creation, poverty reduction, and rural prosperity. Agriculture remains not only a pillar of our economy but also a vehicle for achieving structural transformation and climate resilience. In recognition of its catalytic role, the Government has prioritized agriculture as a flagship sector under the Feed Salone Strategy, which aspires to achieve national food sovereignty and agro-industrial development by 2030.

To realize these ambitions, access to high-quality, timely, and policy-relevant data is non-negotiable. This is why Statistics Sierra Leone (Stats SL), in close collaboration with the Ministry of Agriculture and Food Security (MAFS), continues to lead in generating credible agricultural statistics that guide planning, investment, and impact assessment.

The 2024 Sierra Leone Annual Agricultural Survey (SLAAS) marks a critical step in our ongoing commitment to build a robust data ecosystem for the agricultural sector. Conducted within the framework of the 50x2030 Initiative and supported by technical partners including the Food and Agriculture Organization of the United Nations (FAO), this survey adopts internationally accepted methodologies and innovations, including the use of Computer-Assisted Personal Interviewing (CAPI), to ensure data precision, reliability and comparability.

We are very grateful to all collaborating institutions and technical teams whose expertise and dedication ensured the successful implementation of this survey. Investing in agricultural data is not just an operational task, it is a commitment to accountability, transformation and empowerment of rural communities.

ACRONYMS

AGRIS	Agricultural Integrated Survey
CSA	Climate Smart Agriculture
DOCs	Day Old Chicks
EA	Enumeration Area
FAO	Food and Agriculture Organization of the United Nations
GSARS	Global Strategy to Improve Agricultural and Rural Statistics
HISWA	Harmonizing and Improving Statistics in West Africa
IFAD	International Fund for Agricultural Development
IPM	Integrated Pest Management
MAFS	Ministry of Agriculture and Food Security
MTNDP	Medium-Term National Development Plan
NSADP	National Sustainable Agriculture Development Plan
PME	Production Methods and Environment
SDGs	Sustainable Development Goals
SLAAS	Sierra Leone Annual Agricultural Survey
Stats SL	Statistics Sierra Leone
WB	World Bank

KEY FINDINGS

Cereal crops are the most grown crops by agricultural holdings, with production on 1.18 million Mt. Cassava is the largest contributor to national production with a yield of 11.8 Mt/ha.

Goats are the most raised livestock type reported in 53.2% holdings while chicken are the most raised livestock type reported in over 55.0% holdings, with Southern region standing out in overall percentage of holdings keeping poultry.

Almost all forestry area cleared was mainly for the purpose of cropping (88.2%). The other purposes of clearing forests such as charcoaling, timber extraction, tree plantation, pasture and non-agricultural uses were on small scale.

Catfish is the most produced aquaculture specie, accounting for 51.6% of the total number of holdings reporting aquaculture production and is most dominant in North-Western region. Regarding capture fisheries, clams and mollusks dominate the other species, reported in 74.6% holdings.

The use of organic fertilizers, inorganic fertilizers and pesticides was reported in only 26.4%, 21.1% and 12.2% agricultural holdings respectively.

The use of hired workers for agricultural activities dominated other worker categories, while use of labor for crop production across all worker categories dominated other uses of labor for agricultural activities.
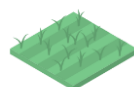
61.2 % of all plots recorded had no practice of crop rotation. Crop rotation with different crops stands at 37.2%, while the other methods of crop rotation rotating with pasture and rotating temporary fallow are practiced on only 1.7%.

Firewood is the most used source of energy used for agricultural activities (57.7%), electricity on the other hand is the least source of energy used for agricultural activities (0.3%) and 34.3% of agricultural holdings have no access to any energy source for agricultural activities.

Most households reported unusually high level of crop pest and diseases and unusually high food prices to be the most experienced shocks by farmers reported by 26.3% and 22.1% agricultural holdings while floods or heavy rainfall remains the worst shock ever experienced.

INTRODUCTION

Context of the survey

Agriculture continues to be the backbone of Sierra Leone's economy, contributing significantly to the National Gross Domestic Product (GDP) and serving as the main source of livelihood for majority of the population. This significant contribution of the agricultural sector to the GDP and labor force is outlined in reports and plans such as The Sierra Leone Economic Update 2023, the Feed Salone Strategy (2023-2028), with estimates of the contribution at approximately 57% to the country's GDP and employs about 65% to the country's labor force. Agriculture remains then a key driver for economic growth.

Despite this centrality and the great potential of the Sierra Leone agricultural sector, it still faces numerous challenges that hinder growth and productivity such as persistent structural constraints, low input use, restricted access to credit, poor market linkages, and the increasing impacts of climate change. The National Sustainable Agriculture Development Plan (NSADP) 2010-2030 aims to enhance agricultural productivity and promote commercial agriculture in Sierra Leone through targeted interventions such as increasing productivity, promoting private sector development and improving resource management.

The Country Climate and Development Report recently published by the World Bank stated that Sierra Leone faces significant vulnerability to climate shocks, which pose serious threats to food security and rural livelihoods. This underscores the need for climate-smart agricultural practices. Furthermore, Sierra Leone's Vision for 2013 to 2035 to become a middle-income country highlights good environmental protection, responsible natural resource management as some of the outlooks for this status. In support of the national vision and other country plans and strategies, timely and accurate data is required to monitor policy implementation, track progress towards national goals, and align with global commitments such as the Sustainable Development Goals (SDGs).

Since 2023, Sierra Leone through the 50x2030 Initiative is institutionalizing a sustainable system of agricultural data production through annual surveys. This 2024 Sierra Leone Annual Agricultural Survey (SLAAS) builds on that commitment. It is part of a broader statistical framework designed to produce consistent, high-quality data that can inform agricultural transformation strategies.

The Sierra Leone Annual Agricultural Survey (AAS) program follows the AGRIS methodology, an integrated approach that combines a core questionnaire with rotating thematic modules to capture the technical, economic, environmental, and social dimensions of agricultural holdings. In 2024, AAS adopted the Production Methods and Environment (PME) module, enriching the survey with detailed data on irrigation, energy use, land management, rice cultivation, livestock breeding strategies, greenhouse gases, environmental strategies and adaptation to climate change which are important in identifying and quantifying the gaps that exist and capitalizing on specific interventions that address these gaps.

The climate vulnerability indicators integrated in this 2024 survey are instrumental in supporting the implementation and tracking of the progress of other initiatives such as Feed Salone Strategy and NSADP 2010-2030. The World Bank and FAO particularly support implementation of the Feed Salone Strategy through promoting Climate Smart Agriculture (CSA) practices. CSA is a core component of the Feed Salone Strategy aiming to increase agricultural productivity, enhance resilience and reduce greenhouse gas emissions. Through this systematic approach, the 2024 SLAAS aims to support national planning, enhance accountability, guide public and private sector investments, and foster inclusive, evidence-based agricultural policymaking.

Objectives of the survey

The primary objective of the Annual Agricultural Survey (AAS) program is to enhance the understanding of agricultural activities in Sierra Leone by collecting comprehensive data on various aspects of the agricultural sector, going beyond production (crops and livestock), inputs, and labor use. This is achieved through the adoption of the Agricultural Integrated Survey (AGRIS) model, promoted by the 50x2030 Initiative, which involves administering thematic modules on a

rotating, multi-year basis to gather detailed information on technical, economic, environmental, and social aspects of agriculture.

The AAS 2024 survey round covers the PME module of the AGRIS program, which focuses mainly on the agricultural production practices of agricultural holdings and is closely linked to the core module, meaning that the necessary information from the core module such as agricultural production, land use, livestock inventory, and key farming practices is initialized in the PME Module. The PME module focuses on energy uses, land use, soil conservation methods, irrigation methods, soil fertilization, seeds used, animal reproduction methods, veterinary products used, agroforestry, adaptation to climate change and hazards.

Specifically, the objectives are:

1. To collect disaggregated and timely agricultural data at national, regional, and district levels.
2. To produce baseline and monitoring data that supports the formulation, implementation, and evaluation of agricultural policies and programs.
3. To generate consistent and comparable agricultural statistics for assessing trends, informing budget allocations, and facilitating investments in the sector.
4. To compile fundamental statistics that facilitate comparisons in the development of the agriculture sector across the country.
5. To collect key data necessary to assess the impact of agricultural activities on the environmental, social and economic sustainability of farming.

Survey methodology

Scope of the survey

The Sierra Leone Listing Survey (SLLIST) conducted in 2023 provided the sampling frame for the SLAAS2024. The 2024 SLAAS utilized a stratified two-stage random sampling method to ensure robust geographic and demographic representation of agricultural households across the

country's 5 administrative regions and 15 districts[1], excluding Western Urban district due to its limited agricultural activity. The survey targeted heads of agricultural households and gathered detailed information on land ownership, cropping systems, livestock holdings, labor participation, input usage, and off-farm activities.

Survey implementation and Data collection

With the financial support of HISWA project of the World Bank, Stats SL in partnership with the MAFS, and the technical support of FAO conducted the SLAAS 2024. The survey was overseen by a central team from both Stats SL and MAFS, responsible for planning, execution, and management.

Data was collected using Computer-Assisted Personal Interviews (CAPI) to enhance data accuracy and timeliness. Key methodological steps included:

- Questionnaire design and pre-testing
- Sampling frame development informed by the Sierra Leone Listing Survey (SLLIST)
- Comprehensive training of trainers, supervisors, and enumerators
- Field data collection and real-time monitoring
- Data validation, analysis, and tabulation.

Data was collected throughout the agricultural year during two periods: post-planting (January-June 2024) and post-harvest (July-December 2024), for both the first and second agricultural seasons.

Sampling design

A two-stage sampling method was employed to select households for the survey. The country was divided into regions, and within each region, areas called Enumerator Areas (EAs) were identified. A sample of EAs was then selected, followed by a sample of agricultural households within each chosen EA. The survey covered holdings in the household sector engaged in crop

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[1] The regions covered and the respective districts within their jurisdiction are as follows: Eastern region (Kailahun, Kenema and Kono), Northern region (Bombali, Falaba, Koinadugu and Tonkolili), North-Western region (Kambia, Karene and Portloko), Southern region (Bo, Bonthe, Moyamba and Pujehun) and Western Area region (Western Rural)

cultivation, livestock rearing, forestry production, fishing and aquaculture production regardless of the scale of their operations. A total of 520 Enumeration Areas (EAs) were selected as Primary Sampling Units, out of which 5,200 households were selected as Secondary Sampling Units. However, a total of 518 EAs and 5,110 households were actually covered during the 2024 survey.

Report outline

This report is structured along four main chapters. Chapter 1: Characteristics of agricultural households focuses on the formal structure of agricultural holdings and agricultural area characteristics. Chapter 2: Agricultural production looks at crop production, livestock production, fishing and aquaculture production, forestry production. Chapter 3: Input use and Labor covers the input used for crops and the labor force mobilized, while Chapter 4: Production methods and environment provides detailed analysis on land use and soil management, energy use, greenhouse gases and environment issues, and adaptation to climate change.

CHAPTER 1: CHARACTERISTICS OF AGRICULTURAL HOLDINGS

This chapter looks at the main features of agricultural holdings in Sierra Leone. It captures details on geographical distribution of agricultural holdings and the legal status of these holdings, agricultural holding area and use type.

Section 1.1: Formal structure of agricultural holdings

Spatial distribution of farming in Sierra Leone shows the Eastern region holds the highest share of agricultural holdings. According to the data shown on the regional map, the Eastern region accounts for over 27.5% of the nation's agricultural holdings, the highest proportion among the five regions. The Western region, which includes the capital city of Freetown and is more urbanized, accounts for the lowest percentage of agricultural holdings less than 15.3%.

Figure 1.1: Geographical distribution of agricultural holdings in percent
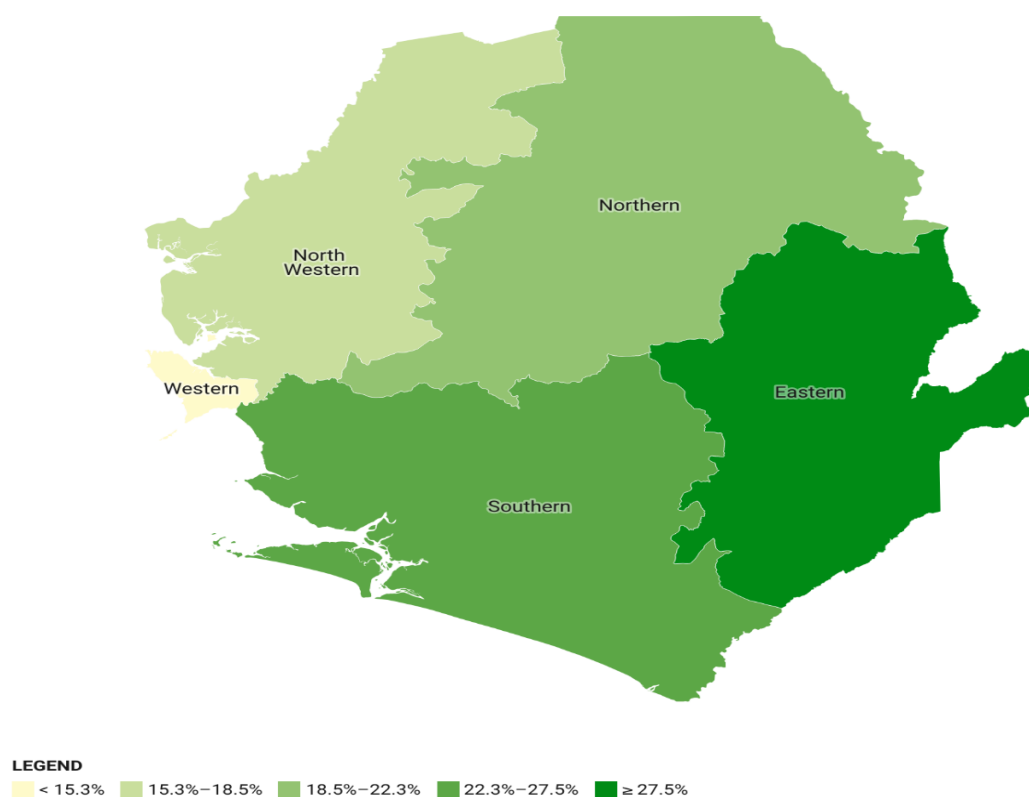
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Kenema district accounted for the highest number of agricultural holdings in Sierra Leone. At national level, a total of 1,311,698 agricultural holdings were recorded. As shown in Figure 1.2, Kenema district reported the highest number of agricultural holdings, with 151,690 holdings while Falaba recorded the lowest number, with 35,188 holdings. Interestingly, Western Rural has 86,639 agricultural holdings, a relatively high figure considering its closeness to Freetown. This suggests a vibrant peri-urban farming culture.

Figure 1.2: Number of agricultural holdings, by district and region
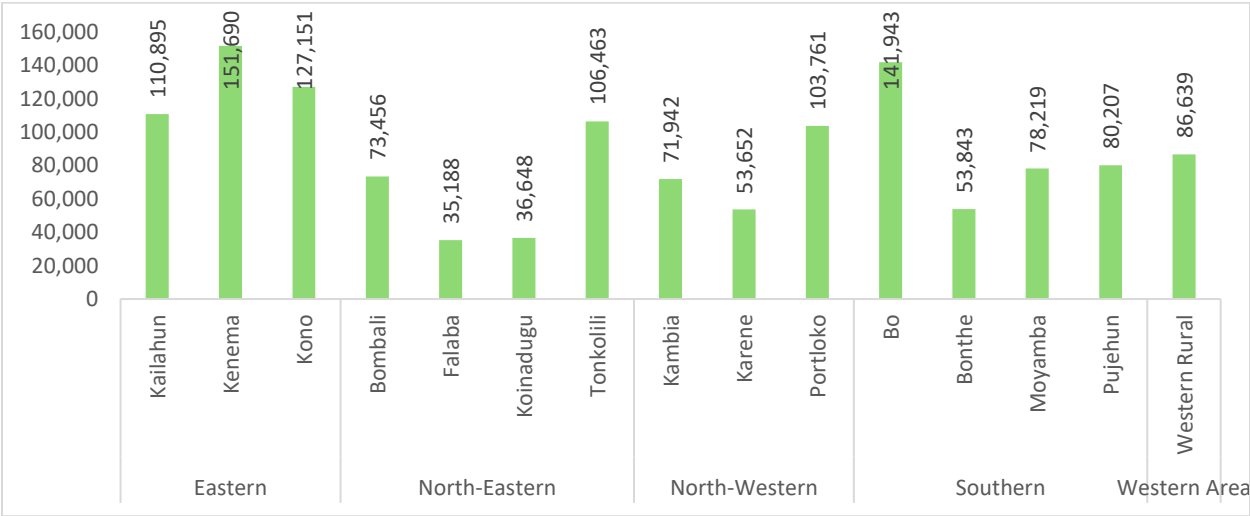
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Sierra Leone's agricultural holdings are mostly single holdings or sole proprietorships. Figure 1.3 shows how land used by households for agricultural activities is owned. The data shows that almost all agricultural holdings (97.4%) are under sole proprietorship. Operation of land under other forms of legal status exists but in very few holdings. Government owned land operated by agricultural holdings is especially rare, making up just 0.1% of all reported agricultural holdings.

Figure 1.3: Percentage distribution of agricultural holdings by legal status in Sierra Leone
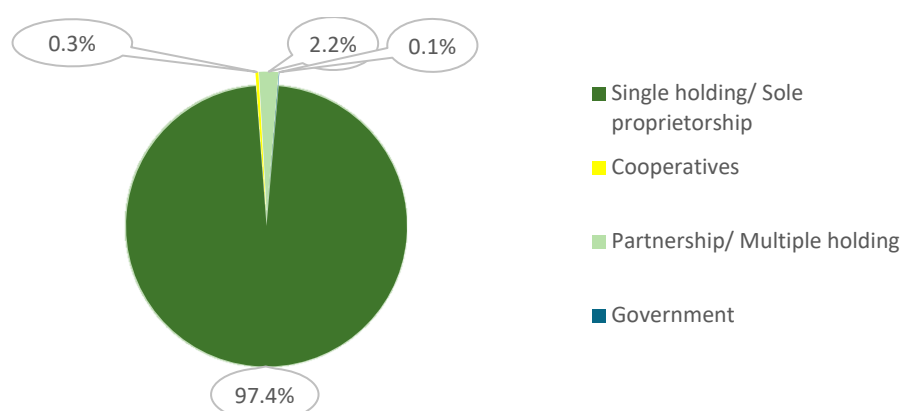
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Crop production was the most practiced agricultural activity by agricultural holdings. According to the data presented in Table 1.1, 87.5% holdings were engaged in crop production, 61.2% holdings were engaged in livestock production, 36.8% holdings were engaged in forestry production, 30.3% holdings were engaged in fishing production while engagement in aquaculture production was the least recorded agricultural activity, with only 0.7% holdings reporting its practice. At regional level, Eastern and Southern regions had the highest number of agricultural holdings. 389,736 holdings were located in the Eastern region, followed by Southern region with a record of 354,212 holdings.

Table 1.1: Percentage of agricultural holdings by activities practiced, by region

Region	Number of agricultural holdings	Crop production	Livestock production	Aquaculture production	Fishing production	Forestry production
Eastern	389,736	95.4%	65.0%	0.3%	34.8%	51.0%
Northern	251,755	92.5%	60.1%	2.0%	28.9%	28.6%
North-Western	229,355	93.1%	70.2%	0.7%	17.5%	22.2%
Southern	354,212	74.1%	52.4%	0.5%	38.9%	44.5%
Western Area	86,639	77.3%	60.0%	0.0%[2]	13.4%	3.9%
Sierra Leone	1,311,698	87.5%	61.2%	0.7%	30.3%	36.8%

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

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[2] In Western Area region, no holdings were reported to engage in aquaculture production during the reference period, this was the actual reality from the data collected from the survey.

