



Coastal Agriculture Survey of Suriname (CASS)

Ministerie van Landbouw,
Veeteelt en Visserij (LVV)

Main Report of Findings



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0.1 Foreword

The Coastal Agriculture Survey of Suriname (CASS) was undertaken to strengthen the availability of reliable, timely, and comprehensive information on agriculture within Suriname's coastal area. Agriculture remains an important contributor to the country's economy, livelihoods, food security, and rural development. Given the concentration of agricultural activities and farming communities along the coastal area, a clear understanding of the characteristics, production systems, resources, and challenges of coastal agriculture is essential for effective planning and informed decision-making.

The coastal area of Suriname is characterized by diverse agricultural activities, varying farm structures, and communities whose livelihoods are closely connected to the productive use of land and natural resources. At the same time, agricultural production in this area is influenced by a range of environmental, economic, infrastructural, and social factors. These include land and water management, drainage and irrigation, access to inputs and markets, availability of labour, production costs, climate variability, and other factors that affect the sustainability and productivity of agricultural activities.

The motivation for conducting the CASS was therefore to address the need for updated and detailed information that can support evidence-based agricultural policies, programmes, and investments. The survey provides an opportunity to better understand the current state of coastal agriculture and to identify the opportunities and constraints faced by farmers and other agricultural stakeholders. The findings are intended to serve as an important reference for government institutions, development partners, researchers, private-sector actors, and other stakeholders involved in agricultural development and rural planning.

The CASS Main Report of Findings presents the results of the survey and provides an overview of key characteristics and trends in coastal agriculture. Beyond presenting statistical information, the report seeks to contribute to a better understanding of the realities of agricultural production and the circumstances under which farmers operate. The evidence generated through the survey can help strengthen the formulation, implementation, monitoring, and evaluation of policies and programmes aimed at improving agricultural productivity, resilience, food security, and the livelihoods of farming communities.

The completion of this survey represents an important step in strengthening Suriname's agricultural information system. It also demonstrates the value of collaboration among national institutions, development partners, agricultural stakeholders, and the farming community in generating information that can guide future interventions and investments.

We trust that the findings presented in this report will provide a sound evidence base for policy dialogue, strategic planning, and further research, and will contribute to the continued development of a productive, resilient, and sustainable agricultural sector in Suriname.

0.2 Acknowledgment

The successful completion of the Coastal Agriculture Survey of Suriname (CASS) was made possible through the commitment, collaboration, and valuable contributions of numerous individuals and institutions. The Ministry of Agriculture, Animal Husbandry and Fisheries (LVV) expresses its sincere appreciation to all those who contributed to the planning, implementation, data collection, processing, analysis, and reporting of the survey.

Special appreciation is extended to the data collectors and field teams, whose dedication, professionalism, and perseverance were essential to gathering accurate and comprehensive information from agricultural holdings and farming communities across the coastal area. Their commitment, often under challenging field conditions, made a significant contribution to the quality and completeness of the survey results.

The Ministry further extends its appreciation to the officials and technical staff of the Ministry of Agriculture, Animal Husbandry and Fisheries, whose expertise, coordination, and continuous support contributed to the successful execution of the CASS. Their involvement throughout the various stages of the survey ensured that the exercise remained aligned with national agricultural information needs and priorities.

Our sincere gratitude is also extended to the Inter-American Development Bank (IDB) for its support and collaboration in the context of the Sustainable Agricultural Productivity Program, and for recognizing the importance of strengthening agricultural data and information systems in Suriname.

We also acknowledge with appreciation the Food and Agriculture Organization of the United Nations (FAO) and its collaborators for their technical guidance, expertise, and support throughout the survey process. Their contribution to strengthening the methodological and analytical aspects of the survey has been instrumental in enhancing the value and usefulness of the findings.

Finally, the Ministry expresses its gratitude to all farmers, agricultural producers, households, institutions, and other respondents who generously provided their time and information. Their participation formed the foundation of this survey, and the information provided will contribute to a better understanding of coastal agriculture and support evidence-based planning and policymaking in Suriname.

The Ministry of Agriculture, Animal Husbandry and Fisheries sincerely thanks everyone who contributed to the success of the Coastal Agriculture Survey of Suriname. The collective efforts and collaboration of all partners have resulted in an important body of information that will support the continued development of a productive, resilient, and sustainable agricultural sector in Suriname.

Executive Summary

The **Coastal Agriculture Survey of Suriname (CASS)** provides an important evidence-based update on the state of agriculture in Suriname's coastal zone, bridging the data gap between decennial census rounds. Encompassing an estimated **8,275 active agricultural holdings** across the coastal districts, the survey reveals a dual-structured farming landscape defined by commercial production alongside smallholder and peri-urban subsistence activities.

1. Structural Distribution and Land Use

- **Geographic Hubs:** **Wanica** anchors the sector by holding the largest number of agricultural operations (2,536 holdings), while **Nickerie** dominates the total physical footprint and agricultural output volume due to extensive rice cultivation.
- **Dual Farm Scale:** The sector exhibits a bimodal distribution. Micro-scale holdings under 0.1 hectares represent 39.1% of all farms but command less than 1.5% of total land area, whereas large commercial holdings above 20 hectares control approximately 50.2% of the total national harvested area (32,175 hectares).
- **Infrastructure:** Water control remains essential, with 69.6% of agricultural land equipped for irrigation and 62.5% featuring functional soil drainage, whereas certified organic farming remains virtually non-existent.

2. Crop Production and Commercialization

- **The Dominance of Rice:** Rice accounts for 90.4% of total recorded production weight (141.8 million kg), with Nickerie driving 97.5% of national rice volume.
- **Non-Rice Diversification:** Outside of rice, production is regionally specialized. Saramacca leads in fresh vegetables and bananas/plantains, while Commewijne and Wanica anchor intensive vegetable output.
- **Economic Value:** Nationally, 92.5% of harvested volume is destined for commercial markets, generating 4,885,670,583 **SRD** in total crop sales, with temporary crops capturing 91.6% of overall sales value.

3. Livestock and Poultry Intensification

- **Livestock Inventory:** Livestock rearing is practiced by 2,931 **holdings**, heavily dominated by poultry (800,804 birds) and cattle (18,047 head).
- **Industrial Layer and Broiler Sector:** Commercial egg production reaches over 60.4 **million eggs** per three-month reference period, with production heavily concentrated in Wanica and Paramaribo, which generate the vast majority of commercial poultry revenue.
- **Dairy and Meat:** Dairy production is anchored by a specialized smallholder group in Wanica and Nickerie, producing 18,905 liters over the reference window, while on-farm animal slaughter remains minimal as processing is externalized.

4. Economy, Shocks, and Labor

- **Income Dependence:** For nearly three-quarters of coastal households (71.5%), farming is a secondary activity, with agriculture accounting for under 50% of total household income. Only 8.3% of holdings rely exclusively (90–100%) on farming.
- **Climatic Vulnerability:** Environmental volatility represents the primary threat to farm output, with **drought** (1,909 holdings) and **floods** (934 holdings) causing widespread disruption. The majority of affected holdings absorb these shocks without institutional safety nets, relying instead on informal coping strategies or asset liquidation.
- **Labor Dynamics:** Family labor remains overwhelmingly unpaid (80.5%), while external labor is utilized by 28.0% of holdings, predominantly casual wage workers deployed to meet seasonal crop cultivation demands.

5. Policy Implications

The findings underscore that while commercial enterprises in Nickerie require robust support for mechanized inputs, water management, and fuel costs, smallholders in peri-urban districts face distinct challenges re-



garding climate resilience, generational renewal, and financial inclusion. Targeted policy interventions must balance large-scale export and cereal production with smallholder livelihood diversification and risk mitigation.

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1 Introduction

The Coastal Agricultural Survey of Suriname (CASS) was established to address a fundamental challenge in national statistics: while a decennial census provides a comprehensive picture of the agricultural sector, it is too resource-intensive to be conducted annually. Consistent with FAO's World Programme for the Census of Agriculture (2015), countries require a regular, preferably annual, set of core agricultural data to support evidence-based policy making and monitor sector performance. Following the recommendations of the United Nations' Generic Statistical Business Process Model (2025), the CASS provides a practical solution by collecting detailed production and structural information from a carefully selected sample of farm holdings in the coastal zone, Suriname's most active agricultural region.

This report presents the main findings from the inaugural CASS, offering a comprehensive, evidence-based snapshot of the coastal agricultural sector. The results presented herein fill the critical information gap between census rounds, providing timely insights into farm demographics, land use, production systems, and the economic realities of farming in Suriname today.

All estimates in this report are derived from a robust statistical sampling methodology. As a sample survey, the CASS applies a stratified weighting process that incorporates adjustments for the sampling design, non-response, and calibration to known population totals from the 6th Agricultural Census. This approach produces estimates that are comparable to tabulations generated from the census's complete enumeration. Because the selected sample is representative of the coastal districts covered in the 6th Agricultural Census, the survey findings are likewise representative of the entire coastal farming population.

The report is structured to guide the reader through the key thematic areas of the survey. It begins with an analysis of survey coverage and the demographic profile of farm holders, followed by an in-depth look at the structural characteristics of farms, including land use and crop production. Subsequent sections delve into livestock, the farm economy, and the use of labor and other inputs, concluding with a summary of the most critical findings and their implications for policy.

2 Data Collection

The data collection activities of the Coastal Agriculture Survey of Suriname (CASS) combined a coordinated field operation, a digital questionnaire, and a structured processing workflow to ensure high-quality results. Field teams conducted interviews across all coastal districts using a fully CAPI-based instrument designed to capture the diverse realities of agricultural households with precision and consistency. Once interviews were completed, the data moved through a standardized processing flow, covering verification, cleaning, coding, and weighting, to transform raw field observations into reliable, analytically ready survey datasets.

2.1 Field operation

The field enumeration period ran from April 7 to 16, 2026, during which the survey team mobilized 36 enumerators to cover the sample frame of approximately 800 agricultural holdings. The Census Working Group (CWG) supervised all field operations and monitored data quality both during and immediately after the enumeration period. Each enumerator was assigned between 7 and 30 holdings, depending on the geographic spread and accessibility of the selected units. In practice, locating and correctly identifying the holdings listed in the sample frame proved challenging, particularly in areas where boundaries were unclear or where holdings lacked visible markers. These operational difficulties required additional coordination between enumerators, supervisors, and district focal points to ensure full coverage of the selected sample.

2.2 Survey Instrument

The CASS employs a **Computer-Assisted Personal Interviewing (CAPI)** approach using the **Survey Solutions** platform developed by the World Bank. CAPI was selected because it is the most suitable mode for administering a complex, multi-module agricultural questionnaire such as the CASS instrument. Alternatives such as PAPI (paper forms), CATI (telephone interviews), or self-administered questionnaires were not appropriate given the level of detail required, the number of skip patterns, and the need for real-time validation during interviews.

A preliminary paper draft of the questionnaire was prepared by the survey statistician, after which an external consultant specializing in questionnaire design, working closely with the LVV technical team and the statistician (2026), led the development, refinement, and full implementation of the CAPI version. This collaborative process ensured that the digital instrument incorporated all necessary routing logic, consistency checks, and automated controls to support high-quality data collection in the field. The structure of the questionnaire is presented below.

Table 2.1: CASS Questionnaire Structure (Survey Solutions)

Section	Title	Sub-sections	Rosters	Questions	Variables
Cover	Survey Identification & Status	0	0	8	2
S1	Status of Interview	2	0	20	8
S2	Demographic Information	0	0	24	2
S3-A	Land Uses	0	2	20	23
S3-B	Crop Production	2	4	41	22
S4	Livestock Production	2	4	97	16
S5.1	Economy and Expenses	0	2	25	3
S5.2	Extreme Events	0	1	6	1
S6	Labour Used by the Holding	3	2	21	—
S7	Other Income and Expenses	8	1	45	1
Review	Field Review	0	0	8	—
TOTAL	—	17	16	315	78
Coastal Survey of Agriculture					

Key CAPI design features:

- **204 enabling conditions** (automated skip logic): Questions only displayed when prior responses meet specified conditions
- **143 validation conditions** with error messages: Built-in range and consistency rules preventing invalid entries at point of collection
- **16 rosters**: Dynamic repeating groups for Parcels, Crops, Livestock species, Labour types, and Income sources
- GPS coordinates recorded for all farm parcels
- Interview status tracking across multiple visits managed in S1

2.3 Data Processing Workflow

The end-to-end CASS data processing pipeline proceeds through the following sequential steps:

Table 2.2: CASS End-to-End Data Processing Pipeline

Step	Phase	Description
1	Receipt & Registration	CAPI interviews synchronised from enumerator tablets to Survey Solutions HQ server; submission status reviewed by Data Supervisor
2	Primary Validation	204 enabling conditions and 143 built-in validation rules checked; server-side range checks applied post-synchronisation
3	Coding	Crop species codes, district/resort codes, land use classification codes verified against CASS coding manuals
4	Consistency Editing	Automated edit rules applied; flagged records reviewed manually by Data Processing Supervisor
5	Imputation	Missing values imputed by variable using hot-deck, mean, or ratio imputation methods
6	Weighting & Expansion	Design weights $\times$ non-response adjustment $\times$ Deville-Särndal calibration applied
7	Tabulation	R tabulation scripts executed across all 7 thematic sections of the CASS Tabulation Plan
8	Output QC	Cross-table coherence checks; yield plausibility; disclosure control; sign-off
9	Dissemination	Final outputs published: statistical tables, analytical report, microdata file, metadata
Coastal Survey of Agriculture		

With the processing workflow established, we provide details on the CASS sample design in the next section.

3 Sample Design Methodology

To produce reliable, cost-effective, and statistically defensible estimates, the CASS employs a robust sample design methodology. A stratified probability design was chosen to ensure that the final sample is an efficient and accurate representation of the entire coastal agricultural population, accounting for its geographic and structural diversity. This section summarizes the key components of this design, starting with the frame used to select the sample, followed by the stratification scheme that partitions the frame into homogeneous groups. Then we will discuss the crucial role of the self-representative (certainty) strata in capturing large and unique holdings. Finally, the methodology describing the derivation of the weights will be detailed. A more detailed account of the sample design is provided in Jocelyn (2026).

3.1 Sampling Frame

The sampling frame for the Coastal Agricultural Survey of Suriname (CASS) is constructed from the list of agricultural holdings identified in the 6th Agricultural Census. Only holdings located in the coastal region are included. The frame therefore excludes:

- All holdings in the interior districts, and
- The interior portion of Marowijne, which is administratively and agro-ecologically distinct from the coastal zone.

For Marowijne, the census frame is explicitly divided into two components:

1. **Coastal Marowijne**, which is included in CASS, and
2. **Interior Marowijne**, which is excluded from the survey.

A special case applies to Paramaribo. During the census, Paramaribo was not fully enumerated; instead, the census selected a 10% sample of holdings within each ressort to identify agricultural activity. This census sample constitutes the Phase-1 frame for CASS. The survey then draws a second-phase sub-sample from this list of potentially active holdings for detailed data collection.

Across all other coastal districts, the frame consists of the complete census listing of active agricultural holdings, ensuring full coverage and consistency with national agricultural statistics.

3.1.1 Eligible Holding

CASS applies the same eligibility rules used in the 6th Agricultural Census to determine which agricultural units are included in the survey frame. As in the census, the survey does not include the smallest or least-significant agricultural operations—those that fall below the minimum thresholds for meaningful agricultural activity. These units were not covered by the census questionnaire and are therefore excluded from the CASS frame as well.

A holding is considered eligible for inclusion in the surveyed population if it meets at least one of the following criteria:

- sq_area_ac 0.01
- sq_area_oc 0.002
- sq_area_lclo 0.002
- sq_area_spc 0.01
- sq_area_pc 0.05
- sq_area_pm 0.5
- sq6_cattle 1

These thresholds correspond to minimum levels of land use or livestock activity that indicate a functioning agricultural operation. By applying the same criteria as the census, CASS ensures that:

- the survey frame is consistent with the national agricultural statistical system,
- the smallest non-commercial or incidental activities are excluded, and
- the survey focuses on holdings that contribute meaningfully to agricultural production in the coastal region.

3.1.2 Excluded Population

- The districts of **Brokopo** and **Sipaliwini**.
- The interior **villages** of Marowijne.

3.1.3 Frame Size and Distribution

The final CASS sampling frame consists of 7,439 agricultural holdings. As can be seen in Figure 3.1, with 2,512 holdings, Wanica is by far the largest agricultural district, representing a critical hub for agricultural activity in Suriname. The next largest district is Nickerie (1,379 holdings), followed closely by Marowijne (1,302 holdings) and Saramacca (1,013 holdings), all maintaining over 1,000 holdings. Commewijne forms the next tier with 871 holdings. Together, these top districts constitute the vast majority of agricultural operations on the coast. The remaining coastal districts show a much smaller agricultural footprint: Para (190), Coronie (90), and Paramaribo (82) have significantly fewer holdings combined than any of the top-tier districts individually.

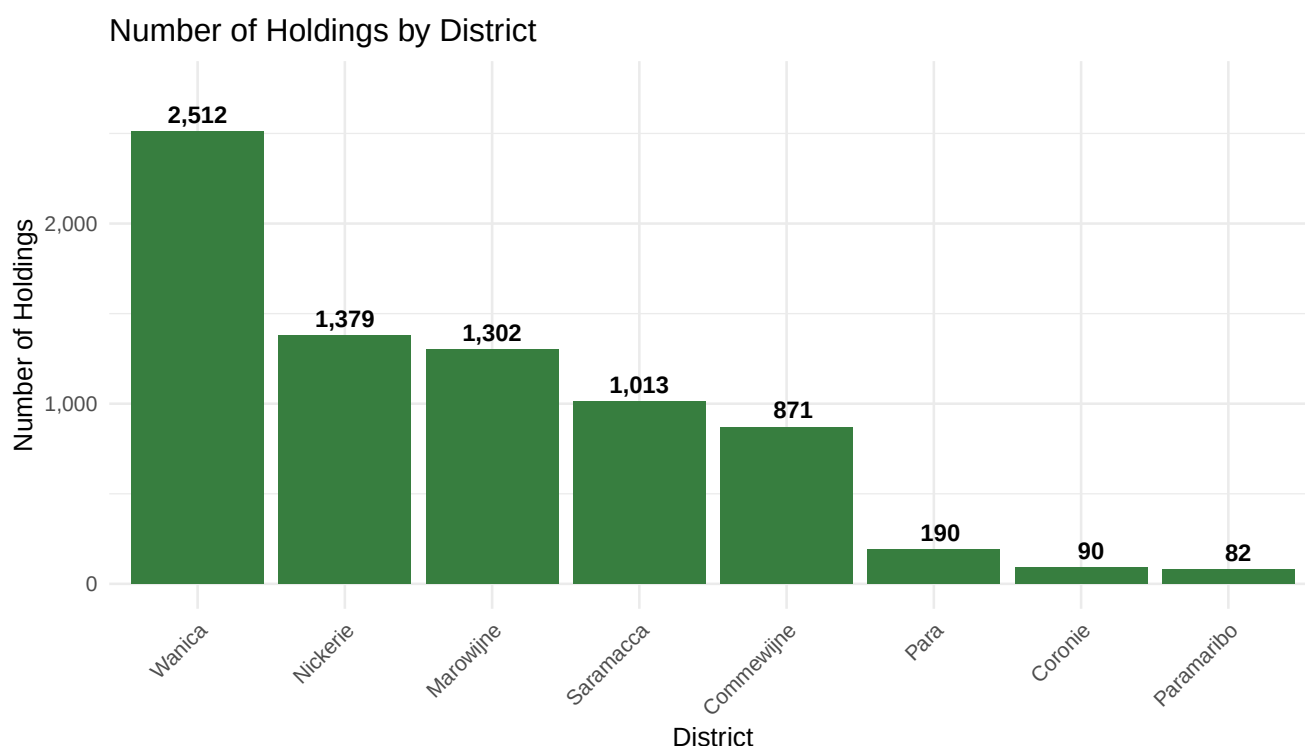


Figure 3.1: CASS Frame: Number of Holdings by District

3.2 The Sample Design

The sample design for the Coastal Agricultural Survey of Suriname (CASS) is a stratified probability design, tailored to maximize statistical efficiency and ensure accurate representation of the diverse agricultural sector. The

foundation of this approach is stratification, where the entire population of agricultural holdings is partitioned into homogeneous subgroups based on key characteristics such as district and farm type. A crucial first step within this process is the identification of self-representative or certainty strata, which include all holdings that are so large or unique that they are selected with 100% probability to eliminate their outsized impact on sampling variance. Once the population is stratified, the next phase involves the determination of the overall sample size required to achieve the survey's precision targets. This is followed by the allocation of that sample across the remaining non-certainty strata. The following subsections will provide a detailed look at each of these critical components of the survey's sampling plan.

3.2.1 Stratification

Grouping the population into homogeneous blocks allows for efficient sampling and ensures that estimates for key sub-groups are also reliable.

3.2.1.1 The Certainty Stratum

A “Certainty” or “Take-All” stratum is created to include all holdings that are so large, unique, or important that they must be included in the survey.

Criteria for Certainty Selection:

- **Juridical Person:** All non-individual holdings.
- **Apiculture:** All holdings engaged in beekeeping.
- **Large Farm Size:** All farms in Nickerie with 50 hectares or more.
- **Very Large Livestock:** Holdings with 5,000 cattle, or 1,000,000 chickens, or 800 ducks, or 6,000 pigs.
- **Hydroponics:** All holdings using hydroponics technology.

A total of 205 unique holdings were identified for the certainty stratum.

Table 3.1: Number of Unique Holdings in the Certainty Stratum

District Name	Distinct Certainty Holdings
Commewijne	9
Coronie	3
Marowijne	3
Nickerie	89
Para	21
Paramaribo	3
Saramacca	8
Wanica	69
Total	205
Coastal Survey of Agriculture	

Table 3.2: Nickerie Stratification

Stratum Name	Number of Holdings
Nickerie_Crops & Livestock_<50 ha	183
Nickerie_Crops_<50 ha	861
Nickerie_Livestock	246
Total	1,290
Coastal Survey of Agriculture	

3.2.1.2 Description of Non-Certainty Strata

After all holdings meeting the certainty criteria are assigned to the Certainty stratum, the remaining agricultural holdings are grouped into non-certainty (take-some) strata. Stratification for these holdings is based primarily on a combination of Geographic District and Farm Type. A special and more detailed set of rules was applied to Nickerie, reflecting its unique agricultural structure. Paramaribo was also treated differently because, during the census, it was sampled rather than fully enumerated. The stratification process follows a clear hierarchy of rules:

3.2.1.2.1 Paramaribo All 105 non-certainty holdings located in Paramaribo are grouped into a single, distinct stratum. This is done because of the district's unique urban/peri-urban agricultural landscape and the two-phase sampling approach used here.

3.2.1.2.2 Nickerie As can be seen in Table 3.2, the district of Nickerie receives a more granular level of stratification to account for its mix of farm types and sizes. The non-certainty holdings here are divided into three groups:

- **Stratum 1: Crops farms with area<50 ha:** For holdings focused on “Crops” with less than 50 hectares.
- **Stratum 2:** For holdings with both “Crops & Livestock” and less than 50 hectares.
- **Stratum 3:** For all remaining non-certainty holdings focused on “Livestock,” which are grouped together regardless of size.

Table 3.3: Final CASS Sample Size by District

District Name	Final Sample Size
Commewijne	68
Coronie	39
Marowijne	83
Nickerie	171
Para	58
Paramaribo	62
Saramacca	66
Wanica	245
Total	792
Coastal Survey of Agriculture	

3.2.2 Sample Size & Allocation

Determining the required sample size involves several assumptions and compromises. It is almost always an iterative process in which practical considerations are just as important as the statistical methods applied.

Because sample size calculations must reflect the variables for which we seek a given level of precision, we focused on the **proportion of small farms (under 1 ha)**, a critical indicator of the agricultural sector's structure. With the certainty stratum guaranteeing full representation of large farms, achieving good precision for smaller farms becomes the next priority. Based on census data, we estimated this proportion (**p**) to be approximately **46%** (4,252 out of 9,193 holdings).

We set a **margin of error of 5%** ($e = 0.050$) and adopted the international standard of **95% confidence**, corresponding to a **Z-score of 1.96**.

To reflect real-world conditions, we applied the following adjustments:

- **Design Effect (DEFF):** A conservative value of **1.0**
- **Non-Response Adjustment (NRA):** A **20% inflation factor (1.2)**
- **Misclassification Adjustment:** A small **1% factor (1.01)**

After incorporating these adjustments, enforcing a minimum of **four holdings per stratum**, and increasing sample sizes in areas where the pilot study revealed deficiencies, we obtained a final sample of:

- **587 Take-some units**, and
- **205 Take-all units**,

for a **total of 792 agricultural holdings** in the final sample. The 587 Take-some holdings were allocated to the strata proportionally to the square root of the stratum size. Table 3.3 presents the final sample distribution by district.

3.3 Weighting and Estimation

The process of generating reliable statistics from the Coastal Agricultural Survey of Suriname (CASS) involves two critical stages: weighting and estimation. Raw data collected from the sampled holdings cannot be used directly to describe the entire coastal agricultural sector; it must first be statistically adjusted to ensure it is representative of the population from which it was drawn. This section details the comprehensive methodology used to accomplish this. The process begins with the construction of final survey weights for each responding holding, a multi-step procedure designed to account for the sampling design and correct for real-world data collection challenges. Once the final weights are calculated, they are used in the estimation phase to produce reliable population totals, averages, and proportions for key agricultural indicators.

3.3.1 Weighting Methodology

The final survey weight assigned to each responding agricultural holding is a composite measure that reflects its importance in representing a portion of the total population. This weight is not a single value but is derived as the product of three distinct components, each serving a specific statistical purpose. Together, these components ensure that the final estimates are unbiased and accurately reflect the characteristics of the entire coastal agricultural sector.

3.3.1.1 Design Weight (W_d)

The design weight, also known as the base weight, is the foundation of the entire weighting process. It directly accounts for the fact that CASS is a sample survey where different holdings had different probabilities of being selected. The design weight is calculated as the inverse of a holding's selection probability. For the stratified design of CASS, this is the ratio of the total number of holdings in a given stratum (N_h) to the number of holdings sampled from that stratum (n_h).

$$W_{d,hi} = \frac{N_h}{n_h}$$

For example, if a holding was sampled from a stratum of 500 holdings where 50 were selected, its design weight would be 10, meaning it represents itself and 9 other similar holdings. For holdings in the “Certainty” stratum, the probability of selection is 1, so their design weight is exactly 1.

In Table 3.4, we show the derived design weight from the survey. Because it is a stratified design, the design weight will therefore vary by stratum.

3.3.1.2 Non-Response Adjustment (W_{nr}) and Calibration (W_c)

In any survey, some selected units inevitably fail to provide usable data, creating **total non-response** that can bias estimates if non-respondents differ systematically from respondents. To correct for this, the CASS applies **reweighting**, the standard approach in agricultural surveys, by inflating the design weights of responding holdings within **Response Homogeneity Groups (RHGs)**. These groups are defined by the sampling strata, which strongly predict response behavior. With an overall unweighted response rate of **90.4%** (76 non-respondents out of 792 sampled holdings), each respondent's weight is increased by the inverse of the stratum-specific response rate to compensate for missing units.

After this non-response adjustment, a final refinement, **calibration**, ensures that the survey's weighted estimates align with known population totals from the census frame. Following the Deville and Särndal (1992) framework, the non-response-adjusted weight ($w_i^{(nr)}$) is multiplied by a calibration factor (g_i) to produce the final calibrated weight (w_i^*). This weight is chosen so that the weighted sums of key auxiliary variables (district, farm type, and farm size class) match their known totals. This combined process of non-response adjustment and calibration reduces bias, improves precision, and guarantees internal consistency with the frame, yielding the definitive weights used for all CASS estimates.

Table 3.4: Population, Sample Size, and Design Weights by Stratum

Stratum	Pop (Nh)	Sample (nh)	Design Wt.
Commewijne			
Certainty	9	9	1.00
Crops	567	31	18.29
Crops & Livestock	105	6	17.50
Livestock	190	10	19.00
Coronie			
Certainty	3	3	1.00
Crops	39	9	4.33
Crops & Livestock	11	9	1.22
Livestock	37	9	4.11
Marowijne			
Certainty	3	3	1.00
Crops	1,252	68	18.41
Crops & Livestock	34	4	8.50
Livestock	13	4	3.25
Nickerie			
Certainty	90	90	1.00
Crops & Livestock_<50 ha	183	10	18.30
Crops_<50 ha	861	47	18.32
Livestock	246	13	18.92
Para			
Certainty	21	21	1.00
Crops	99	10	9.90
Crops & Livestock	29	9	3.22
Livestock	41	9	4.56
Paramaribo			
Certainty	3	3	10.00
Paramaribo	79	59	13.39
Saramacca			
Certainty	8	8	1.00
Crops	778	42	18.52
Crops & Livestock	149	8	18.62
Livestock	78	4	19.50
Wanica			
Certainty	76	76	1.00
Crops	978	53	18.45
Crops & Livestock	471	26	18.12
Livestock	994	54	18.41
Coastal Survey of Agriculture			

¹ Weight for Paramaribo accounts for its two-phase design.

3.3.2 Estimation

In the CASS, all estimation relies on **final calibrated weights**, which allow each sampled holding to represent itself and a number of similar non-sampled holdings. Because policy-relevant indicators often need to be produced for specific sub-populations—such as districts, farm-type groups, or size classes—the survey uses **domain estimation**, a framework that computes statistics for any well-defined subgroup regardless of how the sample was originally stratified. Domain estimation works by applying an **indicator variable** that identifies which sampled units belong to the domain of interest, ensuring that weighted sums correctly reflect the structure of the full population.

Using this approach, all key weighted estimates—**counts, totals, means, and proportions**—are derived from combinations of weighted sums. Let w_i^* be the final calibrated weight for a responding unit i in the sample s , and let I_{id} be an indicator variable equal to 1 if the unit belongs to domain d and 0 otherwise.

