The Republic of Rwanda

NATIONAL INSTITUTE OF STATISTICS OF RWANDA

SEASONAL AGRICULTURAL SURVEY

SEASON A 2024

REPORT

May 2024

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I. INTRODUCTION

1.1. Background

High-quality agricultural statistics plays a vital role in assessing the performance of national agricultural programs and hence, imperative for evidence-based decision making. While the use of statistics in decision-making processes continues to grow, the demand for agriculture data is also increasing. In this regard, the National Institute of Statistics of Rwanda (NISR) in collaboration with the Ministry of Agriculture and Animal Resource (MINAGRI) conducts the Seasonal Agricultural Survey (SAS) to gather agriculture information mainly related to potential agricultural land use, crop area, yield, and production, agricultural inputs, agricultural practices as well as other agricultural statistics.

The survey data are supplemented by administrative records collected by the National Agricultural Export Development Board (NAEB) through routine activities of monitoring coffee and tea production. NISR conducts the Seasonal Agricultural Survey (SAS) following three main agricultural seasons. Season A (September to February of the following year), Season B (March to June) while Season C (July-September) is a shorter season mainly for vegetables and sweet potato grown in swamps and Irish potato grown in the volcanic agro-ecological zone.

Every three years, SAS undergoes an upgrade to revise the sample frame based on changes in land classes and subsequently select new sample segments to be surveyed over the subsequent three-years. This report outlines the third upgrade of the Seasonal Agriculture Survey, detailing enhancements to the area frame, data collection activities, and key findings for the 2024 Season A.

1.2. Objectives of the Seasonal Agricultural Survey (SAS)

The main objective of SAS is to provide timely, accurate, reliable, and comprehensive agricultural statistics that describe the structure of agriculture in Rwanda mainly in terms of land use, crop area, yield, and crop production. The survey results are useful to monitor the current agricultural and food supply conditions to facilitate evidence-based decision making for the development of the agricultural sector.

The survey specifically captures data related to land use, including agricultural land, arable land, physical crop cultivated area, crop land, pastureland, and fallow land. It also gathers information on crop production, measuring the quantity of harvested crop in kilograms or tons. Additionally, the survey assesses crop yield, indicating the quantity of crop harvested per unit of land area in kilograms per hectare. Moreover, it examines the use of inputs such as improved seeds, fertilizers, and pesticides. Finally, the survey delves into various agricultural practices, including irrigation, soil erosion protection, agroforestry, and agriculture mechanisation

II. SURVEY DESIGN

2.1. Sample frame design

To provide the basis for conducting probability surveys that comprehensively cover farm-level data and to enhance the precision of survey estimates, SAS uses a Multiple Frame Sampling (MFS) methodology. This approach involves constructing an area frame from which the survey sample is drawn. In addition, a list frame of Large-Scale Farmers (LSF), with at least 10 hectares of agricultural land, is done to complement the area frame. This ensures coverage of crops predominantly cultivated by large-scale farmers, which may not be adequately represented in the area frame alone. The construction of an area frame involves several steps, including land cover classification, land stratification and sampling of segments.

2.1.1. Land cover classification

Land classification is the first step in the designing of the sampling frame of the Seasonal Agriculture Survey. This process involves categorizing the total available land in the country into different land use or land cover types with the purpose of enhancing sampling precision by targeting the adequate land. With a combination of different spatial layers available in the country, plus a photo interpretation of a series (2010 to 2023) of high-resolution (50 to 30 cm) satellite images the total land of the country was divided into 14 land cover classes (as shown in Table 1).

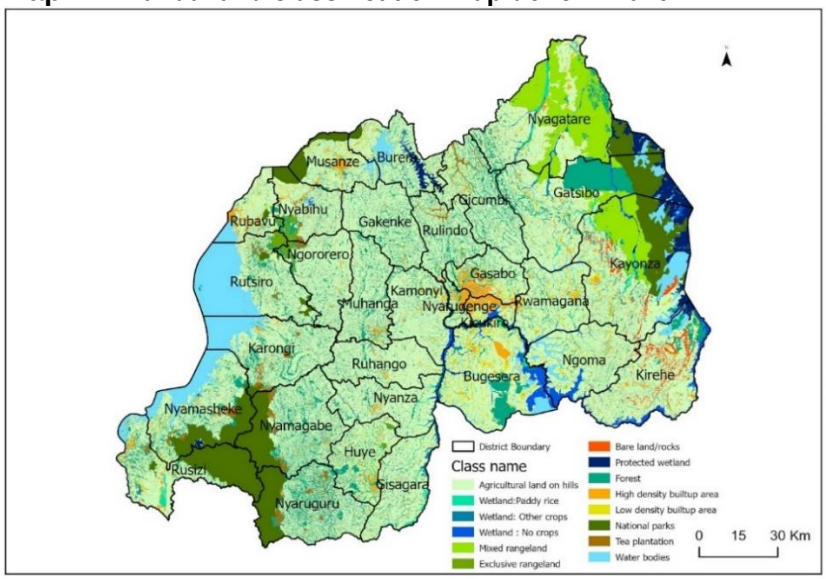
Table 1: List of Rwanda land cover classes