Section 1.2: Agricultural area

Overall, Sierra Leone's national average agricultural area per holding is 1.7 hectares (Ha), but only an average of 1.2 hectares are being planted, leaving 30% of available agricultural area uncultivated. Table 1.2 shows that Kailahun district has the largest agricultural area, 3.2 hectares, and the largest planted area, 2.2 hectares. Western Rural district has the smallest agricultural area, 0.4 hectare, and the smallest planted area, 0.1 hectare.

Table 1.2: Average agricultural area and average planted area, by district

District	Agricultural area (Ha)	Planted area (Ha)
Kailahun	3.2	2.2
Kenema	1.8	1.2
Kono	2.9	1.9
Bombali	1.4	1.0
Falaba	2.0	1.8
Koinadugu	0.9	0.7
Tonkolili	1.5	1.0
Kambia	0.8	0.4
Karene	1.2	0.8
Port Loko	1.2	0.7
Bo	1.8	1.1
Bonthe	1.7	1.0
Moyamba	1.4	1.0
Pujehun	2.2	1.6
Western Rural	0.4	0.1
Sierra Leone	**1.7**	**1.2**

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Kailahun district recorded the highest average number of plots per holding, while Falaba district leads in average plot size. Figure 1.4 from the survey data shows that Kailahun district recorded the highest average number of plots per holding at 2.1 hectare, while Western Rural district had the lowest at 1.1 hectare. In terms of plot size, Falaba district reported the largest average at 1.3 hectares per holding, whereas Western Rural once again had the smallest, with an average plot size of 0.1 hectare.

Figure 1.4: Average number of plots and plot size per holding in hectares, by district
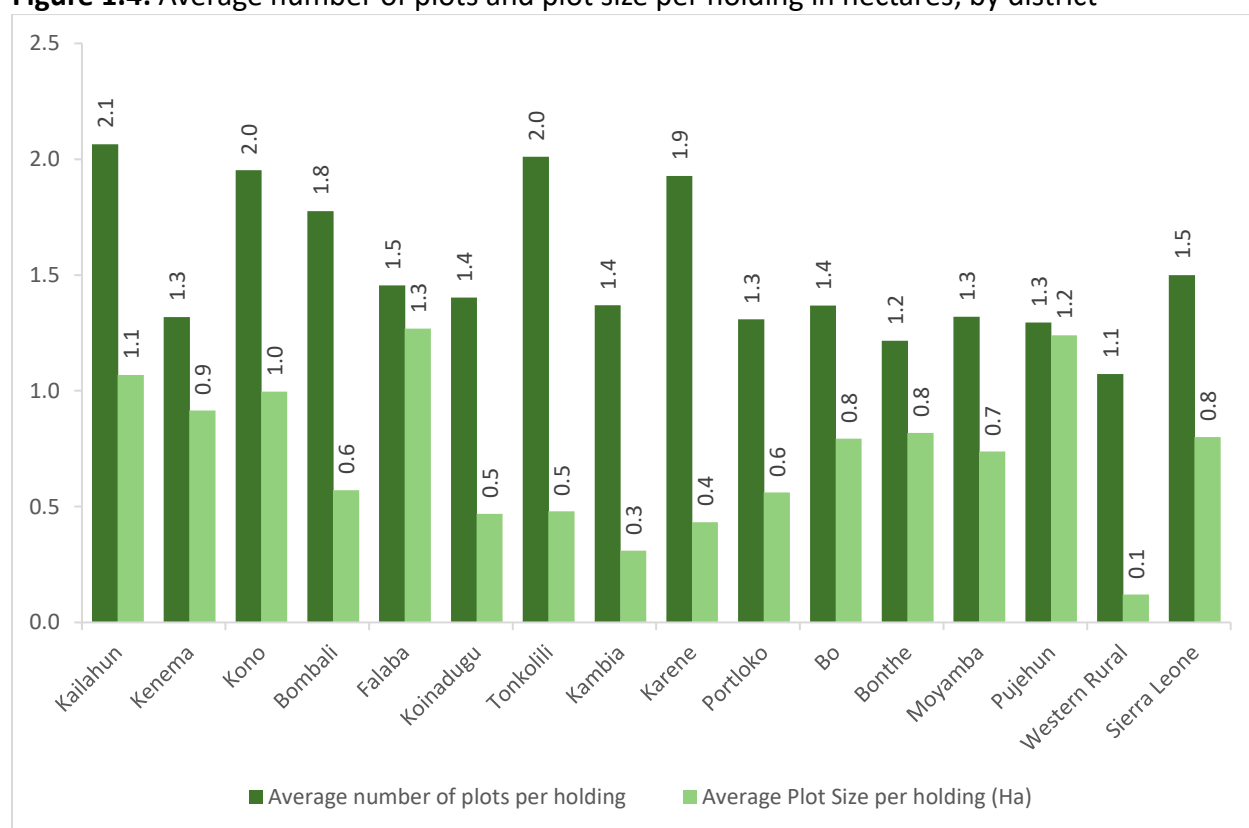
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Pure stand cropping system is the most prevalent cropping system on plots in almost all the districts in Sierra Leone. In Table 1.3, the national-level analysis shows that pure stand cropping is the dominant cropping system across plots in Sierra Leone accounting for 80.0%, followed by mixed cropping at 19.1% while intercropping is the least common at just 0.9%. Among the districts, Karene recorded the highest percentage of plots with use of pure stand cropping at 94.2%, whereas Western Rural reported the lowest at 45.6%. For intercropping and mixed cropping, Moyamba district reported the highest level of mixed cropping at 46.5%, while Falaba, Karene, Bonthe, and Western Rural reported no practice of intercropping 0.0%. Interestingly, Western Rural predominantly used mixed cropping and reported its highest use compared to other districts at 54.4%, while Karene had the lowest at 5.8%.

Table 1.3: Percentage of plots by cropping system, by district

District	Pure stand	Intercropped	Mixed cropping	Total
Kailahun	84.6%	0.6%	14.8%	100.0%
Kenema	86.3%	1.2%	12.5%	100.0%
Kono	86.5%	1.2%	12.4%	100.0%
Bombali	93.1%	0.6%	6.3%	100.0%
Falaba	71.5%	0.0%	28.5%	100.0%
Koinadugu	89.0%	1.2%	9.8%	100.0%
Tonkolili	86.9%	1.1%	12.0%	100.0%
Kambia	87.4%	0.1%	12.4%	100.0%
Karene	94.2%	0.0%	5.8%	100.0%
Port Loko	81.0%	1.2%	17.9%	100.0%
Bo	67.8%	0.5%	31.8%	100.0%
Bonthe	90.5%	0.0%	9.5%	100.0%
Moyamba	49.2%	4.3%	46.5%	100.0%
Pujehun	67.3%	0.1%	32.5%	100.0%
Western Rural	45.6%	0.0%	54.4%	100.0%
Sierra Leone	**80.0%**	**0.9%**	**19.1%**	**100.0%**

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

CHAPTER 2: AGRICULTURAL PRODUCTION

This chapter focuses on production presenting information on main crops grown by holdings, crop production, livestock types kept, inventory changes, reproduction techniques and animal health, fishing and aquaculture production as well as forestry production.

Section 2.1: Crop cultivation

Majority of households cultivated cereal crops. Table 2.1 presents agricultural crop cultivation data across different regions in Sierra Leone. Cereal crops dominate crop cultivation nationwide, with the Eastern region contributing the highest number of holdings (240,097). Vegetable crops are widely cultivated, with notable cultivation in the Southern (56,610) and Eastern regions (56,435). Fruits and nut crops are cultivated more in the Eastern region (156,412) compared to other regions. The Northern and North-Western regions have the least number of holdings engaged in cultivation of fruits and nut crops (7,191 and 7,237) respectively. Cultivation of Oilseed crops is well distributed across regions, particularly in the Eastern and Southern regions. Tuber/Root crops are mostly cultivated in the Southern region (173,596). Leguminous crops are the least commonly cultivated crop category, with small contributions from various regions. Industrial crops are minimally cultivated, mainly appearing in North-Western and Southern regions.

Overall, crop cultivation patterns vary significantly by region, with the Eastern and Southern regions having the highest share of holdings engaged in cultivation of most crop categories. The Western Area Rural region has a relatively small proportion of holdings involved in crop cultivation compared to other regions. At the national level, cereals, tubers, and oilseeds are the most widely cultivated crop categories.

Table 2.1: Number of agricultural holdings by specific crop types cultivated, by region

Region	Holdings reporting crop production	Cereal crops	Vegetable crops	Fruit and Nut crops	Oil seeds crops	Tuber/ Root crops	Legumi-nous crops	Indus-trial crops
Eastern	371,877	240,097	56,435	156,412	133,496	59,021	558	0
Northern	232,873	192,546	39,632	7,191	121,908	42,731	12,287	0
North-Western	213,537	165,672	35,532	7,237	81,593	36,551	1,066	2,801
Southern	262,645	163,749	56,610	18,710	77,505	173,596	0	69
Western Area	66,936	38,477	34,170	0	19,741	21,469	0	0
Sierra Leone	**1,147,868**	**800,542**	**222,380**	**189,550**	**434,242**	**33,367**	**13,911**	**2,869**

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Rice is the most cultivated crop. Figure 2.1 presents data for holdings in Sierra Leone reporting crop cultivation. Rice is the most widely cultivated crop, with 714, 821 holdings engaged in its cultivation followed by cassava with 304,226 holdings reporting its cultivation and Groundnut cultivated by 274,654 holdings. On the lower spectrum, millet, soya beans and kola were the least cultivated crops reported in 16,916, 15,308 and 11,110 holdings, respectively.

Figure 2.1: Number of holdings reporting crop cultivation in Sierra Leone
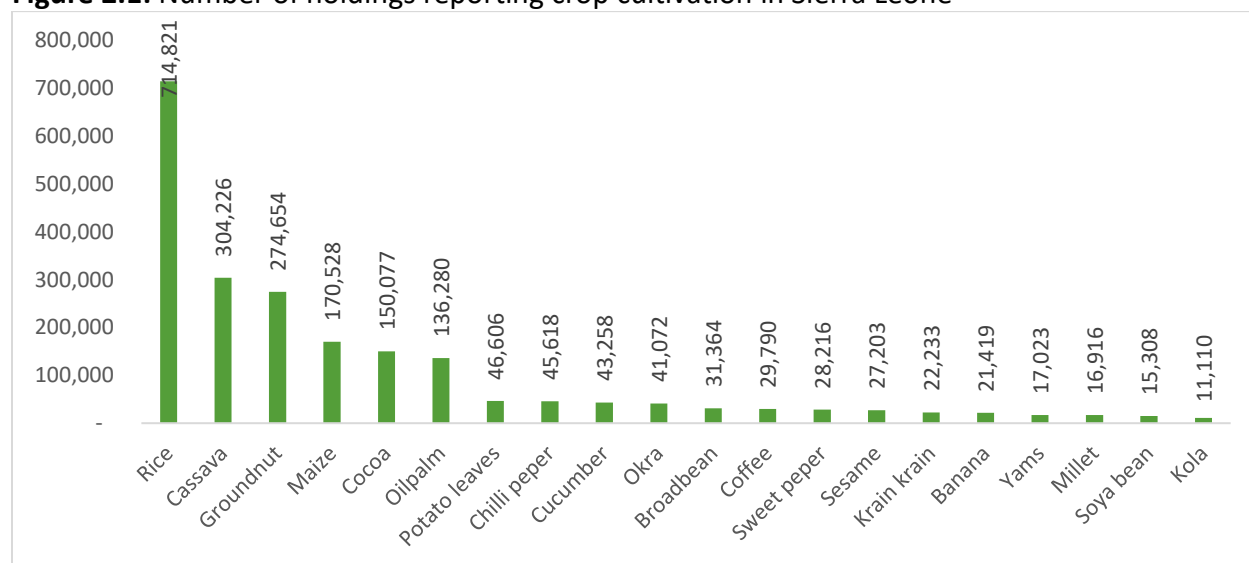
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

The table 2.2 details rice farming across Sierra Leone, highlighting the number of agricultural holdings engaged in rice cultivation, the average number of cultivation cycles per year, and the average time gap between cycles (in weeks). Rice is cultivated by 714,821 holdings across the

country. The Eastern region (Kailahun, Kenema, Kono) leads with 233,993 holdings cultivating rice, followed by the Northern region (181,470 holdings) and Southern region (142,681).

Table 2.2: Total number of agricultural holdings cultivating rice, average number of rice cultivating cycles and average interval between two rice cultivating cycles, by district

Region/District	Total number of agricultural holdings cultivating rice	Average number of completed rice cultivating cycles	Average interval between two rice cultivating cycles (in weeks)
Eastern	**233,993**	**1.2**	**10.3**
Kailahun	74,545	1.2	6.8
Kenema	75,284	1.2	16.9
Kono	84,164	1.2	8.7
Northern	**181,470**	**1.2**	**14.6**
Bombali	51,098	1.2	9.9
Falaba	31,621	1.1	12.1
Koinadugu	17,586	1.1	96.0
Tonkolili	81,165	1.2	7.9
North-Western	**151,090**	**1.1**	**16.9**
Kambia	46,853	1.0	4.5
Karene	46,024	1.1	28.1
Portloko	58,213	1.1	11.0
Southern	**142,681**	**1.2**	**4.4**
Bo	55,241	1.1	3.8
Bonthe	12,570	1.1	6.9
Moyamba	31,551	1.5	3.4
Pujehun	43,320	1.2	5.7
Western Area	**5,586**	**1.4**	**3.7**
Sierra Leone	**714,821**	**1.2**	**11.2**

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Furthermore, on average, rice is planted 1.2 times per year nationwide, showing that most farmers grow rice once annually or slightly more. The national average gap between rice planting cycles is 11.2 weeks. Moyamba (3.4 weeks), Western Area Rural (3.7 weeks) and Bo (3.8 weeks), recorded the shortest intervals between any two rice cultivating cycles, pointing to more intensive or irrigated systems. Koinadugu has a strikingly long interval of 96.0 weeks, hinting to extended fallow periods, sporadic or rain fed farming. The Southern region has shorter intervals (4.4 weeks) and a moderate average of 1.2 cycles, indicating relatively intensive farming. The

Northern and North-Western regions show similar cycle counts (1.0 to 1.5) but longer intervals, reaching 28.1 weeks in Karene. The Eastern region aligns closely with national trends, with records of an average of 1.2 cycles and 10.3 weeks between them. Moyamba and Western area rural recorded good performance in both cycle frequency and planting intervals, possibly reflecting access to better resources or practices.

Rice cultivation is nearly universal among holdings in Sierra Leone. Wide differences in cultivation intervals reflect varying access to water, inputs, and technology. Districts like Moyamba and Western Area Rural may serve as benchmarks for intensive rice cultivation, while areas like Koinadugu may benefit from targeted support to improve output and efficiency.

Significant variation in the dominance of specific rice varieties. The national total of rice cultivated plots is 780,146. Rok 34 is the most widely cultivated variety on rice plots in Sierra Leone (33.9%), followed by Nerica L-19 (18.9%) while other rice varieties are cultivated on 34.2% rice plots, indicating a high level of local or unspecified variety cultivation.

The Eastern region has the highest number of rice cultivated plots (265,378), the most dominant varieties in this region are Rok 34 cultivated on 32.6% plots, Nerica L-19 cultivated on 23.2% plots. A significant share of plots (36.4%) are under other rice varieties while varieties such as OM-6976 and GBS9 are the least cultivated on rice plots in this region, 0.1% and 0.6%, respectively. Western Area region on the other hand has the lowest number of rice cultivated plots (5,586). Rice cultivated plots in this region are dominated by varieties Rok 10 and Rok 5, cultivated on 52.3% and 28.3% plots, respectively.

Table 2.3: Total number of rice cultivated plots and percentage of rice varieties grown on the plot, by region

Region	Rice cultivated plots	Nerica L-19	Rok 34	Rok 5	Rok 10	GBS9	OM-6976	Orilux	Other rice variety
Eastern	265,378	23.2	32.6	3.9	1.4	0.6	0.1	2.8	36.4
Northern	205,724	14.9	24.7	11.1	1.3	0.7	0.5	2.6	45.1
North-Western	158,143	16.4	16.4	15.3	11.0	0.7	0.3	0.3	41.1
Southern	145,314	20.0	69.4	1.4	3.8	0.0	0.0	0.0	9.2
Western Area	5,586	8.5	10.9	28.3	52.3	0.0	0.0	0.0	0.0
Sierra Leone	**780,146**	**18.9**	**33.9**	**7.8**	**4.1**	**0.5**	**0.2**	**1.7**	**34.2**

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

At the national level, the shortest growing period of rice is 3.6 months while the longest growing period for rice is 4.7 months recorded for OM-6976 variety. As shown in Table 2.4 OM-6976, Nerica L-19 and Orilux rice varieties have the shortest growing period, at 3.6, 3.8 and 3.9 months respectively. The rice varieties with the longest growing period are other rice varieties and Rok 10 recording an average growing period of 4.7 and 4.4 months respectively.

Table 2.4: Average length of growing period of rice varieties in months, by region

Region	Nerica L-19	Rok 34	Rok 5	Rok 10	GBS9	OM-6976	Orilux	Other (rice)
Eastern	3.8	4.9	4.8	4.5	5.5	6.0	4.4	4.6
Northern	3.5	4.0	4.0	4.4	3.1	3.1	2.9	5.0
North-Western	3.9	3.7	4.5	4.5	4.2	4.0	8.2	4.7
Southern	4.0	4.3	4.4	4.5	0.0	0.0	0.0	4.5
Western Area	3.0	4.0	2.0	3.7	0.0	0.0	0.0	0.0
Sierra Leone	**3.8**	**4.3**	**4.3**	**4.4**	**4.3**	**3.6**	**3.9**	**4.7**

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Table 2.5 displays data on planted area (in hectare), crop production (in metric ton) and the respective yields. It shows that the total production of cereal crops stands at 1.18 million Mt, with an average yield of 1.53Mt/ha. Rice leads in both cultivated area and production, followed by maize. Yields for vegetable crops range from 1.3Mt/ha for Chilli peper to 6.6Mt/ha for Potato leaves, with Cucumber and Okra being major contributors to vegetable output in Sierra Leone.

Table 2.5: Planted area, production and yield of crops cultivated by agricultural households in Sierra Leone

Crops	Planted area (ha)	Production (Mt)	Yield (Mt/ha)
Cereal crops			
Rice	616,842	1,066,012.9	2.0
Maize	112,728	110,442.8	1.8
Millets	14,773	7,444.5	0.8
Vegetable crops			
Chilli Peper	29,121	35,477.8	1.3
Cucumber	46,477	184,938.7	4.3
Broad beans	28,252	14,085.7	0.8
Okra	26,265	84,287.4	3.4
Sweet Peper	13,877	30,634.0	2.4
Potato leaves	6,777	43,633.6	6.6
Krain Krain	6,507	38,827.6	6.0
Tuber/root crops			
Cassava	262,326	2,855.435.8	11.8
Yams	19,771	87,620.1	7.1
Oilseed crops			
Oil Palm	203,246	1,508,081.0	8.6
Groundnut	125,530	101,388.6	1.2
Sesame(benie)	35,967	7,042.6	0.3
Soya beans	11,184	7,485.4	1.1
Fruit and nut crops			
Cocoa	198,714	93,749.6	0.5
Coffee	43,165	80,574.7	2.0
Banana	12,041	92,218.8	10.3
Kola	19,417	4,790.3	0.6

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

The study highlights a wide variation in yields among fruit and nut crops, with bananas achieving an exceptional 10.3Mt/ha, far surpassing other crops. Cocoa occupies the largest area in this category but has a relatively low yield of 0.5Mt/ha. Among oilseed crops, oil palm recorded the highest production by volume (1.5 million Mt) with a high yield of 8.6Mt/ha, while sesame remains one of the low-yield oilseed crops. Cassava emerges as the largest contributor to national production with a yield of 11.8Mt/ha, while sesame recorded the lowest yield of 0.3Mt/ha.