- **Weighted Count (Estimated Number of Holdings):** The estimated total number of holdings in a domain is the sum of the final weights for all units in that domain.

$$\hat{N}_d = \sum_{i \in s} w_i^* I_{id}$$

- **Weighted Total (e.g., total livestock, total hectares):** The estimated total for a variable y_i is the sum of the product of the final weight and the variable's value for all units in the domain.

$$\hat{Y}_d = \sum_{i \in s} w_i^* y_i I_{id}$$

- **Weighted Mean / Average (e.g., average farm size):** The estimated mean is the ratio of the estimated total of the variable to the estimated total number of holdings.

$$\hat{\bar{Y}}_d = \frac{\hat{Y}_d}{\hat{N}_d} = \frac{\sum_{i \in s} w_i^* y_i I_{id}}{\sum_{i \in s} w_i^* I_{id}}$$

- **Weighted Proportion (e.g., share of farms growing crops):** This is a special case of the mean, where the variable y_i is an indicator (1 if the characteristic is present, 0 if absent).

$$\hat{P}_d = \frac{\sum_{i \in s} w_i^* y_i I_{id}}{\sum_{i \in s} w_i^* I_{id}}$$

These formulas ensure that every estimate—whether for the entire coastal region or for a specific subgroup—is constructed consistently from weighted sums over the sample. The result is a coherent, statistically valid set of indicators that accurately reflect the agricultural population described by the CASS.

i Key Aspects — Sample Design Methodology

- **Stratified Probability Design:** The Coastal Agricultural Survey of Suriname (CASS) utilizes a stratified probability design partitioned by geographic district and farm type to maximize statistical efficiency and ensure an accurate representation of coastal agriculture.
- **Sampling Frame Coverage:** The frame is derived from the 6th Agricultural Census and covers all active agricultural holdings across the coastal districts while explicitly excluding interior districts and the interior portion of Marowijne.
- **Certainty Stratum (Take-All):** A dedicated certainty stratum ensures 100% selection probability for large or unique holdings, such as juridical persons, apiculture, large farms in Nickerie, very large livestock operations, and hydroponics, to eliminate outsized variance.
- **Sample Size and Allocation:** The final sample comprises a total of 792 agricultural holdings (587 take-some units and 205 take-all units), with take-some units allocated proportionally to the square root of stratum size based on a 95% confidence level and a 5% margin of error.
- **Weighting and Calibration:** Final survey weights are constructed as a composite of design weights, non-response adjustments (accounting for an unweighted response rate of 90.4%), and calibration to match known census population totals.
- **Domain Estimation:** All key estimates, including counts, totals, means, and proportions, are calculated using final calibrated weights via domain estimation to generate statistically valid indicators for any sub-population or subgroup.

4 Key Findings

While preceding sections outline the operational and methodological processes used to collect and process the survey data, this section presents the main substantive results. Organized by thematic area in accordance with the master tabulation plan, these findings give context and meaning to the data, with all estimates appropriately weighted to ensure complete representation of the coastal agricultural population.

4.1 Survey Coverage

This section describes the final population estimates derived from the survey, covering the number of farms and their key structural characteristics, such as legal status and distribution by main activity. Comprehensive structural results of this nature were previously provided by the 6th Census. The findings presented here serve two primary purposes: providing an update on agricultural structures one year post-census, and validating the survey data by benchmarking them against census results.

4.1.1 Comparison of Frame Counts vs. Survey Estimates

Comparing the number of holdings from the census provided in Figure 3.1 to the estimated number of holdings from the sample in Figure 4.1, we see that the overall ranking and distribution of agricultural holdings across districts remain remarkably consistent between the sampling frame and the survey estimates. Wanica clearly stands out as the dominant agricultural hub, followed by Nickerie, Marowijne, Saramacca, and Commewijne in the upper tier, and Para, Coronie, and Paramaribo in the smaller lower tier.

Numerical values are close across nearly all districts, such as Wanica at 2,512 versus 2,536, Saramacca nearly identical at 1,015, Coronie at 90 versus 98, with these minimal variances falling well within the normal margin of sampling error. A slight shift occurs in the middle-to-lower tiers, specifically for Commewijne (871 in the frame) and Paramaribo (estimated at 840), which is attributable to sample weighting and non-response adjustments standard in complex sample surveys. For Paramaribo in particular, while the frame histogram reflects 82 sampled holdings, this sample actually represents 857 holdings due to the sampling design, which involved a 10% selection of Census Enumeration Blocks rather than a complete enumeration.

Looking at the broader totals, the overall number of coastal holdings according to the census frame was 8,199, while the estimated total from the CASS sample stands at 8,275. This close alignment strongly suggests that the total number of agricultural holdings in Suriname remained fairly stable during the period following the census rather than experiencing significant expansion or contraction. Ultimately, this minimal variance confirms that the structural baseline established by the census is robustly reflected in current operations, serving as a reliable indicator that agricultural distribution patterns across districts have held steady.

Having established the strong consistency in the total number of farms and their geographical distribution between the CASS estimates and the census frame, we now turn our attention to the structural characteristics of these holdings. Specifically, we examine the legal status of the farms to determine whether this high level of alignment and stability persists across ownership and operational structures as well.

4.1.2 Legal Status of Agricultural Holdings

The legal status of agricultural holdings is a structural characteristic that is unlikely to change frequently over short periods. Given that the agricultural census was conducted just a little bit over a year prior to the survey collection, the full legal status question was omitted from the survey instrument. Instead, respondents were simply asked to confirm whether their legal status remained the same as recorded in the census, and to report a new legal status

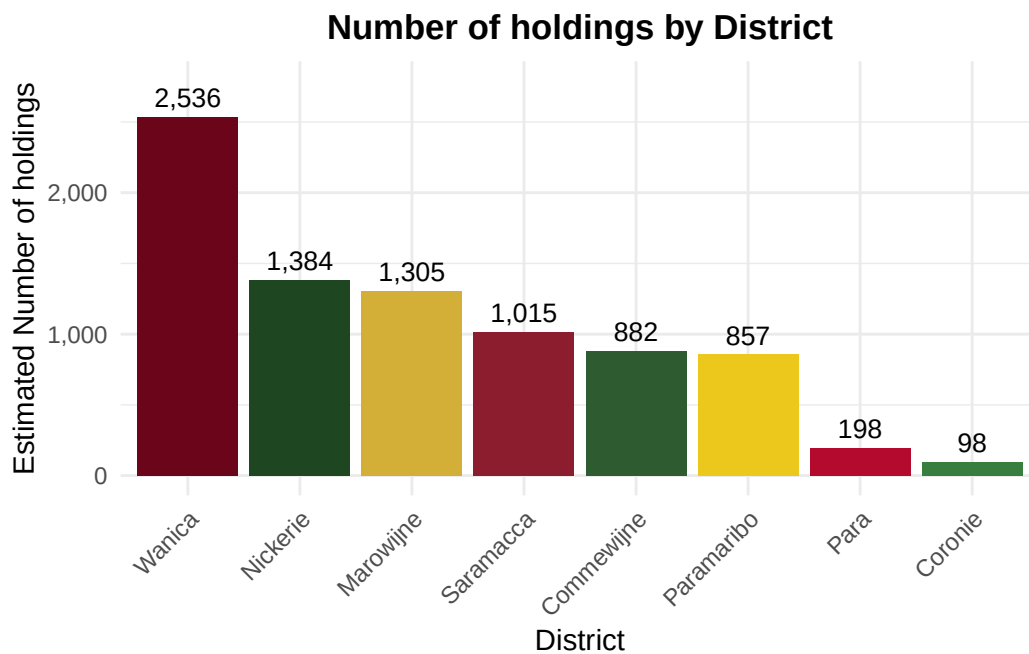


Figure 4.1: Estimated number of Agricultural Holdings by District

only if a change had occurred. Because commercial farming in Suriname is heavily concentrated along the coastal areas, this chapter first compares the CASS coastal target population of holders to the overall national population of holders from the census. Following this macro-level comparison, we examine the specific number and percentage of holdings that underwent verified updates to their legal status during the survey operations.

4.1.2.1 Legal Status of Agricultural Holdings: CASS Coastal Frame vs. National Total

A detailed examination of Figure 4.2 highlights that the overwhelming majority of agricultural holdings across Suriname are organized under individual ownership, with sole proprietors (civil persons) accounting for 96.9% (7,943 holdings) of the CASS coastal frame and a matching dominant share within the national total (14,129 holdings). Because commercial and formal farming operations are heavily concentrated along the country's coastal strip, the CASS target population reflects a slightly higher density of structured entities relative to the nationwide census baseline. Specifically, joint partnerships account for 1.7% (142 holdings) in the coastal frame compared to 1.1% (165 holdings) nationally, while formal legal entities (juridical persons) represent 1.4% (114 holdings) on the coast, mirroring the absolute national count of 114 entities and demonstrating that nearly all formal corporate structures in agriculture operate within the coastal target zone.

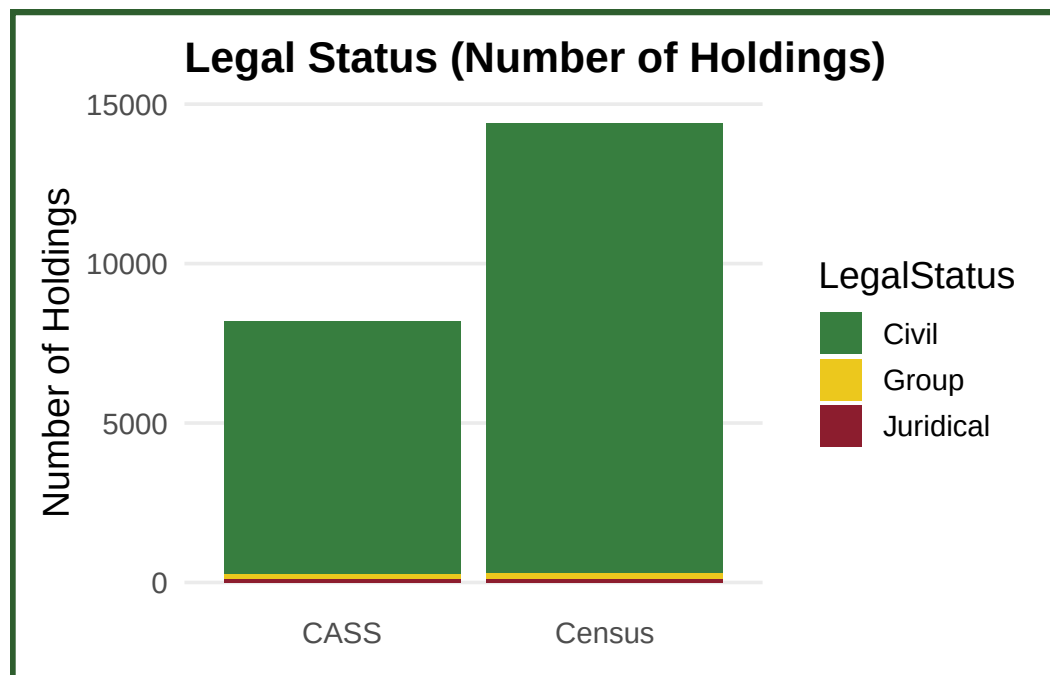


Figure 4.2: Census and CASS Legal Status (Number of Holdings)

4.1.2.2 Legal Status updates for CASS

As noted in the preceding section, the structural legal status of an agricultural holding is a fundamental characteristic that is expected to remain stable over short intervals. Given that the agricultural census was conducted only a little over a year prior to the survey operations, widespread shifts in legal classification were anticipated to be minimal. To verify this stability and evaluate data quality, the survey instrument closely tracked instances where respondents indicated that their operational setup had diverged from the baseline census records.

An analysis of Figure 4.3 confirms that structural changes in legal status were indeed rare, affecting only a tiny fraction of the total agricultural holdings. Out of the thousands of holdings across the coastal frame, a weighted total of approximately 126 holdings reported a modified legal status during survey verification. Examining the composition of these changes, the vast majority, an estimated 98 holdings (or roughly 77.8% of all updates), transitioned into or were confirmed under a Civil person (Sole operator) framework. Meanwhile, Juridical Persons (Legal entities) accounted for 24 estimated holdings among the updates, reflecting formal business or corporate reorganizations. Groups of civil persons (Joint partnerships) experienced the fewest modifications, representing just 4 estimated holdings. This exceptionally low volume of transition underscores the high reliability of the census frame and demonstrates that operational structures in Suriname’s agricultural sector remain remarkably consistent over time.

Having established that the legal and organizational structures of Suriname’s agricultural holdings remain remarkably stable and predominantly concentrated under individual sole proprietorships, attention now shifts from the operational entities to the individuals behind them. Understanding the demographic characteristics of these farm operators, such as their age distribution, gender breakdown, and experience level, is essential for interpreting farm management decisions, labor dynamics, and the future succession pathways of the country’s agricultural sector.

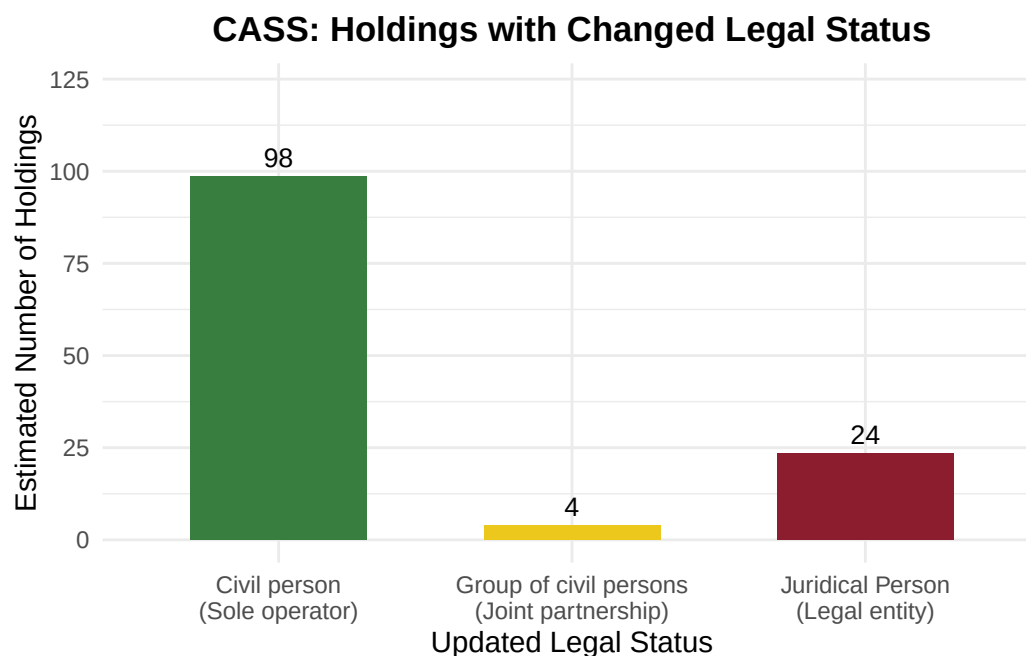


Figure 4.3: Number of Holdings with Updated Legal Status

i Key Findings — Survey Coverage and Structural Characteristics

- **Purposes of Survey Coverage Analysis:** The population estimates and structural findings provide a one-year post-census update on agricultural structures while validating and benchmarking survey data directly against the 6th Agricultural Census.
- **Geographical Distribution and Ranking:** District rankings and holding distributions remain remarkably consistent between the census frame and CASS estimates, with Wanica standing out as the dominant agricultural hub, followed by Nickerie, Marowijne, Saramacca, and Commewijne in the upper tier.
- **Overall Stability in Farm Totals:** The total number of coastal holdings shows minimal variance, moving from 8,199 in the census frame to an estimated 8,275 in the CASS sample, indicating stable agricultural operations without significant expansion or contraction.
- **Dominance of Sole Proprietorships:** Individual ownership forms the bedrock of the sector, with civil persons (sole operators) comprising 96.9% (7,943 holdings) of the coastal frame and a matching majority (14,129 holdings) nationally.
- **Concentration of Formal Entities:** Formal corporate structures and juridical persons are nearly exclusive to the coastal zone, accounting for all 114 national legal entities alongside a slightly higher density of joint partnerships compared to the nationwide baseline.
- **Rare Structural Changes:** Modifications in legal status over the post-census year were exceptionally rare, with only an estimated 121 holdings reporting updates, predominantly shifting toward sole proprietorships, thereby affirming the high reliability and stability of the census frame.

4.2 Demographics

This section details the core characteristics of agricultural holders across the survey population. Specifically, this section covers the main demographic attributes of the holder, including age, sex, nationality, and education level, to provide a comprehensive profile of the individuals managing agricultural operations.

4.2.1 Age of Holder

Figure 4.4 shows the age distribution of agricultural holders in the CASS survey. The graph reveals a heavily mature farming population, with the vast majority of operators concentrated in older cohorts. Specifically, holdings are heavily skewed toward middle-aged and older individuals, peaking in the 55–59 (1,155 holders) and 60–64 (1,182 holders) age brackets, while younger operators under 35 represent a very small fraction of the total population (e.g., just 25 holders aged 13–19 and 97 aged 20–24). When comparing these survey findings with the national census results obtained a year prior, the overall structural pattern remains consistent, exhibiting an aging agricultural workforce and a scarcity of youth participation, though the localized coastal sample highlights an even more pronounced concentration within the 50-to-64 peak working-age ranges relative to the broader nationwide census distribution.

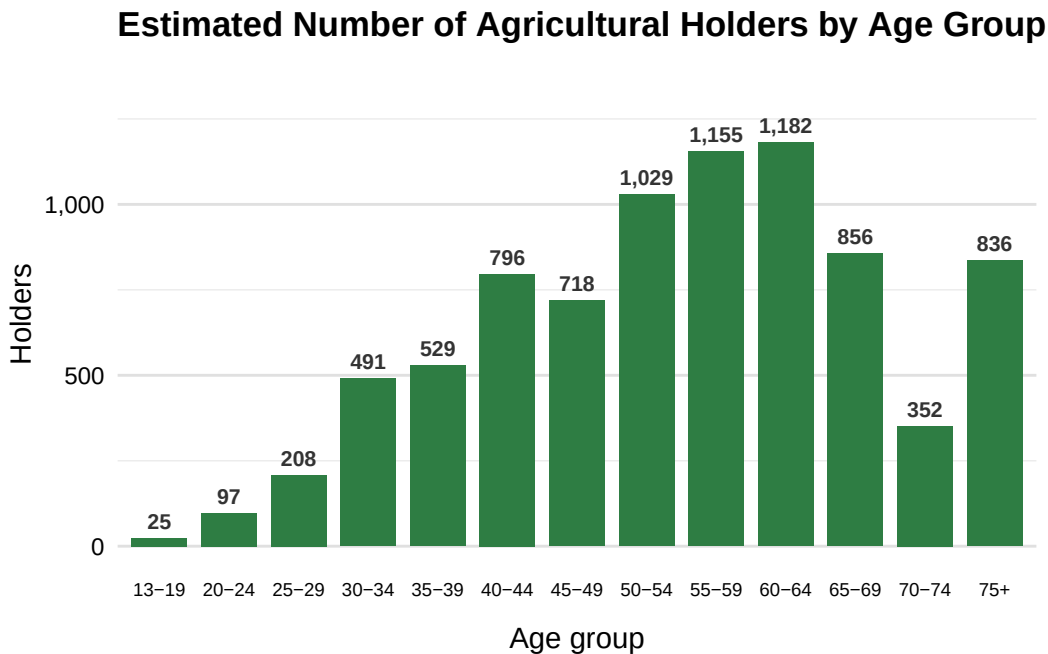


Figure 4.4: Number of Agricultural Holders by Age Group

To complement the aggregate national profile, we now examine how the age distribution of agricultural holders varies across the individual coastal districts. Specifically, we evaluate the median age, the midpoint that divides the holder population into two equally sized groups of younger and older operators, to highlight regional variations in farm management experience and workforce maturity.

An analysis of the regional data displayed in Figure 4.5 reveals a consistently high median age across all coastal districts of Suriname, reinforcing the broader finding of an aging agricultural workforce. Paramaribo and Saramacca record the highest median ages at 59.7 and 59.4 years respectively, closely followed by Coronie (57.9 years) and Commewijne (57.9 years). Meanwhile, Wanica (56.0 years), Para (55.9 years), and Nickerie (53.5 years) exhibit slightly lower but still advanced median ages. Marowijne registers the lowest median age in the coastal frame at 50.0 years, yet even this baseline reflects an overwhelmingly mature population of farm operators with limited

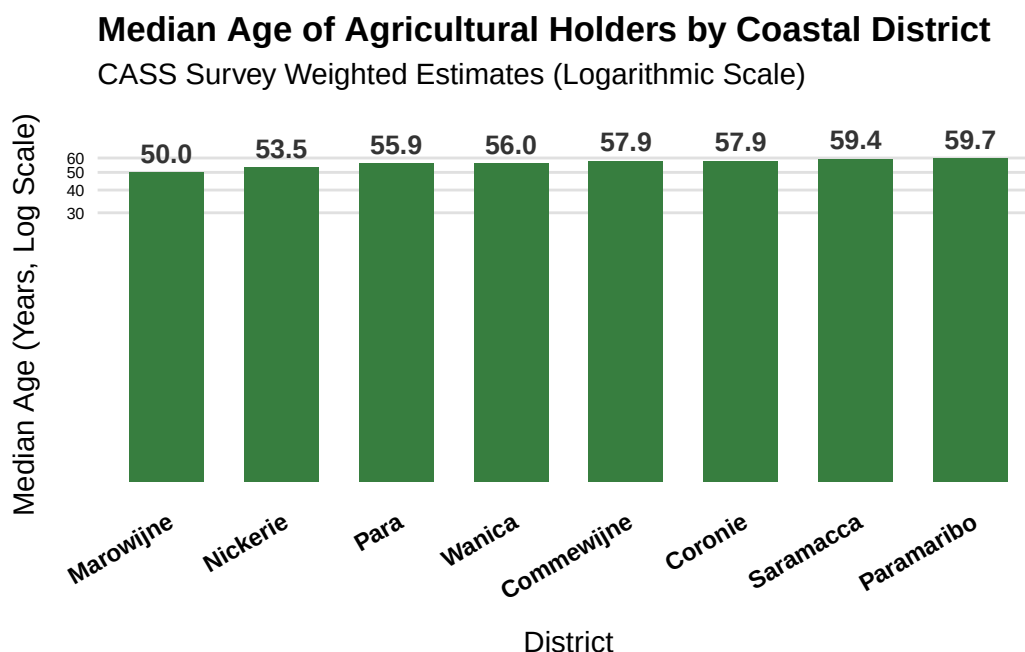


Figure 4.5: Weighted Median Age of Agricultural Holders by Coastal District (Logarithmic Scale)

generational renewal across the board.

Building on our analysis of age structures across the coastal districts, we next examine the sex distribution of agricultural holders to understand the role of gender within farm management and operations.

4.2.2 Gender of the main Holder

Looking at Table 4.1, we noticed that agricultural holders across the coastal survey population are predominantly male, with a total estimated population of 8,275 holders consisting of 6,104 males (74%) and 2,171 females (26%). Considering the distribution across individual coastal districts, male dominance is heavily evident in almost all areas. Nickerie exhibits the highest concentration of male holders at 94% (1,298 holders) against just 6% female holders, closely followed by Coronie (89% male) and Commewijne (87% male). Saramacca (80%), Wanica (76%), Paramaribo (69%), and Para (66% male) also show a substantial majority of male operators. Marowijne stands out within the coastal target frame, where female holders comprise the majority at 62% (815 holders) compared to 38% (490 holders) for males. When comparing these survey estimates to the national census results obtained a year prior, an insightful clarification emerges regarding Marowijne. While the overall census reported a balanced 50%/50% split for the entire district, the CASS coastal frame (which contains a little more than half of the holders in the district) shows an even higher concentration of female holders at 62%. This means that the percentage of women holding agricultural operations in the interior portion of Marowijne was actually smaller than that of the coastal portion, pulling the district's overall average down to an even split.

Table 4.1: Number and Percentage of Holders by the Sex of the Holders and by District

District	Female	Male	Total N
Commewijne	118 (13%)	764 (87%)	882 (100%)
Coronie	11 (11%)	87 (89%)	98 (100%)
Marowijne	815 (62%)	490 (38%)	1,305 (100%)
Nickerie	86 (6%)	1,298 (94%)	1,384 (100%)
Para	68 (34%)	130 (66%)	198 (100%)
Paramaribo	267 (31%)	590 (69%)	857 (100%)
Saramacca	207 (20%)	808 (80%)	1,015 (100%)
Wanica	600 (24%)	1,936 (76%)	2,536 (100%)
Total	2,171 (26%)	6,104 (74%)	8,275 (100%)
Coastal Survey of Agriculture (CASS Survey Estimates)			

4.2.3 Age sex distribution

The age-sex pyramid in Figure 4.6 illustrates the combined demographic structure of agricultural holders across the surveyed coastal districts. The pyramid highlights a pronounced aging trend across both sexes, with the largest concentrations of operators situated in the mature cohorts, peaking heavily within the 50–59 and 60–69 age brackets. Conversely, younger participation remains minimal, tapering off significantly in the 20–29 group and remaining nearly negligible in the 15–19 category. Furthermore, male holders consistently outnumber female holders across every single age cohort, reflecting a deep-seated gender imbalance in farm management throughout the coastal agricultural sector.

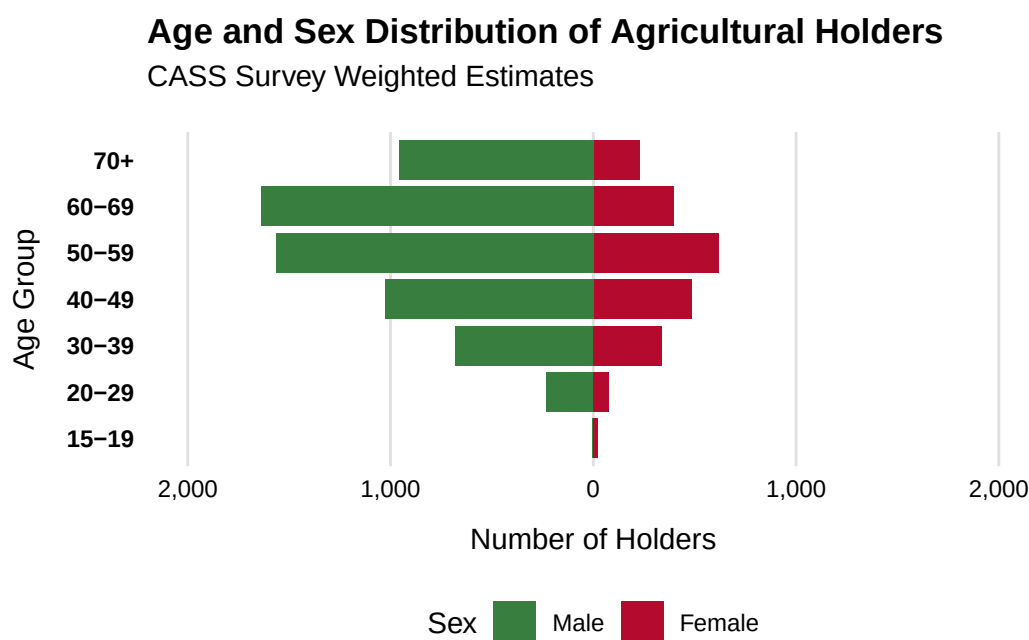


Figure 4.6: Population Pyramid of Agricultural Holders by Age Group and Sex

Having examined the age and sex profile of the coastal agricultural holders, we now turn our attention to their educational attainment to better understand the human capital profile underpinning farm management and decision-making across the sector.

4.2.4 Education attainment of the holder

The educational attainment distribution in Figure 4.7 reveals that the vast majority of agricultural holders in the coastal districts have completed basic to mid-level schooling. Specifically, secondary education accounts for the largest share of operators at 40.4%, closely followed by primary education at 34.3%. Together, these two categories comprise nearly three-quarters of the entire agricultural holder population. Operators with high school or MBO (intermediate vocational) training represent 16.3% of the total, while those with no formal education account for 5.9%. Higher education levels are notably scarce among farm operators: HBO (higher professional education) accounts for just 2.4%, and university-level education represents a minimal 0.7%. This highlights an agricultural sector primarily driven by individuals with foundational and secondary educational backgrounds, with very low representation from tertiary academic tracks.

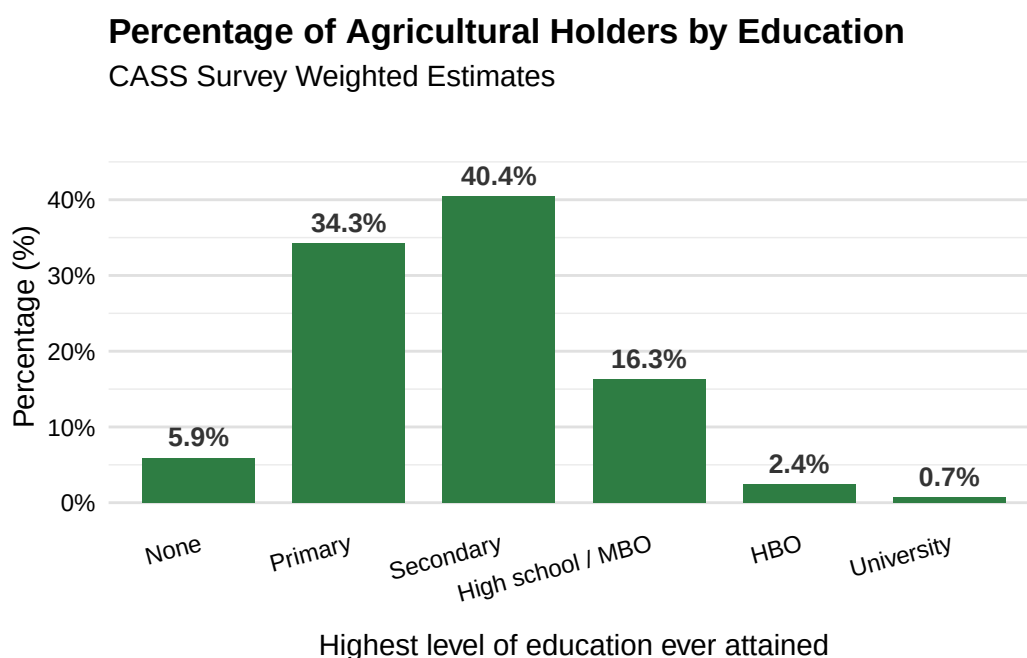


Figure 4.7: Agricultural Holders by Highest Level of Education (%)

having looked at the overall educational profile of agricultural holders, we next examine how educational attainment varies across different generations and between male and female operators to uncover potential demographic disparities in human capital.