No	Class name	Area (Ha)	Percentage share
1	Agricultural land on hills	1,307,956	51.7
2	Non-rice Agricultural Wetland	56,905	2.2
3	Mixed rangeland	127,640	5.0
4	Low-density built-up area	95,740	3.8
5	Paddy rice wetland	22,825	0.9
6	Tea plantation	23,732	0.9
7	Non cropped wetlands	36,846	1.5
8	Forest	381,391	15.1
9	National parks	190,247	7.5
10	Water bodies	155,030	6.1
11	High-density built-up area	58,657	2.3
12	Protected wetland	45,883	1.8
13	Bare land/rocks	15,412	0.6
14	Exclusive rangeland	13,064	0.5

Source: NISR, SAS 2024

Among 14 land cover classes, only 6 are related to agricultural activities include Agricultural land on hillside, non-rice agricultural Wetland, mixed rangeland, Low-density built-up area, wetlands designated for Paddy rice and Tea plantation.

Map 1: Rwanda land classification map done in 2023



Source: NISR, SAS 2024

The subsequent step involves constructing the area frame which includes grouping the land cover classes linked to agricultural activities into strata to identify agricultural strata to be considered in the sampling frame

2.1.2. Land stratification.

The stratification is a result of a combination of sampling units (clusters) and land use/land cover. The stratification assigns each cluster a stratum based on the predominant land class type. Among the fourteen land cover classes, four are included in the agricultural survey frame, while the others are excluded.

The included land cover classes comprise hillside agricultural land, non-rice agricultural land, mixed rangeland, and Low-density built-up area (with potential for agricultural production, including kitchen gardens, fruit trees, and livestock). Certain agricultural land classes are excluded from the sampling frame. For instance, tea plantations are omitted due to regular monitoring by the National Agricultural Export Development Board (NAEB), and wetlands designated for paddy rice cultivation are typically considered in Large-Scale Farmers, making them another component of the survey frame. Moreover, Since the 2024 SAS, a new land cover class called Exclusive Rangeland has been introduced specifically for areas used for pastoral activities. This class is also excluded from the sampling frame.

By overlapping the clusters layer with land cover classes layer, each cluster is assigned a dominant land cover class as a stratum definition, basing on a defined threshold as follow:

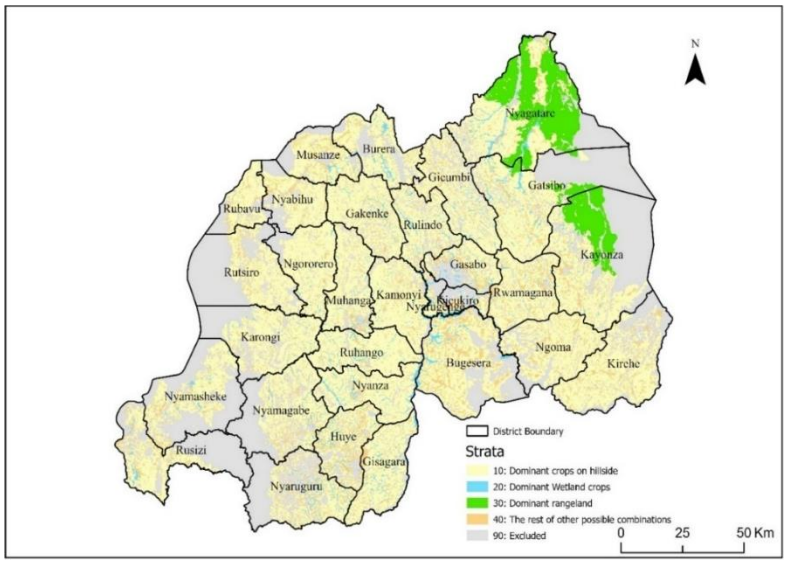
Table 2: List of strata

Stratum code	Stratum name	Definition
1.0	Dominant hill crop land	Clusters with Hillside agricultural land cover class greater or equal to 60 percent of the total area of the cluster
2.0	Dominant Wetland crops	Clusters with non-rice wetland land cover class greater than 25 percent of total area of the cluster
3.0	Dominant rangeland	Clusters with mixed rangeland land cover class greater or equal to 60 percent of the total area of the cluster
4.0	Mixed	The rest of other possible combinations
9.0	Excluded	All clusters with excluded land cover classes greater or equal to 50 percent of the total area of the cluster

Source: NISR, SAS 2024

The SAS sample is drawn from four main strata: dominant hill crop land, dominant wetland crops, dominant rangeland, and mixed land strata.