Figure 2.2 presents the various end uses of crop produce. The highest percentage of crop produce is allocated for household consumption (17.7%), followed by harvest loss represented by 15.1%, 13.0% crop produce is sold. Produce lost during storage is the second least destination of production, 3.6% while Produce given as gifts was the least recorded destination of crop production, 2.3%.

Figure 2.2: Percentage crop production by destination in Sierra Leone
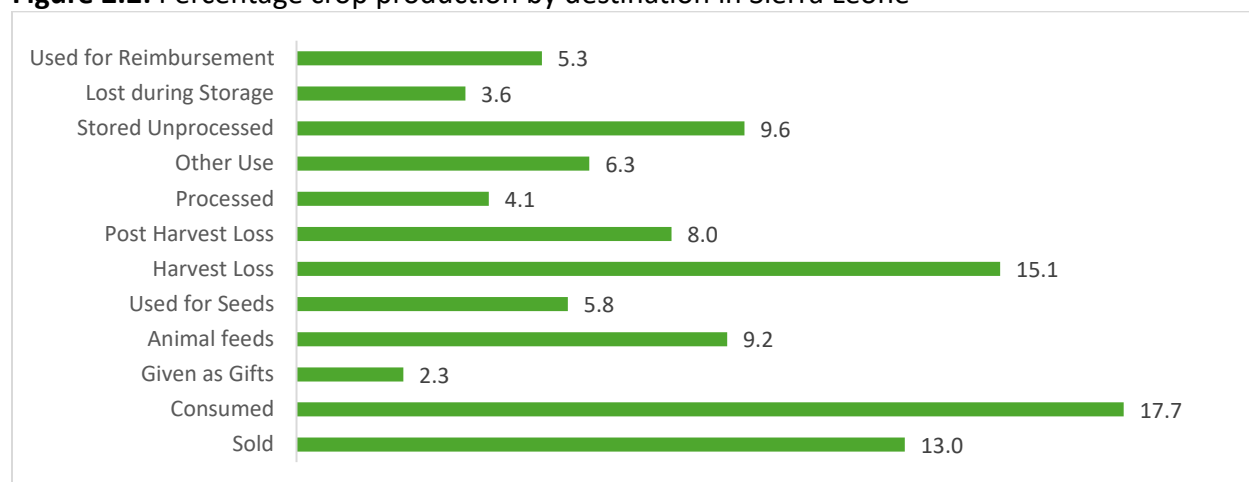
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Section 2.2: Livestock production

Goats are the largest raised livestock type in Sierra Leone. Figure 2.3 illustrates the percentage of holdings and the livestock types raised across five regions. The Southern region has the highest goat population (16.9%), followed by the North-Western (15.1%) and Eastern (11.6%) regions. The Western Area reports the lowest goat percentage at only 0.5%. Sheep are generally the second most common livestock type raised across all regions. The North-Western region leads in sheep rearing (11.5%), followed by Eastern and Southern regions with 5.9% and 4.8% respectively. In contrast, sheep are nearly absent in the Western Area (0.2%). Cattle are sparsely distributed, with low percentages across all regions. Only the North-Western region has a somewhat notable cattle population (4.5%). The Southern and Western Area record negligible or no cattle presence (0.0% and 0.3% respectively).

Pigs consistently appear in very low numbers across all regions. The Eastern region has the highest percentage (0.4%), while the Northern and Southern regions recorded the lowest percentage (0.0% and 0.1%, respectively). North-Western exhibits the most even distribution and broadest livestock variety. The Southern region is heavily dominated by the rearing of goats, with no cattle rearing. Eastern and Northern show moderate rearing of goats and sheep. The Western Area region has the lowest overall livestock percentages in every category.

Figure 2.3: Percentage of agricultural holdings by livestock type raised, by region
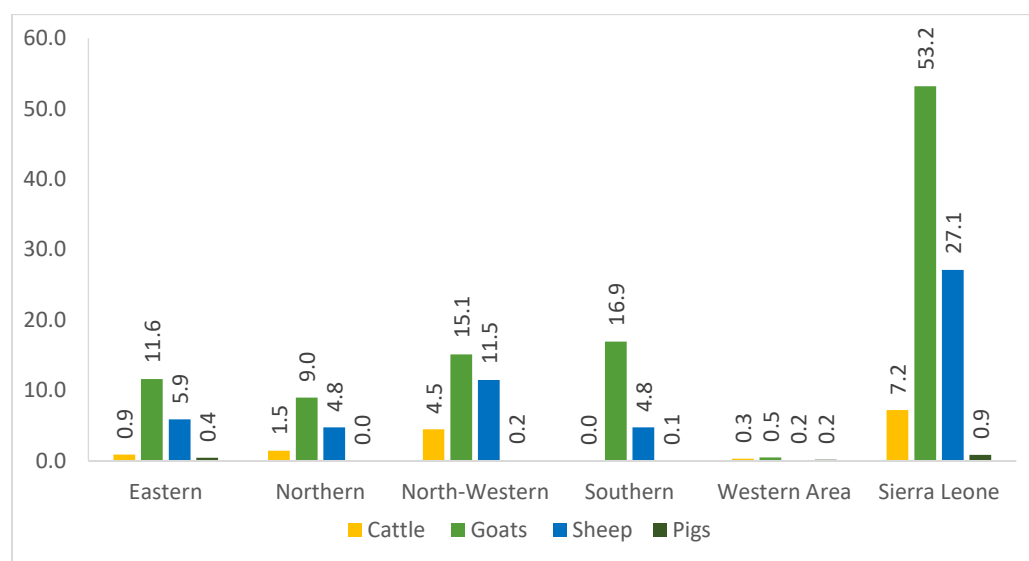
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

The Southern region leads in poultry rearing. As shown in Figure 2.4, Southern region stands out with the highest percentage of holdings keeping poultry across all poultry categories: Hens/layers 27.5%, Cocks/broilers 25.9%, Pullets/DOCs 20.0% and other poultry 2.3%. This region clearly serves as the central hub for poultry farming. The other regions report relatively balanced poultry figures kept by agricultural holdings. North-Western region recorded around 11.5% for both broilers and layers, with 5.4% for pullets while Eastern region recorded roughly 10.5% and 10.8% for broilers and layers respectively, and 4.8% for pullets. Poultry activity is moderate in the Northern region, mainly in broilers 6.0%, layers 5.8%, and lower figures for pullets (1.8%) and other poultry (0.4%). For the Western Area all categories remain under 2%, with no representation in the "Other Poultry" category (0.0%). This region has the least participation in poultry keeping.

Figure 2.4: Percentage of agricultural holdings by poultry type raised, by region
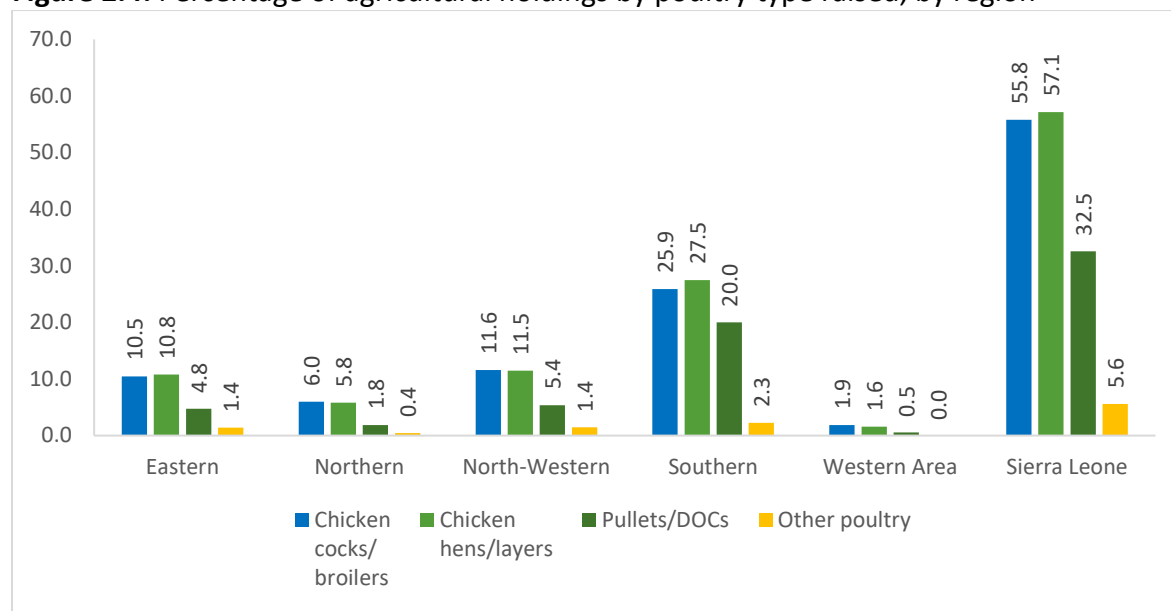
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Figure 2.5 illustrates the number of incoming and outgoing cattle reported in the five regions of the country in the 12 months preceding the survey. Almost all regions show a net gain in cattle, with incoming figures exceeding outgoing ones. The inflows and outflows in Northern and North-Western regions appear to be evenly distributed, balancing both inflows and outflows. Southern region recorded no cattle inventory changes due to no practice of cattle raising in this region. North-Western region on the other side recorded the most significant inflows and outflows of cattle. The Northern region was the only region that recorded more outflows than inflows possibly for purposes such as trade, breeding, or slaughter.

Figure 2.5: Cattle inventory changes, by region
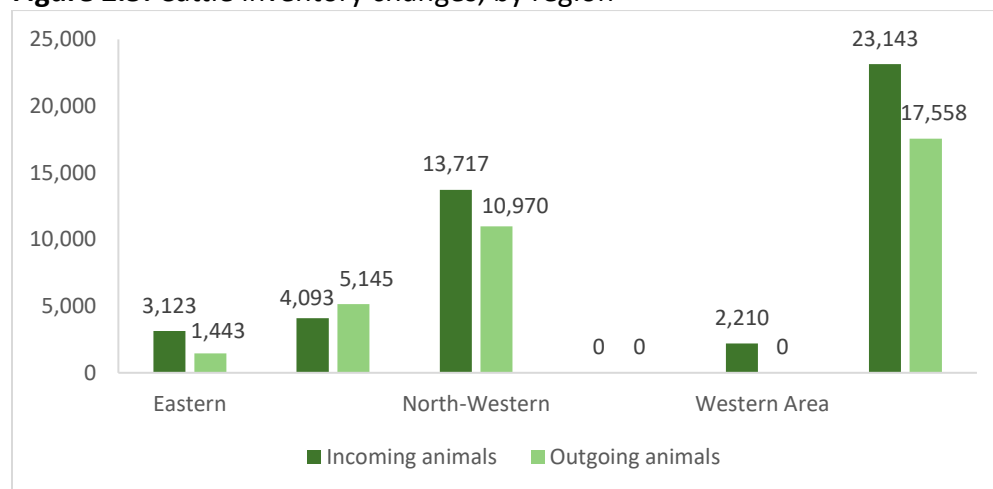
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Figure 2.6 below shows the volume of incoming and outgoing goats across all regions. All these regions show net inflows, with incoming animals exceeding outgoing numbers. Western Area region shows the lowest goat inventory changes. North-Western and Southern regions recorded the highest volume of goat inventory changes with a net inflow. The Eastern and North-Eastern regions contribute to the overall flow with moderate, steady volumes.

Figure 2.6: Goat inventory changes, by region
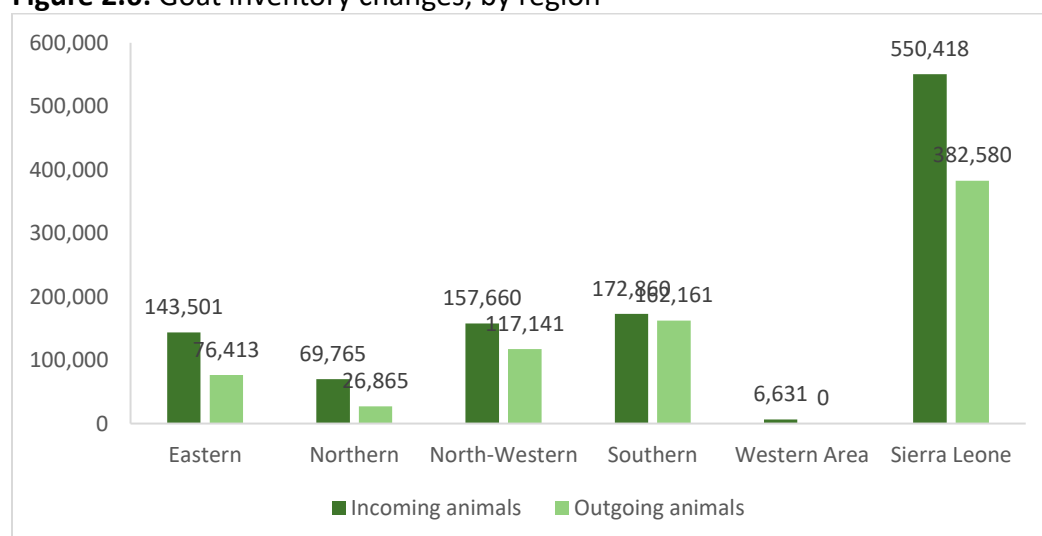
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

The North-Western region records the largest flow of sheep, with incoming sheep exceeding outgoing, indicating active livestock movement. The Southern region recorded more outflows than inflows, suggesting it may be a key hub for animal trade or processing. The Eastern region has even numbers for incoming and outgoing sheep, with a slight surplus of incoming. The Western-Area region recorded no sheep movements. This pattern highlights different roles for each region within the sheep supply and distribution network.

Figure 2.7: Sheep inventory changes, by region
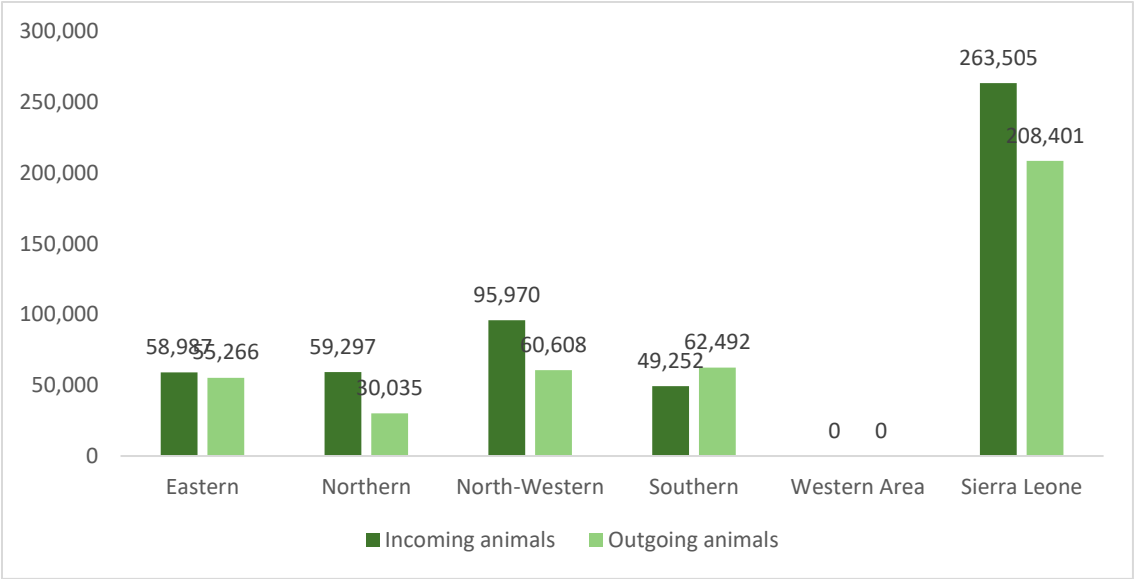
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Pig movements differ across the regions, with the Eastern region being a net importer of livestock, while the North-Western and Western Area function as net exporters. In fact, figure 2.8 illustrates the quantities of incoming and outgoing pigs across the five regions. The Eastern region has high numbers of incoming pigs with a large surplus of incoming pigs compared to those going out. North-Western and Western-Area regions recorded more outgoing pigs than incoming pigs indicating they may serve as livestock exporters. North-Eastern region recorded no pig inventory changes. This reflects the varied regions' roles in the trading or production of pigs.

Figure 2.8: Pig inventory changes, by region
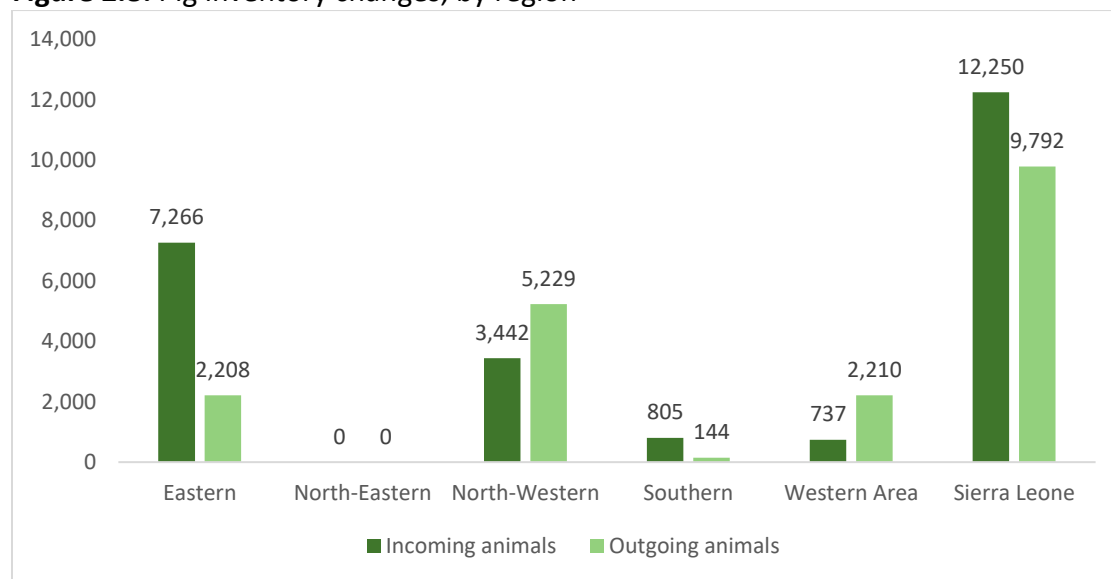
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

All regions have more incoming chickens than outgoing, suggesting net inflows across the board, as displayed on figure 2.9. North-Western region shows a relatively balanced inflow and outflow of chicken but with a net inflow. The Eastern and Southern regions have much higher chicken inflows than outflows. Western Area region shows the least activity in terms of chicken movement.

Figure 2.9: Chicken inventory changes, by region
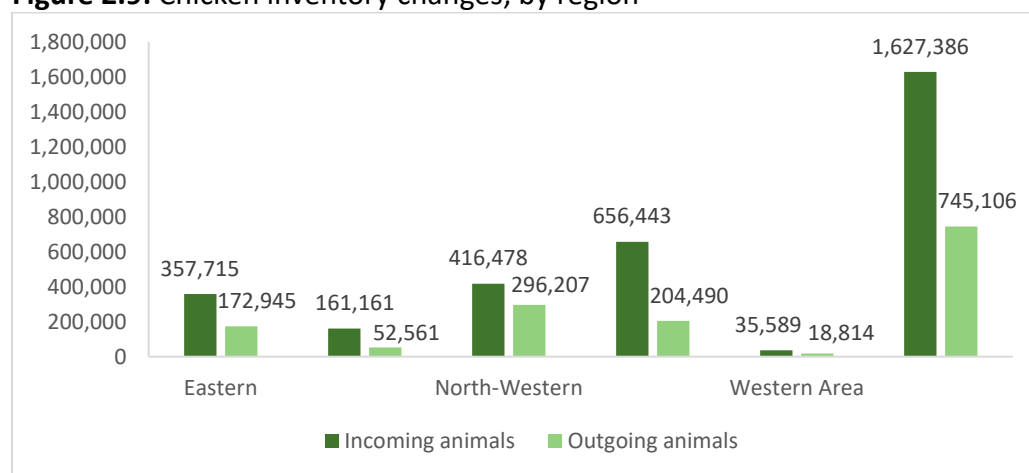
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Figure 2.10 displays the number of holdings reporting livestock products. Among holdings reporting livestock products, Other products were the most reported, recorded in 2,772 holdings, reflecting a wide variety of other products contributing significantly to overall livestock products. This was followed by honey recorded in 2,719 holdings while cow butter was the least reported product, recorded in 871 holdings.