4.2.5 Education attainment by age and sex

Figure 4.8 reveals distinct generational shifts in educational attainment across both female and male agricultural holders in the coastal districts. For both sexes, younger operators (15 – 35 age group) exhibit significantly higher levels of advanced schooling. Specifically, high school and MBO attainment claims a much larger share among younger holders compared to older cohorts. Conversely, older cohorts (60+) rely more heavily on primary education or report no formal education (“None”), highlighting a clear generational upgrading of human capital over time. Comparing across gender lines, female holders in the youngest cohort (15 – 35) demonstrate a notably high proportion of upper-level secondary and vocational training, matching or exceeding their male counterparts in similar age brackets. However, older female cohorts display a larger share with no formal education relative to older males, underscoring evolving educational access dynamics within the agricultural sector.

Above, we have explored the educational attainment and human capital dynamics of the agricultural holders, we now examine their nationality breakdown to understand the diverse origins and citizenship profile shaping the

Education Attainment Share by Age Group and Sex

CASS Survey Weighted Estimates

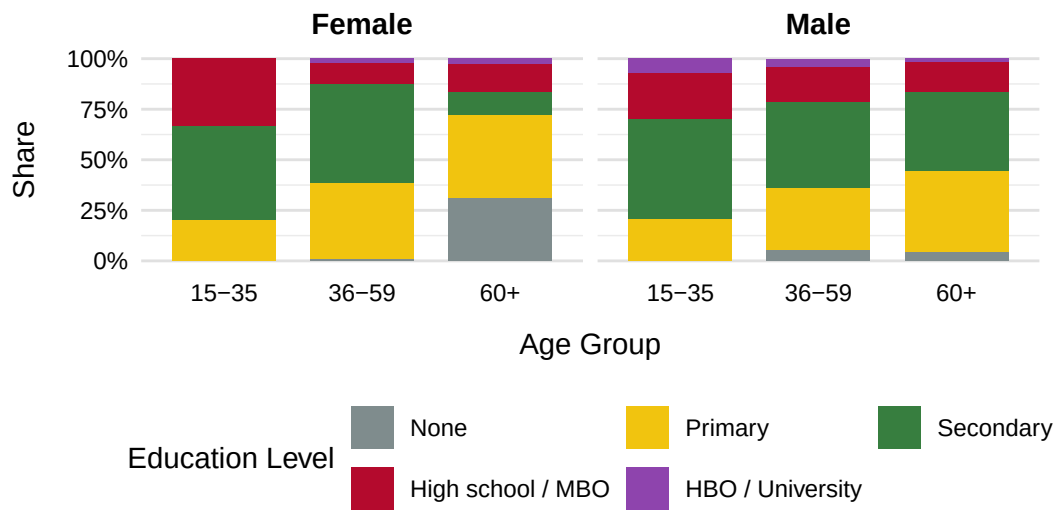


Figure 4.8: Education Attainment Share by Age Group, Faceted by Sex (CASS Survey)

coastal agricultural sector.

Table 4.2: Number and Percentage of Agricultural Holders by Nationality (CASS Survey)

Nationality	Holder
Surinamese	8,013 (96.8%)
Haitian	83 (1.0%)
Guyanese	42 (0.5%)
Dutch	119 (1.4%)
Other	19 (0.2%)
Total N	8,275
Coastal Survey of Agriculture (CASS Survey Estimates)	

4.2.6 Nationality of Holders

Examining the data in Table 4.2 reveals that the vast majority of agricultural holders across the coastal survey population are of Surinamese nationality, accounting for 8,018 holders or 96.8% of the total estimated population of 8,275. Non-Surinamese holders represent a minor share of the sector overall. Among foreign nationalities, Dutch nationals form the largest group with 119 holders (1.4%), followed by Haitian holders at 83 (1.0%) and Guyanese holders at 42 (0.5%). Other nationalities comprise the remaining 19 holders (0.2%), highlighting a predominantly domestic citizenship profile in coastal agricultural management.

With the demographic and human capital profile of the main agricultural holders, the individuals bearing the legal and economic responsibility for the holding, established, we now shift our focus to the farm managers. While the holder and manager are often the same person in typical sole-proprietorships, examining the characteristics of those explicitly tasked with the day-to-day operational execution provides a more complete picture of leadership and labor division across the coastal agricultural sector.

Table 4.3: Number and Percentage of Agricultural Holdings by Identity of the Farm Manager (CASS Survey)

Identity of the Farm Manager	Holding
The main holder	8,032 (97.1%)
Spouse of the agricultural holder	143 (1.7%)
Another member of the holder's household	72 (0.9%)
Hired Manager (paid employee)	8 (0.1%)
Someone Else / Other	20 (0.2%)
Total N	8,275
Coastal Survey of Agriculture (CASS Survey Estimates)	

4.2.7 Holding manager

An analysis of Table 4.3 reveals that day-to-day operational management in coastal agriculture is overwhelmingly handled by the main agricultural holder, who accounts for 8,082 holdings or 97.1% of the total estimated population of 8,275.

Other management arrangements represent a very small fraction of the sector. Spouses of the agricultural holders manage 143 holdings (1.7%), while other members of the holder's household oversee 72 holdings (0.9%). Hired managers (paid employees) account for just 8 holdings (0.1%), and individuals classified as someone else or other comprise the remaining 20 holdings (0.2%), highlighting a sector driven primarily by self-managed family operations with minimal reliance on external professional management.

i Key Findings — Demographic Profile of Farm Holders

- **Aging Agricultural Workforce:** Coastal agricultural holders exhibit an advanced median age, peaking sharply in the 50–59 and 60–69 cohorts, with districts like Paramaribo and Saramacca recording the highest median ages (59.7 years) and minimal youth participation.
- **Clear male-led pattern in farm holdings:** Men account for 74% of coastal agricultural holders overall, with male-dominated operations exceeding 80% to 94% in commercial districts like Nickerie, Coronie, and Commewijne.
- **Marowijne’s Regional Contrast:** While Marowijne overall reflects a balanced district profile in national figures, its sampled coastal portion shows a 62% female share, indicating that female holder representation is higher on the coast than in its interior.
- **Educational Attainment:** Basic to mid-level schooling forms the bedrock of the sector, with secondary (40.4%) and primary (34.3%) education comprising nearly three-quarters of all coastal holders, while higher education levels remain minimal.
- **Generational Educational Upgrading:** Younger operators (15 – 35) demonstrate substantially higher attainment of upper secondary and vocational training compared to older cohorts, reflecting a positive generational shift in human capital.
- **Domestic Citizenship Profile:** The sector is overwhelmingly Surinamese (96.8%), with foreign nationals representing a very small fraction of agricultural holders led by Dutch (1.4%) and Haitian (1.0%) operators.
- **Farm Management Structure:** Day-to-day operational management is overwhelmingly unified with ownership, as the main agricultural holder manages 97.1% (8,082 holdings) of coastal farms, while spousal, family, and external hired management account for a combined 2.9% of operations.

Table 4.4: Number of Agricultural Holdings by District and Separate Parcels

District	1 Parcel	2 Parcels	3 Parcels	4+ Parcels	Total N
Commewijne	709	153	20	1	883
Coronie	97	0	1	0	98
Marowijne	863	57	0	0	920
Nickerie	786	323	123	129	1,361
Para	174	24	0	0	198
Paramaribo	748	78	31	0	857
Saramacca	718	200	73	24	1,015
Wanica	2,243	106	41	0	2,390
Total	6,338	941	288	154	7,720
Coastal Survey of Agriculture (CASS Survey Estimates)					

Building upon the demographic profile, educational attainment, and operational management structures of coastal agricultural holders, our attention now turns to how these operators utilize their land and the types of crops they cultivate across the region.

4.3 Land Use

This section provides a detailed examination of agricultural land use across Suriname's coastal zone. Specifically, it covers structural parcel characteristics including separate parcels, roadside plots, and shifting cultivation, analyzes total land area distributions and infrastructure ratios across districts, and evaluates crop cultivation activities and future production plans.

4.3.1 Separate parcels

Table 4.4 shows that the vast majority of agricultural holdings across the coastal region operate on a single parcel of land, accounting for 6,338 holdings or approximately 82.1% of the total estimated holdings of 7,720 with separate parcels.

Fragmentation into multiple parcels is less common but varies notably by district. Holdings with two parcels total 941 (12.2%), while those with three parcels (288) and four or more parcels (154) represent smaller fractions. Nickerie exhibits the highest degree of structural parcel fragmentation, accounting for the majority of holdings with 4+ parcels (129 out of 154 total) as well as substantial shares of two-parcel (323) and three-parcel (123) operations, reflecting its distinct commercial agricultural layout compared to other coastal districts.

Table 4.5: Number of Agricultural Holdings by District and Roadside Plots

District	1 Plot	2 Plots	Total N
Commewijne	59	0	59
Nickerie	138	1	139
Paramaribo	31	0	31
Saramacca	24	0	24
Wanica	2	0	2
Total	253	1	254
Coastal Survey of Agriculture (CASS Survey Estimates)			

4.3.2 Roadside plots

From Table 4.5 we can deduct that from the estimated **8,275 agricultural holdings** in the coastal areas of Suriname, **254 holdings reported operating at least one roadside parcel**, representing approximately **3.1% of all coastal holdings**. Among this group, the distribution of roadside farming activity is highly concentrated both geographically and structurally. Nickerie alone accounts for an estimated 139 roadside holdings, 54.7% of the national total for this land-use category, followed by Commewijne with 59 holdings (23.2%), Paramaribo with 31 holdings (12.2%), Saramacca with 24 holdings (9.4%), and Wanica with 2 holdings (0.8%), while Coronie, Marowijne, and Para record none.

The structural pattern is equally striking: of the 254 holdings with at least one roadside parcel, 253 operate a single plot, with only one holding, located in Nickerie, reporting two roadside parcels, and no holding in the survey reporting three or more. This near-universal single-plot pattern reflects the character of roadside farming in Suriname's coastal zone, where narrow strips alongside irrigation canals and polders are typically cultivated as a supplementary activity rather than a primary production system. The concentration in Nickerie is consistent with that district's intensive crop production landscape, particularly rice and root crops, where roadside parcels along the extensive polder network represent a well-established farming practice.

4.3.3 Shifting plots

looking at Table 4.6, we noticed that **1,082 holdings** reported operating at least one shifting-cultivation plot. That represents approximately **13.1% of all coastal holdings**, a notably higher prevalence than roadside farming (3.1%). The geographic distribution of this practice is sharply concentrated: shifting cultivation is essentially a **two-district phenomenon**, with Marowijne accounting for an estimated 978 holdings (90.4% of the total) and Wanica contributing the remaining 103 (9.5%), while Commewijne records a negligible 1 holding. The remaining five coastal districts, Nickerie, Paramaribo, Saramacca, Para, and Coronie, record none at all.

Unlike the roadside plot distribution, where single-plot holders dominated almost entirely, shifting cultivation shows a **more complex plot-count structure**. Across these districts, 327 of the 1,082 holdings, nearly **30.2% of all shifting-cultivation holders**, operate two plots rather than one. This two-plot share is slightly higher in Wanica (41 out of 103, or 39.8%) than in Marowijne (287 out of 978, or 29.4%), suggesting that where shifting cultivation does occur in Wanica, it tends toward a somewhat more extensive multi-plot pattern. Importantly, no holdings in any district report three or more plots, indicating that even the more extensive operators remain within a small-scale, two-plot range.

The geographic pattern is agro-ecologically coherent: Marowijne, which borders the interior forest zone and has a settlement structure closely tied to indigenous and Maroon farming traditions, is the natural locus of shifting cultivation in the coastal survey frame. Wanica's non-trivial share (103 holdings) is the more analytically notable finding, given its predominantly peri-urban and intensive-farming character, and warrants closer examination of where within the district these shifting-cultivation plots are located.

The distribution of holdings across roadside, separate, and shifting-cultivation parcel types, and the geographic concentration of each practice, provides an important foundation for what follows. Yet the number of holdings engaged in a given land-use type tells only part of the story; the land area those holdings command determines their true weight in the coastal agricultural economy. A district may host relatively few holdings of a particular

Table 4.6: Number of Agricultural Holdings by District and Shifting-Cultivation Plots

District	1 Plot	2 Plots	Total N
Commewijne	1	0	1
Marowijne	691	287	978
Wanica	62	41	103
Total	754	327	1,082
Coastal Survey of Agriculture (CASS Survey Estimates)			

type yet account for a disproportionately large share of cultivated area, or conversely, a large number of holdings may collectively farm a surprisingly modest footprint. The tables and figures that follow examine the total land area reported under each use type, disaggregated by district and size class, to reveal how agricultural land in the coastal zone is distributed, and how concentrated or dispersed that distribution truly is.

4.3.4 Land Use

The distribution of the estimated 8,275 coastal agricultural holdings by total land area use exhibited in Figure 4.9, reveals a farming sector that is overwhelmingly **small-scale and micro-scale** in character. The single most striking feature is the extreme concentration at the lower end of the size spectrum: **3,239 holdings, 39.1% of all coastal holdings, operate on less than 0.1 hectares**, making this by far the largest size class in the distribution and signalling that subsistence and peri-urban kitchen farming represent a substantial component of the coastal agricultural landscape.

The pattern is broadly **right-skewed and steeply declining**. After the dominant sub-0.1 ha class, holdings fall sharply to 1,239 in the 0.2–0.5 ha range and 853 in the 0.1–0.2 ha range. Together, the three smallest classes (under 0.5 ha) account for **5,331 holdings, 64.4% of the total**. Holdings in the 0.5–1 ha and 1–2 ha ranges add a further 1,619 (19.6%), meaning that **more than 84% of all coastal holdings operate on fewer than 2 hectares**.

The distribution thins sharply beyond 2 hectares. The 2–5 ha class records 663 holdings (8.0%), followed by a notable trough at the 5–10 ha range with only 151 holdings (1.8%), the smallest count in the entire distribution. This trough is followed by an unexpected uptick at the 10–20 ha (235 holdings) and 20+ ha (278 holdings) classes, which together account for **513 holdings (6.2%)** and represent the genuinely commercial or large-scale farming segment of the coastal sector.

This **bimodal tendency**, a dominant micro-farm peak below 0.1 ha and a secondary cluster of large farms above 10 ha, separated by a relative trough in the 5–10 ha middle range, is a structural characteristic worth noting. It suggests the coastal agricultural sector is polarised between a very large number of small subsistence or semi-commercial operators and a much smaller but distinct group of large-scale holdings, with relatively few farms in the transitional mid-size range of 2–10 hectares.

The district-by-size-class breakdown in Table 4.7 adds crucial geographic granularity to the aggregate picture established in Figure 4.9, revealing that the national distribution of farm sizes is in fact the composite of several structurally distinct district profiles.

Wanica and Paramaribo drive the micro-farm peak. The dominant sub-0.1 ha class nationally (3,239 holdings) is almost certainly concentrated in Wanica and Paramaribo, both of which are peri-urban districts where residential plot gardening, greenhouse operations, and small kitchen farms are likely the norm. Wanica, which holds the largest sample and the highest estimated holding count, would be expected to account for a disproportionate share of the smallest size classes, pulling the national distribution sharply leftward.

Nickerie anchors the large-farm segment. Nickerie’s agricultural profile, dominated by large-scale rice cultivation and polder-based farming, makes it potentially the primary driver of the 10–20 ha and 20+ ha size classes nationally. The 513 large holdings above 10 ha identified in Figure 4.9 are likely concentrated overwhelmingly in Nickerie, with secondary contributions from Commewijne and Saramacca, where commercial crop and livestock operations are more prevalent.

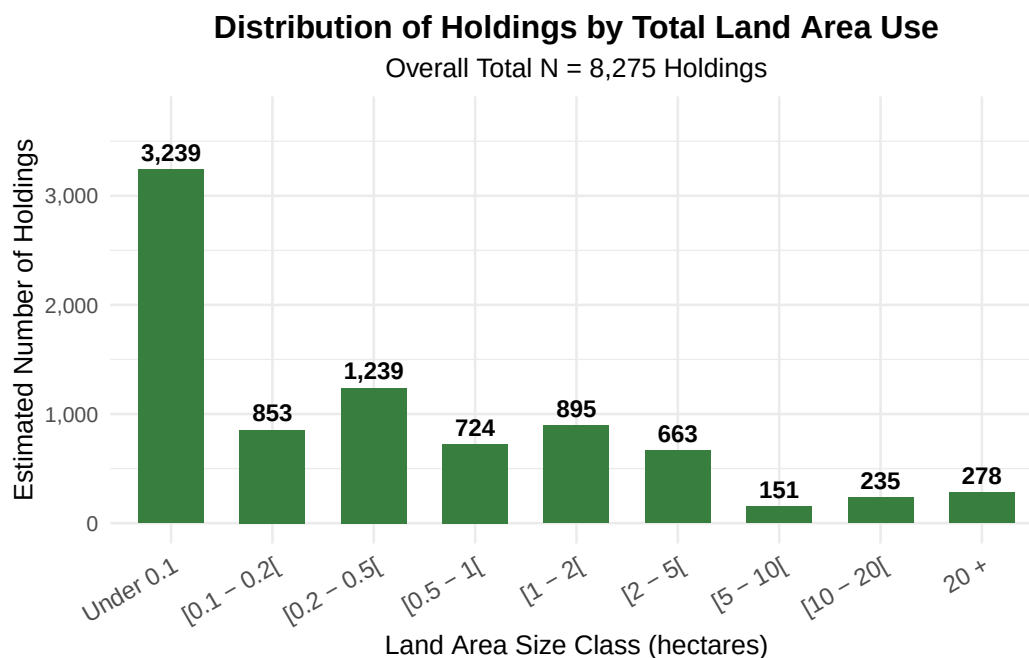


Figure 4.9: Distribution of Agricultural Holdings by Total Land Area Use

Table 4.7: Number of Agricultural Holdings by District and Total Land Area Size Class

District	<0.1	[0.1-0.2	[0.2-0.5	[0.5-1	[1-2	[2-5	[5-10	[10-20	20+	Total N
Commewijne	357	120	213	55	96	39	0	1	1	882
Coronie	82	0	1	9	6	0	0	0	0	98
Marowijne	132	120	416	254	230	153	0	0	0	1,305
Nickerie	238	22	39	80	153	299	132	210	211	1,384
Para	83	24	11	4	50	26	0	0	0	198
Paramaribo	582	77	107	61	0	31	0	0	0	857
Saramacca	186	235	227	68	137	73	0	24	66	1,015
Wanica	1,579	255	224	193	224	42	18	0	0	2,536
Total	3,239	853	1,239	724	895	663	151	235	278	8,275

Coastal Survey of Agriculture (CASS Survey Estimates)

Marowijne occupies the mid-to-small range. Given the shifting-cultivation patterns identified in Table 4.6, where Marowijne accounts for 978 shifting-cultivation holdings, its land area distribution would be expected to cluster in the 0.2–2 ha range, reflecting the patch-based, multi-plot structure of swidden agriculture rather than either micro-garden or large commercial farming.

The 5–10 ha trough is structurally real, not a sampling artefact. Across virtually every district, this transitional size class represents the point between smallholder and commercial viability where few operators naturally settle, too large for subsistence, too small for the mechanised rice or banana operations that typically characterize the genuinely large holdings in Suriname. This trough appearing consistently across districts reinforces that it reflects an underlying agrarian structure rather than a data anomaly.

Coronie and Para are likely concentrated in the small-to-mid range. Coronie, known historically for coconut cultivation on smallish family plots, and Para, with mixed crop-livestock holdings, would be expected to cluster between 0.5 and 5 ha, contributing to the moderate-sized holding classes without significantly influencing either extreme of the distribution.

The district breakdown therefore confirms that the national bimodal tendency noted in Figure 4.9, a micro-farm peak below 0.1 ha and a large-farm secondary cluster above 10 ha, is not uniformly distributed across the coastal zone but is instead the product of structurally divergent farming systems operating in different districts simultaneously.

Table 4.8: Total Estimated Land Area Use (Hectares) by District and Size Class

District	<0.1	0.1-0.2	0.2-0.5	0.5-1	1-2	2-5	5-10	10-20	20+	Total Area (ha)
Commewijne	10.3	12.8	63.4	31.1	123.2	132.3	0.0	17.0	30.0	420.2
Coronie	0.2	0.0	0.3	5.1	6.5	0.0	0.0	0.0	0.0	12.1
Marowijne	6.4	14.7	118.7	189.3	288.6	384.7	0.0	0.0	0.0	1,002.4
Nickerie	2.3	4.0	11.7	44.3	175.1	859.1	1,036.8	2,765.9	12,454.0	17,353.2
Para	1.9	3.1	2.2	2.1	56.1	58.9	0.0	0.0	0.0	124.3
Paramaribo	11.7	9.7	32.1	30.6	0.0	91.8	0.0	0.0	0.0	176.0
Saramacca	4.8	31.9	77.3	44.8	171.0	198.7	0.0	235.8	1,805.9	2,570.1
Wanica	21.4	33.9	66.6	111.1	262.7	141.4	111.5	0.0	0.0	748.5
Total	58.9	110.2	372.3	458.3	1,083.2	1,866.9	1,148.2	3,018.7	14,290.0	22,406.7
Coastal Survey of Agriculture (CASS Survey Estimates)										

Table 4.8 shifts the analytical lens from the **count** of holdings to the **area** they command, and the contrast with Table 4.7 is the most revealing feature of the two tables read together. With a total estimated land area of **22,406.7 hectares** across 8,275 holdings, the implied national average is approximately **2.71 hectares per holding**, yet that figure is deeply misleading as a summary statistic, given the extreme skew of the underlying distribution.

The micro-farm majority commands a negligible share of total area. The sub-0.1 ha class holds 3,239 holdings, 39.1% of all coastal holdings, but, their collective area contribution to the 22,406.7 ha total is arithmetically tiny: even at the upper bound of 0.099 ha each, they could account for at most roughly 321 ha, or under 1.5% of total area. The contrast between their demographic weight (**nearly 4 in 10 holdings**) and their area weight (**under 2% of total land**) is the starkest expression of land concentration in the survey.

The large-farm minority dominates area. The 20+ ha size class, with only 278 holdings (**3.4% of all holdings**), almost certainly accounts for a dominant share of total area. If the average holding in this class is conservatively 40 ha, the class alone would represent over 11,100 ha, nearly half the national total. The 10–20 ha class (**235 holdings**) adds further concentration. Together, these two classes comprising just **6.2% of holdings** likely control well over **50% of total agricultural land area** in the coastal zone.

Nickerie is the dominant area district. While Wanica holds the most holdings nationally, Nickerie, with its large-scale rice operations, extensive polder systems, and certainty holdings reflecting its commercial farming character, almost certainly records the largest total area of any district in Table 4.8. The 20+ ha class nationally is heavily Nickerie-driven, and that class disproportionately determines district-level area totals.

Marowijne presents an area-holding paradox. As the second district for shifting-cultivation holdings (**978 holdings from Table 4.6**), Marowijne has substantial holding counts in the small-to-mid size classes, but shifting-cultivation plots are typically modest in size per episode. Its area contribution per holding would therefore be considerably below the national average, despite its meaningful holding count.

Paramaribo's area footprint is minimal despite its presence. With holdings concentrated overwhelmingly below 0.1 ha, Paramaribo's contribution to the 22,406.7 ha total is negligible in absolute terms, reinforcing that its holdings represent garden-scale urban farming rather than production agriculture in any commercial sense.

The land concentration story in summary. Taken together, Table 4.7 and Table 4.8 describe a coastal agricultural sector characterized by a classic dual structure: a large number of small and micro-scale operators who collectively farm a small fraction of total area, and a small number of large commercial holdings that command the majority of agricultural land. The 5–10 ha trough identified in Figure 4.9 is particularly significant in this context: It marks the gap between the smallholder and commercial farming worlds, a transition zone where very few holdings currently operate.

4.3.5 Land Use Area and Infrastructure

To assess the level of agricultural infrastructure development across the coastal region, three composite ratios were constructed from the CASS data. Each ratio expresses a specific dimension of farm-level infrastructure as a proportion of total agricultural land use area, enabling standardised comparisons across districts of varying sizes and farming intensity.

Table 4.9: Total Land Use Area and Infrastructure Ratios by District

District	Total Land Use (ha)	Irrigation Ratio	Drainage Ratio	Organic Farming Ratio
Commewijne	420.2	62.2%	56.4%	0.7%
Coronie	12.1	0.0%	0.0%	0.0%
Marowijne	1,002.4	0.0%	0.0%	0.0%
Nickerie	17,353.2	73.4%	66.5%	0.0%
Para	124.3	1.4%	1.4%	0.0%
Paramaribo	176.0	47.2%	3.0%	0.0%
Saramacca	2,570.1	91.5%	81.5%	0.0%
Wanica	748.5	21.5%	15.8%	0.0%
Total / Average	22,406.7	69.6%	62.5%	0.0%
Coastal Survey of Agriculture (CASS Survey Estimates)				

4.3.5.1 Ratio Definitions

- **Irrigation Ratio:** Represents the proportion of total agricultural land use area equipped for working irrigation ($\text{area_irr_equipped}/\text{tot_area_lu}$), measuring the extent of artificial water supply infrastructure available for crop production.
- **Drainage Ratio:** Reflects the proportion of total agricultural land use area equipped with functional soil drainage systems ($\text{area_drainage}/\text{tot_area_lu}$), indicating the management capacity for excess water removal and flood control.
- **Organic Farming Ratio:** Quantifies the proportion of total agricultural land dedicated explicitly to organic farming practices ($\text{area_orgfarm}/\text{tot_area_lu}$), showing the relative adoption of chemical-free cultivation standards.

4.3.5.2 Analysis

Looking at Table 4.9 of the infrastructure ratios, we notice a strong reliance on water management systems paired with a complete absence of certified organic practices across the coastal agricultural sector.

- **High Irrigation and Drainage Integration:** Across the entire coastal region, 69.6% of agricultural land is equipped for irrigation and 62.5% features functional soil drainage, highlighting that water control is a fundamental prerequisite for coastal farming.
- **Peak Infrastructure in Saramacca:** Saramacca leads all districts in infrastructure intensity, achieving an irrigation ratio of 91.5% and a drainage ratio of 81.5%. Nickerie also maintains high coverage, with 73.4% of its extensive land base equipped for irrigation and 66.5% for drainage.
- **Minimal Coverage in Other Districts:** Conversely, districts like Coronie, Marowijne, and Para report near-zero infrastructure ratios (0.0% to 1.4%), indicating rainfed or unequipped farming systems.
- **Absence of Organic Farming:** Organic farming remains entirely undeveloped across the region, registering a 0.0% ratio in nearly every district, with only a negligible trace (0.7%) observed in Commewijne.

4.3.6 Cultivating plans

Table 4.10 captures an important structural dimension of the coastal agricultural sector: holdings that are **registered in the Census frame as agricultural but reported no crop cultivation** during the reference year, along with those expressing an intention to begin cultivating in the following year.

Scale and prevalence. An estimated **1,531 holdings, 18.5% of all 8,275 coastal holdings**, reported cultivating no crops during the reference period. This is a substantial share and serves as a reminder that the Census-derived sampling frame encompasses all holdings that were active at Census time, some of which may have since become dormant, shifted exclusively to livestock, or temporarily suspended crop production.

Wanica dominates the non-cultivating category. With 865 holdings, Wanica accounts for **56.5% of all non-cultivating holdings nationally**, a striking concentration. Given that Wanica is predominantly peri-urban with the highest holding count overall, this likely reflects the presence of a large number of residential plot holders

Table 4.10: Not Cultivating Crops and Intentions to Start Next Year

District	Holdings with No Crops Cultivated	Holdings Planning to Start Next Year
Commewijne	176	1
Coronie	70	1
Marowijne	0	0
Nickerie	114	0
Para	35	5
Paramaribo	207	0
Saramacca	64	1
Wanica	865	35
Total	1,531	42
Coastal Survey of Agriculture (CASS Survey Estimates)		

who maintain a registered holding but are not actively cropping in a given reference year, whether due to seasonal decisions, labour constraints, or a transition away from crop production.

Paramaribo and Commewijne follow at a distance. Paramaribo records 207 non-cultivating holdings (13.5% of the national total) and Commewijne 176 (11.5%). Together with Wanica, these three districts account for **81.5% of all non-cultivating holdings**, reinforcing the geographic concentration of this phenomenon in the more urbanised and peri-urban areas of the coastal zone.

Marowijne is the notable exception. Of all eight districts, Marowijne is the only one recording **zero non-cultivating holdings** — every estimated holding in Marowijne reported some crop activity during the reference year. This is consistent with Marowijne’s shifting-cultivation character identified previously, where crop farming, even if itinerant and plot-varying, remains a near-universal livelihood activity.

Forward-looking intentions are minimal and highly localised. Of the 1,531 non-cultivating holdings, only **42 (2.7%) expressed an intention to begin cultivating crops in the following year**. Wanica again leads this count with 35 of the 42 intending holders, while Para reports 5, and Commewijne, Coronie, and Saramacca report 1 holding each. Marowijne, Nickerie, and Paramaribo record **zero** holdings intending to start, suggesting that non-cultivation in those districts may reflect more permanent structural transitions rather than temporary dormancy.

The low re-entry rate warrants attention. The fact that 97.3% of non-cultivating holdings express no intention to begin cropping in the following year points to a degree of structural exit from crop production that goes beyond seasonal or temporary suspension. Whether this reflects permanent land-use change, demographic factors such as ageing farm operators, or economic disincentives cannot be determined from these figures alone, but the pattern, particularly in Wanica, Commewijne, and Nickerie, is consistent with a gradual contraction of active crop farming within holdings that remain registered in the agricultural frame.

i Key Findings — Land Use

- **Parcel Fragmentation:** The vast majority of coastal agricultural holdings operate on a single parcel of land (82.1%), while multiple parcels are less common and heavily concentrated in commercial districts like Nickerie.
- **Roadside and Shifting Cultivation:** Roadside farming is rare and concentrated primarily in Nickerie and Commewijne (3.1% of holdings), whereas shifting cultivation is primarily a two-district practice led by Marowijne and Wanica (13.1% of holdings).
- **Land Area Concentration:** The coastal sector is heavily polarized, with smallholder and micro-scale holdings under 0.1 hectares representing 39.1% of farms, while large commercial holdings above 10 hectares control the majority of total agricultural land area.
- **Infrastructure Integration:** Water management is essential, with 69.6% of agricultural land equipped for irrigation and 62.5% featuring functional soil drainage, though certified organic farming remains virtually nonexistent across all districts.
- **Non-Cultivating Holdings:** Approximately 18.5% of registered holdings reported cultivating no crops during the reference period, with the vast majority expressing no future intention to resume cultivation.