Figure 2.10: Percentage distribution of agricultural holdings by livestock product produced in Sierra Leone
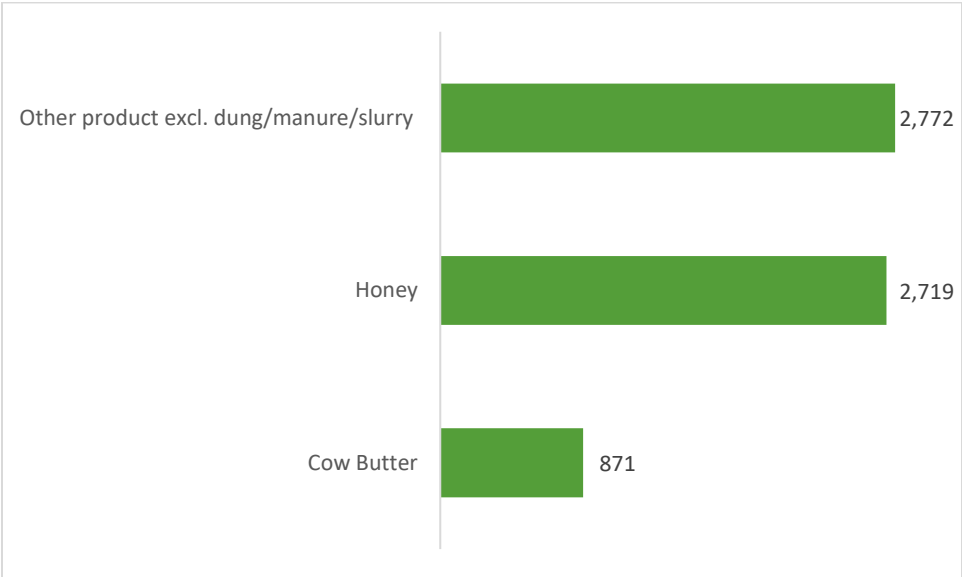
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Natural mating is the dominant reproduction technique for livestock types raised, especially for goats. Artificial insemination techniques are used for reproduction but less common than dam purchased/exchanged pregnant and other reproduction techniques. Purchasing/Exchanging pregnant dams and other reproduction techniques are limited to only goats and sheep. Accordingly, while about 1,511 and 807 holdings reported the use of purchasing/exchanging dam pregnant in goats and sheep respectively, holdings using other reproduction techniques were 659 and 257 for goats and sheep respectively, and no holdings reported using both these methods for cattle. This indicates these practices are more prevalent among smaller ruminants.

Cattle reproduction relies almost entirely on natural mating (2,844 holdings), with minimal artificial insemination (378 holdings) and no other alternative methods reported. Holdings reporting the highest use of artificial insemination were those raising goats (18,456).

Table 2.6: Livestock reproduction techniques used by agricultural holdings by livestock type raised in Sierra Leone

Livestock type	Holdings raising livestock	Natural mating	Artificial insemination	Dam purchased/ Exchanged pregnant	Other reproduction techniques
Goat	232,549	18,456	265	1,511	659
Sheep	118,423	12,452	838	807	257
Cattle	14,443	2,844	378	0	0

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Generally, goats make use of the widest range of reproductive approaches, especially in the categories of purchased/exchanged pregnant dams and other methods. Sheep rank between cattle and goats in both diversity and frequency of reproductive techniques, with relatively greater use of artificial insemination than goats. The variation in reproduction techniques across livestock types could stem from differing production systems, economic factors, or biological traits of each species.

Traditional remedies are the most employed health strategy by agricultural holdings raising livestock. The results as shown in Table 2.7 suggest a lot of use of traditional medicine for animal health in most holdings, especially for chicken reported in 40,052 holdings. This strong dependence on local or alternative methods, may potentially be due to affordability, cultural norms, or limited access to modern veterinary care. Holdings raising cattle also demonstrate considerable reliance on formal veterinary care. Chickens lead in use of antibiotics (21,433 holdings), which aligns with standard poultry management practices aimed at disease control and productivity. Goats and chickens receive the most comprehensive care, possibly due to their high numbers or economic value.

Table 2.7: Animal health practices used by agricultural holdings by livestock type in Sierra Leone

Livestock type	Holdings raising livestock	Vaccination	Veterinary services	Antibiotics	Traditional medicine
Chicken	287,898	5,258	3,932	21,433	40,052
Goat	232,549	23,184	25,735	17,909	31,930
Sheep	118,423	13,986	12,224	9,169	17,726
Cattle	14,443	6,504	6,211	1,650	3,816
Pig	3,785	240	240	240	741

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Sheep have moderate levels of all health interventions and pigs appear to be the most underserved in veterinary care, with a disproportionately higher reliance on traditional approaches (741) holdings versus (240) holdings for each of the other non-traditional methods. Both formal veterinary systems (vaccination, veterinary services and antibiotics) and informal practices (traditional medicine) are in use, but traditional medicine plays a dominant role in managing the health of some species, particularly for goats and chickens.

Section 2.3: Fishing and aquaculture production

Aquaculture production across different regions, specifically focusing on the percentage of holdings reporting production of Tilapia and Catfish is presented in the table 2.8. At national level 9,792 holdings reported aquaculture, the national average for Tilapia production is 21.8%, while Catfish is the more produced species 51.6%. Catfish dominates aquaculture production in most regions, with the highest presence in North-Western (85.2%). Tilapia is more balanced, peaking in the Southern region (39.5%). Western Area has no reported aquaculture activity, which may indicate an absence of infrastructure or interest in fish farming. Northern has the highest number of holdings overall, but Catfish is more commonly produced than Tilapia. This data suggests a regional preference for Catfish over Tilapia in many areas.

The Eastern region has 1,351 holdings contributing to aquaculture production and Tilapia accounts for 29.3%, while Catfish is minimally produced at 5.2%. Northern region leads in total holdings engaging in aquaculture production (5,029) but has a relatively lower tilapia fish

production (15.8%) compared to catfish (54.0%). North-Western region reports 1,534 holdings and has the lowest percentage of Tilapia production at 14.8%, but the highest for Catfish 85.2%, making it the dominant species here. Southern region features 1,877 holdings and holds the highest percentage of Tilapia production 39.5%. Catfish accounts for 37.0% of production. Western Area Rural has 0 holdings reporting aquaculture production, making it the only region with no engagement in fish farming.

Table 2.8: Number and percentage distribution of agricultural holdings reporting aquaculture production by species and region

Region	Number of holdings reporting aquaculture production	Tilapia fish	Catfish	Other species	Total
	Number	%	%	%	%
Eastern	1,351	29.3	5.2	65.5	100.0
Northern	5,029	15.8	54.0	30.2	100.0
North-Western	1,534	14.8	85.2	0.0	100.0
Southern	1,877	39.5	37.0	23.5	100.0
Western Area	0	0.0	0.0	0.0	0.0
Sierra Leone	**9,792**	**21.8**	**51.6**	**26.6**	**100.0**

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Majority of holdings reporting fishing capture raised Clams/Mollusks (Snails). Table 2.9 provides a regional breakdown of fishing capture across regions, showing the percentage distribution of the different aquatic species. The southern region has the highest number of fishing holdings (137,791) followed by Eastern region with 135,468 holdings. This suggests that fishing capture activities are most prevalent in the Southern and Eastern regions.

Across all regions, fish capture represents a small percentage of the total catch, ranging from 0.5% to 4.2%, indicating that fishing efforts might focus more on other marine species. The highest percentage of crustaceans (Crabs & Shrimp) is captured in the Western Area region reported by about 41.3% of the holdings, while the North-Western region reported 29.3% holdings capturing crustaceans. On the other hand, Northern region reported the least capture of crustaceans reported only by 16.1% of the holdings. Clams and mollusks dominate the catch across all regions. The Northern region leads with 82.7%, followed by Southern region at 77.4% and Eastern region

71.7%, highlighting a strong preference for harvesting these species. Fish capture is minimal in all regions, possibly due to ecological factors or fishing practices. Crustacean capture does not vary greatly across regions, the Western Area region recorded the highest proportion (41.3%).

Table 2.9: Number and percentage distribution of agricultural holdings reporting capture fisheries by species raised and regions

Region	Number of holdings reporting fishing capture	Fishes	Crustaceans (Crabs & Shrimps)	Clams/Mollusks (snails)	Total
	Number	%	%	%	%
Eastern	135,468	3.1	25.2	71.7	100.0
Northern	72,835	1.2	16.1	82.7	100.0
North-Western	40,169	0.5	29.3	70.2	100.0
Southern	137,791	4.2	18.4	77.4	100.0
Western Area	11652	3.5	41.3	55.2	100.0
Sierra Leone	**397,915**	**2.9**	**22.5**	**74.6**	**100.0**

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Section 2.4: Forestry production

Table 2.10 illustrates a comprehensive overview of forestry product collection in Sierra Leone, indicating the number of agricultural holdings involved in the collection of forestry products and the total quantity collected (in kilograms) over a 12-month period. A total of 482,499 agricultural holdings collected approximately 5.7 billion kilograms of forest products during this time. Certain forestry products including boards, fence stick, jackfruit, lemon grass, medicinal plants, wild birds, wild fruit/berries, other forestry products were not reported as collected by any agricultural holdings. This absence may be attributed to sampling limitations or underreporting. Among the products collected, firewood accounted for the highest volume (657,832), while other forestry products were collected in the smallest quantity (129). Interestingly, the only non-forest product recorded in terms of measurable weight was sand.

Table 2.10: Number of agricultural holdings collecting forest product and quantity collected in Sierra Leone

Forestry product	Number of holdings	Total quantity collected (kg)
Firewood	657,832	4,606,389,084
Red palm oil	198,112	166,982,417
Medicinal plants	98,917	0
Honey	85,143	2,240,349
Coconuts	77,068	68,428,402
Fence stick	74,020	0
Lemon grass	65,011	0
Wild mammals	61,355	393,871,420
Palm wine	32,143	60,358,960
Board	24,898	0
Sand	24,386	258,646,235
Wild snails	18,055	130,456,470
Wild mushrooms	10,989	0
Rocks, stone, mud	9,363	16,260,087
Wild birds	8,134	0
Other woods	7,250	1,537,788
Wild fruit/berries	5,417	0
Jackfruit	4,643	0
Other products	129	0
Total	**482,499**	**5,705,171,212**

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Overall, Sierra Leone's forests serve as a major source of both biological and non-biological resources. Although products such as firewood were most collected forest product, other valuable forest products such as red palm oil, sand and wild mammals were also collected in fairly high quantities.

Cropping was the main primary purpose for clearing forests. Table 2.11 present data on forest areas cleared over the past 12 months across different regions in Sierra Leone. It details the total area cleared (in hectares) and outlines the percentage of land converted for various agricultural and non-agricultural purposes. The Eastern region recorded the largest area cleared at 86,882 hectares, followed by the Southern region with 50,549 hectares. In contrast, the Western Area and North-Western region reported the lowest figures, with 2,683 hectares and 13,322 hectares, respectively. Almost all forests cleared were primarily for the purpose of, cropping (88.2%). The

clearing of forests for tree plantation, pasture, non-agricultural uses, charcoaling and timber extraction was reported by very few holdings. Overall, forest clearing in Sierra Leone is largely driven by agricultural expansion, particularly cropping. Tree plantations remain a minor factor, except in the North-Western region, which demonstrates a more diversified land-use pattern. The Western Area stands out for its high level of non-agricultural land conversion, likely due to urban development or infrastructure projects. While charcoaling and timber extraction contribute little to deforestation nationally, certain regions show marked activity in these areas.

Table 2.11: Area of forestry cleared by agricultural holdings with primary purpose of clearance, by region

Purpose of Clearance	Eastern	Northern	North-Western	Southern	Western Area	Sierra Leone
Forestry area cleared (Ha)	86,882	31,876	13,322	50,549	2,683	185,313
Cropping	87.9	95.8	73.3	88.9	66.7	88.2
Tree plantation	3.2	2.8	11.2	0.7	0	3.1
Pasture	0.2	0	0	0	0	0.1
Non-agricultural uses	4.1	1.4	7.1	1.1	33.3	3.4
Timber extraction	0	0	4.2	0.4	0	0.4
Charcoaling	4.2	0	0	9	0	4.2
Other purpose	0.4	0	4.2	0	0	0.5
Total	100	100	100	100.1	100	99.9

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Although the national percentage of tree planting for forest purposes is 71.7%, the actual area covered is substantial. The North-Western region is notable for both its high percentage and large area of forest-oriented tree planting, while the Western Area remains the least engaged, with no recorded activity. The southern region has the highest percent of tree planted by holding to create forest and other wooded land. The total area of trees planted for forest and other wooded land across the country, as indicated by the survey results, is 8,068 hectares. Of this, the North-Western region accounts for the largest share with 2,637 hectares, followed by the Eastern region with 2,247 hectares. The findings also reveal that the Western Area made no contribution to the establishment of forest or wooded areas.

Table 2. 12: Percentage of agricultural holdings where trees were planted to create forest or other wooded land on the farm, and total area of trees planted, by region

Region	Trees planted by the holding to create forest or other wooded land	Area of trees planted
	%	Ha
Eastern	32.9	2,247
Northern	61.8	1,947
North-Western	89.2	2,637
Southern	100.0	1,237
Western Area	0.0	0
Sierra Leone	71.7	8,068

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

CHAPTER 3: INPUT USE AND LABOR

This chapter analyzes the use of agricultural inputs and labor. It highlights key findings on number of varieties of seed planted and the different seed types used across holdings reporting crop cultivation, the use of fertilizers and pesticides by agricultural holdings and the different worker categories contributing to different agricultural activities.

Section 3.1: Crop inputs

Planting of one variety of seed is predominant in agricultural holdings reporting crop cultivation. Table 3.1 shows the number of varieties of seed planted by agricultural holdings per crop. Almost all agricultural holdings reporting crop cultivation planted only one variety of seed (98.7%), and only 1.3% planted more than one variety. Whereas some holdings reported planting more than one variety for mainly crops like cocoa, maize, cassava tuber/leaves and rice, it was still on a very small scale (4.0% or less). In crops such as millets, krain krain, sweet potatoes, yams, sesame, soya beans and yams only one variety of seed was planted.

Table 3. 1: Percentage of holdings by number of varieties of seed planted per crop

Crop	Number of holdings reporting crop production	One variety	More than one variety	Total
Cereal crops				
Rice	714,821	97.0%	3.0%	100.0%
Maize	170,528	95.9%	4.1%	100.0%
Millet	16,916	100.0%	0.0%	100.0%
Vegetable crops				
Potato leaves	46,606	99.6%	0.4%	100.0%
Chilli peper	45,618	99.4%	0.6%	100.0%
Cucumber	43,258	98.5%	1.5%	100.0%
Okra	41,072	99.3%	0.7%	100.0%
Broad beans	31,364	99.7%	0.3%	100.0%
Sweet peper	28,216	99.0%	1.0%	100.0%
Krain Krain	22,233	100.0%	0.0%	100.0%
Tuber/root crops				
Cassava	304,226	96.1%	3.9%	100.0%
Yams	17,023	100.0%	0.0%	100.0%
Oilseed crops				
Groundnut	274,654	99.7%	0.3%	100.0%
Oil palm	136,280	98.3%	1.7%	100.0%

Crop	Number of holdings reporting crop production	One variety	More than one variety	Total
Sesame (benie)	27,203	100.0%	0.0%	100.0%
Soya beans	15,308	100.0%	0.0%	100.0%
Fruit and nut crops				
Cocoa	150,077	94.1%	5.9%	100.0%
Coffee	29,790	99.4%	0.6%	100.0%
Banana	21,419	99.6%	0.4%	100.0%
Kola	11,110	98.0%	2.0%	100.0%
Total	**1,147,868**	**98.7%**	**1.3%**	**100.0%**

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Traditional varieties uncertified seed is the main seed type used. Table 3.2 below shows that traditional varieties uncertified seeds are the most used seed type in Sierra Leone (76.7%) followed by modern varieties uncertified seeds at 20.7% and lastly modern varieties certified seeds at only 4.0%. Modern seed varieties are the least used for yam cultivation, with 96.3% of holdings reporting reliance on traditional varieties. The use of modern varieties, whether certified or not, is more often reported in association with the cultivation of rice, sweet pepper, oil palm, and cocoa. The holdings cultivating cocoa reported the highest use of modern varieties, uncertified seeds (32.2%) while holdings cultivating sweet potatoes reported the highest use of modern varieties certified seeds (33.6%). For holdings cultivating coffee, sesame (benie), millets and yams no modern varieties, certified seeds were used (0.0%). It should be noted that more than one seed type can be used for a single crop.

Table 3.2: Percentage of holdings by seed type used per crop

Crop	Number of holdings reporting crop production	Modern varieties, certified seed	Modern varieties, uncertified seed	Traditional varieties, uncertified seed
Cereal crops				
Rice	714,821	3.7%	30.1%	69.2%
Maize	170,528	3.6%	22.1%	78.5%
Millets	16,916	0.0%	13.3%	86.7%
Vegetable crops				
Potato leaves	46,606	3.0%	16.6%	80.7%
Chilli Peper	45,618	1.3%	17.2%	82.2%
Cucumber	43,258	2.7%	21.6%	77.2%
Okra	41,072	0.9%	26.3%	73.5%

Crop	Number of holdings reporting crop production	Modern varieties, certified seed	Modern varieties, uncertified seed	Traditional varieties, uncertified seed
Broad beans	31,364	0.0%	26.6%	73.7%
Sweet Peper	28,216	11.4%	18.2%	71.4%
Krain Krain	22,233	0.4%	28.0%	71.6%
Tuber/root crops				
Cassava	304,226	3.2%	21.3%	79.5%
Yams	17,023	0.0%	3.7%	96.3%
Oilseed crops				
Groundnut	274,654	1.7%	26.1%	72.5%
Oil Palm	136,280	4.6%	28.6%	68.5%
Sesame(benie)	27,203	0.0%	20.7%	79.3%
Soya beans	15, 308	3.4%	23.9%	72.7%
Fruit and nut crops				
Cocoa	150,077	2.7%	32.2%	71.1%
Coffee	29,790	0.0%	10.4%	90.2%
Banana	21,419	3.7%	17.4%	79.3%
Kola	11,110	1.4%	8.2%	92.4%
TOTAL	**1,147,868**	**4.0%**	**20.7%**	**76.7%**

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

A minority of agricultural holdings use integrated pesticide management (IPM). As shown on figure 3.1, 21.6% of agricultural holdings used sustainable approaches to manage pests while 78.4% of agricultural holdings report no use of IPM. The Southern and Eastern regions reported the lowest use of IPM, with 89.9% and 78.6% of holdings, respectively, reporting no use of pesticides. Although the use of IPM remains relatively low, it was reported most frequently in the Northern and Western Area regions, at 30.7% and 27.1% respectively. Generally, there is not much application of methods that prevent pests in a manner that poses least harm to human life and the environment.