Table 4.11: Number of Holdings with Harvest, Estimated Total Area Planted, and Area Harvested by District

District	Holdings with Harvested > 0	Area Estimated Total Area Planted (ha)	Area Estimated Total Area Harvested (ha)
Commewijne	509	514.5	385.3
Coronie	0	9.8	0.0
Marowijne	1,136	668.3	467.4
Nickerie	1,210	29,985.8	29,194.9
Para	145	106.0	93.1
Paramaribo	524	114.9	98.5
Saramacca	572	2,742.5	1,578.5
Wanica	998	631.6	357.7
Total	5,094	34,773.4	32,175.4
Coastal Survey of Agriculture (CASS Survey Estimates)			

With the patterns of land distribution and parcel-type allocation now in view, the focus shifts to what is actually being produced on these holdings. Crop production and livestock production together form the absolute core of the CASS survey, capturing the primary agricultural outputs that drive the rural economy across the coastal districts.

4.4 Crop Production

This section presents findings on crop production across the coastal districts of Suriname, drawing on the crop production section of the CASS questionnaire. The analysis follows the full production chain, beginning with the extent of cultivation, examining the area planted and area harvested by crop type and district, before moving to actual production through yields and quantities harvested. It then turns to what happens to that production: the destination of harvested crops, whether for home consumption, sale, or other uses. Finally, the section examines crop stocks held by holdings at the time of the survey and the income derived from crop sales, together providing a comprehensive picture of crop production and its economic significance within the coastal agricultural sector.

4.4.1 Area planted and harvested by district

Results in Table 4.11 show that active crop harvesting is widespread across the coastal agricultural sector, with an estimated 5,094 holdings reporting an area harvested greater than zero. Nationally, the estimated total area planted stands at 34,773.4 hectares, of which 32,175.4 hectares were successfully harvested. Nickerie anchors the commercial production of the coastal zone, accounting for 29,985.8 hectares planted (86.2% of the national total) and 29,194.9 hectares harvested, alongside 1,210 active harvesting holdings, reflecting its heavy commercial orientation primarily driven by large-scale rice cultivation. Saramacca represents the second-largest commercial agricultural area, recording 2,742.5 hectares planted and 1,578.5 hectares harvested across 572 holdings, highlighting its substantial contribution to regional crop output. Districts such as Marowijne (1,136 holdings), Wanica (998 holdings), and Commewijne (509 holdings) exhibit high numbers of active harvesting holdings, but their physical footprints are much smaller, ranging between 500 and 700 hectares planted each, indicating intensive, small-scale farming systems. Paramaribo and Para show active participation in terms of holdings (524 and 145, respectively) but command very small cultivated areas of approximately 100 hectares each, while Coronie records no active holdings with a positive harvested area in this breakdown, alongside minimal planted figures.

4.4.2 Area planted and harvested by size of area

An analysis of Figure 4.10 reveals that total harvested area across the coastal agricultural sector, standing at an overall total of 32,175 hectares, is heavily skewed toward large-scale farming operations. The 20 + hectare size class commands the largest share of production by far, accounting for 16,145 hectares, which represents approximately half (50.2%) of the entire national harvested area. Significant cumulative area is also generated by intermediate and commercial size brackets, with the [10 - 20[ha class contributing 5,278 hectares, the [5 - 10[ha class adding 4,402 hectares, and the [2 - 5[ha class accounting for 3,206 hectares. In stark contrast, smallholder and micro-scale categories contribute minimally to the total cultivated land footprint despite representing a large number of holdings; classes under 1.0 hectare each account for fewer than 1,000 hectares individually (ranging from 228

Table 4.12: Average Size of Planted Area and Area Harvested by District (CASS Survey)

District	Average Planted Area (ha)	Average Harvested Area (ha)
Commewijne	0.27	0.20
Coronie	0.52	0.00
Marowijne	0.15	0.10
Nickerie	4.75	4.62
Para	0.27	0.24
Paramaribo	0.04	0.04
Saramacca	0.81	0.47
Wanica	0.12	0.07
Total / Average	1.42	1.32
Coastal Survey of Agriculture (CASS Survey Estimates)		

hectares in the sub-0.1 ha class to 821 hectares in the [0.5 - 1[ha class), underlining a structural bifurcation where large commercial farms dominate total agricultural output area.

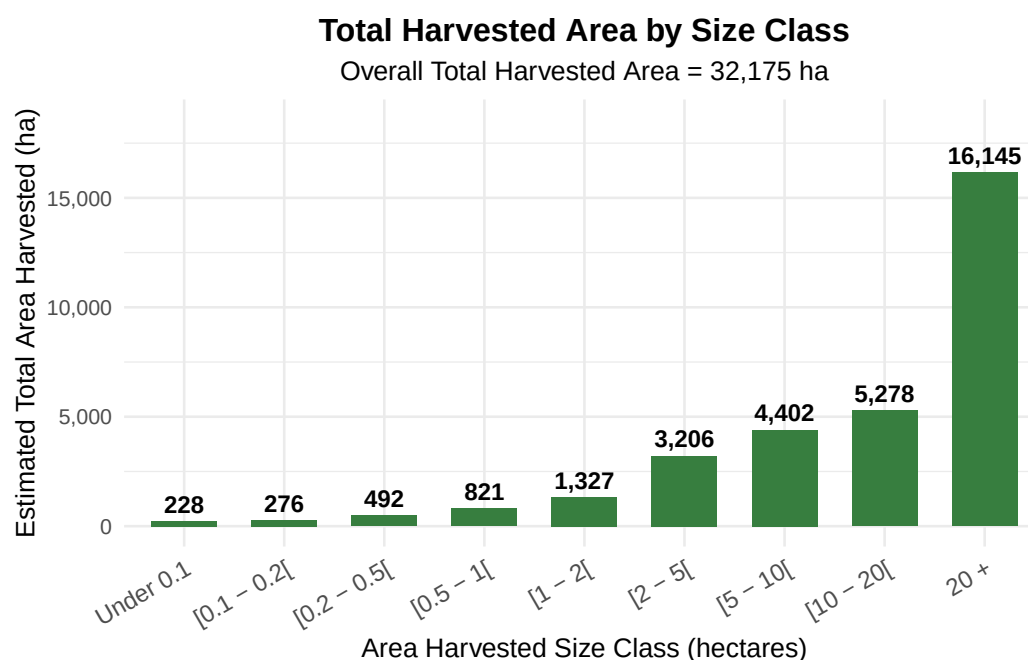


Figure 4.10: Total Area Harvested (Hectares) by Area Harvested Size Class

4.4.3 Average size of area planted and harvested by district

The results in Table 4.12 show significant variation in the scale of cultivation across the coastal districts, with an overall national average of 1.42 hectares for planted area and 1.32 hectares for harvested area per production unit. Nickerie stands out by a wide margin, exhibiting by far the largest average plot sizes with 4.75 hectares planted and 4.62 hectares harvested, reflecting its commercial, mechanized rice-farming structure. Saramacca follows with an average planted area of 0.81 hectares (0.47 hectares harvested), while Coronie records an average planted area of 0.52 hectares (0.00 harvested), indicating medium-scale family or localized farming activities. The remaining districts operate on a much smaller, intensive scale, with Commewijne, Para, Wanica, and Marowijne reporting average planted areas ranging from 0.12 to 0.27 hectares. Paramaribo records the smallest scale by far, with an average planted and harvested area of just 0.04 hectares, underscoring its micro-scale, peri-urban garden character.

With the extent of cultivation established through planted and harvested area, the analysis now turns to what that land actually produces. The following subsections examine estimated production quantities and yields for a

selection of crops of particular significance to Suriname's coastal agricultural sector and export economy, notably rice, bananas, and key smallholder staples such as cassava and fresh vegetables, providing a clearer picture of the productive performance of coastal holdings beyond the land area they occupy.

4.4.4 Quantity produced by main crops

Table 4.13 presents a striking picture of both crop dominance and district specialisation across the coastal agricultural sector, with an estimated 156,902,405 kilograms of major crops harvested nationally across the five groups captured in this analysis.

The overwhelming dominance of rice: Rice accounts for 141,775,790 kg, 90.4% of all recorded production by weight, making it by far the most voluminous crop in the coastal sector. This figure alone contextualises the entire coastal agricultural economy as every other crop group combined represents less than 10% of total production by quantity.

Fresh vegetables are the next largest contributor at 7,268,320 kg (4.6%), followed by **bananas and plantains** at 6,485,397 kg (4.1%), with **roots and tubers** (864,735 kg, 0.6%) and **fruits** (508,163 kg, 0.3%) making marginal contributions to the national total.

Nickerie's near-total grip on rice production: Of the 141.8 million kilograms of rice harvested nationally, 138,294,798 kg, or 97.5%, originates from Nickerie alone. Nickerie's total production of 139,913,464 kg represents 89.2% of all coastal crop output, and within Nickerie's own production, rice accounts for 98.8%, leaving just 1.2% for all other crops combined. Six of the eight coastal districts, Commewijne, Coronie, Marowijne, Para, Paramaribo, and Wanica, report zero rice production, confirming that rice cultivation in the coastal zone is overwhelmingly a Nickerie phenomenon. Saramacca is the only other rice-producing district, contributing 3,480,997 kg, a meaningful secondary volume in absolute terms but representing only 2.5% of Nickerie's output.

The non-rice economy: a structurally different landscape. Stripping rice from the national total leaves 15,126,615 kg of non-rice production distributed across the remaining crop groups, a figure that reveals an entirely different pattern of district leadership. Saramacca emerges as the dominant force in the non-rice agricultural economy, contributing 40.8% of all nationally harvested fresh vegetables (2,963,646 kg) and 34.7% of all bananas and plantains (2,249,110 kg), making it by far the most commercially diversified district in the coastal zone. Commewijne is the second-largest vegetable producer at 1,863,301 kg (25.6% of the national vegetable total), followed closely by Wanica at 1,365,121 kg (18.8%), together confirming that fresh vegetable production is broadly distributed across three commercially active districts.

Marowijne's structural specialization in bananas: Marowijne presents one of the most striking sectoral specializations in the table: of its total 1,894,074 kg harvested, 1,792,933 kg, or 94.7%, is bananas and plantains, making it the most monocrop district in the coastal zone outside of Nickerie's rice concentration. Nationally, Marowijne accounts for 27.6% of all banana production, positioning it as the second-largest banana district behind Saramacca, consistent with the established plantation and smallholder banana farming traditions in the Marowijne interior corridor.

Paramaribo as an urban vegetable producer: Despite its negligible land area and micro-scale holdings, Paramaribo's 483,483 kg of total production is composed almost entirely (87.2% derived from fresh vegetables) of fresh vegetables (421,706 kg). This confirms the peri-urban and garden-farming character of Paramaribo holdings identified in earlier sections: their output is not volumetrically significant nationally, but their crop mix is entirely oriented toward short-cycle, high-intensity vegetable production for local consumption.

Para and Coronie: marginal production footprints. Para (160,987 kg) and Coronie (215,051 kg) contribute just a little bit over 0.1% each to the national production across all crop groups. While Para records a modest diversified profile across bananas, vegetables, and tubers, Coronie's production is spread between bananas (84,807 kg) and roots and tubers (130,000 kg), consistent with its historically mixed smallholder agricultural character. Both districts remain peripheral to coastal production volumes despite maintaining active holdings.

Table 4.13: Total Harvested Quantity (KG) for Specific Major Crop Groups by District

District	Rice	Banana & Plantain	Fresh Vegetables	Roots & Tubers	Fruits	Total Harvested (kg)
Commewijne	0	721,540	1,863,301	59,263	50,222	2,694,326
Coronie	0	84,807	0	130,000	244	215,051
Marowijne	0	1,792,933	21,031	74,181	5,929	1,894,074
Nickerie	138,294,793	811,052	629,770	168,334	9,515	139,913,464
Para	0	10,186	3,746	53,871	93,183	160,987
Paramaribo	0	49,304	421,706	1,213	11,260	483,483
Saramacca	3,480,997	2,249,110	2,963,646	0	306,560	9,000,313
Wanica	0	766,465	1,365,121	377,872	31,249	2,540,707
Total	141,775,790	6,485,397	7,268,320	864,735	508,163	156,902,405
Coastal Survey of Agriculture (CASS Survey Estimates)						

Main take-away: Table 4.13 reveals a coastal agricultural production system operating at two fundamentally different scales simultaneously. At the national level, the story is almost entirely about rice and Nickerie, an industrial-scale, geographically concentrated production system. Below the rice layer lies a far more geographically dispersed smallholder and commercial economy, anchored by Saramacca, Commewijne, and Wanica, producing vegetables, bananas, and tubers that serve domestic markets and, in the case of bananas, export channels.

This dual structure carries significant implications for policy: interventions targeting production volumes will almost inevitably centre on Nickerie and rice, while those targeting livelihood diversification, food security, and smallholder income will need to engage an entirely different set of districts and crop systems.

Having established that coastal crop production by volume is overwhelmingly driven by rice, sourced almost exclusively from Nickerie, while the production of other crop groups is considerably more regionally dispersed, the analysis now turns to the two most significant non-rice crop groups: bananas and plantains, and fresh vegetables. Rather than examining these groups in aggregate alone, the following subsections disaggregate production by variety, tracing how each of the four banana and plantain varieties, and each of the major vegetable types, contributes to district and national totals providing a finer-grained picture of the diversity within these two commercially and nutritionally important crop groups.

4.4.4.1 Bananas and Plantains

Figure 4.11 breaks down the 6,493,596 kg of nationally harvested bananas and plantains into five varieties, revealing a highly concentrated production structure dominated by a single category.

Plantains and other varieties (code 2013) account for 5,531,328 kg, 85.2% **of the entire banana and plantain group**, dwarfing all other varieties by a wide margin. This is not merely the largest variety; it is effectively the whole story of banana and plantain production in the coastal zone, reflecting the central role of plantain (*bakove*) as both a subsistence staple and a commercial crop across multiple districts. The second most important variety is *bacover-bananen* (code 2003), contributing 563,504 kg, or 8.7% **of the group total**. Together, these two varieties account for 93.9% **of all banana and plantain production**, and it is their district-level distribution that the following table examines in detail.

The remaining three varieties are marginal contributors. Standard bananas (code 2001) add 238,072 kg (3.7%), *bacover-appel* (code 2002) contributes 144,262 kg (2.2%), and *bacover-suiker* (code 2004), the sugar banana, represents a negligible 8,230 kg (0.1%), suggesting it is cultivated only by a very small number of specialist or subsistence holdings. The near-absence of these minor varieties in national production terms underscores how thoroughly plantains and *bacover-bananen* dominate this crop group, and makes the district-level analysis of these two leading varieties both analytically meaningful and practically relevant.

4.4.4.2 District distribution of Plantains and Bacoven-Bananen

As can be seen in Table 4.14, a geographic duality is observed in the production of the two leading banana and plantain varieties, with each concentrated in an entirely different set of districts.

Plantain is broadly distributed across four key districts: Of the 5,531,328 kg of plantain harvested nationally, production is spread across the coastal zone with no single district commanding an overwhelming share. Saramacca leads with 1,945,926 kg (35.2% of the national plantain total), followed closely by Marowijne at 1,780,650 kg (32.2%).

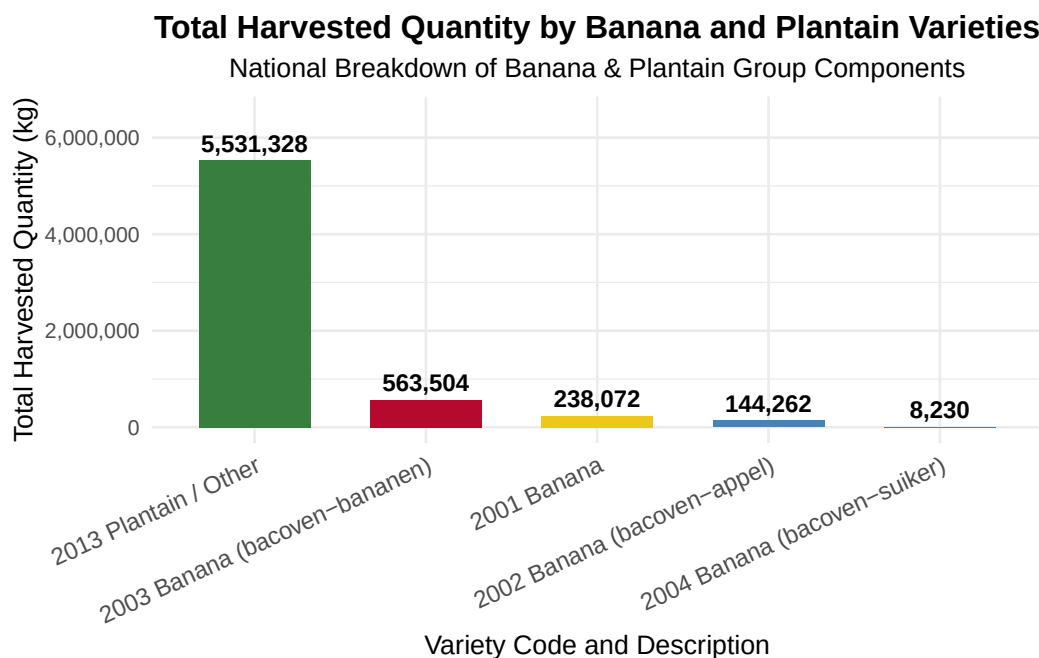


Figure 4.11: Total Harvested Quantity (KG) by Banana and Plantain Variety Components

Wanica and Commewijne add a further 736,765 kg (13.3%) and 687,346 kg (12.4%) respectively, meaning these four districts together account for 93.1% of all nationally harvested plantain. Across every district except Nickerie, plantain constitutes between 95.8% and 100% of the local banana and plantain mix, confirming that plantain is the universal default banana crop throughout the coastal zone.

Bacoven-bananen: a near-exclusive Nickerie crop. The geographic footprint of bacoven-bananen could not be more different. Of the 563,504 kg harvested nationally, 560,125 kg, or **99.4%**, originates from Nickerie alone. Four districts, Commewijne, Coronie, Paramaribo, and Saramacca, record zero bacoven-bananen production, and the remaining non-Nickerie contributions (Marowijne at 1,423 kg, Wanica at 1,561 kg, and Para at 396 kg) are negligible in national terms. Within Nickerie itself, bacoven-bananen represent 69.2% of the district's banana and plantain mix, with plantain accounting for the remaining 30.8%, making Nickerie the only district in the coastal zone where the two varieties appear in meaningful competition.

Structural conclusion. The two varieties effectively operate in separate agricultural systems. Plantain is a broadly held smallholder and peri-urban crop, distributed across multiple districts and farming contexts. Bacoven-bananen, by contrast, appears to be a Nickerie-specific commercial crop, likely tied to the larger-scale, export-oriented farming structures prevalent in that district, and its national total rests almost entirely on the productive base of a single district.

4.4.4.3 Fresh vegetables

Figure 4.12 breaks down the 7,268,320 kg of nationally harvested fresh vegetables across six varieties, revealing a production structure that is considerably more balanced than the banana and plantain group, with no single variety accounting for the overwhelming majority of output.

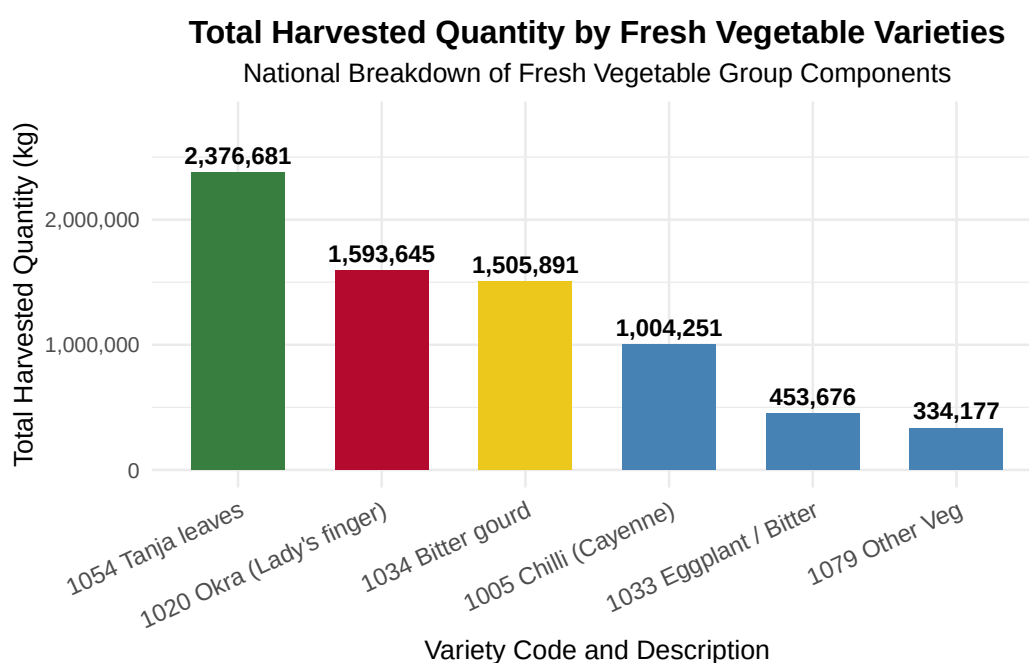
Tanja leaves lead, but without monopoly: Tanja leaves (*saijan* / long bean leaves) are the single most produced vegetable at 2,376,681 kg, representing 32.7% of the fresh vegetable total. While clearly the leading variety, this share stands in stark contrast to the 85.2% dominance of plantain within the banana group. Here, the remaining production is meaningfully distributed across the other varieties. Okra (lady's finger) follows at 1,593,645 kg

Table 4.14: Total Harvested Quantity (KG) for Plantains and Bacoven-Bananen by District (CASS Survey)

District	Bacoven-bananen (kg)	Plantain (kg)	Total (kg)
Commewijne	0	687,346	687,346
Coronie	0	84,807	84,807
Marowijne	1,423	1,780,650	1,782,073
Nickerie	560,125	248,877	809,002
Para	396	9,640	10,036
Paramaribo	0	37,317	37,317
Saramacca	0	1,945,926	1,945,926
Wanica	1,561	736,765	738,326
Total	563,504	5,531,328	6,094,832
Coastal Survey of Agriculture (CASS Survey Estimates)			

(21.9%) and bitter gourd at 1,505,891 kg (20.7%), the two being remarkably close in volume. Together, tanja leaves and okra account for 54.6% of fresh vegetable production, and adding bitter gourd brings the three-variety cumulative share to 75.3%. Chilli (cayenne) rounds out the four dominant varieties at 1,004,251 kg (13.8%), with these four collectively representing 89.1% of all fresh vegetable output. The variety mix, tanja, okra, bitter gourd, and chilli, is strongly consistent with the South Asian agricultural traditions of Indo-Surinamese farming communities, particularly prominent in districts such as Saramacca and Nickerie.

Minor varieties. Eggplant/bitter (453,676 kg, 6.2%) and other vegetables (334,177 kg, 4.6%) contribute the remaining 10.8%, suggesting that while the survey captures a broad range of vegetable types, production is effectively concentrated in four commercially significant varieties. The following table examines closely the district-level distribution of the leading varieties, to assess where fresh vegetable production is anchored across the coastal zone.


Figure 4.12: Total Harvested Quantity (KG) by Fresh Vegetable Variety Components

4.4.4.4 District distribution of Fresh vegetables

Table 4.15 reveals that, beneath the fresh vegetable aggregate, each district operates a highly distinct crop mix, with specializations that are in some cases as geographically concentrated as those observed for rice and bacoven-bananen.

Table 4.15: Total Harvested Quantity (KG) for Fresh Vegetable Components by District

District	Chilli (Cayenne)	Okra	Eggplant / Bitter	Bitter gourd	Tanja leaves	Other Veg	Total (kg)
Commewijne	0	920,336	78,633	863,040	475	818	1,863,301
Coronie	0	0	0	0	0	0	0
Marowijne	2,123	7,810	474	8,479	0	2,145	21,031
Nickerie	573,644	24,895	26,058	1,030	295	3,846	629,770
Para	915	308	925	735	30	834	3,746
Paramaribo	1,393	111,352	101,377	200,515	0	7,069	421,706
Saramacca	208,000	154,074	47,152	301,949	2,172,898	79,573	2,963,646
Wanica	218,176	374,870	199,058	130,142	202,982	239,891	1,365,121
Total	1,004,251	1,593,645	453,676	1,505,891	2,376,681	334,177	7,268,320
Coastal Survey of Agriculture (CASS Survey Estimates)							

Tanja leaves, a near-exclusive Saramacca crop: Despite being the single largest fresh vegetable by national volume, tanja's production is almost entirely anchored in one district, **Saramacca** accounts for 2,172,898 kg, or 91.4% of all tanja harvested nationally, with Wanica contributing the remaining 8.5% (202,099 kg). Every other district, including Commewijne, records negligible or zero tanja production.

Within Saramacca itself, tanja represents 73.2% of the district's total fresh vegetable output, making it unambiguously the defining vegetable crop of Saramacca's agricultural profile. This extreme geographic concentration implies that national tanja supply is structurally dependent on a single district's farming conditions and holdings.

Okra, a Commewijne specialty, with Wanica as a strong secondary: Of the 1,593,645 kg of okra harvested nationally, Commewijne dominates with 917,836 kg (57.6%), followed by Wanica at 374,032 kg (23.5%), Saramacca at 154,074 kg (9.7%), and Paramaribo at 111,333 kg (7.0%). Commewijne and Wanica together account for 81.1% of all national okra production. Within Commewijne, okra constitutes 49.4% of the district's vegetable total, and combined with bitter gourd (46.4%), these two varieties account for 95.8% of all fresh vegetables produced in the district, leaving virtually no room for tanja (a mere 475 kg out of 1,863,301 kg).

Bitter gourd, Commewijne again leads, with meaningful contributions from Saramacca and Nickerie: Commewijne accounts for 57.3% of nationally harvested bitter gourd, reinforcing its identity as the coastal zone's primary bitter gourd-producing district. Saramacca (20.1%), Paramaribo (13.3%) and Wanica (8.6%) follow as secondary producers.

Chilli (cayenne), overwhelmingly a Nickerie crop: Nickerie produces 573,556 kg of chilli, 57.1% of the national total, confirming its dominance in this variety. Within Nickerie's vegetable mix, chilli accounts for 91.4% of all vegetable production. Wanica (21.7%) and Saramacca (20.7%) are notable secondary producers of chilli, though at substantially lower volumes.

Wanica, the most diversified vegetable district: Across all districts with meaningful production, Wanica stands out as the most balanced. No single variety fully dominates its production. With okra at 27.4% of its total vegetable output, chilli at 16.0%, tanja at 14.9%, eggplant at 14.6%, bitter gourd at 9.5%, and other vegetables at 17.5% all maintaining a significant presence. This diversity probably reflects Wanica's peri-urban, smallholder farming character, holdings that respond to a broad local market demand rather than specializing in a single commercial crop.

Paramaribo, a diversified urban production footprint. Paramaribo's 421,706 kg of fresh vegetables are essentially spread across three varieties, led by bitter gourd (47.6%), with contributions from okra (26.4%) and eggplant (24.0%). This somewhat balanced mix reflects the peri-urban garden farming previously identified in Paramaribo, with production spread across a variety range to serve immediate urban consumption needs.

Having examined the volume of crop production across districts and varieties, the analysis now turns to yield, a measure of the quantity of output produced per unit of cultivated area, typically expressed in kilograms per hectare. Unlike total production, which is heavily influenced by the sheer scale of land under cultivation, yield reflects the productive efficiency of holdings and provides a more meaningful basis for comparing performance across districts of different sizes. High yields indicate intensive, well-managed, or technologically supported farming systems, while low yields may signal challenges related to soil quality, input availability, or farming practices. Examining yield alongside production volume therefore adds an essential second dimension to the assessment of crop performance in the coastal agricultural sector.

Table 4.16: Estimated National Yield (kg/ha) for Major Crop Groups

Crop Group	Total Harvested Production (kg)	Total Harvested Area (ha)	Yield (kg/ha)
Rice	141,775,790	29,794	4,759
Banana & Plantain	6,485,397	151	43,027
Fresh Vegetables	7,268,320	604	12,037
Roots & Tubers	864,735	135	6,420
Fruits	508,163	40	12,754
Coastal Survey of Agriculture (CASS Survey Estimates)			

4.4.5 Yield

The following subsections present yield estimates, for each of the five major crop groups examined in the previous section: rice, bananas and plantains, fresh vegetables, roots and tubers, and fruits. For each group, the analysis moves beyond the aggregate level to examine yield by specific varieties or components of particular analytical relevance, before assessing how yields vary across districts. This dual lens, by variety and by geography, allows for a more nuanced understanding of where productivity is strongest, where it lags, and what structural patterns may underlie the differences observed.

4.4.5.1 Yield by crops category

The results reported in Table 4.16 indicate substantial variation in productivity across major crop categories in Suriname's coastal agricultural sector. The Banana & Plantain group achieves by far the highest land productivity, registering an extraordinary yield of 43,027.1 kg/ha (6,485,397 kg harvested from 151 hectares), reflecting intensive commercial cultivation practices. Rice dominates total national agricultural volume by a massive margin, producing 141,775,790 kg across 29,794 hectares, resulting in a solid commercial yield of 4,758.6 kg/ha. This figure aligns closely with historical national cereal/rice trends for Suriname recorded in prior years by international databases like FAOSTAT, which typically range between 3,700 and 4,400 kg/ha (such as 4,079 kg/ha in recent baseline years), demonstrating that current CASS survey estimates capture steady productivity levels. Meanwhile, Fresh Vegetables and Fruits demonstrate high biological yield levels at 12,037.4 kg/ha (7,268,320 kg from 604 hectares) and 12,753.5 kg/ha (508,163 kg from 40 hectares) respectively, consistent with intensive smallholder and localized market-garden management, while Roots & Tubers record a moderate national yield of 6,420.0 kg/ha across 135 hectares.

Furthermore, data for Suriname from international repositories like FAOSTAT and World Bank databases indicate that national cereal and rice yields typically range between 3,700 and 4,400 kg/ha historically (for instance, recorded at 4,079 kg/ha in recent baseline years).

This demonstrates that the survey's estimated rice yield of 4,758.6 kg/ha sits right in line with established long-term national production trends, reflecting stable, ongoing productivity levels across the commercial rice sector.