Figure 3.1: Percentage of agricultural holdings by use of integrated pesticide management, by region
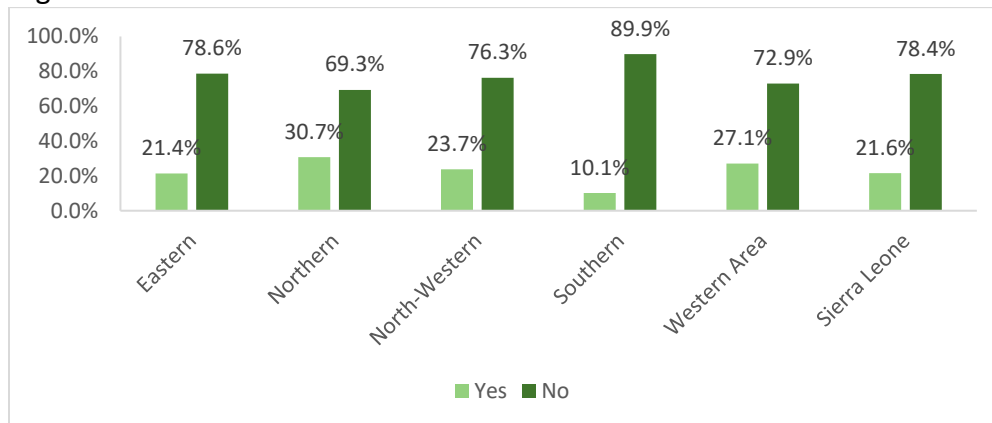
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Only a limited percentage of agricultural holdings used organic fertilizer. Findings from the survey presented in Figure 3.2 show at national level 73.6% of agricultural holdings did not use any type of organic fertilizer, 19.5% used manure, 4.9% used vegetable compost and only 2.0% used other types of organic fertilizer. Almost all agricultural holdings in Western Area reported use of manure (90.9%), but no use of vegetable compost or any other type of organic fertilizer was used by holdings in this region. The use of vegetable compost was recorded highest in Eastern region (11.2%) while other types of organic fertilizers were recorded highest in Northern region at 4.8%.

Figure 3.2: Percentage of agricultural holdings by organic fertilizer used, by region
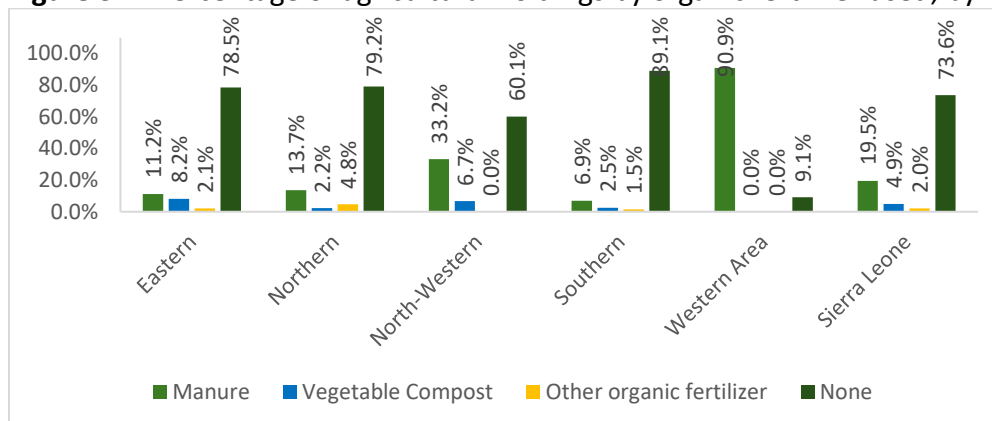
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Diammonium Phosphate (Dap) is the least used inorganic fertilizer. The results presented in Figure 3.3 shows that nationally, agricultural holdings using Diammonium Phosphate were only 0.2%. Agricultural holdings using NPK were 9.7%, those using Urea were 11.2% while 78.8% reported no use of any type of inorganic fertilizer. Western Area region stands out in use of urea and NPK at 71.6% and 24.6% respectively. The use of other types of inorganic fertilizers remains very low across all regions.

Figure 3.3: Percentage of agricultural holdings by inorganic fertilizer used, by region
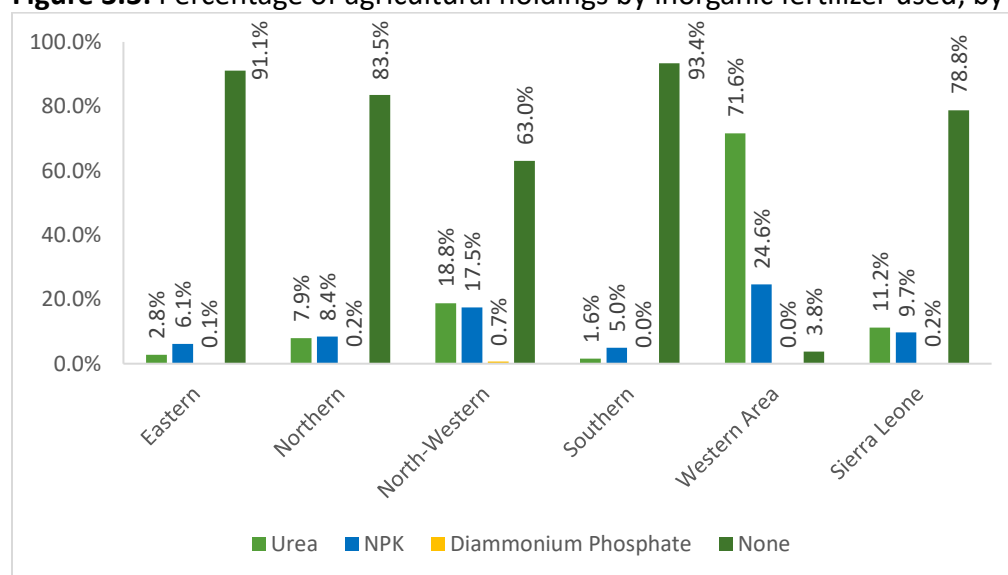
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Almost all agricultural holdings use no pesticides. This is shown in Figure 3.4 where at national level 87.8% holdings reported no use of pesticide, 5.2% used insecticides, 3.3% used rodenticide, 3.0% used herbicides while only 0.7% used fungicides. The use of insecticides and herbicides was most reported in Western Area at 12.6% and 6.2% respectively. The variation in the type of insecticide used does not change significantly from region to region.

Figure 3.4: Percentage of agricultural holdings by pesticide used, by region

Figure shows grouped bar chart with categories Eastern, Northern, North-Western, Southern, Western Area, Sierra Leone. Legend: Insecticides, Herbicide, Fungicide, Rodenticide, None.

- Eastern: 3.0%, 4.9%, 1.1%, 3.4%, 87.6%
- Northern: 5.2%, 2.8%, 1.4%, 2.0%, 88.6%
- North-Western: 8.8%, 2.2%, 0.4%, 4.7%, 83.8%
- Southern: 2.5%, 0.8%, 0.2%, 4.1%, 92.3%
- Western Area: 12.6%, 6.2%, 0.0%, 0.0%, 81.2%
- Sierra Leone: 5.2%, 3.0%, 0.7%, 3.3%, 87.8%
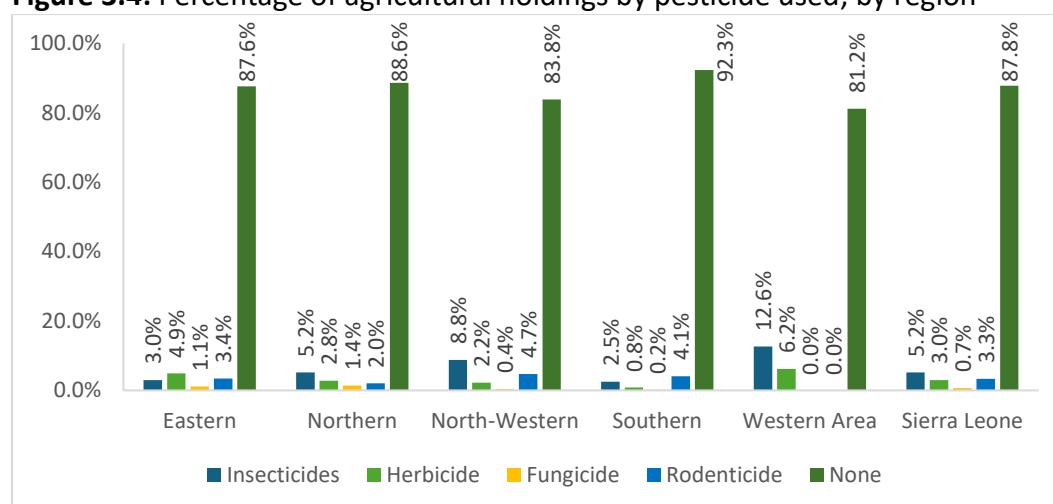
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Section 3.2: Use of labor

Labor input on the agricultural holding is categorized into two primary sources: labor supplied by members of the agricultural household, and labor provided by non-household members/external workers, herein categorized as hired workers and free exchange workers. External workers comprise both remunerated workers (i.e., those engaged through formal or informal hiring arrangements) and non-remunerated workers participating in reciprocal labor exchange systems. Any worker, regardless of their worker category, may contribute to one or multiple agricultural activities across the reference period.

Majority of adult male household members work on crop production. Results at national level presented in Figure 3.5 shows that 84.6% adult male household members working on agricultural activities mainly worked on crop production (84.6%). 22.3% reported to work on livestock production while 6.6% worked on aquaculture. North-Western and Southern regions account for the highest proportion of adult male household members working on crop cultivation at 89.7% and 89.0% respectively, and also those working in livestock production at 29.4% and 27.2% respectively. The involvement of adult male household members in aquaculture is highest in North-Western region at 9.9% followed by Eastern regions at 8.8%.

Figure 3.5: Percentage of adult male household members by activity worked, by region
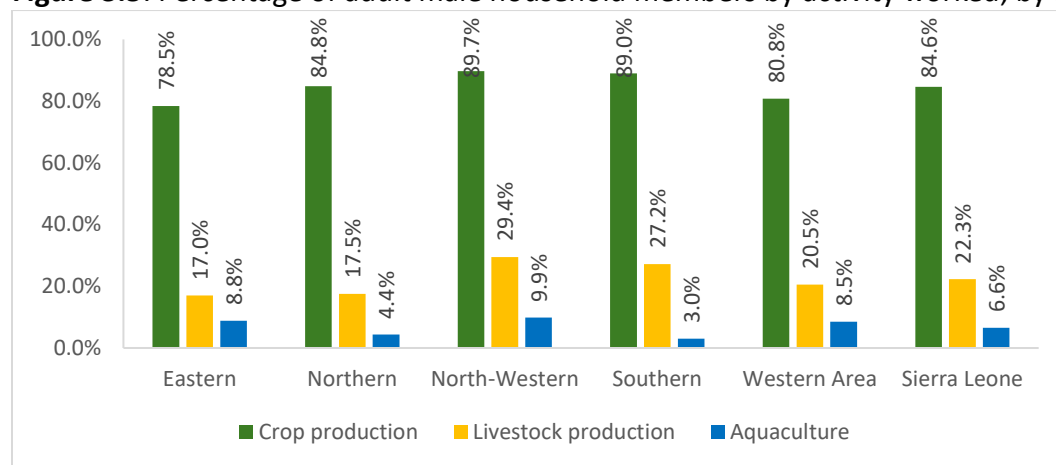
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Results for adult female household members show a pattern very similar to that of men, with the majority predominantly involved in crop production. Figure 3.6 shows that 86.6% of adult female household workers reported engaging in crop production, 25.1% reported participating in livestock production, and only 6.4% reported involvement in aquaculture. At region level, Western area had the highest percentage reporting engagement in crop production (91.7%). The Southern and North-Western regions, on the other hand, had the highest percentage reporting involvement in livestock production (38.0% and 29.3%, respectively). The Western Area and Eastern regions recorded the highest involvement of adult female household members in aquaculture (10.0% and 9.7%, respectively).

Figure 3.6: Percentage of adult female household members by activity worked, by region
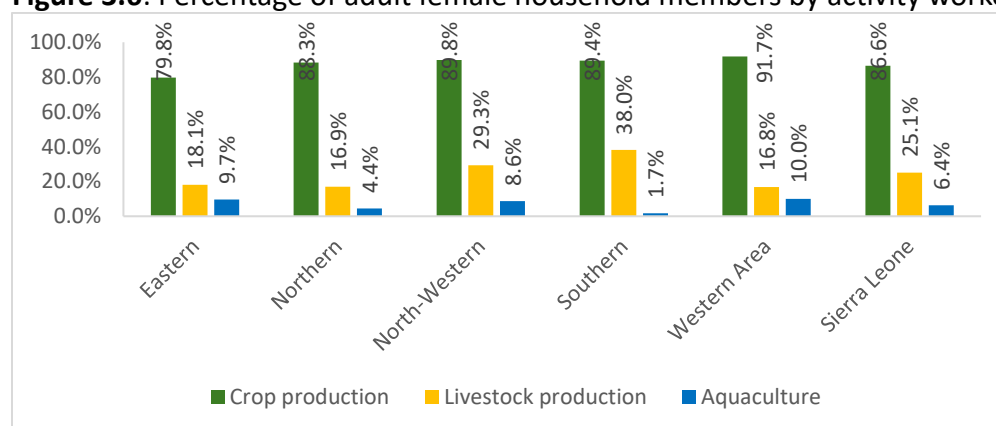
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

The involvement of children[3] household members in agricultural activities is highest for crop production (54.8%), followed by livestock production (17.2%) and lastly aquaculture (4.2%). Children household members working in crop production are mainly from Western Area region (80.6%) while those working in livestock production are mostly from Southern and North-Western region (25.3% and 23.7%, respectively). Involvement of children household members in aquaculture though generally very low, is most reported in Western Area and North-Western regions at 7.5% and 6.7% respectively (Figure 3.7).

Figure 3.7: Percentage of children household members by activity worked, by region
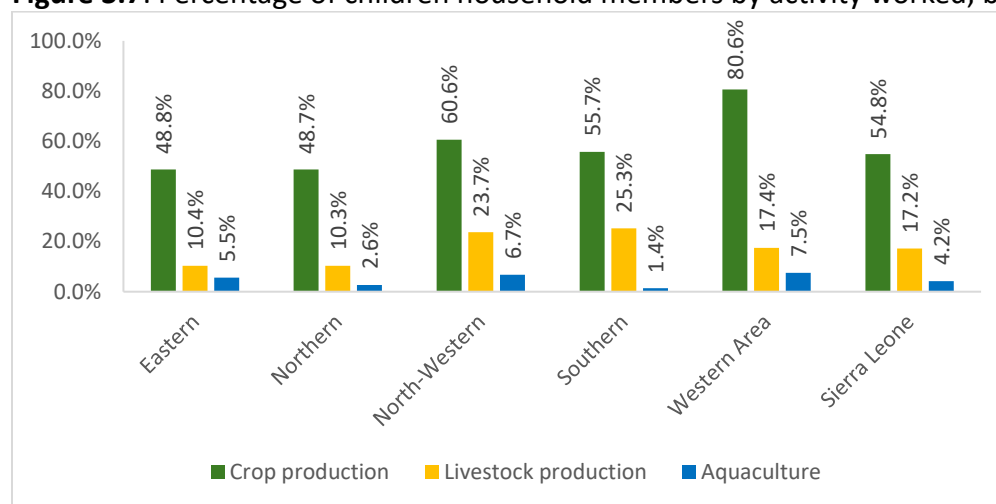
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Permanent hired workers are hired mostly to provide labor for crop production. National data presented in Figure 3.8 shows that 10.0% permanent hired workers reported to work on crop production, 2.9% reported engagement in livestock production while 1.4% reported engagement in aquaculture. Eastern region recorded the highest percentage of permanent hired workers participating in crop production, livestock production and aquaculture (20.1%, 5.9% and 2.4% respectively). Western Area on the other hand recorded the lowest percentage of permanent hired workers involved in crop production (1.8%) and there was no permanent hired worker involved in aquaculture from this region.

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[3] The participation of household members classified as children in agricultural activities refers to the engagement of individuals aged 15 years or younger in labor contributions to farming operations of the household.

Figure 3.8: Percentage of permanent hired workers by activity worked, by region
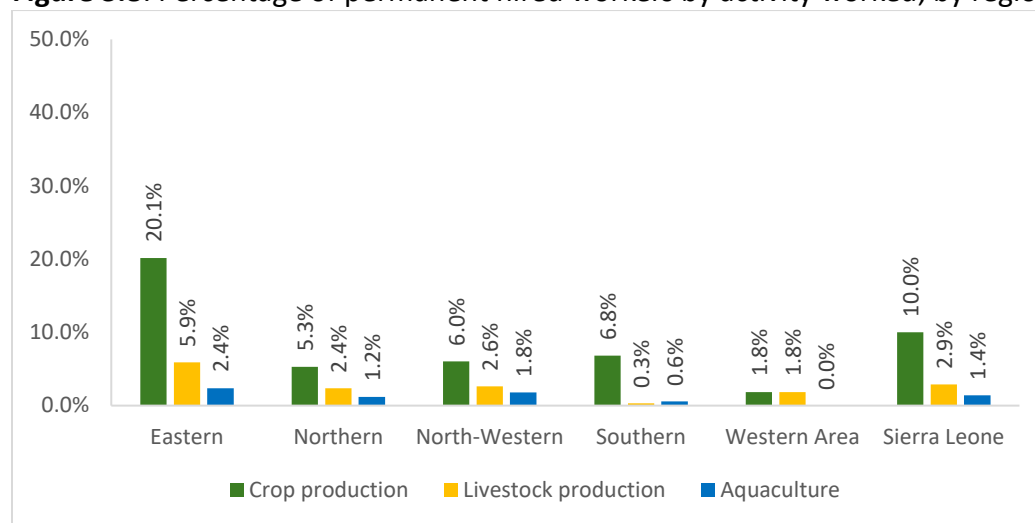
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Western Area region recorded the highest percentage of temporary hired workers involved in both crop production and livestock production. The results in Figure 3.9 Show 70.9% temporary hired workers in Western Area reported involvement in crop production, while 5.4% reported involvement in livestock production. The involvement of temporary hired workers in aquaculture was highest in the North-Western region, 5.8%.

Figure 3.9: Percentage of temporary workers hired by activity worked, by region

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Western Area region continued to record the highest percentage of casual hired workers involved in crop production, just like for temporary hired workers. As seen in Figure 3.11, 64.1% casual hired workers were involved in crop production. Within the same region, there was zero record of casual hired workers engaged in livestock production as well as aquaculture. Casual hired workers engaged in livestock production as well as aquaculture were mostly from Southern region (4.7% and 4.3%, respectively).