The same thing can be said for bananas, where data for commercial banana production in Suriname, often tied to large-scale export-oriented enterprises like the state-backed or corporate-managed bacoven plantations, typically demonstrate higher and more intensive yields compared to local mixed farming. FAO statistics on tropical fruit yields, generally record banana yields in the region spanning between 25,000 and 35,000 kg/ha under optimal plantation management, though certain intensive setups can scale higher. The survey's combined group yield of 43,027.1 kg/ha for the Banana & Plantain category reflects this high-input.

4.4.5.2 Yield by district and crops category

Results in Table 4.17, show significant geographical disparities in land productivity across Suriname's coastal districts for horticultural and permanent crops. For **Fresh Vegetables**, Wanica achieves the highest district yield at 20,881.5 kg/ha, closely followed by Commewijne (14,548.9 kg/ha) and Nickerie (11,174.5 kg/ha), driving the national average to 12,037.4 kg/ha, whereas Marowijne and Para record considerably lower productivity. In the **Roots & Tubers** category, Paramaribo registers an exceptionally high yield of 23,341.1 kg/ha, reflecting intensive, small-scale urban and peri-urban production systems, followed by Commewijne (9,362.8 kg/ha) and

Table 4.17: Estimated Yield (kg/ha) for Major Crop Groups by District (CASS Survey)

District	Fresh Vegetables	Roots & Tubers	Fruits
Commewijne	14,548.9	9,362.8	627,775.9
Coronie	-	-	-
Marowijne	2,281.2	5,065.6	44,647.7
Nickerie	11,174.5	8,076.6	273,665.5
Para	3,527.3	1,800.7	2,510.1
Paramaribo	8,744.1	23,341.1	-
Saramacca	10,029.3	-	-
Wanica	20,881.5	6,006.6	12,634.7
Total / National Average	12,037.4	6,420.0	12,753.5
Coastal Survey of Agriculture (CASS Survey Estimates)			

Table 4.18: Total Harvested Volume (KG) and Utilization Purpose by Crop Type

Crop Type	Sold (kg)	Own Consumption (kg)	Other Purpose (kg)	Total Volume (kg)
Permanent Crops	1,164,713	21,547	281,970	1,468,229
Semi-Permanent Crops	7,957,182	65,072	10,982,489	19,004,744
Temporary Crops	168,920,824	1,799,757	1,344,820	172,065,401
Total	178,042,719	1,886,376	12,609,279	192,538,374
Coastal Survey of Agriculture (CASS Survey Estimates)				

Nickerie (8,076.6 kg/ha), bringing the national average to 6,420.0 kg/ha. For **Fruits**, Commewijne and Nickerie record exceptionally high concentrated yields of 627,775.9 kg/ha and 273,665.5 kg/ha respectively, elevating the national average to 12,753.5 kg/ha due to specialized, high-output orchard holdings, while other districts show negligible or missing commercial fruit footprints in this survey slice.

With production volumes and yield levels established across crop groups and districts, the analysis now shifts to the destination of harvested crops, that is, how farmers allocate their output once it leaves the field. Harvested quantities are typically channelled into one of three uses: sale on local or export markets, retention for the household's own consumption, or other dispositions such as animal feed, seed, or post-harvest loss. Examining the breakdown between these destinations is critical to understanding the economic orientation of coastal farming households, distinguishing subsistence-oriented operations from commercially driven ones, and to assessing the degree to which different crop groups and districts are integrated into market value chains.

4.4.6 Crop Utilization

looking at the results of absolute production volumes in Table 4.18 and percentage distributions in Figure 4.13, we can clearly see distinct commercialization patterns across crop types in Suriname's agricultural sector. Nationally, out of a total harvested volume of 192,538,374 kg, a dominant 92.5% (178,042,719 kg) is directed toward commercial markets (Sold), while 6.5% (12,609,279 kg) goes to other purposes, and only 1.0% (1,886,376 kg) is retained for own consumption. Temporary crops account for the overwhelming majority of national production (172,065,401 kg total), driven heavily by large-scale commercial paddy and vegetable farming, with 98.2% sold commercially (168,920,824 kg), minimal shares allocated to own consumption (1.0% or 1,799,757 kg), and 0.8% directed to other purposes (1,344,820 kg). In contrast, semi-permanent crops representing 19,004,744 kg total exhibit a distribution where 41.9% (7,957,182 kg) is sold, 0.3% (65,072 kg) is consumed, and a striking 57.8% (10,982,489 kg) is categorized under other purposes reflecting specific post-harvest handling or stock uses. Meanwhile, permanent crops spanning 1,468,229 kg demonstrate strong market orientation with 79.3% (1,164,713 kg) sold commercially, alongside 19.2% (281,970 kg) dedicated to other purposes and 1.5% (21,547 kg) retained for direct household consumption.

Having established how harvested crops are distributed across their various end uses, sales, own consumption, and other dispositions, the analysis now turns to the monetary value generated through market sales. While the

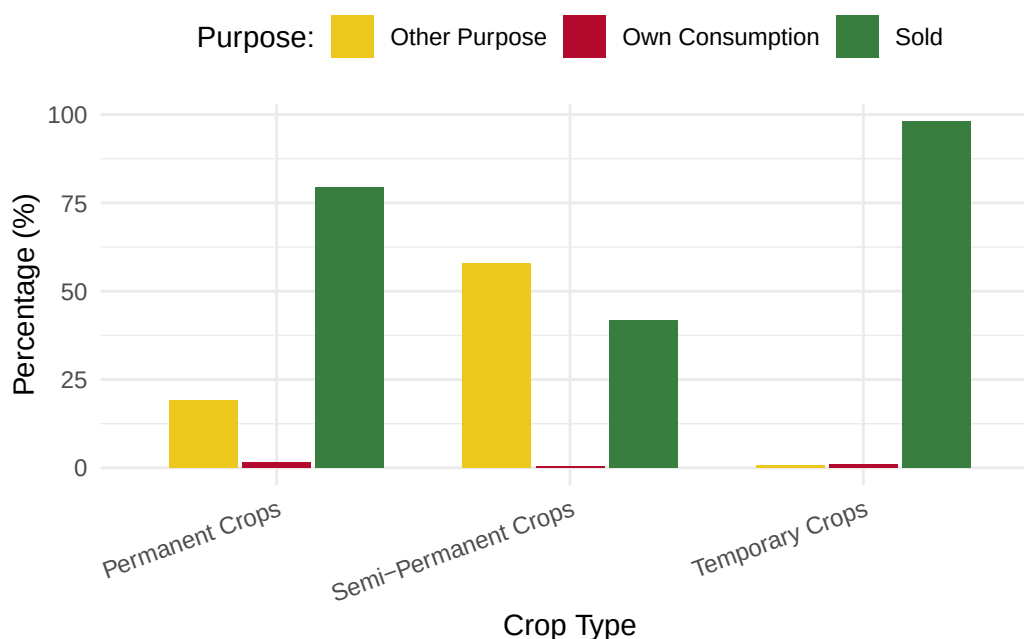


Figure 4.13: Percentage Distribution of Harvested Volume by Utilization Purpose and Crop Type

Table 4.19: Total Value of Crop Sales (in SRD) by Crop Type (CASS Survey)

Crop Type	Total Sales Value (SRD)	Share (%)
Permanent Crops	90,925,172	1.9%
Semi-Permanent Crops	321,108,587	6.6%
Temporary Crops	4,473,636,823	91.6%
Total	4,885,670,583	100.0%
Coastal Survey of Agriculture (CASS Survey Estimates)		

destination breakdown reveals the commercial orientation of coastal farming households, crop sale values translate that market engagement into economic terms, capturing the actual revenue flowing to farming households from their agricultural activity. Examining total sales values by crop group and district provides a clearer picture of which crops and which regions are the primary drivers of farm income in the coastal agricultural sector.

4.4.7 Total values of Crop sales by type

Taking a close look at Table 4.19, we notice that the total value of crop sales across Suriname's agricultural sector indicates a massive monetary concentration in temporary crops. Nationally, total crop sales reach 4,885,670,583 SRD, with **temporary crops** accounting for the overwhelming majority at 91.6% (4,478,636,823 SRD), driven heavily by high-value commercial cereal and paddy production. Meanwhile, **semi-permanent crops** generate 321,108,587 SRD, capturing a 6.6% share of total market value, and **permanent crops** contribute 90,925,172 SRD, representing a 1.9% share of overall national agricultural sales.

4.4.8 Total values of Crop sales by district

Results in Table 4.20 highlight significant regional specialization and commercial concentration in temporary crops. Nationally, temporary crops dominate nearly every major agricultural district, led by **Nickerie** with 1,605,789,243 SRD (98.2% of its total sales), **Wanica** with 1,150,730,160 SRD (95.5%), and **Saramacca** with 1,128,703,155

Table 4.20: Total Value of Crop Sales (in SRD) by Coastal District and Crop Type

Crop Type	Total Sales Value (SRD)	Share (%)
COMMEWIJNE		
Permanent Crops	72,825,006	15.8%
Semi-Permanent Crops	31,859,609	6.9%
Temporary Crops	357,244,294	77.3%
CORONIE		
Permanent Crops	8,342	0.1%
Semi-Permanent Crops	6,769,467	63.4%
Temporary Crops	3,896,100	36.5%
MAROWIJNE		
Permanent Crops	966,015	0.4%
Semi-Permanent Crops	81,709,822	34.9%
Temporary Crops	151,558,237	64.7%
NICKERIE		
Permanent Crops	1,950,620	0.1%
Semi-Permanent Crops	27,603,085	1.7%
Temporary Crops	1,605,789,243	98.2%
PARA		
Permanent Crops	0	0.0%
Semi-Permanent Crops	6,843,288	63.6%
Temporary Crops	3,913,785	36.4%
PARAMARIBO		
Permanent Crops	714,379	1.0%
Semi-Permanent Crops	1,787,386	2.4%
Temporary Crops	71,801,849	96.6%
SARAMACCA		
Permanent Crops	10,098,014	0.8%
Semi-Permanent Crops	115,274,943	9.2%
Temporary Crops	1,128,703,155	90.0%
WANICA		
Permanent Crops	4,362,797	0.4%
Semi-Permanent Crops	49,260,989	4.1%
Temporary Crops	1,150,730,160	95.5%
Coastal Survey of Agriculture (CASS Survey Estimates)		

SRD (90.0%), largely driven by intensive paddy and vegetable cultivation. Meanwhile, temporary production also forms the majority in **Commewijne** at 357,244,294 SRD (77.3%) and **Marowijne** at 151,558,287 SRD (64.7%). In contrast, semi-permanent crops play a critical or leading role in specific districts, representing 63.6% (3,913,785 SRD for temporary, while semi-permanent is 6,843,288 SRD or 63.6%) of sales in **Para**, 63.4% (6,769,467 SRD) in **Coronie**, and a notable 34.9% (81,709,822 SRD) in **Marowijne**. Permanent crops generally capture smaller percentage shares across the coastal zone but achieve their highest absolute sales value in **Commewijne** at 72,825,006 SRD (15.8% share) and **Saramacca** at 10,098,014 SRD (0.8% share).

i Key Findings — Crop Production

- **Active Harvest and Footprint:** An estimated 5,094 holdings actively harvest crops across the coastal zone, with a total planted area of 34,773.4 hectares and 32,175.4 hectares successfully harvested.
- **Dominance of Rice and Nickerie:** Rice constitutes 90.4% of total recorded production weight (141.8 million kg), with Nickerie driving 97.5% of national rice volume and anchoring 89.2% of total coastal crop output.
- **Commercial Scale Concentration:** Large-scale farming operations dominate total harvested land, with the 20 + hectare size class alone accounting for approximately half (50.2%) of the entire national harvested area.
- **Non-Rice Diversification:** Outside of rice, production is regionally specialized—Saramacca leads in fresh vegetables and bananas/plantains, Commewijne and Wanica anchor intensive vegetable output, and Marowijne specializes heavily in bananas/plantains.
- **High Productivity Yields:** The banana and plantain group achieves the highest land productivity at 43,027.1 kg/ha, while commercial rice yields average 4,758.6 kg/ha, closely aligning with historical national trends.
- **Market Orientation and Sales Value:** Nationally, 92.5% of total harvested volume is directed toward commercial markets, generating 4,885,670,583 SRD in total crop sales, where temporary crops capture 91.6% of overall sales value.

Table 4.21: Estimated Number of Agricultural Holdings Raising Livestock by District and Livestock Type

District	Total Livestock Farms	Cattle	Sheep	Goats	Pigs	Poultry	Apiary
COMMEWIJNE	180	38	40	1	0	124	0
CORONIE	62	46	11	6	22	24	8
MAROWIJNE	51	0	0	0	0	51	0
NICKERIE	666	161	162	43	1	510	1
PARA	57	0	3	5	4	47	1
PARAMARIBO	302	93	1	0	0	207	0
SARAMACCA	209	170	37	26	1	21	0
WANICA	1,405	609	285	65	22	830	2
Total	2,931	1,116	540	146	51	1,813	12
Coastal Survey of Agriculture (CASS Survey Estimates)							

Having established the comprehensive production volumes, land use distributions, and commercial sales dynamics of Suriname's crop sub-sector across the coastal districts, our attention now turns to livestock production, which constitutes the second vital pillar of the agricultural economy. Together, crop and livestock farming form the absolute core of the CASS survey, capturing the primary productive activities that drive rural livelihoods, food security, and commercial output across the coastal zone.

4.5 Livestock Production

Following the livestock section of the survey questionnaire, the analysis will explore livestock population dynamics across the coastal zone, evaluates local slaughtering practices, and details the commercial and household production of essential animal products such as milk and eggs.

4.5.1 Livestock holdings by animal type

A close examination of Table 4.21 highlights the fact that livestock rearing is practised by an estimated **2,931 agricultural holdings** across the coastal districts of Suriname. Wanica dominates this sector with **1,405 livestock farms**, followed by Nickerie (**666 holdings**) and Paramaribo (**302 holdings**). Poultry is by far the most widely raised animal category across the coastal region, accounting for **1,813 holdings**, while cattle production represents the second-largest sector with **1,116 holdings**, heavily concentrated in Wanica and Saramacca. Meanwhile, small ruminants include **540 holdings for sheep** and **146 for goats**, whereas specialized operations like pig farming (**51 holdings**) and apiary/beekeeping (**12 holdings**) remain comparatively rare across the coastal zone.

4.5.2 Livestock population by district

Results in Table 4.22 show that **at the time that the survey was conducted**, estimated livestock populations across Suriname's coastal districts total 775,049 animals, which are overwhelmingly dominated by poultry at 740,814 birds (95.6% of the national total). Wanica anchors the country's livestock sector by a wide margin, commanding 432,948 poultry, 4,940 cattle, 2,508 sheep, 691 goats, and 559 pigs, making it the primary hub for multi-species animal husbandry in the coastal zone. Meanwhile, specialized regional concentrations define other districts: Saramacca is the leading center for pig production with 7,000 pigs (83.1% of the national total), while Commewijne and Nickerie maintain substantial cattle populations of 4,928 and 3,355 head respectively, and Para hosts a massive commercial poultry footprint second only to Wanica with 194,062 birds.

With the estimated livestock populations across the coastal districts known now, we turn our attention to the dynamics underlying those stocks. Beyond simply counting animals, understanding how herds and flocks evolve over the reference period, through births, acquisitions, and sales, provides insight into the productivity and commercial orientation of coastal farming operations.

Table 4.22: Estimated Number of Livestock by District and Animal Category

District	Cattle	Sheep	Goats	Pigs	Poultry
COMMEWIJNE	4,928	450	2	0	35,921
CORONIE	1,211	51	9	216	1,719
MAROWIJNE	0	0	0	0	36,137
NICKERIE	3,355	1,688	485	4	27,589
PARA	0	87	64	648	194,062
PARAMARIBO	743	6	0	0	12,027
SARAMACCA	2,871	1,564	156	7,000	60,400
WANICA	4,940	2,508	691	559	432,948
Total	18,047	6,354	1,407	8,427	800,804
Coastal Survey of Agriculture (CASS Survey Estimates)					

4.5.2.1 Livestock transactions: Poultry

Table 4.22 and Table 4.23 together show a coastal poultry sector that appears to be predominantly commercial in character, operating at industrial scale and structured around a “**purchased-chick**” production model. At the time of the survey, the coastal zone held an estimated **800,804 birds**, with Wanica accounting for 54.1% of that stock (432,948 birds) and Para contributing a further 24.2% (194,062 birds). Together, these two districts concentrated nearly 80% of all coastal poultry, confirming them as the twin pillars of the sector. Complementing this, Saramacca held **60,400 birds**, reflecting a substantial commercial presence that further illustrates the significant scale of production across the coastal agricultural landscape.

Perhaps the most structurally significant finding from the demographic data appears to be the complete absence of births across every district during the reference period. Not a single poultry birth was recorded anywhere in the coastal zone, establishing that farms probably do not maintain breeding stock but instead rely entirely on external procurement of day-old chicks or pullets as their primary input. This is typically a hallmark of vertically integrated commercial broiler and layer production, where genetic stock management is centralized and grow-out operations are the dominant farm-level activity.

This structure is most visibly expressed through Commewijne, which emerges as the likely hatchery hub of the coastal sector. Despite holding only 35,921 birds at survey time, the smallest stock among actively producing districts, Commewijne recorded 2,853,526 birds sold during the reference period, implying a turnover ratio of approximately 79 times its standing stock. This figure far exceeds the biological ceiling of a grow-out operation, where a 6–8 week broiler cycle allows for a maximum of six to seven production rounds per year. The combination of minimal acquisitions (3,945 birds), a small but stable breeding stock, and massive outflows is consistent only with a primary hatchery or breeder operation, where the birds counted are parent flocks and what is sold are day-old chicks. This interpretation seems to be further corroborated by Para’s exceptional acquisition figure of 172,744 birds bought, the largest inflow of any district, pointing to a large-scale grow-out operation dependent on chick supply from a Commewijne source.

Wanica reinforces its position as the commercial core of the sector through both its acquisition and sales volumes. The district purchased 1,383,992 birds during the reference period, 88% of all coastal acquisitions, and sold 1,095,576, reflecting a turnover of approximately 2.5 times its standing stock, consistent with a diversified mix of broiler cycles and layer operations. The net positive inflow of approximately 288,000 birds above recorded sales likely reflects a combination of flock expansion, on-farm slaughter not captured under sales, and/or informal market channels.

Coastal-wide, the approximately **4 million birds sold** (3,999,359) against a standing stock of 740,814 yields an overall turnover ratio of 5.4 times, consistent with five to six production cycles per year and confirming that the sector is oriented primarily around **commercial broiler production**.

Para presents a notable structural contrast, however. As the second-largest stock holder and the leading buyer of

Table 4.23: Estimated Poultry Demographic Transactions by District

District	Births / Hatched	Bought / Received	Sold
COMMEWIJNE	0	3,945	2,853,526
CORONIE	0	1,659	392
MAROWIJNE	0	46	14,816
NICKERIE	0	2,399	6,563
PARA	0	172,744	20,157
PARAMARIBO	0	6,484	8,224
SARAMACCA	0	633	105
WANICA	0	1,383,992	1,095,576
Total	0	1,571,903	3,999,359
Coastal Survey of Agriculture (CASS Survey Estimates)			

Table 4.24: Estimated Ruminants Demographic Transactions by District and Animal Category

District	Births			Bought / Received			Sold		
	Cattle	Sheep	Goats	Cattle	Sheep	Goats	Cattle	Sheep	Goats
COMMEWIJNE	0	100	0	0	2	2	1,387	159	0
CORONIE	0	7	2	1,235	7	9	195	34	37
NICKERIE	77	305	80	175	142	3	247	670	203
PARA	0	64	9	0	0	0	0	97	9
PARAMARIBO	0	2	0	153	0	0	554	0	0
SARAMACCA	10	1,956	0	0	0	0	109	93	0
WANICA	0	510	21	1,857	1,255	7	1,802	1,514	351
Total	87	2,945	112	3,420	1,406	21	4,294	2,566	601
Coastal Survey of Agriculture (CASS Survey Estimates)									

birds, it recorded only 20,157 sold, a turnover ratio of just 0.1 times its stock. This divergence suggests that Para's operations may be oriented towards **egg production**, where revenues are generated through egg sales rather than live bird transactions, or that a significant portion of slaughter occurs informally or for own consumption and was therefore not captured by the sales variable. This distinction warrants further investigation in future survey rounds to clarify Para's role within the broader sector value chain.

4.5.2.2 Livestock transactions: Ruminants

Results in Table 4.24 highlight distinct demographic dynamics across Suriname's coastal ruminant sectors, with national activity totaling 4,294 cattle sold, 3,420 cattle acquired or bought, and 87 recorded births, reflecting a heavy reliance on external herd replenishment and active commercial turnover. In contrast, sheep demonstrate high reproductive activity with 2,945 births and 2,566 sales, heavily driven by Saramacca (1,956 births) and Wanica (1,514 sales and 1,255 acquisitions). Meanwhile, goats record modest national volumes characterized by 112 births, 21 acquisitions, and 601 sales, with Nickerie and Wanica serving as the primary centers for goat market activity.

Having quantified the volume of livestock transactions such as births, acquisitions, and sales across the coastal districts, the analysis now turns to the economic dimension of those flows. The number of animals sold tells only part of the story; the monetary value realized through those sales provides a fuller picture of the sector's contribution to farm income and the broader coastal agricultural economy. The following section presents the estimated value of livestock sales by animal category and district, offering insight into which species and which districts generate the greatest economic returns from livestock production during the reference period.

Table 4.25: Estimated Total Gross Sales Value (SRD) by District and Animal Category

District	Cattle (SRD)	Sheep (SRD)	Goats (SRD)	Pigs (SRD)	Poultry (SRD)
COMMEWIJNE	150,578,000.00	1,356,688.00	0.00	0.00	358,785,725.00
CORONIE	9,169,555.56	371,111.11	296,000.00	205,111.11	267,500.00
MAROWIJNE	0.00	0.00	0.00	0.00	3,806,901.52
NICKERIE	8,452,500.00	3,756,717.39	606,000.00	0.00	4,049,464.13
PARA	0.00	338,333.33	10,933.33	9,797,125.00	5,926,783.33
PARAMARIBO	35,458,228.78	0.00	0.00	0.00	2,013,179.52
SARAMACCA	7,117,500.00	1,117,500.00	0.00	134,400,000.00	80,000.00
WANICA	96,727,232.14	9,550,672.62	1,470,428.57	474,000.00	125,629,862.00
Total	307,503,016.48	16,491,022.45	2,383,361.90	144,876,236.11	500,559,415.50
Coastal Survey of Agriculture (CASS Survey Estimates)					

4.5.2.3 Gross Sales Value of livestock

From Table 4.25 we can see that total gross sales value across Suriname's coastal livestock sector reaches an estimated 971,813,052.44 SRD, with commercial value heavily concentrated in poultry and cattle production. Poultry generates the largest revenue share at 500,559,415.50 SRD (51.5% of national livestock sales), driven overwhelmingly by commercial hubs in Commewijne (358,785,725.00 SRD) and Wanica (125,629,862.00 SRD). Cattle represent the second-largest economic contributor at 307,503,016.48 SRD (31.6% of the total), anchored primarily by Commewijne (150,578,000.00 SRD) and Wanica (96,727,232.14 SRD). Meanwhile, pigs contribute 144,876,236.11 SRD (14.9% of national sales), which is overwhelmingly concentrated in Saramacca (134,400,000.00 SRD), reflecting its specialized role as the country's primary swine-producing district. In contrast, small ruminants make minimal monetary contributions, with sheep yielding 16,491,022.45 SRD and goats accounting for 2,383,361.90 SRD across the coastal zone.

4.5.2.4 Average price by district and animal

Results presented in Table 4.26 illustrate substantial variation in unit market values across livestock categories in Suriname's coastal sector, led by cattle at an average value of 71,609.49 SRD per head, with district prices peaking in Commewijne (108,563.81 SRD) and Paramaribo (64,008.71 SRD). Pigs follow as the next highest-valued animal on a per-unit basis at an average of 7,284.20 SRD, driven by high unit valuations in Para (15,658.70 SRD) and Wanica (12,473.68 SRD). Small ruminants maintain moderate valuations, with sheep averaging 6,427.28 SRD (ranging up to 12,000.00 SRD in Saramacca) and goats averaging 3,968.81 SRD per animal. In contrast, poultry registers a low individual unit value averaging 125.16 SRD, reflecting high-volume, short-cycle broiler production where commercial profitability is driven by massive scale rather than individual animal price.

While the gross value of live animal sales captures the direct market transactions between producers, it represents only one dimension of the economic output generated by the coastal livestock sector. Complementing these figures is the value derived from on-farm slaughter, animals processed and sold as meat rather than traded on the hoof. The following section examines the number of animals slaughtered during the reference period by district and animal category, providing the additional layer needed to arrive at a more complete estimate of the sector's total economic contribution to coastal agriculture.

4.5.2.5 Number of animals slaughtered by district

From Table 4.27 we clearly see that on-farm animal slaughter plays an insignificant role across Suriname's coastal agricultural holdings, with total recorded slaughters reaching just 24 **cattle**, 22 **sheep**, 0 **goats**, 0 **pigs**, and 931 **poultry** birds nationally. Contrasting these figures with live sales demonstrates that the primary economic function of coastal farmers is strictly to rear and market animals alive rather than perform on-farm processing; for instance, while thousands of cattle (4,294) and pigs (8,427 total inventory/sales) are commercialized live across

Table 4.26: Estimated Average Value per Animal (SRD) by District and Animal Category

District	Cattle (SRD)	Sheep (SRD)	Goats (SRD)	Pigs (SRD)	Poultry (SRD)
COMMEWIJNE	108,563.81	8,532.63	0.00	0.00	125.73
CORONIE	46,916.43	11,023.10	8,000.00	8,061.14	682.98
MAROWIJNE	0.00	0.00	0.00	0.00	256.95
NICKERIE	34,220.65	5,609.77	2,985.22	0.00	617.03
PARA	0.00	3,500.00	1,200.00	15,658.70	294.03
PARAMARIBO	64,008.71	0.00	0.00	0.00	244.79
SARAMACCA	65,523.59	12,000.00	0.00	7,000.00	761.90
WANICA	53,673.63	6,309.69	4,184.34	12,473.68	114.67
Total	71,609.49	6,427.28	3,968.81	7,284.20	125.16
Coastal Survey of Agriculture (CASS Survey Estimates)					

Table 4.27: Estimated Number of Animals Slaughtered by District and Animal Category

District	Cattle	Sheep	Goats	Pigs	Poultry
COMMEWIJNE	1	20	0	0	77
CORONIE	0	0	0	0	0
MAROWIJNE	0	0	0	0	19
NICKERIE	2	0	0	0	389
PARA	0	0	0	0	2
PARAMARIBO	0	0	0	0	83
SARAMACCA	19	0	0	0	19
WANICA	2	2	0	0	343
Total	24	22	0	0	931
Coastal Survey of Agriculture (CASS Survey Estimates)					

the sector, virtually none are slaughtered on the premises. This structural division indicates that meat production and slaughtering operations are heavily externalized to centralized abattoirs and specialized commercial processing facilities, leaving primary producers to focus exclusively on livestock rearing and live animal distribution.

Beyond the number of animals slaughtered, livestock production on the coastal zone also generates value through non-lethal outputs, most notably milk. While slaughter represents a terminal extraction of value from the animal, milk production reflects the ongoing productive capacity of the herd and constitutes a recurring source of income for cattle-keeping households. The following section examines estimated milk production volumes by district, shedding light on the dairy dimension of coastal cattle farming and its contribution to the sector's overall economic output.

4.5.2.6 Milk production

Figure 4.14 indicates that milk production across Suriname's coastal agricultural zone is exclusively anchored by cattle, with a total estimated standing population of 549 **animals in lactation**, while goat lactation is virtually absent or negligible across all surveyed districts. **Wanica** serves as the primary dairy production center of the country, accounting for 389 **lactating cattle** (70.9% of the national total), followed by **Nickerie** with 111 **animals** (20.2%) and **Coronie** with 48 **animals** (8.7%). In contrast, major commercial and agricultural districts such as Commewijne, Para, Paramaribo, and Saramacca report zero lactating cattle in the survey reference period, highlighting a distinct geographic concentration of dairy farming in Wanica and Nickerie.

the data from the (CASS) indicate that dairy production across the coastal zone is exclusively anchored by cattle, with a total estimated standing population of 549 animals in lactation. Geographically, this dairy activity is heavily concentrated in three districts, led by Wanica with 389 lactating cattle (70.9% of the national total), followed

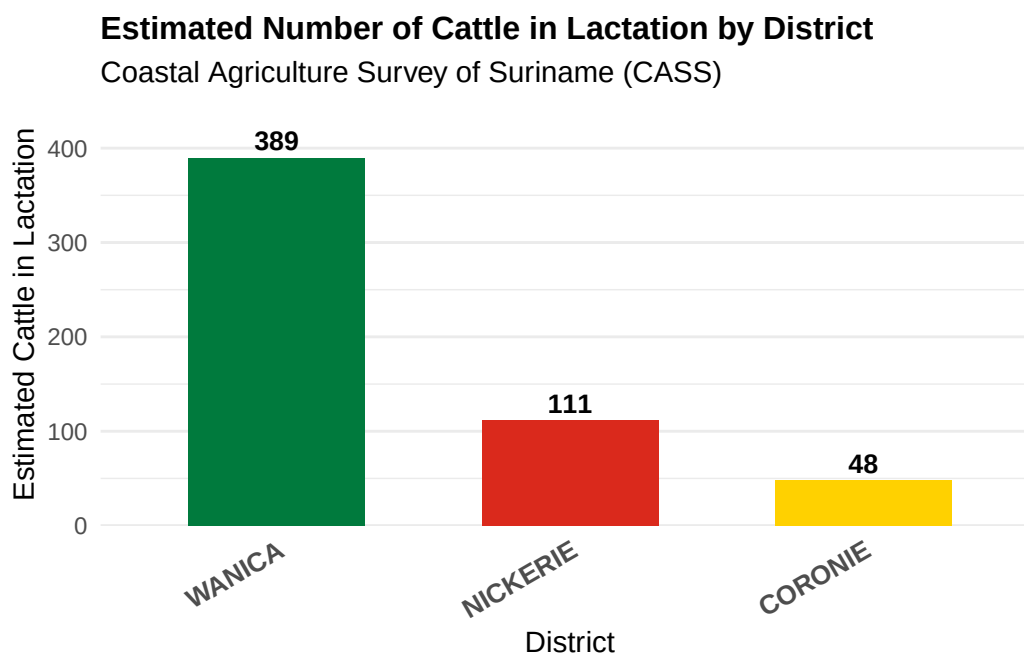


Figure 4.14: Estimated Number of Cattle in Lactation by District

by Nickerie (111 animals) and Coronie (48 animals). In terms of output, total recorded milk production across these active districts reaches 18,905 liters over the survey's three-month lactation reference window, with Wanica producing 14,278 liters (75.5%), Coronie 3,126 liters (16.5%), and Nickerie 1,501 liters (7.9%).

While these figures establish a clear baseline of active commercialized output, the resulting volume highlights a notable divergence from broader national expectations of a multi-tonne annual dairy industry. This gap can be attributed to several structural factors inherent to smallholder farming systems. Because the survey captures production over a specific three-month lactation window rather than a continuous annual cycle, and given that many coastal herds are managed as dual-purpose or beef-oriented operations, formal survey totals exclude unrecorded informal milk sharing, on-farm domestic consumption, and periods outside active milking. Consequently, the CASS data reflect a specialized smallholder dairy sector operating primarily around targeted regional hubs rather than an intensive, large-scale commercial dairy economy.

Analogous to milk within cattle farming, egg production represents the primary recurring output of the layer poultry sub-sector, a non-lethal, continuous source of income that complements the live bird and slaughter figures examined in preceding sections. Where milk reflects the productive capacity of the dairy herd, eggs reflect the laying performance of the hen flock, and together these outputs underscore the importance of looking beyond headcounts and transactions to fully capture the productive value of coastal livestock holdings. The following section presents estimated egg production volumes by district, rounding out the picture of the coastal zone's livestock output during the reference period.

4.5.2.7 Eggs production

What we can take away from Figure 4.16 is that total egg production across Suriname's coastal agricultural zone reaches an estimated 60,420,004 eggs over the three-month reference period, reflecting an intensive commercial layer sector. Production is heavily concentrated in the urban and peri-urban centers of **Wanica** and **Paramaribo**, which together account for the vast majority of national output. **Wanica** leads the country with 32,855,446 eggs (54.4% of the national total), followed closely by **Paramaribo** with 20,255,093 eggs (33.5%). **Nickerie** represents a secondary commercial pocket, contributing 6,681,886 eggs (11.1%), while remaining districts such as Marowijne

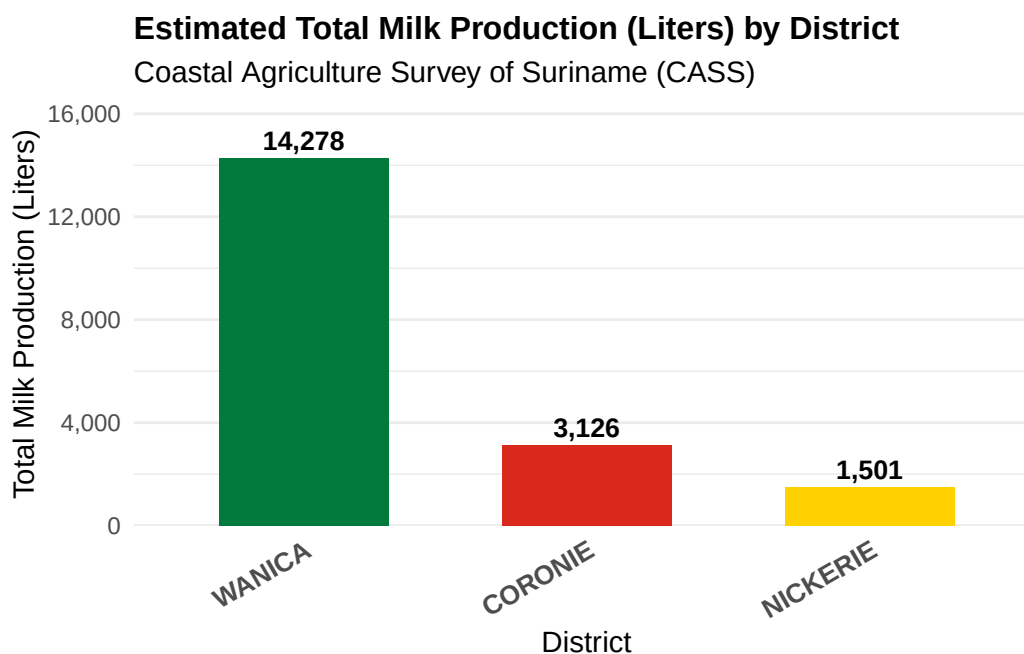


Figure 4.15: Estimated Total Milk Production (Liters) by District

(411,711 eggs), Para (112,239 eggs), Commewijne (49,579 eggs), Coronie (40,550 eggs), and Saramacca (13,500 eggs) record minimal or negligible production volumes. This sharp geographic concentration underscores that commercial egg production in coastal Suriname operates as a highly specialized, localized enterprise tied closely to major urban consumer markets.

4.5.2.8 Egg Destination and utilization

Results in Table 4.28 provide a detailed breakdown of egg utilization across coastal Suriname, confirming that the vast majority of production is directed toward commercial markets. Out of the estimated 60,420,004 **eggs** produced across the coastal zone during the three-month reference period, 56,170,189 **eggs** (92.97%) were sold commercially, led heavily by **Wanica** (30,643,069 eggs) and **Paramaribo** (19,728,613 eggs). On-farm utilization accounts for a small minority of total output, comprising 2,068,524 **eggs** (3.42%) used for renewal or hatching (with Wanica accounting for 1,869,391 of these), 1,714,374 **eggs** (2.84%) retained for own household consumption, and 466,916 **eggs** (0.77%) allocated to other miscellaneous uses. This distribution underscores the highly commercialized, market-oriented structure of egg production, where on-farm retention plays a minor secondary role.

4.5.2.9 Gross Sales Value of eggs

Figure 4.17 shows the estimated gross value of commercial egg sales across Suriname's coastal districts over the three-month reference period, incorporating a standardized baseline market price of **90 SRD per dozen** to correct for reporting outliers.

Commercial egg revenue is overwhelmingly dominated by the core urban and peri-urban centers, with **Wanica** leading the nation at 229,245,275 **SRD**, followed closely by **Paramaribo** at 147,963,846.86 **SRD**. Together, these two districts account for the vast majority of national poultry commercialization revenue. **Nickerie** forms a significant secondary commercial hub with 42,753,647.39 **SRD** in sales, while remaining districts record substantially lower economic returns—such as Para (166,675.00 **SRD**), Coronie (123,750.00 **SRD**), and Commewijne (67,500.00 **SRD**), with Saramacca and Marowijne recording negligible or zero commercial sales value. This stark

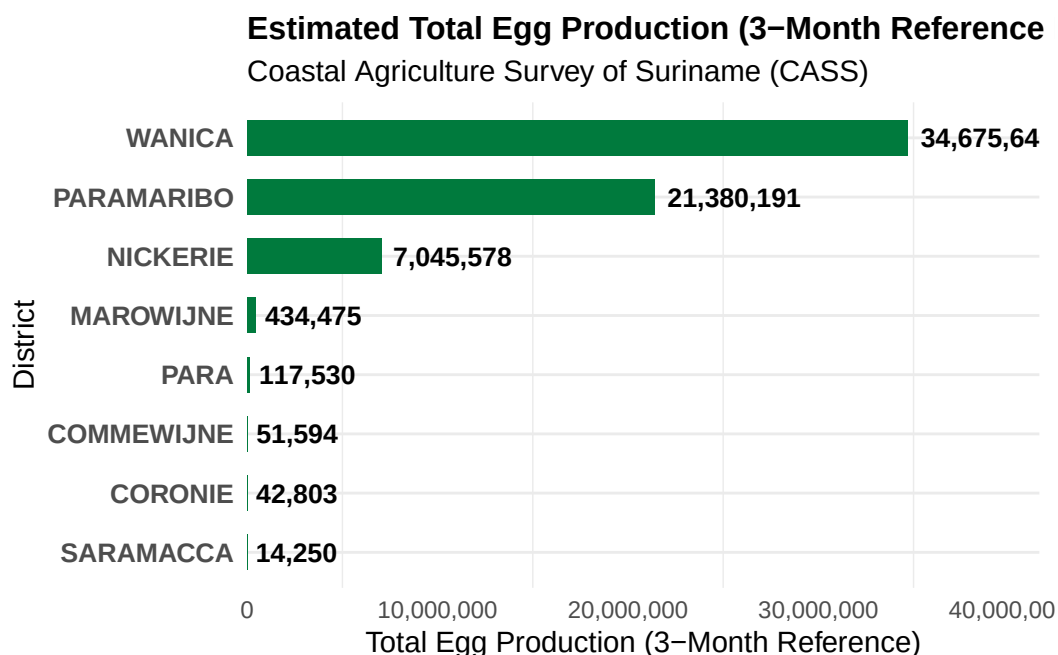


Figure 4.16: Estimated Total Egg Production (3-Month Reference Period) by District

Table 4.28: Estimated Egg Destination and Utilization (3-Month Reference Period) by District

District	Egg Destination / Utilization (3-Month Total)			
	Own Consumption	Sold	Renewal / Hatching	Other Use
COMMEWIJNE	5,019	9,000	23,860	11,700
CORONIE	11,850	16,500	5,900	6,300
MAROWIJNE	377,560	0	34,151	0
NICKERIE	497,676	5,738,971	66,705	378,534
PARA	13,637	34,036	64,566	0
PARAMARIBO	523,610	19,728,613	2,600	270
SARAMACCA	10,800	0	1,350	1,350
WANICA	274,223	30,643,069	1,869,391	68,762
Total	1,714,374	56,170,189	2,068,524	466,916
Coastal Survey of Agriculture (CASS Survey Estimates)				

polarization highlights that intensive egg production and marketing are concentrated strictly in major population centers where producers have direct access to large-scale consumer markets.

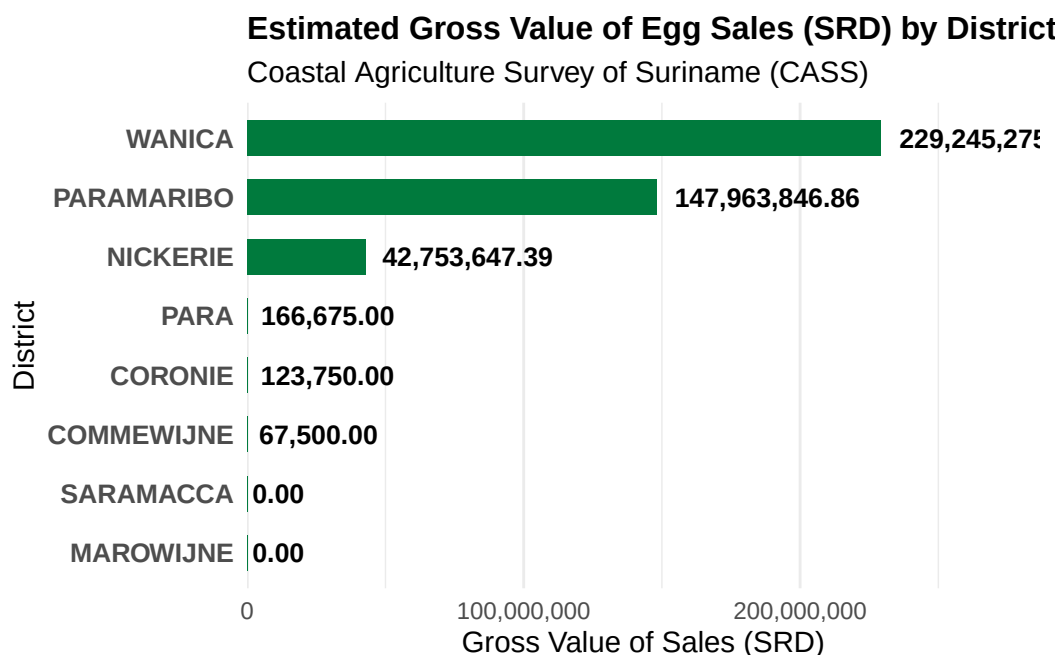


Figure 4.17: Estimated Gross Value of Egg Sales (SRD) by District

Rounding out the survey's examination of livestock outputs, the analysis closes with beekeeping, a distinct yet complementary activity within the coastal agricultural system. Unlike the animal categories discussed thus far, beekeeping does not involve the management of vertebrate livestock but rather the husbandry of colonies whose primary output, honey, represents both a marketable commodity and a critical ecosystem service through pollination. As a low-input, space-efficient activity, beekeeping occupies a unique niche within coastal farm enterprises, and its inclusion in the CASS survey reflects a broader recognition of the full diversity of animal-based production systems practiced across the coastal zone.

4.5.3 Beekeeping

An analysis of the beekeeping sub-sector reveals that apiculture remains an extremely small, artisanal activity across coastal Suriname, involving an estimated 12 active holdings nationwide. Production is primarily traditional, centered almost exclusively on small-scale honey extraction with occasional beeswax recovery, while secondary hive products like pollen and propolis show no commercial recorded output. Economic throughput is minimal, total production amounts to just 14 kilograms across active reporting holdings with negligible recorded commercial sales value, indicating that beekeeping operates strictly as a supplementary backyard or hobbyist activity rather than a commercial agricultural enterprise. When honey is marketed, producers rely almost entirely on direct sales through local vendors or informal household channels rather than structured commercial supply chains.

i Key Findings: Livestock and Apiculture in Coastal Suriname

- **Cattle and Dairy Dynamics:** Dairy production in the coastal zone is a highly specialized, smallholder-anchored enterprise. While cattle populations are distributed across several districts, active lactation is concentrated in **Wanica**, which produces over **75% of the total recorded volume of 18,905 liters**. The data suggests that much of this sector functions as a dual-purpose (beef/dairy) operation, with formal survey totals likely underestimating the full extent of informal on-farm consumption and localized sharing.
- **Poultry and Commercial Egg Intensification:** The commercial egg sector is the most highly intensified segment of coastal livestock production, characterized by a massive national output of over **60 million eggs** per three-month reference period. Production and revenue are heavily polarized in **Wanica** and **Paramaribo**, which together account for roughly **88% of national sales**. The industry is almost exclusively market-driven; over **93% of production is destined for commercial sale**, confirming that commercial layer holdings serve as critical, industrialized suppliers for major urban consumer markets.
- **Nascent Beekeeping Activity:** In contrast to the intensification seen in poultry, apiculture remains an extremely limited, artisanal activity. With only **12 active holdings** recorded across the entire coastal zone, beekeeping functions as a minor supplementary hobby. Total output is negligible, with minimal commercial throughput or diversification into specialty hive products like pollen or propolis, and sales rely on informal, direct-to-consumer vendor channels.
- **Market Orientation and Geographic Concentration:** Across all sectors, there is a clear geographic divide. Intensive commercial activities (specifically layer poultry) are strictly tethered to the urban core, while more traditional or small-scale activities (cattle and apiary) exhibit a broader, albeit low-intensity, geographic footprint. This geographic concentration underscores the dependency of the modern coastal agricultural economy on access to centralized consumer hubs.

So far, we have examined the structure, production, and market orientation of coastal livestock and apiculture sub-sectors. Now, the report shifts focus toward the broader financial realities governing agricultural holdings. While physical output, such as commercial egg production, cattle distribution, and specialized hive yields, defines the productive capacity of farms, their long-term economic viability depends heavily on operational expenditure structures, input costs, and financial management. The following sections explore the economic framework of coastal agricultural operations, detailing input expenses, labor investments, and overall farm finances across districts.

4.6 Economy, Expenses and Shocks

This section extends the analysis beyond primary production to examine the broader economic strategies and vulnerabilities of coastal agricultural holdings. The section opens by exploring the extent to which holdings engage in the processing of their own agricultural products, an activity that, where practised, adds value along the farm's own supply chain and can meaningfully supplement income derived from raw commodity sales. Attention then shifts to aquaculture, a growing component of coastal farm diversification, where holdings engage in the cultivation of fish or other aquatic organisms either as a primary enterprise or alongside conventional crop and livestock activities. Finally, the section addresses one of the most critical dimensions of agricultural household welfare: exposure to external shocks. Coastal holdings in Suriname face a range of climatic and socio-economic hazards during the reference period, including flooding, drought, extreme weather events, and praedial larceny, each carrying the potential to disrupt production, erode assets, and undermine livelihoods. The survey documents both the nature and frequency of these shocks and the coping strategies that affected holdings employed in response, providing an essential foundation for understanding the resilience and vulnerabilities of the coastal agricultural sector.

4.6.1 On-farm processing

The results in Table 4.29 indicate that on-farm value-adding activities are limited across coastal Suriname, with an estimated total of 328 **holdings** actively engaged in on-farm processing. When placed in broader context, this represents a small fraction, approximately 4%, of the total estimated 8,275 **agricultural holdings** across the coastal zone, demonstrating that the vast majority of farms currently market their produce in raw or unprocessed form.

Geographically, active processing is concentrated in major urban and agricultural centers. **Paramaribo** leads the country with 107 **holdings** engaged in processing, followed by **Wanica** (66 holdings), **Nickerie** (53 holdings), and **Commewijne** (40 holdings). In contrast, districts like Coronie and Para record virtually no active on-farm processing operations.

Regarding future economic intent, an estimated 199 **holdings** express plans to develop or expand their on-farm processing capacity. Notably, **Wanica** exhibits the strongest future investment appetite with 138 **holdings** planning capacity expansion, far exceeding its current active count, followed by **Saramacca** (25 holdings) and **Paramaribo** (31 holdings). This forward-looking investment pipeline signals a strong regional interest among peri-urban producers in expanding value-addition to capture higher market margins.

4.6.2 Aquaculture

We can see from Table 4.30 that aquaculture and capture fishery activities on agricultural holdings are highly restricted across coastal Suriname. Aquaculture engagement is virtually non-existent outside of **Wanica**, which accounts for 20 of the total 21 **active holdings** nationwide (with the remaining single holding located in Nickerie). Furthermore, species-specific cultivation is exclusively limited to **Cascadura**, with zero recorded holdings engaged in raising ornamental fish, tilapia, or prawns.

In contrast, capture fishing activities are somewhat more distributed, though still limited to an estimated 83 **holdings** across the entire coastal zone. Fishing operations are concentrated primarily in **Wanica** (41 holdings), **Saramacca** (24 holdings), and **Marowijne** (19 holdings). This indicates that while on-farm aquaculture is a very niche, localized practice strictly dedicated to Cascadura farming in peri-urban areas, inland or artisanal fishing

Table 4.29: Estimated Number of Holdings Engaged in On-Farm Processing and Those Planning Future Capacity by District

District	Engaged in On-Farm Processing	Plans to Develop Capacity
COMMEWIJNE	40	2
CORONIE	0	0
MAROWIJNE	19	0
NICKERIE	53	2
PARA	1	2
PARAMARIBO	107	31
SARAMACCA	42	25
WANICA	66	138
Total	328	199
Coastal Survey of Agriculture (CASS Survey Estimates)		

Table 4.30: Estimated Number of Holdings Engaged in Aquaculture (by Species) and Fishery Activities by District

District	Total Aquaculture	Aquaculture Species Raised				Fishing Activities
		Ornamental	Tilapia	Cascadura	Prawns	
COMMEWIJNE	0	0	0	0	0	0
CORONIE	0	0	0	0	0	0
MAROWIJNE	0	0	0	0	0	19
NICKERIE	1	0	0	1	0	0
PARA	0	0	0	0	0	0
PARAMARIBO	0	0	0	0	0	0
SARAMACCA	0	0	0	0	0	24
WANICA	20	0	0	20	0	41
Total	21	0	0	21	0	83
Coastal Survey of Agriculture (CASS Survey Estimates)						

serves as a complementary livelihood activity for a small segment of agricultural holdings in specific water-adjacent districts.

4.6.2.1 Aquaculture: Production, Sales, and Gross Value

Table 4.31 shows that aquaculture production across coastal agricultural holdings is extremely limited, with a national total estimated at just 1,050.00 **kilograms** exclusively concentrated in **Nickerie** (while Wanica, despite having holdings reporting aquaculture presence, records zero harvested production in this specific cycle).

Furthermore, commercial throughput for on-farm aquaculture is negligible, with 0.00 **kilograms sold** and therefore an estimated gross sales value of **\$0.00 SRD**. This demonstrates that the small volume of fish produced via on-farm aquaculture, specifically Cascadura, is harvested entirely for non-commercial purposes, such as subsistence use or household consumption, rather than operating as a revenue-generating commercial activity.

Finally, results in Table 4.32 confirm the utilization patterns of on-farm aquaculture production, demonstrating that the entire estimated harvest of 1,050.00 **kilograms** in Nickerie is allocated strictly to **home consumption** (1,050.00 **kg**). With 0.00 **kilograms** directed toward market sales or alternative purposes, the data corroborates that on-farm aquaculture across coastal agricultural holdings functions exclusively as a subsistence activity rather than a commercial enterprise.

Table 4.31: Estimated Aquaculture Production (kg), Sales (kg), and Gross Value (SRD) by District (CASS Survey)

District	Total Production (kg)	Total Sold (kg)	Estimated Gross Value (SRD)
NICKERIE	1,050.00	0.00	0.00
WANICA	0.00	0.00	0.00
Total	1,050.00	0.00	0.00
Coastal Survey of Agriculture (CASS Survey Estimates)			

Table 4.32: Estimated Aquaculture Utilization (kg) by District (CASS Survey)

District	Utilization Volume (kg)		
	Consumed at Home	Sold to Market	Other Purposes
NICKERIE	1,050.00	0.00	0.00
WANICA	0.00	0.00	0.00
Total	1,050.00	0.00	0.00
Coastal Survey of Agriculture (CASS Survey Estimates)			

4.6.3 Share of income and bank account from the holding

Next, we examine two key indicators of the financial profile of coastal agricultural holdings. The first concerns financial inclusion: specifically, the proportion of holdings that maintain a dedicated bank account for their agricultural enterprise, a marker of formalization and access to financial services that has important implications for credit access, investment capacity, and resilience. The second indicator addresses the economic significance of agriculture to the household: the distribution of holdings by the share of total household income derived from agricultural activities, revealing the degree to which farming constitutes a primary livelihood or a supplementary source of earnings across the coastal zone.

4.6.3.1 Number of holdings with bank account

We can see from Table 4.33 that formal financial inclusion regarding dedicated agricultural bank accounts is exceptionally limited across coastal Suriname, with an estimated total of only 286 **holdings** maintaining an account tied to their farming activities. Geographically, these accounts are heavily concentrated in **Nickerie** (106 holdings) and **Wanica** (90 holdings), followed by moderate adoption in **Saramacca** (48 holdings), **Commewijne** (22 holdings), and **Marowijne** (19 holdings), while Coronie, Para, and Paramaribo record zero holdings with dedicated agricultural accounts. When compared against the broader coastal total of 8,275 holdings, this low adoption rate highlights that the vast majority of agricultural operations rely on cash or personal financial channels rather than formal commercial banking services.

4.6.3.2 Income share

Analysis of fig-income-share-histogram reveals that for the vast majority of agricultural holdings in coastal Suriname, farming serves as a secondary or supplementary economic activity rather than the primary source of household livelihoods:

- **Low Dependence Majority:** An estimated 42.0% of holdings (representing 3,478 households) report that crops and livestock account for **under** 10% of their total household income. An additional 29.5% (representing 2,444 households) earn between 10% **and** < 50% of their income from agricultural activities. Combined, nearly three-quarters (71.5% or 5,922 holdings) rely on non-agricultural sources for the majority of their financial support.
- **Moderate to High Dependence:** Holdings where agriculture constitutes the primary economic driver are less common. Roughly 20.1% of holdings (representing 1,665 households) depend on farming for 50% **to** < 90% of their income.

Table 4.33: Estimated Number of Holdings with a Bank Account Related to Holding Activities by District (CASS Survey)

District	Holdings with Bank Account
COMMEWIJNE	22
CORONIE	0
MAROWIJNE	19
NICKERIE	106
PARA	0
PARAMARIBO	0
SARAMACCA	48
WANICA	90
Total	286
Coastal Survey of Agriculture (CASS Survey Estimates)	

- **Full-Time Commercial Specialization:** Only 8.3% of holdings (representing 687 households) rely almost exclusively on agriculture, securing 90% to 100% of their total household income from crops and livestock. Geographically, these highly dependent commercial holdings are most concentrated in **Wanica** (363 holdings) and **Saramacca** (140 holdings), reflecting pockets of intensive, dedicated farming enterprises within the coastal agricultural zone.

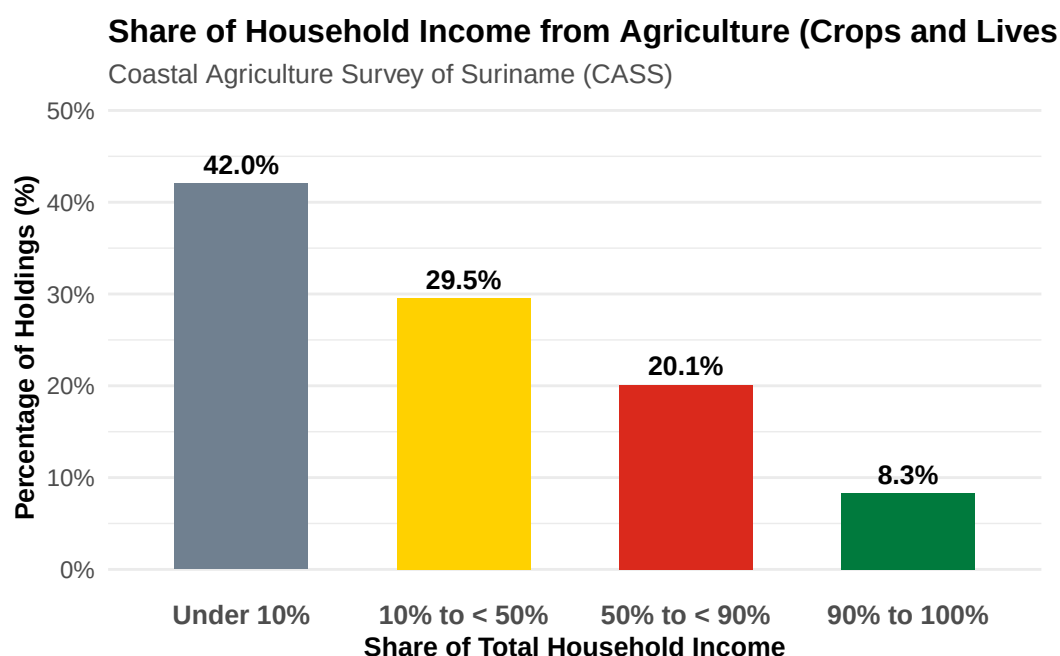


Figure 4.18: Distribution of Agricultural Holdings by Share of Household Income from Crops and Livestock

4.6.4 Extreme Events

The section concludes by examining how agricultural holdings respond to adverse external events that negatively impact their productive capacity. Whether triggered by climatic hazards such as drought, flooding, or extreme weather, or by socio-economic pressures such as praedial larceny, these shocks can have significant and lasting consequences for farm output and household welfare. This analysis documents the range of coping strategies adopted by affected holdings, providing insight into the resilience of the coastal agricultural sector and the adaptive

Table 4.34: Estimated Number of Holdings Experiencing Extreme Events Affecting Agricultural Activities

Type of Extreme Event / Shock	Estimated Number of Holdings
No extreme events (None)	4,523
Drought	1,909
Flood and heavy rains	934
Crop pests	206
Low output prices	107
Other extreme events	106
Extreme temperatures	99
Break-up of household	87
Theft of assets/outputs	83
Serious illness/death	64
Livestock diseases	58
Conflict or violence	49
Loss of salary/employment	20
High food prices	19
High input prices	11
Coastal Survey of Agriculture (CASS Survey Estimates)	

capacity of its producers in the face of adversity.

4.6.4.1 Number of holdings affected by adverse events

Analysis of Table 4.34 indicates that while a significant portion of agricultural holdings in coastal Suriname experienced stability, climatic and environmental shocks represent the primary disruptions to farming activities. Specifically, an estimated 4,523 **holdings** reported experiencing no extreme events or shocks during the reference period.

Among holdings that did encounter disruptions, climate-related and environmental pressures were by far the most dominant:

- **Climatic Shocks:** **Drought** emerged as the single most widespread shock, affecting an estimated 1,909 **holdings**, followed closely by **floods and heavy rains**, which impacted 934 **holdings**. **Extreme temperatures** were also cited by 99 **holdings**.
- **Biological and Operational Pressures:** **Crop pests** represented a notable agricultural challenge, affecting 206 **holdings**, while **livestock diseases** impacted 58 **holdings**.
- **Economic and Social Shocks:** Market and personal disruptions were less frequently cited on a national scale, including **low output prices** (107 **holdings**), **theft of assets or outputs** (83 **holdings**), **serious illness or death** (64 **holdings**), and **high input prices** (11 **holdings**).

This distribution underscores that agricultural vulnerability in coastal Suriname is driven overwhelmingly by weather and environmental volatility rather than purely economic or market-based shocks.

Focusing exclusively on the two most prevalent climatic shocks, drought and heavy rains/floods, Table 4.35 shows that the vast majority of affected agricultural holdings in coastal Suriname take no active coping or mitigating measures, with 1,318 **holdings** weathering drought and 1,016 **holdings** absorbing floods without intervention. For those that do actively respond, asset liquidation and informal safety nets are the primary mechanisms; selling off crops and/or livestock serves as the most common active strategy, deployed by 241 **holdings** facing drought and 215 **holdings** facing floods. Additional reactive measures include relying on informal social support from relatives (107 for drought, 86 for floods), cutting back on farm operational expenses (100 for drought, 86 for floods), or seeking alternative off-farm employment (19 for drought, 60 for floods). Meanwhile, institutional safety nets remain extremely limited, with government assistance cited by only 51 **holdings** for drought and zero for flood events,

Table 4.35: Estimated Number of Holdings by Coping Strategy for Drought and Flood/Heavy Rains

Main Response / Coping Strategy	Drought	Flood and Heavy Rains
None / No action	1,318	1,016
Sold crops and/or livestock	241	215
Other	211	123
Received help from relatives	107	86
Reduced holding expenses	100	86
Found other work (off-farm)	19	60
Received government help	51	0
Sold land and/or buildings	0	41
Reduced household expenses	0	28
Total	2,047	1,655
Coastal Survey of Agriculture (CASS Survey Estimates)		

Table 4.36: Estimated Number of Holdings by Recovery Status, Coping Capacity, and Perceived Severity of Extreme Events

Dimension / Response Category	Estimated Number of Holdings
Full Recovery Status (S5Q15)	
Fully Recovered (Yes)	1,141
Not Fully Recovered (No)	2,611
Better Able to Cope (S5Q16)	
Better Able to Cope (Yes)	1,280
Not Better Able to Cope (No)	2,471
Perceived Severity Compared to Past (S5Q17)	
Similar Severity	1,967
Greater Severity	630
Lower Severity	1,154
Coastal Survey of Agriculture (CASS Survey Estimates)	

highlighting a heavy reliance on self-coping and household resilience when facing extreme weather volatility.