Figure 3.10: Percentage of casual hired workers by activity worked, by region
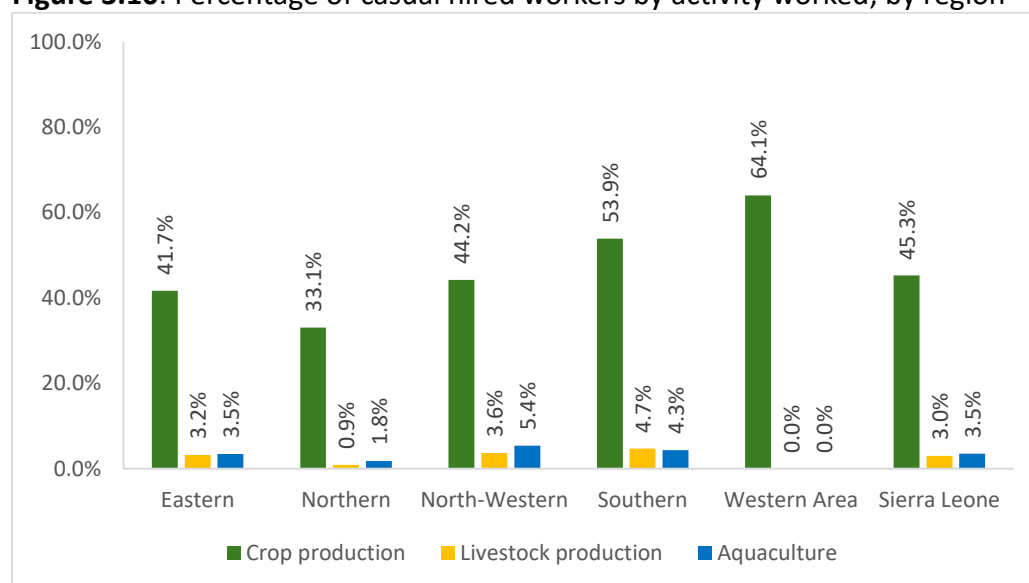
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Free exchange workers worked mainly on crop production. National level data shows that 22.6% free exchange workers reported engagement in crop production, while those reporting engagement in livestock production and aquaculture were relatively low (1.5% and 1.4%, respectively). Northern region recorded the highest percentage of free exchange workers engaged in crop production (35.2%), followed by Southern region at 23.3%, and the region having the lowest percentage of free exchange workers involved in crop production was Western Area (4.8%). The Western Area region recorded zero free exchange workers working in livestock production, as well as aquaculture.
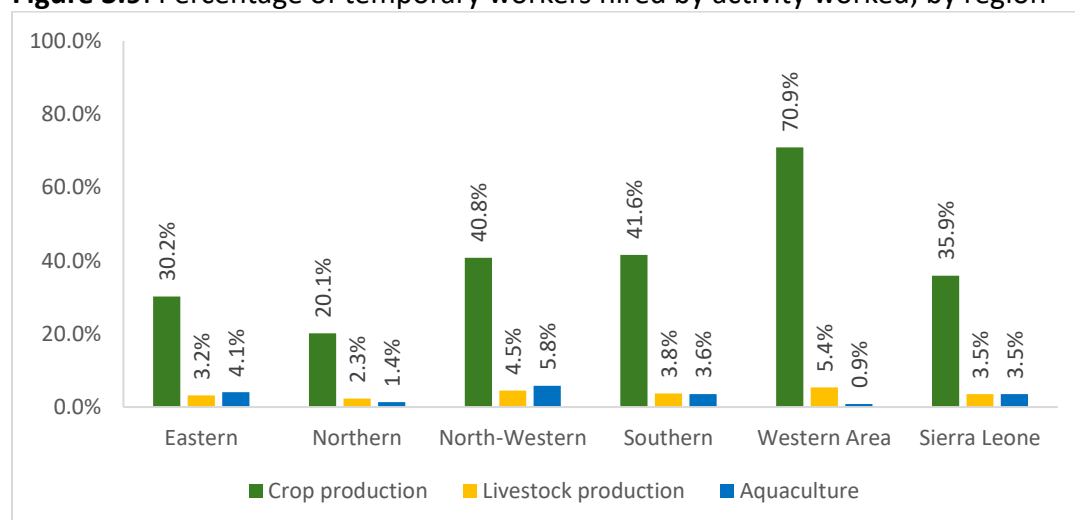
Figure 3.11: Percentage of free exchange workers by activity worked, by region
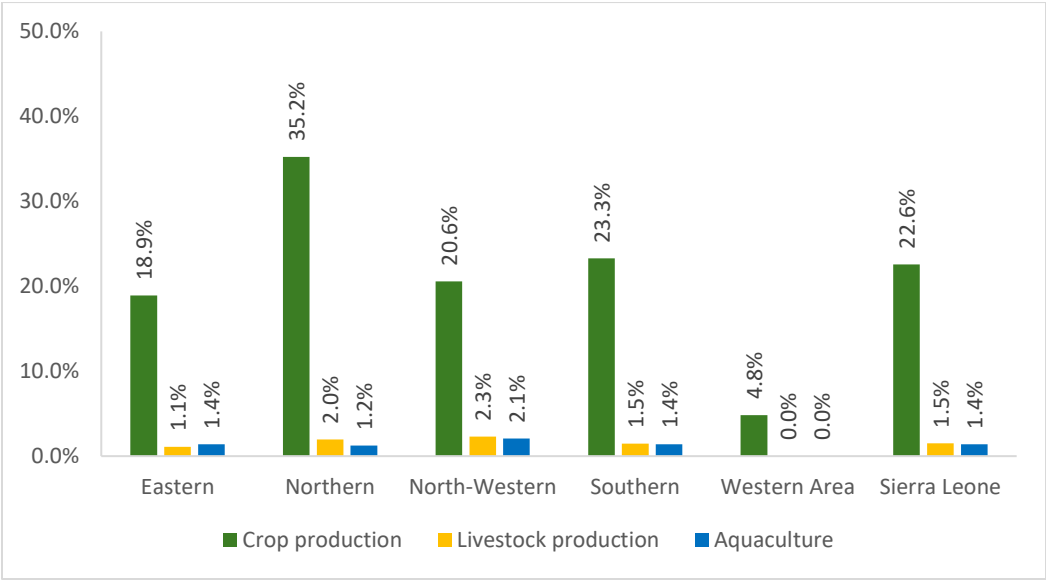
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

CHAPTER 4: PRODUCTION METHODS AND ENVIRONMENT

This chapter presents data on land use and soil management, energy use and greenhouse gases, and environmental issues, adaptation to climate change. It provides detailed information on soil health, conservation and degradation, the use of irrigation structures and greenhouses, occurrence of extreme natural events, their consequences on the holding, and on the practices that the holding has adopted to adapt to climate change.

Section 4.1: Land use and soil management

Crop rotation is not practiced on most plots. The figure below shows the distribution of plots by practice of crop rotation. Crop rotation is one of the practices used to manage and preserve the soil for sustainability of production. On most plots in Sierra Leone, there is no practice of crop rotation. The survey results show that on about 61.2 % plots no crop rotation was practiced. The Eastern region reported the highest proportion of plots with no use of crop rotation (76.5%). Crop rotation with different crops stands at 37.2%, while the other methods of crop rotation rotating with pasture and rotating temporary fallow are practiced on only 1.7% of all plots in Sierra Leone.

Figure 4.1: Distribution of plots by practice of crop rotation, by region
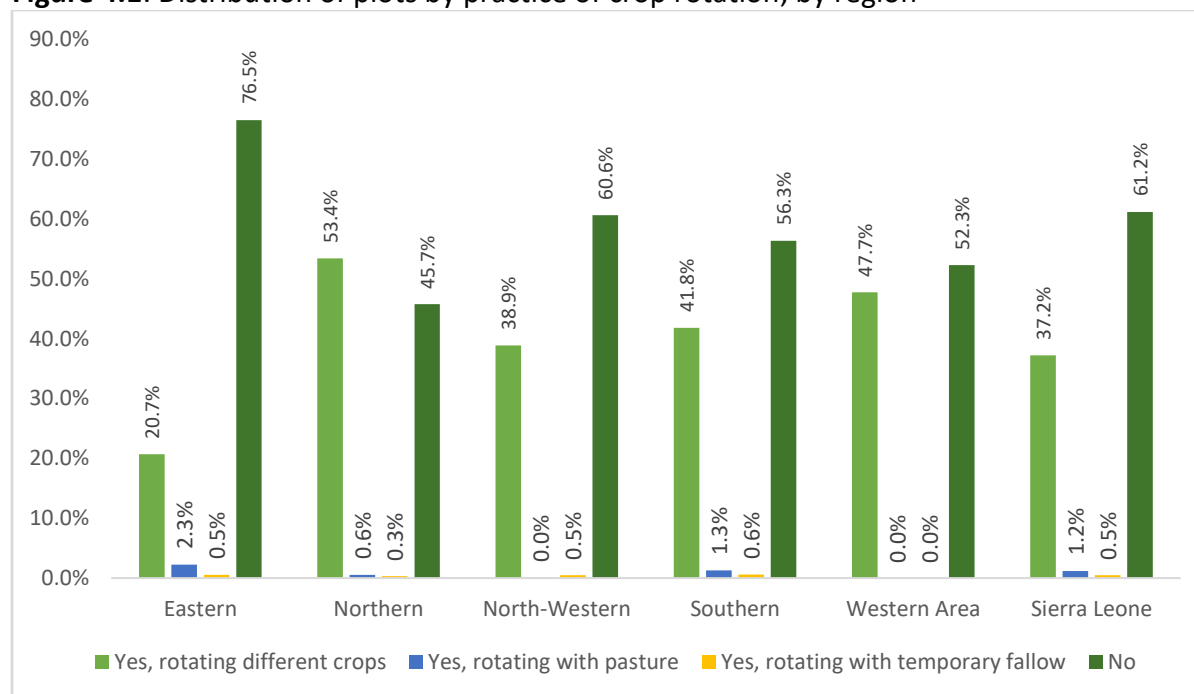
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

In Sierra Leone, slash-and-burn is a relatively common method of land clearing, practiced by just over half of agricultural holdings. The results from the survey as presented in Figure 4.2 indicate that 53.6 percent of holdings in Sierra are practicing slash and burn on their land while 46.4 percent are not practicing slash and burn. The highest percentage of farmers engaged in this practice are in Karene, Pujehun and Port Loko reported at 80.8%, 77.3%, 74.8% respectively. In contrast lowest proportions practicing slash-and-burn are found in Kenema (21.9%), Kono (35.9%), and Kailahun (40.8%).

Figure 4.2: Distribution of agricultural holdings by burning practices on land, by district
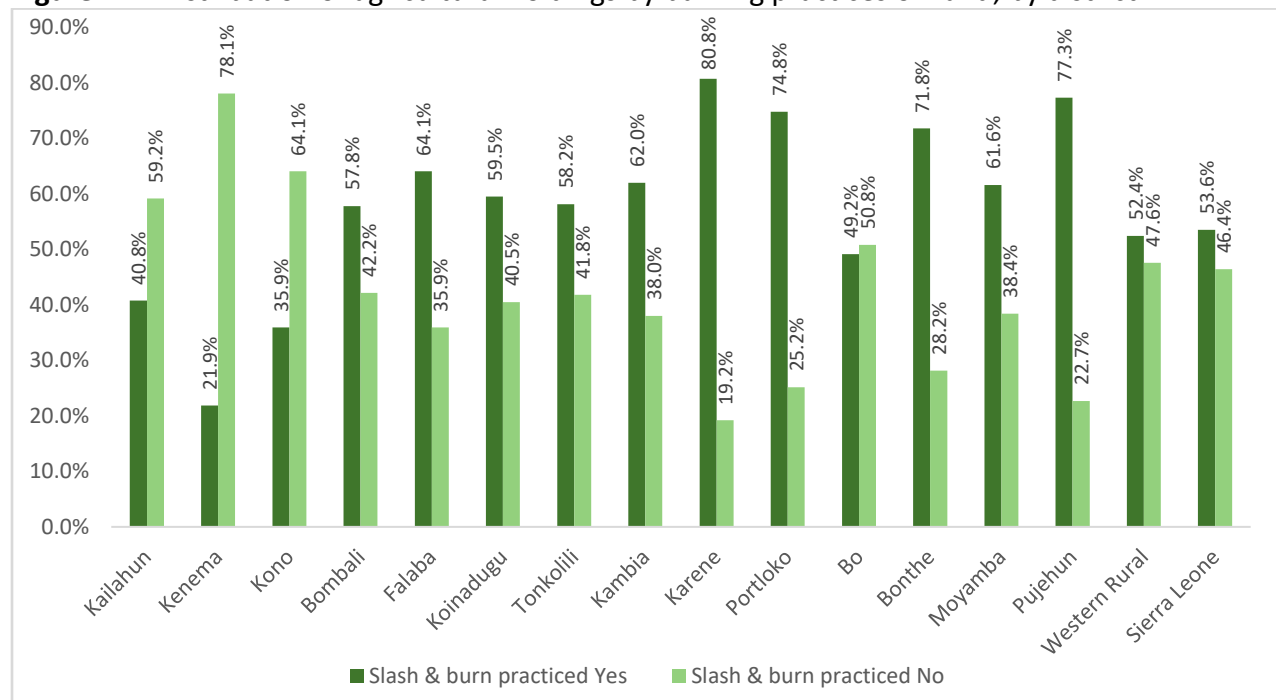
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Parcels in Sierra Leone are largely characterized by flat slopes. The survey results show that in Sierra Leone 73.9% of parcels have flat slopes, 16.6% have gentle slopes and the remaining 9.5% are terraced, moderate and steep sloped. This variation is consistent across regions with majority of parcels being flat sloped from region to region and only a few parcels being terraced, moderate or steep sloped.

Figure 4.3: Distribution of parcels by slope type, by region
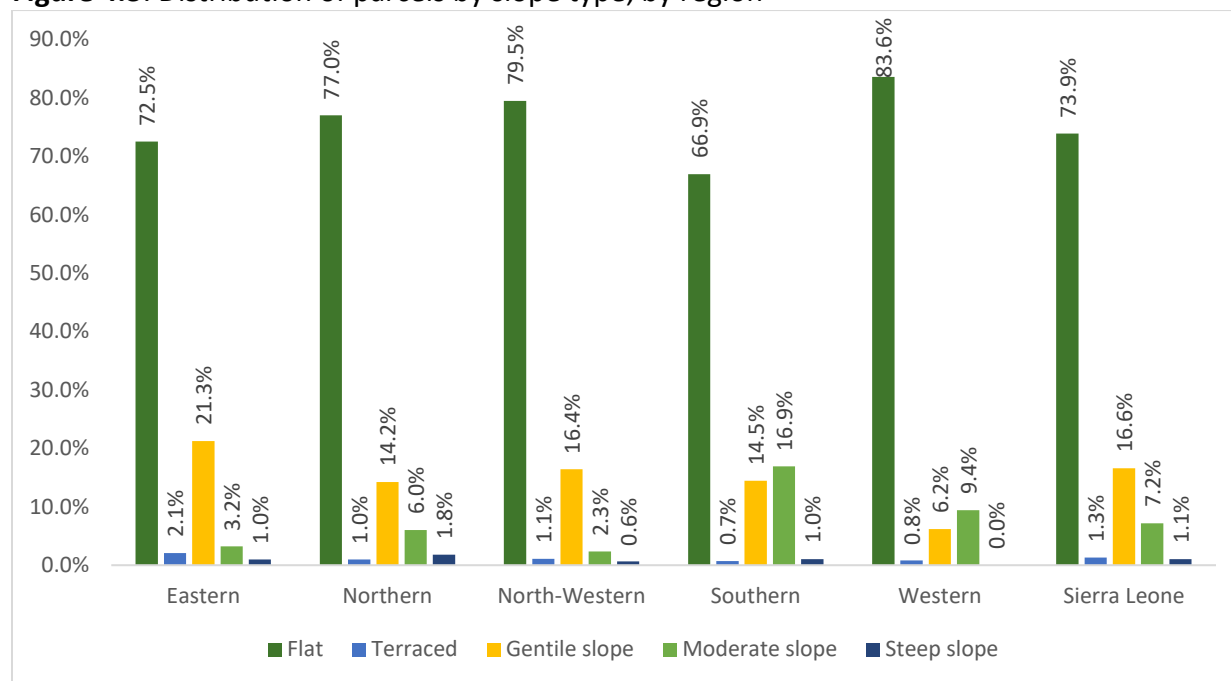
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Loamy is the predominant soil type in Sierra Leone. Figure 4.4 shows the percentage of parcels by predominant soil type. Most parcels are loamy accounting for 69.6%, mixed accounts for 24.8% while sandy and clay constitute 3.2% and 2.4% respectively.

Figure 4.4: Distribution of parcels by predominant soil type, by region
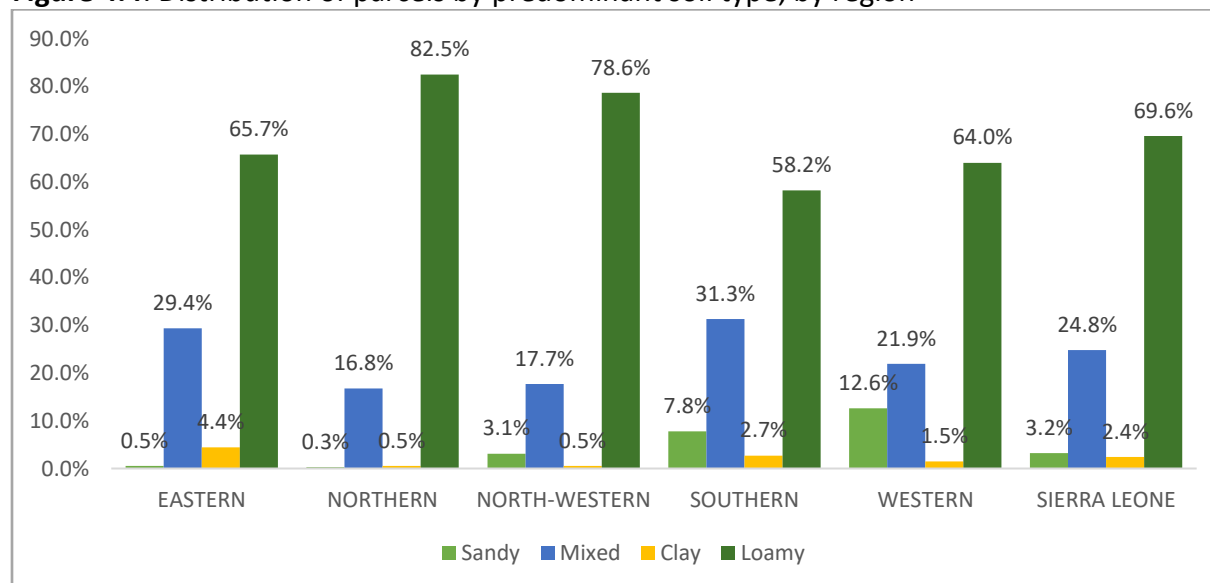
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

The survey results show that soil degradation is generally not a major threat. As seen in Figure 4.5, 85.9 % of parcels in Sierra Leone did not experience any form of soil degradation in the last 3 years, 7.7 % experienced salinization, 4.7% experienced soil erosion while soil fertility and water logging was reported on only 1.7% of the parcels.

Figure 4.5: Distribution of parcels by soil degradation threats experienced, by region
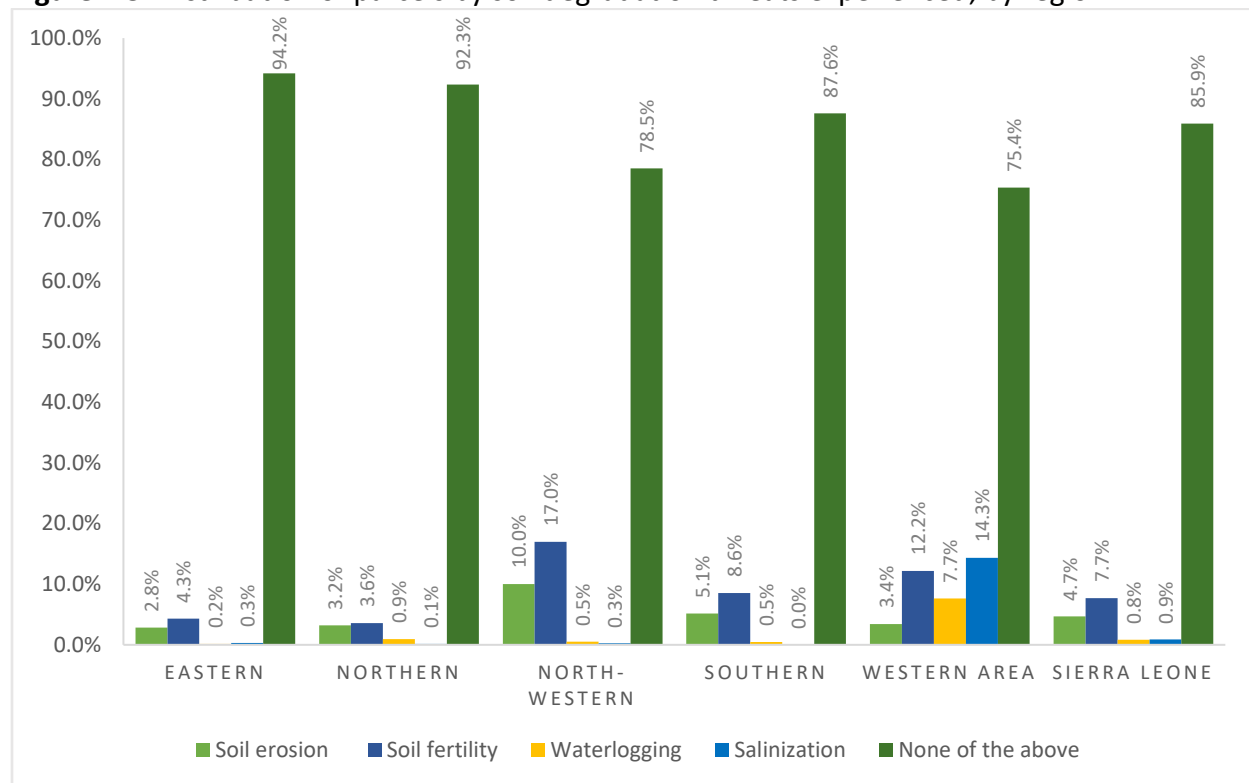
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Very low use of erosion control structures. According to the statistics in Table 4.1, nearly all parcels (97.4%) lacked erosion control structures. The remaining 2.6% parcels were equipped with measures such as terraces, bunds, gabions or sandbags, windbreaks or hedges, and vegetative strips.

Table 4.1: Distribution of parcels by erosion control structures in place, by region

Region	Number of parcels	No structures	Structures	Total
Eastern	592,657	97.8%	2.2%	100.0%
Northern	374,394	98.3%	1.7%	100.0%
North-western	302,805	97.8%	2.4%	100.2%
Southern	418,462	97.3%	2.8%	100.1%
Western area	86,639	89.5%	10.5%	100.0%
Sierra Leone	**1,774,957**	**97.4%**	**2.6%**	**100.0%**

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Section 4.2: Energy use

Most agricultural holdings in Sierra Leone rely on firewood for energy, with minimal electricity use and over a third lacking any energy source for agricultural activities. Energy is used for various activities along the value chain of production, including processing, powering tools and equipment, powering farm buildings, etc. The 2024 agricultural survey data show that electricity is the least used energy source for agricultural activities (0.3%), while firewood is the most common (57.7%). Charcoal is the second most used energy source, reported by 13.6% of agricultural holdings. The data also reveal that 34.3% of agricultural holdings in Sierra Leone have no access to any energy source for agricultural activities.

Figure 4.6: Percentage of holdings by energy sources used for agricultural activity in Sierra Leone
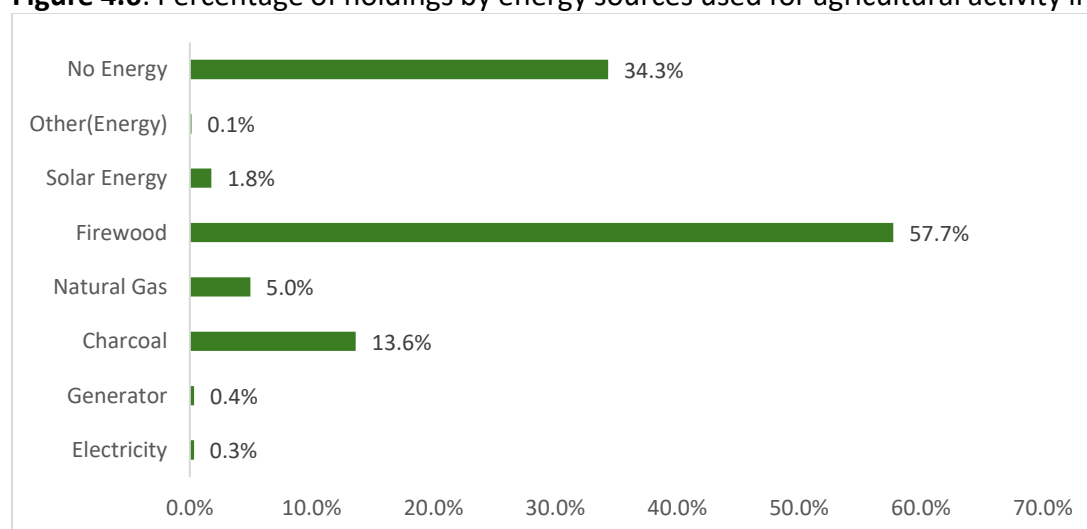
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Most agricultural holdings use renewable energy sources for agricultural activity. At national level, 73.5% of agricultural holdings reported using renewable energy, which includes electricity, solar and firewood. Electricity in Sierra Leone is sourced from thermal plants and hydropower. Non-renewable energy sources – generator, charcoal and natural gas – were used by 5.3% of agricultural holdings, while only 0.1% used a mix of both renewable and non-renewable energy sources. Regionally, renewable energy use was highest in the North-Western region (99.4%), followed by the Eastern region (71.6%). The Eastern region also recorded the highest share of holdings using non-renewable energy sources (17.4%), far exceeding other regions. The absence of any energy use for agricultural activities was most prevalent in the Western Area, where it affected 48.1% of holdings.

Figure 4.7: Percentage of holdings by energy source groups used for agricultural activities, by region
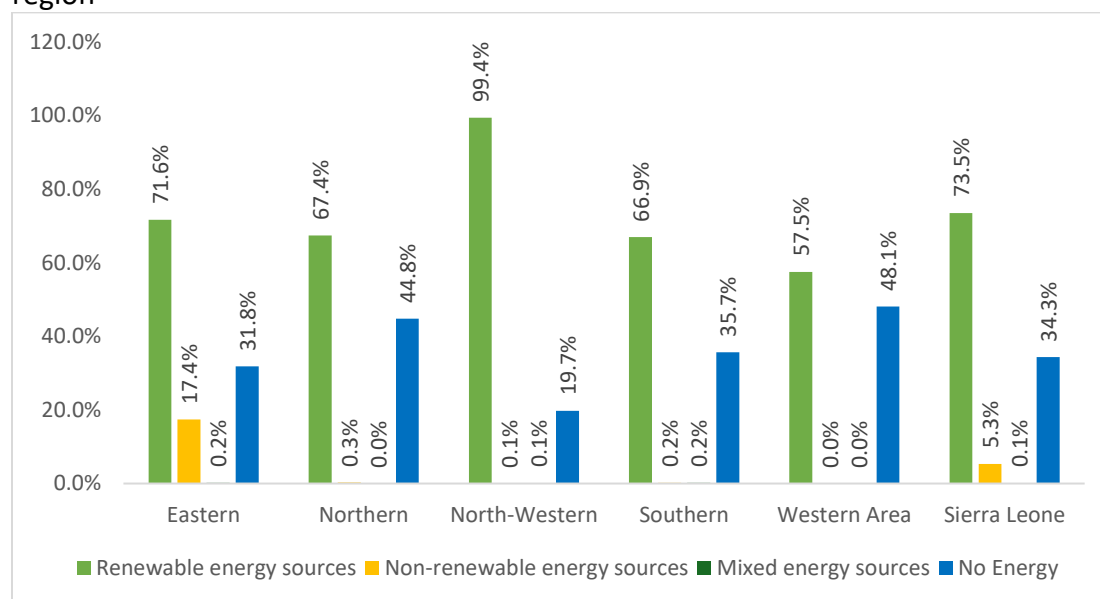
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Section 4.3: Greenhouse gases and environmental issues, adaptation to climate change

Irrigation and greenhouse structures are rarely present on parcels. Table 4.2 shows the percentage of parcels with irrigation infrastructure and green house or high shelter. The findings from the survey revealed that only 1.7% of parcels had greenhouse or high shelter while only 2.9% of the parcels had irrigation infrastructure.

Table 4.2: Percentage of parcels with irrigation structures and green house /high shelter, by region

Region	Parcels	Parcels with irrigation infrastructure	Parcels with greenhouse or high shelter
	Number	%	%
Eastern	592,657	1.2	0.4
Northern	374,394	1.4	0.5
North-Western	302,805	7.7	1.1
Southern	418,462	3.1	2.9
Western Area	86,639	2.3	12.6
Sierra Leone	1,774,957	2.9	1.7

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Eastern region reports the highest proportions of holdings with agricultural area in protected zones, contaminated sites, and participation in organic cooperatives. Figure 4.8 shows that in the Eastern region, 5.1% of agricultural areas are located within protected zones, 3.2% of holdings reported the presence of contaminated sites on their farms, and 1.6% reported involvement in organic cooperatives. The Northern region follows with 2.6% of agricultural areas in protected zones, 0.3% reporting contaminated sites, and 0.4% involved in organic cooperatives. In contrast, the Western Area reported 0.0% for all three indicators.

Figure 4.8: Percentage of agriculture area protected, contamination sites on farm and farms involved in org cooperation, by region
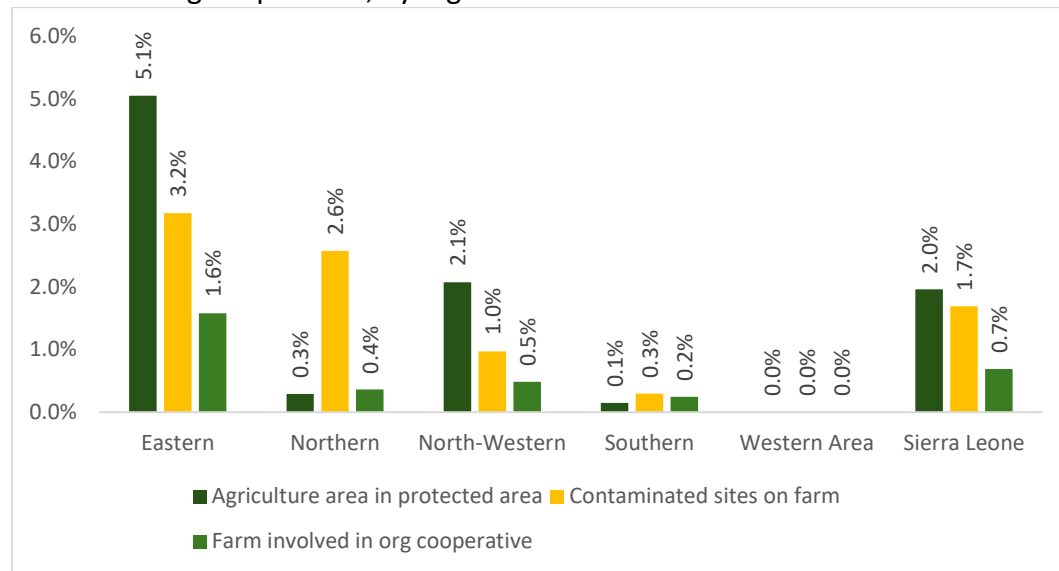
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Farmers across all five regions reported no major environmental concerns in the past 12 months. Table 4.3 reveals that whereas Eastern region reported occurrence of more floods and other environmental concerns than other regions, it is still at a relatively low level 1.1% and 1.9%, respectively. The Northern region had more occurrences of no water, soil pollution and extreme temperature than other regions but not at worrying levels, the occurrences are generally low at 0.9%, 1.1% and 0.8% respectively. The Western area generally reported no environmental concerns.

Table 4.3: Percentage of farms by main environmental concern in the past 12 months, by region

Region	Lack of water	Floods	Soil pollution	Extreme temperature	Other (specify)	None
Eastern	0.8%	1.1%	0.2%	0.6%	1.9%	95.5%
Northern	0.9%	0.8%	1.0%	0.8%	0.6%	96.6%
North-Western	0.1%	0.1%	0.9%	0.1%	0.1%	98.5%
Southern	0.2%	0.0%	0.2%	0.0%	0.5%	98.9%
Western Area	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Sierra Leone	**0.5%**	**0.5%**	**0.5%**	**0.3%**	**0.8%**	**97.4%**

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Crop pests and diseases, along with high food prices, are the most frequently reported shocks affecting farmers. Figure 4.9 shows that, at the national level, unusually high levels of crop pests and disease outbreaks accounted for the largest share of reported agricultural shocks (26.3%), followed by unusually high food prices (22.1%). Floods or heavy rains were reported by 17.6% of holdings, and drought or erratic rainfall by 14.6%. Other shocks included low food availability (9.4%), heavy winds (5.7%), unusually high levels of livestock diseases (2.6%), landslides (1.1%), and other shocks (0.6%). Although less common, these latter shocks still contribute to the overall vulnerability of farming communities.

Figure 4.9: Percentage of holdings affected by various shocks in Sierra Leone
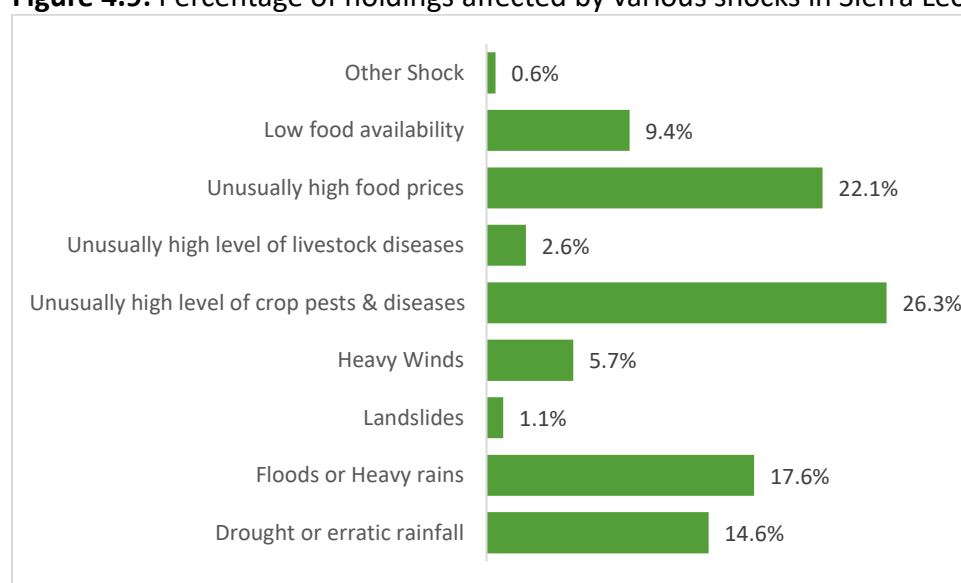
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Widespread agricultural shocks are reported across all regions, though the type and scale vary considerably. While the national results in Figure 4.9 highlight crop pests and diseases, high food prices, and floods as the most common shocks overall, Table 4.4 shows that the regions contributing most to these patterns differ by shock type. In the Eastern region, drought or erratic rainfall affected about 51.4 thousand holdings — the highest number for this shock — and the region also reported the most cases of heavy wind damage (30.5 thousand), unusually high food prices (73.3 thousand), and low food availability (41.2 thousand). The North-Western region recorded the largest number of holdings affected by floods or heavy rains (72.6 thousand) and reported the highest incidence of unusually high livestock diseases (12.2 thousand). The Southern

region stood out for unusually high crop pest and disease outbreaks, with 118.7 thousand holdings affected — by far the largest count for any single shock in the table. In contrast, the Western Area, being largely urban, reported very few shocks overall, with no cases of landslides or livestock diseases and only limited reports of other shocks.

Table 4.4: Number of agricultural holdings affected by various shocks, by region

Shock	Eastern	Northern	North-Western	Southern	Western Area	Sierra Leone
Drought or erratic rainfall	51,425	27,595	46,785	35,174	7,679	168,659
Floods or heavy rains	69,359	34,598	72,617	19,708	6,932	203,213
Landslides	9,207	1,575	1,417	0	0	12,200
Heavy winds	30,480	11,953	12,820	8,967	1,820	66,040
Unusually high level of crop pests & diseases	58,817	56,943	60,441	118,747	7,616	98,607
Unusually high level of livestock diseases	7,843	4,303	12,274	5,040	0	29,459
Unusually high food prices	73,335	63,858	67,931	45,255	3,641	254,018
Low food availability	41,186	13,451	25,629	22,733	4,988	107,986
Other Shock	2,629	2,559	826	1,408	0	7,423

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Crop and livestock diseases are most often rated as having a strong impact, while floods rank highest for worst-ever experiences. Figure 4.10 shows that 5% of agricultural holdings reported floods or heavy rains as the worst shock they had ever experienced — the highest share for any shock in this category. Strong impacts were most frequently reported for unusually high levels of crop pests and diseases (34.2%) and livestock diseases (32.9%), followed by drought or erratic rainfall (24.8%) and floods or heavy rains (24.5%). Moderate impacts were most often associated with heavy winds (18.4%), while slight impacts were most common for landslides, with 98.7% of affected holdings reporting them as such. These results highlight that the frequency of a shock does not necessarily correspond to its perceived severity.

Figure 4.10: Percentage of impact of shocks on agricultural holdings in Sierra Leone

Shock	Slight Impact	Moderate Impact	Strong Impact	Worst ever happened
Other Shock	65.4%	14.1%	18.4%	2.1%
Low food availability	75.1%	6.8%	15.2%	2.9%
Unusually high food prices	78.8%	5.6%	13.7%	1.9%
Unusually high level of livestock diseases	55.9%	11.2%	32.9%	0.0%
Unusually high level of crop pests & diseases	53.2%	10.9%	34.2%	1.7%
Heavy Winds	66.4%	18.4%	14.3%	0.9%
Landslides	98.7%	1.3%	0.0	0.0%
Floods or Heavy rains	58.1%	12.4%	24.5%	5.0%
Drought or erratic rainfall	61.3%	12.3%	24.8%	1.6%
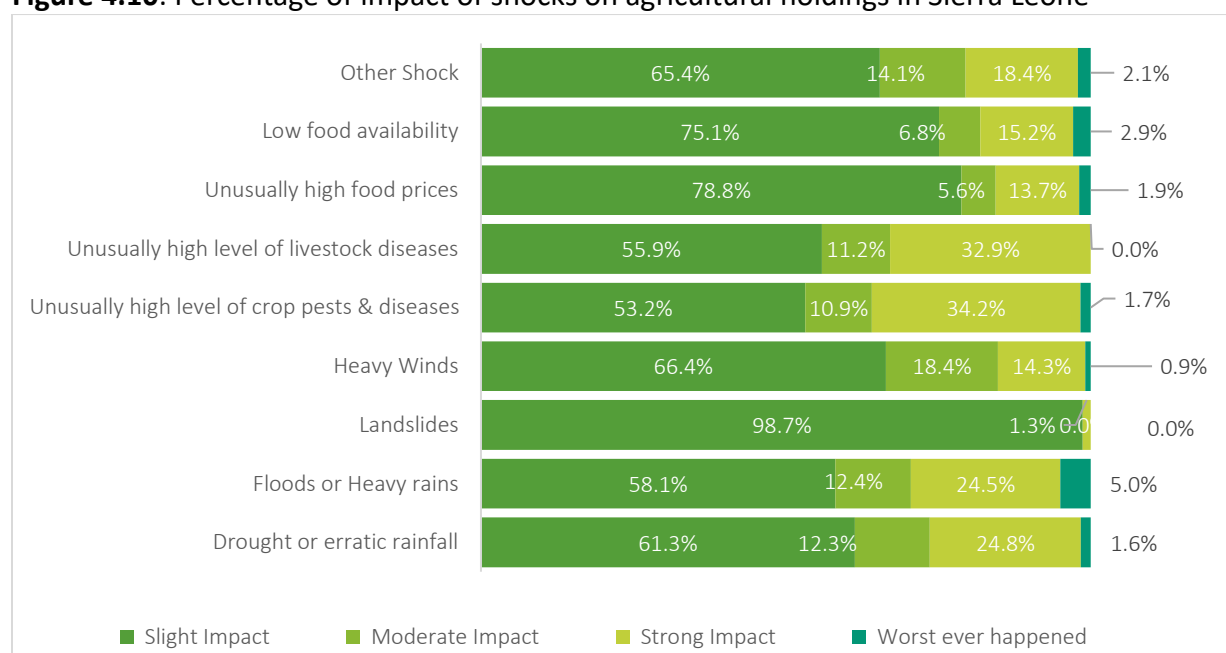
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Crop losses are the most common consequence of agricultural shocks, far exceeding other types of damage. As shown in Table 4.5, 855.4 thousand holdings reported crop losses, making this the most frequently cited impact across all shock types. Livestock losses were the second most common, affecting 25.9 thousand holdings, followed by aquaculture losses (17.5 thousand). Other reported consequences included loss of land (15.7 thousand holdings), loss or damage to houses (9.8 thousand), loss or damage to farm buildings (7.9 thousand), and other physical impacts (15.3 thousand). While crop losses dominate in terms of frequency, these other forms of damage still affect substantial numbers of agricultural holdings.