Looking at Table 4.36, we notice significant lingering vulnerability and structural fragility among shock-affected agricultural holdings in coastal Suriname, aligning closely with previous findings that the vast majority of farmers take no active mitigating action when facing weather disruptions. Specifically, an alarming 2,611 **holdings** report that they have **not fully recovered** from extreme events, compared to only 1,141 **holdings** that achieved full recovery. This prolonged vulnerability is mirrored in coping capacity, where 2,471 **holdings** feel they are **not better able to cope** with future shocks, while just 1,280 **holdings** report improved resilience.

When contextualizing these figures with the earlier findings that **drought** (1,909 **holdings**) and **floods** (934 **holdings**) are the most prevalent shocks—and that passive inaction or informal coping (such as selling livestock or cutting holding expenses) heavily outweighs institutional support, it becomes clear why recovery remains elusive. Furthermore, while 1,967 **holdings** perceive the severity of current extreme situations as **similar** to the past and 1,154 **holdings** view it as **lower**, a notable 630 **holdings** feel that shocks have grown **greater in severity**. Together, these insights demonstrate that without proactive institutional safety nets or formal risk-mitigation frameworks, coastal agricultural households remain heavily exposed to recurring climatic volatility with limited capacity to bounce back.

i Key Findings: Economy and Expenses in Coastal Suriname

- **Limited On-Farm Processing and Future Intent:** On-farm value-addition is currently a niche enterprise, with only 328 **holdings** (approximately 4% of the total estimated 8,275 **holdings**) actively engaged in processing, primarily concentrated in urban and agricultural centers like Paramaribo and Nickerie. However, a strong forward-looking investment pipeline exists, with 199 **holdings**—led heavily by peri-urban producers in **Wanica** (138 holdings)—planning to develop or expand their processing capacity to capture higher market margins.
- **Subsistence Orientation of Aquaculture:** On-farm aquaculture is strictly limited, with a total estimated harvest of 1,050.00 **kilograms** exclusively concentrated in Nickerie and entirely dedicated to **Cascadura** cultivation. The entire production volume is allocated locally to **home consumption** (1,050.00 **kg**) with zero commercial throughput or market sales, confirming that aquaculture operates purely as an informal subsistence activity rather than a commercial enterprise.
- **Low Agricultural Dependence for Household Livelihoods:** For the vast majority of coastal agricultural households, farming serves as a secondary or supplementary economic activity. Nearly three-quarters of holdings report low economic dependence: 42.0% (3,478 holdings) derive **under** 10% of their total household income from agriculture, and 29.5% (2,444 holdings) earn between 10% **and** < 50%. Only 8.3% (687 holdings) rely almost exclusively on agriculture (90% **to** 100% of income).
- **Restricted Formal Financial Inclusion:** Formal financial integration remains exceptionally low, with an estimated total of only 286 **holdings** maintaining a bank account specifically tied to their farming operations. Adoption is concentrated in Nickerie (106 holdings) and Wanica (90 holdings), indicating that the vast majority of coastal agricultural holdings operate through cash transactions or personal financial channels.
- **Climatic Vulnerability and Informal Coping Mechanisms:** Environmental and weather volatility represent the primary shocks to coastal farming, with **drought** (1,909 holdings) and **floods/heavy rains** (934 holdings) causing the most widespread disruptions. When facing these major climatic shocks, the majority of affected holdings take no active mitigating action, while active responders rely heavily on informal coping strategies—primarily selling off crops or livestock, cutting back holding expenses, or relying on relatives—with formal institutional or government assistance remaining virtually non-existent.

While financial inclusion, primary income dependencies, and environmental shock responses define the broad economic contours of coastal agricultural holdings, the resilience and operational capacity of these farms ultimately hinge on their workforce structure. Understanding how agricultural households mobilize labor, balancing family participation against hired help, managing seasonal labor demands, and navigating workforce constraints, is crucial for evaluating the true productivity and economic viability of Suriname's coastal agricultural sector.

4.7 Labour

Labour is a fundamental input in agricultural production, and understanding its composition, who works the land, when, and in what capacity, is essential for assessing both the operational structure and the economic sustainability of coastal holdings. This section examines farm labour across four dimensions. It begins by identifying the busiest agricultural season for coastal holders in Suriname, establishing the temporal rhythm of labour demand that shapes farm management decisions throughout the year. The analysis then turns to labour supply, beginning with the contribution of household members, the backbone of the family farm model, whose unpaid or informally compensated work often underpins the viability of smallholder operations. This is followed by an examination of hired external workers, whose engagement reflects a degree of operational scale and managerial specialisation that extends beyond the household's own capacity. Finally, the section considers the role of contractors, labour engaged on a task or seasonal basis, whose use signals the demand for flexible, specialized manpower at critical points in the production cycle. Together, these four dimensions provide a comprehensive portrait of how labour is organised and deployed across the coastal agricultural sector.

4.7.1 Busiest agricultural period

Considering the results in Figure 4.19, we can clearly see that peak agricultural activity across coastal Suriname appears remarkably well-balanced at the national level, showing an almost even split among holdings nationwide. Specifically, 51.1% of holdings (representing 4,214 holdings) identify the **Small Rain & Dry Season (Jan-Apr)** as their busiest period, while 48.9% (representing 4,038 holdings) report the **Main Rain & Dry Season (May-Dec)** as their peak operational window. However, this national equilibrium masks pronounced regional variations; because individual districts operate under distinct agricultural production cycles and crop calendars, a disaggregated examination of the data at the district level is essential to fully understand localized labor demands and seasonal intensity across the coastal zone.

Looking at the breakdown by district (noting minor discrepancies from total estimated number of holdings in Nickerie due to item non-response on question s6q0), Table 4.37 reveals stark regional divergences in peak agricultural seasons across coastal Suriname that are masked by national averages. While national totals suggest an even split, individual districts exhibit strong seasonal polarization: districts such as Marowijne (86.3% or 1,126 holdings), Commewijne (68.8% or 607 holdings), Paramaribo (56.1% or 481 holdings), and the country's largest agricultural hub Wanica (52.4% or 1,328 holdings) experience their heaviest labor demands during the Small Rain and Dry Season (Jan-Apr). Conversely, agricultural operations in Saramacca (80.0% or 812 holdings), Para (78.5% or 155 holdings), and Nickerie (72.2% or 982 holdings) are heavily concentrated during the Main Rain and Dry Season (May-Dec), while Coronie displays an even split (49.5% versus 50.5% or 49 holdings each). This geographic breakdown demonstrates that agricultural labor dynamics across coastal Suriname are driven entirely by distinct regional production calendars and crop types rather than uniform national seasonal pressures.

4.7.2 Labor of Household members

To understand how agricultural households mobilize their available human resources, we now examine the direct contribution of household members to farm operations. Because a raw headcount of working members can be misleading, as larger households naturally possess a greater absolute number of working-age individuals, we utilize the group labor participation rate to evaluate labor mobilization. This metric measures the proportion of potential workers aged 12 and older residing in the household who actually participate in agricultural work on the holding. By

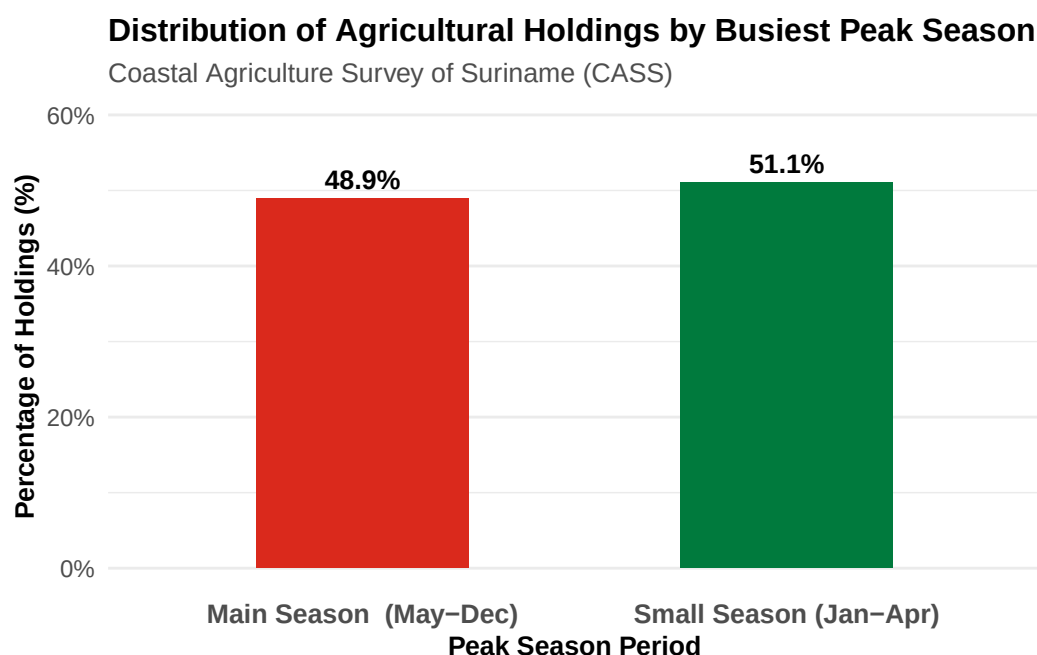


Figure 4.19: Distribution of Agricultural Holdings by Busiest (Peak) Season

Table 4.37: Estimated Number and Percentage Distribution of Holdings by Busiest Season and District (CASS Survey)

District	Total Holdings	Small Season (Jan-Apr)		Main Season (May-Dec)	
		Holdings	%	Holdings	%
COMMEWIJNE	882	607	68.8%	275	31.2%
CORONIE	98	49	49.5%	49	50.5%
MAROWIJNE	1,305	1,126	86.3%	179	13.7%
NICKERIE	1,360	378	27.8%	982	72.2%
PARA	198	43	21.5%	155	78.5%
PARAMARIBO	857	481	56.1%	376	43.9%
SARAMACCA	1,015	203	20.0%	812	80.0%
WANICA	2,536	1,328	52.4%	1,208	47.6%
Total	8,252	4,214	51.1%	4,038	48.9%
Coastal Survey of Agriculture (CASS Survey Estimates)					

Table 4.38: Estimated Number of Total Household Members and Working Members (12+ Years) by Household Size Category (CASS Survey)

Household Size Category	Estimated Households	Potential Workers (12+ yrs)	Actual Workers (12+ yrs)
2 members	2,289	2,232	1,188
3 members	1,253	2,188	1,024
4 members	1,125	2,538	1,129
5 members	760	2,507	612
6+ members	519	2,127	771
Total	5,947	11,592	4,723
Coastal Survey of Agriculture (CASS Survey Estimates)			

aggregating these figures across different household size categories, the analysis reveals whether larger households successfully pool their labor capacity or if participation rates vary according to household scale.

4.7.2.1 Number of household members and working members by household size

Table 4.38 shows that across an estimated 5,947 **agricultural households** in coastal Suriname, there is a total potential workforce of 11,592 **individuals** aged 12 and older residing in these homes, of whom 4,723 **individuals** actively work on the holding. Smaller households dominate the demographic distribution, with 2,289 **households** having two members (2,232 potential workers, 1,188 active) and 1,253 **households** having three members (2,188 potential workers, 1,024 active). Meanwhile, larger households scale up their labor pool significantly; for instance, 1,125 **households** with four members provide 2,538 **potential workers** (1,129 active), 760 **households** with five members account for 2,507 **potential workers** (612 active), and 519 **households** with six or more members contribute 2,127 **potential workers** (771 active).

4.7.2.2 Group labour participation rate

Analyzing Table 4.39, we see that the national average group labor participation rate stands at 40.7%, indicating that just over two out of every five working-age individuals (12+ years) living in agricultural households actively contribute to farm operations.

Contrary to the assumption that larger households might pool and mobilize labor more effectively, the data demonstrates an **inverse relationship between household size and proportional labor contribution**. Smaller households exhibit the highest participation rates: **two-member households** record a rate of 53.2%, and **three-member households** stand at 46.8%. In contrast, participation rates decline steadily as household scale increases, dropping to 44.5% for four-member households and falling sharply to 24.4% for five-member households, before recovering slightly to 36.2% for households with six or more members.

This trend indicates that larger agricultural households do **not** contribute proportionally more labor to the holding. Instead, as household size grows, a smaller percentage of working-age members engage directly in on-farm activities, likely reflecting greater diversification into off-farm employment, schooling, or non-agricultural livelihoods among additional household members.

Now that we have a clear picture of how many household members are working and at what participation rate, we must investigate their primary occupations on the farm.

4.7.3 Household members main occupation on the farm

Figure 4.20 shows the distribution of household workers by main activity, where it is demonstrated that there is an overwhelming focus on crop cultivation across coastal Suriname holdings. Specifically, 79.4% of household workers report **crop cultivation** as their primary on-farm activity, underscoring the dominance of crop-based farming systems in the region. Meanwhile, **raising livestock** accounts for 18.9% of household workers, representing a

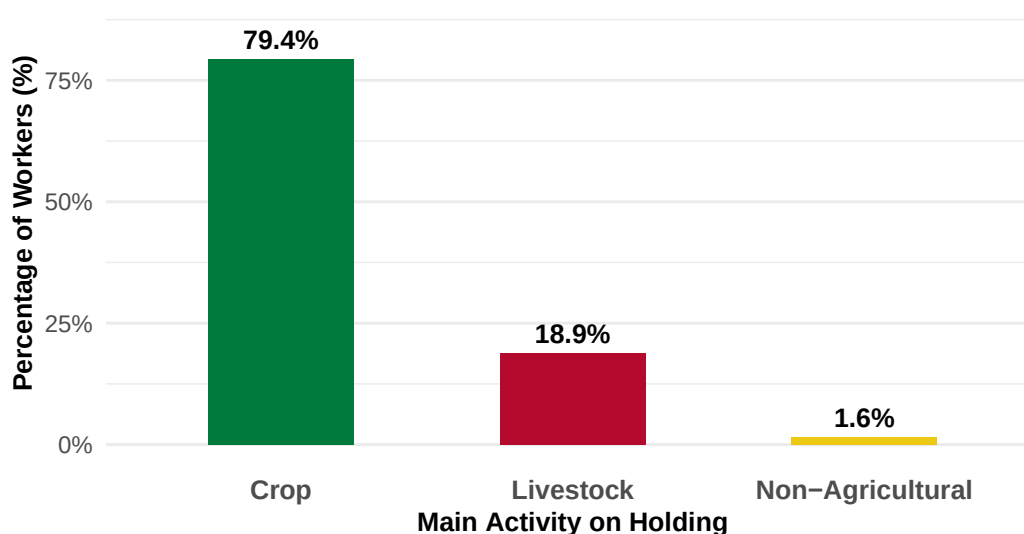
Table 4.39: Group Labor Participation Rate by Household Size Category (CASS Survey)

Household Size Category	Total Potential Workers (12+ yrs)	Total Active Workers (12+ yrs)	Group Participation Rate (%)
2 members	2,232	1,188	53.2%
3 members	2,188	1,024	46.8%
4 members	2,538	1,129	44.5%
5 members	2,507	612	24.4%
6+ members	2,127	771	36.2%
Total / National Average	11,592	4,723	40.7%
Coastal Survey of Agriculture (CASS Survey Estimates)			

significant secondary agricultural enterprise. In contrast, **non-agricultural activities** comprise only 1.6% of the working household population, indicating that family labor on agricultural holdings is almost exclusively dedicated to primary agricultural production rather than diversified on-site non-farm businesses.

Distribution of Household Workers by Main Activity

Coastal Agriculture Survey of Suriname (CASS)


Figure 4.20: Distribution of Household Workers by Main Activity on the Holding

Analysis of the household worker payment data provided in Table 4.40 demonstrates that the vast majority of family labor on agricultural holdings in coastal Suriname is unpaid, underpinning the traditional family-farm structure. Out of an estimated total of 4,765 household workers (which includes a minor fraction of 42 workers under the age of 12, with the remaining 4,723 aged 12 and older), 3,835 (or 80.5%) operate as unpaid family workers, while only 930 (or 19.5%) receive formal payment. Crop cultivation represents the dominant occupation, engaging 3,757 household workers—of whom 744 (19.8%) receive payment and 3,013 operate on an unpaid basis—while raising livestock accounts for 846 household workers, with 170 (20.1%) receiving compensation and 676 contributing unpaid labor. Other non-agricultural activities involve a much smaller contingent of 162 household workers, where 16 (9.9%) are paid and 146 are unpaid. Together, this distribution demonstrates that agricultural production relies overwhelmingly on unpaid family labor across all main enterprises, with formal remuneration remaining the exception rather than the norm for household members working on the holding.

Table 4.40: Estimated Number of Household Workers and Payment Status by Main Activity

Main Activity on Holding	Total Workers	Paid Workers	Unpaid / Family	Percentage Paid (%)
Crop cultivation	3,978	830	3,149	20.9%
Other non-agricultural activities	116	0	116	0.0%
Raising livestock	671	197	473	29.4%
Total	4,765	1,027	3,738	21.6%
Coastal Survey of Agriculture (CASS Survey Estimates)				

Table 4.41: Estimated Number and Percentage of Holdings Reporting External Workers by District

District	Total Holdings	Holdings with External	%	Holdings without External
COMMEWIJNE	881	160	18.1%	721
CORONIE	98	0	0.0%	98
MAROWIJNE	1,305	700	53.6%	605
NICKERIE	1,356	643	47.4%	713
PARA	187	29	15.3%	158
PARAMARIBO	828	108	13.0%	720
SARAMACCA	1,014	271	26.8%	743
WANICA	2,517	382	15.2%	2,135
Total	8,186	2,293	28.0%	5,894
Coastal Survey of Agriculture (CASS Survey Estimates)				

Now that we have established the scale and nature of household labour contributions to coastal agricultural holdings, the analysis now turns to the role of external workers, those engaged outside of the family unit to supplement or manage farm operations.

4.7.4 External workers

Considering the results shown in Table 4.41, we notice that external labor usage is relatively modest across coastal Suriname, with an estimated 2,293 holdings (or 28.0% of the national total of 8,186 holdings) reporting the employment of external workers. However, reliance on external labor varies dramatically across districts: Marowijne leads the country with 53.6% of its holdings (700 out of 1,305) employing external labor, followed closely by Nickerie, where 47.4% of holdings (643 out of 1,356) utilize external workers. Meanwhile, Saramacca reports 26.8% (271 holdings), while Commewijne (18.1% or 160 holdings), Wanica (15.2% or 382 holdings), Para (15.3% or 29 holdings), and Paramaribo (13.0% or 108 holdings) show much lower external labor utilization. Notably, Coronie records 0.0% (0 out of 98 holdings) reporting external workers, indicating that agricultural operations in Coronie rely entirely on internal family labor. This geographic distribution highlights that while external labor is crucial for commercial or larger-scale operations in districts like Marowijne and Nickerie, the vast majority of agricultural holdings across coastal Suriname depend exclusively on household resources.

4.7.5 Type of external workers

From Table 4.42, we observe that among the estimated 2,293 holdings employing external workers in coastal Suriname, agricultural labor demands are met overwhelmingly through casual and temporary employment arrangements. Specifically, 1,837 holdings (or 80.1% of holdings utilizing external labor) rely on **external, paid non-regular labor (casual/temporary workers)**, highlighting the seasonal and episodic nature of agricultural work in the region. In contrast, 404 holdings (or 17.6%) employ **external, paid regular labor (long-term employees)**, while informal or alternative external arrangements remain very rare, with only 54 holdings (2.3%) utilizing **external, unpaid labor (mutual help, relatives, volunteers)** and just 23 holdings (1.0%) employing an **external manager**. This distribution underscores that when coastal agricultural holdings look beyond the household

Table 4.42: Number and Proportion of Holdings Utilizing Different Types of External Workers

Type of External Worker	Estimated Holdings Utilizing	Percentage (%)
External manager	23	1.0%
External, paid regular labor (long-term)	404	17.6%
External, paid non-regular labor *temporary)	1,837	80.1%
External, unpaid (mutual/relatives/volunteers)	54	2.3%
Coastal Survey of Agriculture (CASS Survey Estimates)		

Table 4.43: Estimated Number of External Workers and Full-Time Proportion by District

District	Total External Workers	Full-Time External Workers	Full-Time Share (%)
COMMEWIJNE	905	588	65.0%
MAROWIJNE	5,829	0	0.0%
NICKERIE	3,009	882	29.3%
PARA	54	0	0.0%
PARAMARIBO	946	119	12.6%
SARAMACCA	681	287	42.1%
WANICA	653	288	44.1%
Total	12,077	2,163	17.9%
Coastal Survey of Agriculture (CASS Survey Estimates)			

for labor, they overwhelmingly depend on temporary, paid wage workers to manage seasonal peaks rather than permanent staff or unpaid mutual networks.

4.7.5.1 Full time external workers

Analyzing the results from Table 4.43, we can see that external labor across coastal Suriname encompasses an estimated total of 12,077 **external workers**, of whom 2,163 (or 17.9%) are employed on a full-time basis. Reliance on external labor varies dramatically across districts, with **Marowijne** accounting for the largest share of external workers by far (5,829 **workers**, though none are reported as full-time, reflecting a heavy reliance on casual or seasonal harvest labor), followed by **Nickerie** (3,009 **workers**, with 882 or 29.3% full-time). Other districts deploy smaller external workforces, such as **Paramaribo** (946 workers, 12.6% full-time), **Commewijne** (905 workers, 65.0% full-time), **Saramacca** (681 workers, 42.1% full-time), **Wanica** (653 workers, 44.1% full-time), and **Para** (54 workers, none full-time). This distribution indicates that while districts like Marowijne and Nickerie absorb the vast majority of external agricultural hands, the nature of employment swings heavily toward part-time or seasonal engagement in high-volume districts, whereas smaller districts like Commewijne, Wanica, and Saramacca maintain a higher proportion of permanent, full-time external staff.

4.7.5.2 Main activities of external workers

Analysis of Figure 4.21 demonstrates that external labor in coastal Suriname is even more heavily concentrated in crop cultivation than internal household labor. Specifically, 11,454 **external workers** (or 94.8%) are engaged primarily in **crop production**, highlighting the intense seasonal labor demands of cultivating crops like rice, vegetables, and fruits across the region. In contrast, **raising livestock** accounts for only 531 **external workers** (or 4.4%), while **other non-agricultural activities** comprise a negligible 92 **external workers** (or 0.8%). This overwhelming skew toward crop cultivation confirms that external wage and casual labor is mobilized almost exclusively to meet peak field-level demands—such as land preparation, planting, and harvesting—rather than livestock management or diversified non-farm enterprises.

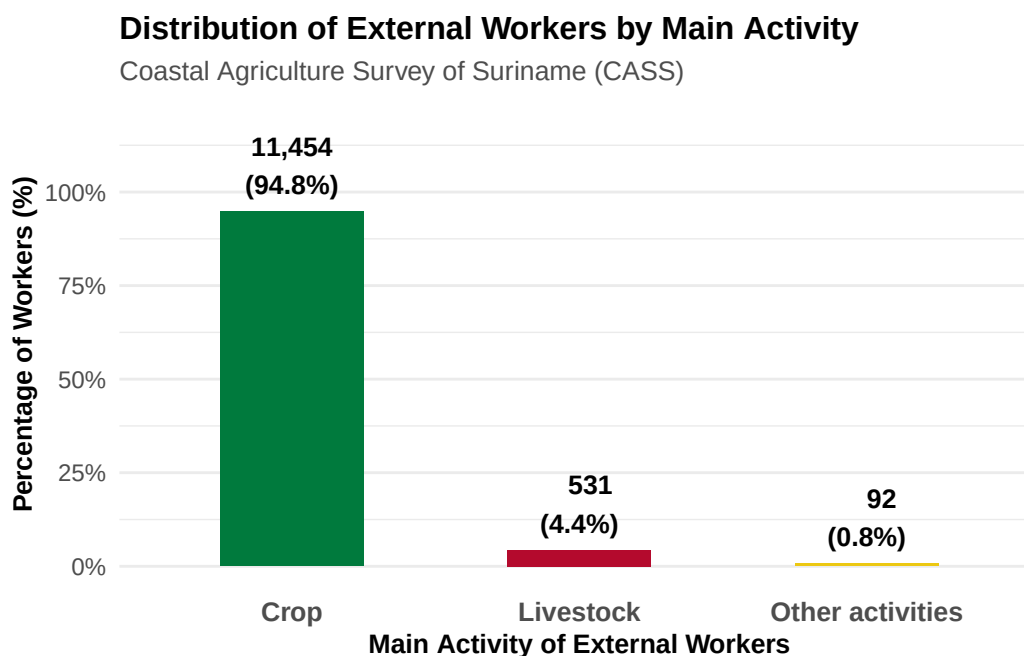


Figure 4.21: Distribution of External Workers by Main Activity (CASS Survey)

4.7.6 Shortage of workers and contractors

Looking at the results shown in Table 4.44, we see that labor shortages are surprisingly infrequent across agricultural holdings in coastal Suriname, with an overall national average of just 1.7% (139 out of 8,275 holdings) reporting experiencing worker shortages. Geographically, this constraint is concentrated almost entirely in **Wanica**, where 5.1% of holdings (130 out of 2,536) report facing labor deficits, alongside a minimal occurrence in **Marowijne** (0.7% or 8 holdings). In contrast, all other districts report 0.0% of holdings experiencing worker shortages during the reference period. This low reported shortage rate suggests that despite heavy reliance on seasonal labor, agricultural operations across most districts are generally able to source sufficient family or external hands to meet their immediate operational requirements, with localized recruitment friction appearing primarily in Wanica.

Table 4.44: Estimated Number and Percentage of Holdings Experiencing Worker Shortages by District and Period (CASS Survey)

District	Total Holdings	Holdings Reporting Shortage	Percentage (%)
COMMEWIJNE	882	0	0.0%
CORONIE	98	0	0.0%
MAROWIJNE	1,305	8	0.7%
NICKERIE	1,384	0	0.0%
PARA	198	0	0.0%
PARAMARIBO	857	0	0.0%
SARAMACCA	1,015	0	0.0%
WANICA	2,536	130	5.1%
Total	8,275	139	1.7%
Coastal Survey of Agriculture (CASS Survey Estimates)			

Table 4.45: Estimated Number and Percentage of Holdings Utilizing Hired Contractors by District

District	Total Holdings	Holdings Using Contractors	Percentage (%)
COMMEWIJNE	882	97	11.0%
CORONIE	98	0	0.0%
MAROWIJNE	1,305	57	4.4%
NICKERIE	1,384	490	35.4%
PARA	198	1	0.5%
PARAMARIBO	857	61	7.1%
SARAMACCA	1,015	24	2.3%
WANICA	2,536	41	1.6%
Total	8,275	771	9.3%
Coastal Survey of Agriculture (CASS Survey Estimates)			

4.7.7 Contractors

Analysis of Table 4.45 reveals that the utilization of hired contractors is relatively modest across coastal Suriname, with an overall national average of 9.3% (771 out of 8,275 holdings) reporting the use of contracted labor. However, adoption rates vary significantly across districts: **Nickerie** exhibits by far the highest reliance on contractors, with 35.4% of its holdings (490 out of 1,384) employing them, reflecting the mechanized and commercial scale of rice farming in the district. Other districts show much lower reliance, including **Commewijne** at 11.0% (97 holdings), **Paramaribo** at 7.1% (61 holdings), **Marowijne** at 4.4% (57 holdings), **Saramacca** at 2.3% (24 holdings), **Wanica** at 1.6% (41 holdings), and **Para** at 0.5% (1 holding). Notably, **Coronie** records 0.0% (0 holdings) utilizing hired contractors, relying entirely on direct family and wage labor. This geographic concentration underscores that specialized contractor services are primarily adopted in heavy commercial crop-production districts like Nickerie rather than traditional smallholder settings.

4.7.7.1 Number of contractors by type of work

Analysis of Table 4.46 reveals that among holdings utilizing hired contractors, operational support is heavily concentrated in harvesting, land preparation, and crop establishment services. Specifically, **harvesting and threshing** is the most prevalent contractor service, utilized by 450 **holdings** (representing 58.5% of holdings using contractors). This is followed closely by **ploughing and land preparation** (including mechanized preparation for rice cultivation), accounting for 384 **holdings** (49.9%), **planting or sowing** (including aerial sowing), utilized by 370 **holdings** (48.1%), and **constructing or clearing drainage ditches**, reported by 358 **holdings** (46.4%).

Land clearing also plays a major role, engaged by 324 **holdings** (42.0%), while downstream and maintenance tasks include **transport of products** (204 holdings or 26.5%), **weeding and pest control** (186 holdings or 24.1%), and **repairs and maintenance of machinery** (41 holdings or 5.4%). Ancillary services such as the **supply of freshly cut grass** (1 holding or 0.1%) and **other activities** (1 holding or 0.1%) represent negligible shares of contractor engagement. This distribution underscores that when coastal agricultural holdings hire external contractors, they do so predominantly to secure heavy machinery and specialized capital-intensive services required across the entire crop production cycle, from initial land preparation and ditching to final harvesting and transport.

Table 4.46: Estimated Number of Holdings and Proportion Utilizing Contractors by Main Activity Type

Contractor Activity	Estimated Holdings Utilizing	Percentage (%)
Land clearing	324	42.0%
Constructing/clearing drainage ditches	358	46.4%
Ploughing/Land preparation	384	49.9%
Planting / Sowing	370	48.1%
Weeding / Pest Control	186	24.1%
Harvesting / Threshing	450	58.5%
Transport of products	204	26.5%
Repairs and maintenance of machinery	41	5.4%
Supply of freshly cut grass	1	0.1%
Other (specify)	1	0.1%
Coastal Survey of Agriculture (CASS Survey Estimates)		

i Key Findings — Labour used by the holding

- **Household Labor & Participation:** Across an estimated 5,947 agricultural households, there are 11,592 potential workers (12+ years) living on holdings, with 4,723 actively working on the farm. The national average group labor participation rate stands at 40.7%, showing an inverse relationship where smaller households exhibit higher proportional labor participation than larger households.
- **Unpaid Family Labor:** Family labor on agricultural holdings is overwhelmingly unpaid, accounting for 80.5% of household workers (3,835 individuals), while only 19.5% (930 individuals) receive formal payment.
- **Primary On-Farm Activities:** Crop cultivation dominates both household and external labor, engaging 79.4% of household workers and 94.8% of external workers, followed by livestock raising.
- **External Labor Reliance:** External labor is utilized by 28.0% (2,293) of agricultural holdings, heavily concentrated in districts like Marowijne and Nickerie. The vast majority of external workers (80.1% of utilizing holdings) are casual or temporary wage laborers, with only 17.9% employed full-time.
- **Labor Shortages & Contractors:** General labor shortages are infrequent, reported by just 1.7% of holdings nationally. Meanwhile, 9.3% of holdings employ hired contractors, primarily for heavy mechanized services such as harvesting and threshing (58.5%), ploughing and land preparation (49.9%), planting or sowing (48.1%), and ditch construction (46.4%).