Table 4.5: Number of holdings by agricultural shocks and their consequences of shocks in Sierra Leone

Shock	Loss of land	Crop losses	Livestock losses	Aquaculture loss	Loss/damage house	Loss/damage of farm building facilities	Other physical impact
Drought or erratic rainfall	3,786	159,878	1,151	1,695	1,200	0	950
Floods or Heavy rains	2,561	186,330	3,653	2,260	3,776	4,176	458
Landslides	734	11,072	393	0	0	0	0
Heavy Winds	1,685	58,626	167	1,413	504	3,263	383
Unusually high level of crop pests & diseases	1,954	91,835	3,416	65	554	783	0
Unusually high level of livestock diseases	0	16,084	12,822	553	0	0	0
Unusually high food prices	3,119	231,610	2,156	9,752	301	1,341	5,738
Low food availability	1,903	96,144	1,512	1,680	356	0	6,391
Other Shock	0	3,848	680	94	1,188	257	1,356
All	15,742	855,427	25,950	17,512	7,879	9,820	15,276

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Heavy winds lead in total losses, while livestock and crop diseases cause the most significant losses. While Table 4.5 summarizes the type of losses caused by each shock, Figure 4.11 examines the severity of these losses as reported by affected holdings. Total losses or damages — the most severe category — were relatively rare overall, yet heavy winds had the highest share in this category (15.3% of affected holdings). In the "significant losses/damages" category, unusually high levels of livestock diseases ranked first (67.6%), closely followed by unusually high levels of crop pests and diseases (65.6%). Most shocks were reported to cause only small losses or damages, with landslides showing the highest proportion in this category (80.5%). These results highlight that while total losses are uncommon, many shocks still cause substantial partial damage, posing an ongoing threat to farms and livelihoods.

Figure 4.11: Severity of shocks on agricultural holdings in Sierra Leone

Horizontal stacked bar chart showing severity of shocks:

Shock	Small losses/damages	Significant losses/damages	Almost Total losses/damages
Other Shock	45.6	46.0	8.3
Low food availability	49.2	43.5	7.3
Unusually high food prices	54.9	41.2	3.9
Unusually high level of livestock diseases	28.2	67.6	4.2
Unusually high level of crop pests & diseases	30.8	65.6	3.6
Heavy Winds	51.1	33.6	15.3
Landslides	80.5	6.8	12.7
Floods or Heavy rains	47.3	43.9	8.8
Drought or erratic rainfall	52.7	43.8	3.5

Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Across different shocks, a high percentage of farmers report having no access to credit at all. As shown in Figure 4.12, access to formal credit remains limited, with only a small percentage of farmers able to obtain institutional financial support during times of crisis. The highest formal credit access was reported among those affected by unusually high levels of livestock diseases, 27.1%. While informal credit remains inadequate. The highest access to informal credit was recorded among those affected by other shocks, 14.8%. Across all shock categories, a large majority of farmers reported having no access to credit, formal or informal. The highest levels of exclusion were observed among those affected by landslides 81.6%, highlighting a serious gap in financial support where it is most needed.

Figure 4.12: Percentage of agricultural holdings by forms of access to credit, by shocks in Sierra Leone

Shock	Access to Formal credit	Access to informal credit	No access to formal/informal credit
Other Shock	20.1%	14.8%	65.1%
Low food availability	11.2%	9.2%	79.6%
Unusually high food prices	14.5%	8.7%	76.8%
Unusually high level of livestock diseases	27.1%	12.8%	60.1%
Unusually high level of crop pests & diseases	15.3%	6.9%	77.8%
Heavy Winds	21.1%	8.7%	70.2%
Landslides	11.6%	6.8%	81.6%
Floods or Heavy rains	13.2%	6.7%	80.1%
Drought or erratic rainfall	13.3%	9.4%	77.3%
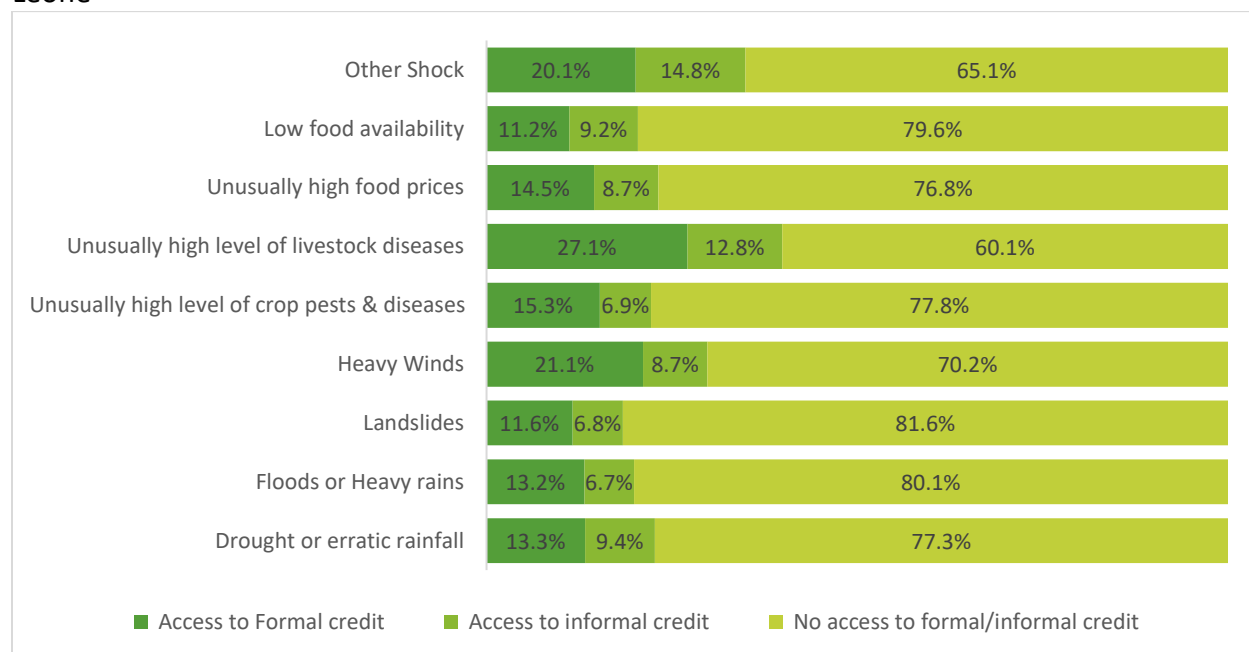
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

Majority of farmers still without adaptation practices amid growing climate threats. Figure 4.13 shows that 45.7% of farmers are not using any climate adaptation practices, which is the highest percentage. This means almost half of farmers are still at risk from climate-related shocks. Among those who report the use of climate adaptation practices, multi-cropping is the most commonly used (34.1%), as it helps farmers manage risks better. The least used method is new technology, with only 1.3% of farmers using it. This shows that many farmers may not have access to or knowledge about modern farming tools.

Figure 4.13: Percentage of holdings by type of adaptation practices used in Sierra Leone

Adaptation practice	Percentage
No adaptation practice put in place	45.7%
Use of new practices or technologies	1.3%
Use of seeds adapted to local conditions and stresses	3.6%
Use of traditional crop/animal varieties	4.6%
Use of traditional heritage practices and knowledge	12.0%
Shifting cultivation	15.8%
Multicropping	34.1%
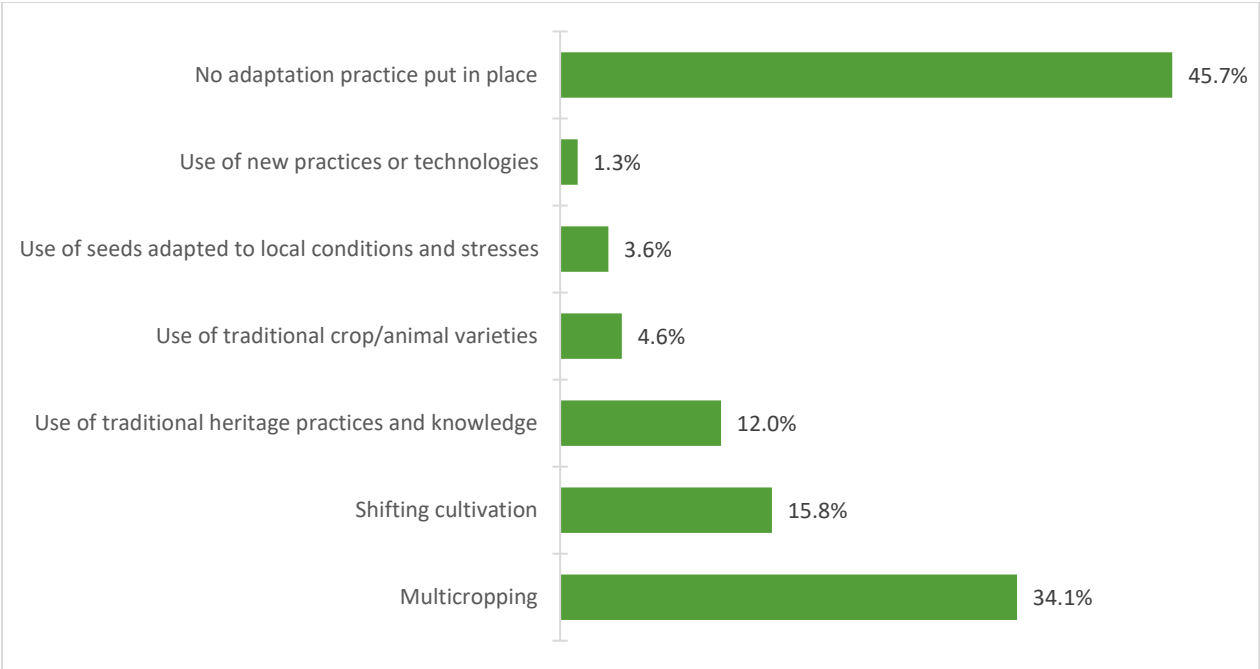
Source: Stats SL/MAFS, Sierra Leone Annual Agricultural Survey 2024

CONCLUSION AND RECOMMENDATIONS

As a culmination of the 2024 Annual Agricultural Survey in Sierra Leone, the exercise was structured around two main modules: the Core Module and the PME Module, each designed to capture distinct yet complementary aspects of the agricultural landscape. The PME Module collected data on a broad range of topics related to agricultural practices and their intersection with the environment in which the agriculture sector operates. This data was analyzed together with data collected in the core module. Topics covered in this module include the use of natural resources, production methods related to crop and livestock activities, organic farming, agroforestry, information services, infrastructure and communal resources, greenhouse gases (GHGs), climate change and waste management. This data is necessary to assess the impact of agricultural activities on the environmental, social and economic sustainability of farming.

Among the key findings of the survey were:

- Unusually high level of crop pest and diseases and unusually high food prices were the leading shocks facing farmers.
- Majority of farmers still without adaptation practices amid growing climate threats.
- There is still a very low level of irrigation practices in Sierra Leone
- Planting of one variety of seed is predominant in agricultural holdings reporting crop cultivation.
- National average agricultural area is 1.7 hectares, but only 1.2 hectares are being planted. This means 30% of available land is left uncultivated, a concern for a country striving to boost food production and reduce imports.

RECOMMENDATIONS

Interventions targeting crop pests and diseases need to be strengthened as part of efforts to reduce the occurrence of shocks. This could be harnessed by employing the advancing IPM approach, an ecological system approach that encourages the user or producer to consider and use the full range of best pest control options available given economic, environment and social consideration.

Sensitize and empower farmers to use adaptation strategies to cope up with any shocks as and when they occur. More practices and structures to help farmers cope better with shocks and mitigate their impact should be integrated into agricultural production activities.

Promote the planting of more than one variety of seeds. The diversity of crops and varieties is a key element in enhancing people's livelihood strategies and is crucial to their ability to adapt and survive in unfavorable environmental conditions.

Utilize the available uncultivated land to increase production by providing farmers with incentives such as fertilizers. It was reported that most holdings did not use any type of fertilizer. Relatedly there should be more household member participation in agricultural activities to increase production, most labor is provided by hired workers which could be a drawback because of additional expenses.

Agricultural programs should aim to encourage more rice varietal diversification in regions with heavy reliance on a single variety (e.g., Southern region). Research and support the development of local varieties, especially in the Eastern and Northern regions. Supply chains for seeds and inputs should align with the distinct rice varietal preferences in each region. The high proportion of other (rice) points to a need for improved identification, classification, and promotion of local rice types.

This report marks another stride in Sierra Leone's commitment to agricultural statistical development and reaffirms the country's resolve to build a resilient, data-driven agri-food system.

Agricultural area: area already used for farming, or that could be brought back into cultivation using the resources normally available on an agricultural holding and it includes arable land, permanent grassland, permanent crops, kitchen gardens, unutilized agricultural area, special holding areas.

Agricultural holding (or 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.

Agricultural land: all cultivated land (under temporary and permanent crops), temporary fallow land, kitchen gardens, grassland, meadows and pastures.

Aquaculture: farming of aquatic organisms such as fish, crustaceans, mollusks and plants, as opposed to other forms of aquatic exploitation such as capture fisheries.

Certified seeds: Seeds that can be certified as meeting certain national standards as regards their physical and genetic purity.

Climate Smart Agriculture: An approach to developing the technical, policy and investment conditions to achieve sustainable agricultural development for food security under climate change.

Computer-assisted Personal Interview (CAPI): An interviewing method whereby the enumerator records responses using an electronic questionnaire on mobile devices such as personal digital assistants, tablets, laptops or smartphones.

Crop rotation: Technique of growing alternating species or families of crops in a specific field in a planned pattern or sequence.

Greenhouse: A structure often designed with rigid plastic walls and roofs to regulate the temperature and humidity of the environment inside. When the inside of a greenhouse is exposed to sunlight, the temperature increases, providing a sheltered environment for plants to grow even in cold weather.

Inorganic fertilizers: Chemically produced substances designed to provide essential nutrients to plants, enhancing crop production

Integrated Pest Management: A dynamic process that makes use of an ecological systems approach and encourages the user or producer to consider and use the full range of best pest control options available given economic, environment and social considerations.

Irrigation: Any process through which water is moved from a water source to apply to an agricultural crop.

Organic fertilizers: Natural substances derived from plants, animals, or waste materials that enhance soil nutrients for plant growth.

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.

Pesticides: Chemical or biological agents used to kill deter or otherwise discourage pests.

Plot: part or whole of a field (a piece of land in a parcel separated from the rest of the parcel by easily recognizable demarcation lines, such as paths, cadastral boundaries, fences, waterways or hedges) on which a specific crop or crop mixture is cultivated.

Renewable energy: energy derived from natural sources that are replenished at a higher rate than they are consumed. Examples include hydropower generated electricity, solar energy.

Uncertified seeds: Seeds that are not certified according to the national standards and are often provided through the informal sector.

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Sierra Leone National Agricultural Sample Survey 2024 Sample Design

This part of the document presents an overview of sample design of survey operations conducted in the framework of the Sierra Leone National Agriculture Sample Survey in the context of the 50x2030 Initiative, mainly applicable to sample surveys of agricultural holdings in the household sector.

➔ **Estimation domains**

Estimation domains are administrative areas from which reliable estimates are expected. The district was considered as estimation domain in the design of the National Agriculture Sample Survey. All districts were considered except the Western Urban because of very low level of agricultural activities there.

➔ **Population units**

Population units for this operation are households with members practicing own account agricultural activities ("farming households").

➔ **Sampling method and units**

The sampling method for farming households is a stratified two stage sampling. The primary sampling unit (PSU) is the enumeration area (EA) as designed for the 2015 population and housing census (PHC) and the secondary sampling unit (SSU) is the farming household.

➔ **Sampling frame**

The sampling frame the PSUs consists in the full list of EAs developed by Statistics Sierra Leone in the framework of the 2015 population and housing census (PHC). The frame was built using the agricultural module of the 2015 PHC with at various information EA level including the number of households practicing farming and total land size collected by declaration during the PHC. The frame for the SSUs is the full list of farming households in the sampled EAs, developed from a listing operation conducted in September 2023.

➔ **Stratification**

The sampling frame was stratified by urban/rural criteria in each district (estimation domain/analytical stratum). An implicit stratification was also performed through sorting the frame of EAs by geography, population and land size before the systematic selection.

➔ **Sample size and allocation**

Sample sizes were calculated for each district considering requirements of reliable estimates of agricultural area.

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

$$m_d = \tilde{D}_{eff} \times \frac{1}{g} \times \frac{CV_{yU_d}^2}{cv^{*2}}$$

Where:

- $CV_{yU_d}^2$ is the population CV of the households' agricultural land (y) in the district d computed from 2017 GCA data.

- cv^{*2} is maximum relative error accepted for the survey (5%-20%, depending on the contribution of domain to total agricultural population and area).

- $\tilde{D}_{eff}$ is an estimate of the design effect fixed at 2.5.

- g is the expected response rate (90% considered).

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

$$n_d = \left[\frac{m_d}{10}\right] + 1$$

In each district, the sample of EAs was allocated in strata (urban/rural) proportionally to the numbers of farming households computed in the frame.

Province	District	Rural	Urban	Total

Eastern	Kailahun	56	19	75
	Kenema	55	10	65
	Kono	62	3	65
North Western	Kambia	22	11	33
	Karene	6	10	16
	Port Loko	35	12	47
Northern	Bombali	16	2	18
	Falaba	11	4	15
	Koinadugu	10		10
	Tonkolil	38	13	51
Southern	Bo	43	2	45
	Bonthe	12		12
	Moyamba	28	2	30
	Pujehun	28	2	30
Western Area	Western Rural	2	6	8
Total		424	96	520

➜ Sample selection

The stratified sample of EAs was selected with a systematic sampling probability proportional to size with the number of farming households at EA level as measure of size. In each of sampled EAs, a sample of 10 farming households (when available) were selected with a systematic random sampling.

➜ Estimation procedures and sampling error

Estimators formulas are presented here in line with the sample design (stratified two stage sampling with enumeration areas (EAs) as PSUs and farming households as SSUs).

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 sample 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*

Estimators

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

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

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

The design weights will be adjusted and calibrated as need be.

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 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:

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

Coefficient of variation of the total

$$\overline{CV}(\hat{Y}) = \frac{\sqrt{\tilde{V}(\hat{Y})}}{\hat{Y}}$$

Coefficient of variation of the mean

$$\overline{CV}(\hat{\bar{Y}}) = \frac{\sqrt{\tilde{V}(\hat{\bar{Y}})}}{\hat{\bar{Y}}}$$