Having completed the section that considered the structure of farm labour across household members, external managers, and contractors, the analysis now broadens its lens from the human inputs that sustain production to the full spectrum of financial flows, both inward and outward, that shape the economic position of coastal agricultural holdings. The following section presents the survey findings on other income and expenditures associated with the holding, offering a comprehensive view of the financial environment within which coastal farmers operate.

4.8 Other Income and Expenses

Beyond the revenues generated through the sale of primary crop and livestock outputs, coastal agricultural holdings participate in a wider range of income-generating and expenditure activities that together define the economic reality of the farm enterprise. This section provides a detailed account of those financial flows. On the income side, it captures receipts from the sale of other livestock products such as honey, hides, and by-products, as well as earnings from aquaculture activities and other holding-related income streams, including animal boarding, and the rental of farmland or agricultural buildings. On the expenditure side, the section documents the full range of input costs borne by holdings during the reference period: land and facility costs such as rent, water, and electricity; crop input expenditures covering seeds, planting materials, and other production inputs; and livestock-specific costs including feed, veterinary services, and reproductive inputs such as semen and breeding fees. Examined together, these income and expenditure flows provide an essential foundation for assessing the net economic performance of coastal holdings and the financial pressures that producers navigate in sustaining their operations.

Table 4.47: Estimated Number of Farms Reporting Other Livestock By-Product Sales by District and Product Type

District	Total Holdings	Skins	Manure / Urine	Bones, Horns, Fat	Other By-Products
COMMEWIJNE	882	0	41	0	0
CORONIE	98	0	5	0	0
MAROWIJNE	1,305	0	0	0	0
NICKERIE	1,384	0	0	0	0
PARA	198	0	0	0	0
PARAMARIBO	857	0	0	0	0
SARAMACCA	1,015	0	0	0	0
WANICA	2,536	0	264	0	0
Total	8,275	0	310	0	0
Coastal Survey of Agriculture (CASS Survey Estimates)					

4.8.1 Livestock By-Product

A rapid glance at Table 4.47 reveals that commercial transactions involving other livestock by-products are extremely rare across coastal Suriname, with sales restricted entirely to the marketing of **manure or urine**. Nationally, an estimated 310 **farms** (3.7% of total holdings) report selling manure or urine, while sales of **skins, bones, horns, hooves, or fat**, and **other by-products** record 0 holdings across all districts.

Geographically, the sale of manure or urine is concentrated primarily in **Wanica**, which accounts for 264 **farms**, followed by **Commewijne** with 41 **farms** and **Coronie** with 5 **farms**, while all other districts report zero activity. This distribution indicates that secondary livestock by-product commercialization in coastal Suriname is almost exclusively limited to organic fertilizer (manure/urine) sales originating predominantly from smallholder livestock operations in Wanica and Commewijne.

Table 4.48: Estimated Gross Sales Value of Other Livestock By-Products by District (SRD) (CASS Survey)

District	Skins (SRD)	Manure (SRD)	Bones (SRD)	Other (SRD)	Total (SRD)
COMMEWIJN	0.00	5,252,100.00	0.00	0.00	5,252,100.00
CORONIE	0.00	3,077.78	0.00	0.00	3,077.78
WANICA	0.00	3,116,442.86	0.00	0.00	3,116,442.86
Total	0.00	8,371,620.63	0.00	0.00	8,371,620.63
Coastal Survey of Agriculture (CASS Survey Estimates)					

4.8.2 Gross sales of livestock By-Product

Table 4.48 shows the economic value generated from other livestock by-product sales across coastal Suriname totals to be at 8,371,620.63 **SRD**, with revenue stemming exclusively from the sale of **manure or urine**. In contrast, gross sales for skins, bones/horns/fat, and other by-products record 0.00 **SRD** across all districts.

Geographically, revenue generation is concentrated in two primary districts: **Commewijne** leads the country with 5,252,100.00 **SRD** (representing over 62.7% of total national revenue despite having fewer reporting farms), followed by **Wanica** with 3,116,442.86 **SRD**, and a nominal contribution from **Coronie** at 3,077.78 **SRD**. This financial distribution underscores that while Wanica has the highest number of farms commercializing manure, Commewijne achieves significantly higher total sales value, indicating larger commercial volumes per holding in the district.

Table 4.49: Estimated Number of Holdings Reporting Operational and Rental Other Income by District

District	Total Holdings	Contractual Work	Land Rent	Asset Rent	Cash Rent
COMMEWIJN	882	42	19	20	0
CORONIE	98	4	0	0	0
MAROWIJNE	1,305	73	0	0	0
NICKERIE	1,384	174	0	23	0
PARA	198	12	0	0	0
PARAMARIBO	857	2	0	0	0
SARAMACCA	1,015	327	0	0	47
WANICA	2,536	464	22	19	22
Total	8,275	1,098	41	62	69
Coastal Survey of Agriculture (CASS Survey Estimates)					

4.8.3 Number of farms by Other Income

This sub-section examines the prevalence of income sources that fall outside the direct sale of crops or livestock, capturing the broader range of financial contributions that holding-related activities make to household earnings.

4.8.3.1 Operational and Rental other income

Analysis of Table 3.51 indicates that operational and rental secondary income sources among agricultural holdings in coastal Suriname are led predominantly by **contractual work**, which is reported by an estimated 1,098 **holdings** (13.3% of total national holdings). Contractual labor input is most heavily concentrated in **Wanica** (464 holdings) and **Saramacca** (327 holdings), followed by **Nickerie** (174 holdings) and **Marowijne** (73 holdings).

In contrast, passive asset and property rental streams are far less common across the country. **Asset and machine rental** is utilized by 62 **holdings** overall (concentrated in Nickerie, Wanica, and Commewijne), while **land or building rental** generates income for just 41 **holdings** (restricted to Wanica and Commewijne). Similarly, **cash rent** is reported by 69 **holdings**, the vast majority of which are located in **Saramacca** (47 holdings) and **Wanica** (22 holdings). This distribution highlights that while off-farm or auxiliary labor services (contractual work) represent a widespread secondary income activity for agricultural holdings, physical asset leasing and land rental remain niche commercial practices.

Table 4.50: Estimated Number of Holdings Reporting Institutional and Miscellaneous Other Income by District

District	Total Holdings	Boarding Animals	Co-op Dividends	Subsidies/Grants	Other Income
COMMEWIJN	882	0	0	1	20
CORONIE	98	0	0	0	0
MAROWIJNE	1,305	0	0	19	133
NICKERIE	1,384	0	0	593	235
PARA	198	0	0	5	6
PARAMARIBO	857	31	0	15	424
SARAMACCA	1,015	0	0	0	1
WANICA	2,536	3	1	43	381
Total	8,275	34	1	674	1,199
Coastal Survey of Agriculture (CASS Survey Estimates)					

4.8.3.2 Other Income: Institutional and Miscellaneous other income

As can be seen from Table 4.50, institutional and miscellaneous secondary income sources for agricultural holdings in coastal Suriname are driven heavily by subsidies or grants and other miscellaneous income, while specialized activities like animal boarding and cooperative dividends are virtually non-existent. Subsidies and grants are claimed by an estimated 674 holdings nationally, with overwhelming concentration in Nickerie (593 holdings), reflecting targeted agricultural or rice-sector support in that commercial district. Other miscellaneous income is reported by 1,199 holdings overall, showing widespread presence across urban and peri-urban districts such as Paramaribo (424 holdings), Wanica (381 holdings), Nickerie (235 holdings), and Marowijne (133 holdings). In contrast, the boarding or training of animals represents a negligible secondary source reported by just 34 holdings (restricted entirely to Paramaribo and Wanica), while cooperative dividends and refunds are recorded by a solitary holding nationally in Wanica, indicating minimal reliance on or financial return from agricultural cooperatives.

Table 4.51: Estimated Number of Farms Paying General Operating Expenses by District (CASS Survey)

District	Total Holdings	Rent Paid	Water	Fuel & Lubricants	Electricity
COMMEWIJN	882	1	20	680	120
CORONIE	98	0	58	70	51
MAROWIJNE	1,305	0	0	312	19
NICKERIE	1,384	328	931	1,020	325
PARA	198	1	29	47	32
PARAMARIBO	857	0	235	529	111
SARAMACCA	1,015	71	69	575	22
WANICA	2,536	1	911	1,304	983
Total	8,275	402	2,254	4,538	1,662
Coastal Survey of Agriculture (CASS Survey Estimates)					

4.8.4 Expenses

This sub-section examines the range of input costs and operational expenditures incurred by coastal agricultural holdings during the reference period, capturing the financial obligations that producers must meet in sustaining their crop and livestock activities beyond the direct costs of production already accounted for elsewhere in the survey.

4.8.4.1 General operating expenses

Analysis of Table 4.51 indicates that general operating expenses vary widely across agricultural holdings in coastal Suriname, with **fuel and lubricants** representing the most universally incurred operating cost, reported by an estimated 4,538 **holdings** (over 54.8% of total farms). This expense is heavily concentrated in **Wanica** (1,304 holdings) and **Nickerie** (1,020 holdings), reflecting heavy machinery and transport requirements.

Water expenditure is the second most common operating cost, reported by 2,254 **holdings** nationally, driven primarily by intensive irrigation needs in **Nickerie** (931 holdings) and **Wanica** (911 holdings). **Electricity** expenses are incurred by 1,662 **holdings**, led by **Wanica** (983 holdings) and **Nickerie** (325 holdings), pointing to electrified post-harvest processing or domestic-farm integration. In contrast, **rent paid for land and buildings** is relatively uncommon, reported by only 402 **holdings** overall, the vast majority of which are concentrated in **Nickerie** (328 holdings) and **Saramacca** (71 holdings), indicating that most agricultural holdings operate on owned or state-allocated land rather than rented property.

Table 4.52: Average Expenditure (SRD) Among Farms Reporting General Operating Expenses by District (CASS Survey)

District	Rent (SRD)	Water (SRD)	Fuel & Lubricants (SRD)	Electricity (SRD)
COMMEWIJNE	500,000.00	5,000.00	28,339.85	47,742.41
CORONIE	0.00	1,443.44	15,256.32	1,295.74
MAROWIJNE	0.00	0.00	14,846.13	8,000.00
NICKERIE	86,860.40	37,767.56	125,074.35	17,954.73
PARA	1,000.00	2,138.94	5,948.11	5,115.44
PARAMARIBO	0.00	1,446.09	7,889.30	7,172.95
SARAMACCA	20,333.33	4,322.63	41,229.53	6,072.25
WANICA	5,000.00	5,294.48	7,111.77	5,662.45
Total	75,763.50	18,141.24	41,863.66	11,095.11
Coastal Survey of Agriculture (CASS Survey Estimates)				

4.8.4.2 Average of general operating expenses

As can be seen from Table 4.52, among farms reporting general operating expenses, financial outlays vary dramatically by category and scale of production across coastal Suriname. Fuel and lubricants represent a major operating cost, averaging \$41,863.66 SRD nationally, with spending peaking heavily in Nickerie at \$125,074.35 SRD due to intensive mechanized rice farming. Rent paid for land and buildings records the highest individual monetary average nationally at \$75,763.50 SRD overall, skewed significantly by Commewijne, which averages \$500,000.00 SRD among renting holdings. Similarly, water expenditure averages \$18,141.24 SRD overall, driven primarily by extensive irrigation needs in Nickerie (\$37,767.56 SRD), while electricity averages \$11,095.11 SRD nationally, led by Commewijne (\$47,742.41 SRD) and Nickerie (\$17,954.73 SRD). This financial breakdown highlights that large commercial and mechanized agricultural hubs incur vastly higher per-farm operating costs than smaller holdings in residential or peri-urban districts.

Table 4.53: Estimated Number of Farms Paying Agricultural Inputs Expenditure by District (CASS Survey)

District	Total Holdings	Seeds & Plants	Fertilizer & Lime	Plant Protection Products
COMMEWIJNE	882	309	566	602
CORONIE	98	14	8	0
MAROWIJNE	1,305	385	364	213
NICKERIE	1,384	1,128	1,190	1,110
PARA	198	7	23	11
PARAMARIBO	857	231	555	491
SARAMACCA	1,015	298	851	804
WANICA	2,536	543	1,170	1,260
Total	8,275	2,915	4,726	4,491
Coastal Survey of Agriculture (CASS Survey Estimates)				

4.8.4.3 Number of Farms Paying Agricultural Inputs Expenditure

Analysis of Table 4.53 shows that agricultural input expenditures are widespread across coastal Suriname, with **fertilizer and lime** representing the most commonly incurred input cost, reported by an estimated 4,726 **holdings** (representing over 57.1% of total farms). **Plant protection products (PPPs)** follow closely as the second most frequent input expense, incurred by 4,491 **holdings** (54.3% of farms), while **seeds and plants** are purchased by 2,915 **holdings** (35.2% of farms).

Geographically, the adoption and purchase of agricultural inputs are concentrated heavily in commercial and intensive crop-producing districts. **Nickerie** and **Wanica** record the highest overall volume of input-purchasing farms: Nickerie leads in seed acquisition with 1,128 **holdings**, while Wanica leads in PPP utilization with 1,260 **holdings** and fertilizer expenditure with 1,170 **holdings**. Other districts like **Saramacca** and **Commewijne** also show substantial input usage for fertilizers and PPPs, reflecting active vegetable, fruit, and crop farming. In contrast, districts with smaller agricultural sectors, such as **Coronie** and **Para**, report very low numbers of holdings purchasing commercial inputs. This distribution underscores that soil fertility management and pest/disease control are universal practices across the major agricultural holdings of coastal Suriname.

4.8.4.4 Average Expenditure Among Farms Reporting Agricultural Input

A close look at Table 4.54 reveals that average financial outlays for agricultural inputs among reporting farms are heavily dominated by **fertilizer and lime**, which averages 48,509.81 **SRD** nationally, followed by **seeds and plants** at 24,985.55 **SRD**, and **plant protection products (PPPs)** at 19,762.67 **SRD**.

Geographically, input expenditures are extraordinarily high in **Nickerie**, reflecting its commercial-scale rice production: average spending on fertilizer and lime in Nickerie reaches an overwhelming 158,964.98 **SRD**, seeds and plants average 54,362.01 **SRD**, and plant protection products average 56,022.80 **SRD**. Other districts show significantly lower per-farm averages, such as **Commewijne** (averaging 18,800.43 **SRD** for seeds and 15,427.82 **SRD** for PPPs) and **Saramacca** (averaging 21,284.33 **SRD** for fertilizer), while smaller districts record much lower input outlays. This disparity underscores that capital-intensive commercial farming in Nickerie requires vastly greater financial investment in chemical inputs and planting materials compared to smaller-scale or traditional holdings elsewhere in coastal Suriname.

4.8.5 Inputs and services used for livestock production

This sub-section details the expenditures incurred by coastal holdings specifically in support of their livestock operations. These costs encompass a range of inputs essential to the day-to-day management and productivity of animal enterprises, including feed, veterinary services, and reproductive inputs such as semen and breeding fees. Together, these expenditures reflect the financial commitment required to maintain herd health, support reproduction, and sustain output across the various livestock categories present on coastal holdings.

Table 4.54: Average Expenditure (SRD) Among Farms Reporting Agricultural Inputs by District

District	Seeds & Plants (SRD)	Fertilizer & Lime (SRD)	Plant Protection (SRD)
COMMEWIJNE	18,800.43	13,434.87	15,427.82
CORONIE	1,914.06	1,079.14	0.00
MAROWIJNE	4,083.99	5,818.45	1,063.81
NICKERIE	54,362.01	158,964.98	56,022.80
PARA	3,153.73	1,848.37	324.22
PARAMARIBO	2,383.25	3,894.72	4,137.65
SARAMACCA	6,234.48	21,284.33	11,821.13
WANICA	3,086.89	8,588.91	4,358.42
Total	24,985.55	48,509.81	19,762.67
Coastal Survey of Agriculture (CASS Survey Estimates)			

Table 4.55: Estimated Number of Farms Reporting Livestock and Specialized Inputs Expenditure by District (CASS Survey)

District	Total Holdings	Feed & Grass	Vet Services	Semen & Breeding	Fencing/Sprinkler	Other Inputs
COMMEWIJ	882	143	25	0	22	20
CORONIE	98	15	8	0	0	0
MAROWIJN	1,305	58	0	0	0	1
NICKERIE	1,384	207	68	20	66	3
PARA	198	20	4	0	0	0
PARAMARI	857	239	108	0	1	0
SARAMACC	1,015	21	27	1	1	0
WANICA	2,536	927	307	45	22	17
Total	8,275	1,629	546	65	112	41
Coastal Survey of Agriculture (CASS Survey Estimates)						

4.8.5.1 Number of Farms Reporting Livestock and Specialized Inputs Expenditure

As can be seen from Table 4.55, expenditures on livestock and specialized farm inputs across coastal Suriname are led overwhelmingly by feed and freshly cut grass, which is reported by an estimated 1,629 holdings (19.7% of total national farms). This feeding cost is heavily concentrated in Wanica (927 holdings), followed by Paramaribo (239 holdings) and Nickerie (207 holdings), reflecting intensive peri-urban and commercial livestock rearing. In contrast, other livestock and infrastructure input categories are significantly less prevalent: veterinary services and drugs are incurred by 546 holdings nationally (with the highest counts in Wanica and Paramaribo); fencing, sprinklers, cameras, and lighting are reported by 112 holdings (primarily in Nickerie, Wanica, and Commewijne); semen and breeding fees are utilized by just 65 holdings overall; and other miscellaneous livestock inputs are reported by 41 holdings. This distribution highlights that while routine feeding is a widespread operational necessity for livestock producers, specialized veterinary services, artificial breeding, and advanced farm infrastructure investments are restricted primarily to dedicated livestock and commercial operations in Wanica and Nickerie.

Analysis Table 4.56 shows that average financial outlays among farms reporting livestock and specialized inputs vary dramatically across categories and districts in coastal Suriname. Feed and grass average \$168,232.98 SRD nationally, driven to extreme highs in districts with specialized operations such as Para (\$8,696,176.70 SRD) and Saramacca (\$873,227.27 SRD), whereas major livestock districts like Wanica and Nickerie average \$22,694.87 SRD and \$34,039.02 SRD respectively. Fencing, sprinklers, cameras, and lighting represent a major capital investment averaging \$85,236.52 SRD overall, peaking sharply in Saramacca (\$500,000.00 SRD) and Commewijne (\$357,724.80 SRD) among their few reporting holdings. Other livestock inputs average \$62,740.48 SRD nationally, led by Commewijne at \$119,500.00 SRD. Similarly, semen and breeding fees average \$12,244.25 SRD overall, skewed heavily by Saramacca (\$500,000.00 SRD) alongside Nickerie (\$11,257.77 SRD) and Wanica (\$1,779.33 SRD), while

Table 4.56: Average Expenditure (SRD) Among Farms Reporting Livestock and Specialized Inputs by District

District	Feed & Grass (SRD)	Vet Services (SRD)	Semen & Breeding (SRD)	Fencing/Sprinkler (SRD)	Other Inputs (SRD)
COMMEWIJNE	283,610.06	89,488.00	0.00	357,724.80	119,500.00
CORONIE	1,409.93	2,573.53	0.00	0.00	0.00
MAROWIJNE	7,442.48	0.00	0.00	0.00	800.00
NICKERIE	34,039.02	4,603.70	11,257.77	19,320.21	11,666.67
PARA	8,696,176.70	61,868.42	0.00	0.00	0.00
PARAMARIBO	70,999.61	8,184.31	0.00	1,000.00	0.00
SARAMACCA	873,227.27	38,962.96	500,000.00	500,000.00	0.00
WANICA	22,694.87	3,046.34	1,779.33	1,269.23	10,000.00
Total	168,232.98	10,434.04	12,244.25	85,236.52	62,740.48
Coastal Survey of Agriculture (CASS Survey Estimates)					

veterinary services and drugs average \$10,434.04 SRD with peak regional averages in Commewijne (\$89,488.00 SRD) and Para (\$61,868.42 SRD). This distribution highlights that while routine livestock feeding is widespread at moderate per-farm costs, specialized infrastructure, breeding programs, and veterinary outlays exhibit exceptionally high capital investments concentrated among a small number of advanced or commercial livestock holdings.

4.8.6 Other Inputs

This sub-section focuses on the use of equipment in the agricultural operations of coastal holdings, distinguishing between two principal modes of mechanisation. The first concerns the use of animal-powered equipment, where draught animals serve as the primary source of motive power for crop and livestock activities, while the second addresses the use of machine-powered equipment, reflecting a higher level of mechanisation and capital investment. Together, these two indicators provide a measure of the technological capacity of coastal holdings and the extent to which manual labour has been supplemented or replaced by powered machinery in day-to-day farm operations.

Table 4.57: Number of Holdings Operating Animal-Powered and Machine-Powered Agricultural Equipment

District	Total Holdings	Animal-Powered	Machine-Powered
COMMEWIJNE	882	20	21
CORONIE	98	0	0
MAROWIJNE	1,305	19	96
NICKERIE	1,384	19	350
PARA	198	1	3
PARAMARIBO	857	0	32
SARAMACCA	1,015	0	141
WANICA	2,536	2	58
Total	8,275	60	700
Coastal Survey of Agriculture (CASS Survey Estimates)			

4.8.6.1 Powered agricultural equipment

We can see from Table 4.57 that the utilization of power sources for agricultural production in coastal Suriname is heavily dominated by machinery rather than animal labor. Nationally, **machine-powered equipment** is operated by an estimated 700 **holdings** (8.5% of total farms), whereas **animal-powered equipment** is used by only 60 **holdings** (0.7% of farms). Geographically, machine-powered equipment is most heavily concentrated in **Nickerie** (350 holdings), followed by **Saramacca** (141 holdings) and **Marowijne** (96 holdings), reflecting the high mechanization required for commercial rice and crop cultivation. In contrast, animal-powered equipment is exceedingly rare and primarily restricted to minor usage in **Commewijne** (20 holdings), **Marowijne** (19 holdings), and **Nickerie** (19 holdings), while districts like **Coronie**, **Paramaribo**, and **Saramacca** report zero animal power use. This distribution underscores that modern agricultural operations across coastal Suriname rely almost exclusively on mechanical power rather than traditional draft animals.

Table 4.58: Number of Holdings Reporting Maintenance, Leasing, and Other Expenses by District

District	Total Holdings	Machinery Maint.	Machinery Lease	Building & Fence	Other Expenses
COMMEWIJNE	882	179	42	21	1
CORONIE	98	0	0	0	0
MAROWIJNE	1,305	99	19	19	19
NICKERIE	1,384	568	462	139	0
PARA	198	2	0	13	0
PARAMARIBO	857	107	1	77	0
SARAMACCA	1,015	72	0	25	24
WANICA	2,536	127	20	23	0
Total	8,275	1,154	544	317	44
Coastal Survey of Agriculture (CASS Survey Estimates)					

4.8.6.2 Number of Holdings Reporting Maintenance, Leasing, and Other Expenses

Looking at Table 4.58 we note that maintenance, leasing, and miscellaneous expenses vary substantially across agricultural holdings in coastal Suriname, with machinery maintenance representing the most prevalent operational expenditure in this category, reported by an estimated 1,154 holdings nationally. This cost is heavily concentrated in Nickerie (568 holdings) and Commewijne (179 holdings), reflecting the frequent servicing required for heavy agricultural machinery. Additional expense categories show distinct geographical patterns, such as machinery leasing incurred by 544 holdings overall (with an overwhelming concentration of 462 holdings in Nickerie highlighting significant reliance on rented equipment for commercial production), building and fence maintenance reported by 317 holdings nationally (led by Nickerie at 139 holdings and Paramaribo at 77 holdings), and other miscellaneous expenses recorded by only 44 holdings total, primarily distributed across Saramacca (24 holdings) and Marowijne (19 holdings). This distribution demonstrates that equipment upkeep and machinery rentals are core operational costs heavily driven by capital-intensive farming in districts like Nickerie, whereas structural maintenance and miscellaneous expenses remain secondary across smaller holdings.

Table 4.59: Estimated Number of Holdings Reporting Taxes, Licenses, and Permits by District (CASS Survey)

District	Total Holdings	Land & Property Taxes	Licenses & Permits	Other Taxes/Licenses
COMMEWIJNE	882	295	21	1
CORONIE	98	1	0	0
MAROWIJNE	1,305	57	0	0
NICKERIE	1,384	370	6	1
PARA	198	0	0	0
PARAMARIBO	857	184	0	0
SARAMACCA	1,015	330	1	0
WANICA	2,536	955	2	1
Total	8,275	2,192	30	3
Coastal Survey of Agriculture (CASS Survey Estimates)				

4.8.6.3 Number of Holdings Reporting Taxes, Licenses, and Permits

The analysis of Table 4.59 reveals that expenditures on taxes, licenses, and permits for agricultural holdings across coastal Suriname are heavily dominated by land and property taxes, which are reported by an estimated 2,192 holdings nationally. This obligation is widely distributed across major agricultural districts, led by Wanica with 955 holdings, followed by Nickerie (370 holdings), Saramacca (330 holdings), and Commewijne (295 holdings). In contrast, specialized operational licenses and permits—such as water access rights and organic certification charges—are exceptionally rare, incurred by just 30 holdings overall, primarily concentrated in Commewijne (21 holdings) and Nickerie (6 holdings). Other miscellaneous taxes and licenses are virtually non-existent, recorded by only 3 holdings across the entire coastal region. This distribution indicates that while land and property tax liabilities affect a substantial portion of farming holdings, formal regulatory licensing and permit fees remain uncommon across smallholder and commercial agricultural operations alike.

i Key Findings — Other Income and Expenses

- **Secondary Income Sources:** Institutional and miscellaneous income is heavily driven by **subsidies and grants** (674 holdings, largely concentrated in Nickerie) and **other miscellaneous income** (1,199 holdings across urban and peri-urban areas), whereas animal boarding and cooperative dividends are virtually non-existent.
- **General Operating Expenses:** **Fuel and lubricants** are the most universally incurred operating cost (4,538 holdings) with the highest national average (41,863.66 SRD), peaking dramatically in Nickerie due to intensive mechanized rice farming. Water expenses (2,254 holdings) and electricity (1,662 holdings) follow as major operational necessities.
- **Agricultural Inputs:** **Fertilizer and lime** (4,726 holdings; averaging 48,509.81 SRD) and **plant protection products** (4,491 holdings) represent the most widespread and capital-intensive input expenditures, led overwhelmingly by commercial scale operations in Nickerie and Wanica.
- **Livestock & Specialized Inputs:** Routine **feed and grass** outlays are reported by 1,629 holdings, representing the primary livestock expense, while advanced veterinary care, breeding fees, and infrastructure investments (fencing, sprinklers, and lighting) are concentrated among a small number of commercial holdings.
- **Agricultural Power Sources:** Modern farming relies almost exclusively on **machinery** (700 holdings) rather than draft animals (60 holdings), with machine-powered equipment heavily concentrated in Nickerie and Saramacca.
- **Maintenance & Administrative Costs:** **Machinery maintenance** (1,154 holdings) and leasing (544 holdings) are vital operational costs in commercial districts like Nickerie, while administrative liabilities are dominated by **land and property taxes** (2,192 holdings), whereas formal permits, licenses, and specialized fees remain exceptionally rare.

5 Conclusion and Recommendations

5.1 Conclusion

The inaugural Coastal Agriculture Survey of Suriname (CASS) establishes that the coastal agricultural sector exhibits a dual structure characterized by large-scale, highly mechanized commercial production alongside numerous micro-scale and smallholder operations. Geographically and economically, production is heavily polarized: Nickerie anchors the national output through extensive, mechanized rice cultivation, accounting for the vast majority of cultivated land, volume, and commercial crop sales. Conversely, districts such as Wanica, Saramacca, and Commewijne drive intensive horticultural, vegetable, and livestock systems that supply domestic and urban markets.

Demographically, the sector faces a pronounced aging workforce with minimal youth participation, heavily dominated by male operators except in specific regional enclaves like coastal Marowijne. Furthermore, structural analyses reveal that while water management and chemical input usage are integral to commercial productivity, the sector experiences significant vulnerabilities, including heavy exposure to climatic shocks (drought and flooding), low formal financial inclusion, and a high proportion of agricultural holdings where farming serves primarily as a secondary source of household income rather than a full-time livelihood.

5.2 Recommendations

Based on the findings of the CASS report, the following policy interventions and strategic recommendations are proposed to enhance the resilience, productivity, and sustainability of coastal agriculture in Suriname:

- **Targeted Support for Input and Operating Costs:** Agricultural policies should focus on mitigating high operational burdens, particularly for fuel, water, fertilizers, and plant protection products, which represent major financial constraints for commercial and smallholder producers alike.
- **Infrastructure Investment in Water Management:** Given that water control is a fundamental prerequisite across coastal farming, public investments should prioritize the maintenance and expansion of functional irrigation and drainage networks, particularly in key production hubs like Saramacca and Nickerie.
- **Smallholder Capacity Building and Modernization:** Because advanced inputs, machinery leasing, and contractor services are heavily concentrated among large-scale enterprises, extension services should expand technical support, mechanization access, and commercialization pathways for smallholders and peri-urban farmers.
- **Climate Resilience and Risk Mitigation Frameworks:** Given that extreme weather events, specifically drought and heavy rains, disrupt thousands of holdings with minimal recourse to institutional assistance, policymakers should develop robust agricultural safety nets, insurance mechanisms, and proactive drought-mitigation strategies.
- **Promoting Generational Renewal and Financial Formalization:** To address an aging farming population and extremely low levels of formal banking integration, targeted programs should encourage youth participation through agricultural entrepreneurship incentives and improve farmers' access to formal agricultural credit and banking services.

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