Map 2: Distribution of stratified clusters by district



Source: NISR, SAS 2024

2.1.3. Sampling Units

The Seasonal Agricultural Survey is an area-based sample survey. It uses land sampling units, small square land units of 300 by 300 meters (9ha). Geographic Information System (GIS) technology is used to create the units covering the whole country. In total the sampling frame has 269,989 square units (clusters). Each one of the clusters is identified with a unique cluster number as shown on the map below.

Map 3: SAS Sampling Units

Source: NISR, SAS 2024

Table 3: Population size per district by stratum (Number of segments)

District	Stratum					Total
	Dominant hill crop land	Dominant wetland crops	Dominant rangeland	Mixed stratum	Excluded stratum	
Nyarugenge	534	238	-	168	524	1,464
Gasabo	2,165	283	-	697	1,632	4,777
Kicukiro	461	179	-	233	1,000	1,873
Nyanza	5,688	520	-	500	744	7,452
Gisagara	5,197	397	-	824	1,077	7,495
Nyaruguru	3,568	343	-	1,300	6,027	11,238
Huye	3,160	346	-	1,466	1,496	6,468
Nyamagabe	5,344	263	-	1,154	5,352	12,113
Ruhango	5,663	336	-	489	487	6,975
Muhanga	4,983	237	-	760	1,200	7,180
Kamonyi	5,530	320	-	704	777	7,331
Karongi	5,757	117	-	726	2,159	8,759
Rutsiro	4,511	-	-	776	2,083	7,370
Rubavu	2,516	-	-	446	843	3,805
Nyabihu	3,481	-	-	671	1,896	6,048
Ngororero	5,580	134	-	461	1,276	7,451
Rusizi	3,731	155	-	886	5,500	10,272
Nyamasheke	4,584	134	-	953	4,839	10,510
Rulindo	4,144	304	-	625	1,219	6,292
Gakenke	5,934	249	-	671	966	7,820
Musanze	3,111	126	-	769	1,869	5,875
Burera	4,256	260	-	667	1,976	7,159
Gicumbi	5,883	208	-	950	2,176	9,217
Rwamagana	5,060	163	-	1,194	1,122	7,539
Nyagatare	6,591	516	9,112	1,112	4,050	21,381
Gatsibo	7,362	435	788	1,100	7,781	17,466
Kayonza	6,471	149	3,825	1,293	9,730	21,468
Kirehe	7,704			1,501	3,972	13,177
Ngoma	6,293		-	1,201	2,154	9,648
Bugesera	6,957	612	-	2,341	4,456	14,366
National	142,219	7,024	13,725	26,638	80,383	269,989

Source: NISR, SAS 2024

2.1.4. Sampling procedures

Out of Five defined strata, only dominant hill crop land stratum, dominant wetland crops stratum, dominant rangeland stratum and mixed stratum are considered as land potential for agriculture. The remaining stratum is the non-agricultural land. Note that clusters covered by tea plantations and wetlands designated for paddy rice cultivation are not considered in the area sample frame due to reasons stated above. Thus, SAS is conducted on 4 above mentioned strata. At first stage,1200 segments are selected and allocated at district level based on the power allocation approach (Bankier, 1988[1]). Sampled segments inside each district are distributed among strata with a proportional-to-area criterion.

Table 4: Allocation of 1200 sampled segments per district by stratum

District	Agricultural land on hillside	Agricultural land in marshland	Rangeland	Mixed	Total
Nyarugenge	12	6		2	20
Gasabo	22	4		3	29
Kicukiro	13	5		2	20
Nyanza	37	4		2	43
Gisagara	33	5		3	41
Nyaruguru	25	3		7	35
Huye	27	3		5	35
Nyamagabe	36	2		6	44
Ruhango	36	3		3	42
Muhanga	33	3		4	40
Kamonyi	36	3		4	43
Karongi	38	2		3	43
Rutsiro	34			4	38
Rubavu	21			4	25
Nyabihu	29			3	32
Ngororero	38	2		3	43
Rusizi	27	2		5	34
Nyamasheke	31	2		5	38
Rulindo	28	3		4	35
Gakenke	37	2		4	43
Musanze	24	2		4	30
Burera	30	2		3	35
Gicumbi	37	2		5	44
Rwamagana	34	2		6	42
Nyagatare	31	5	25	7	68
Gatsibo	38	3	5	5	51
Kayonza	32	2	13	5	52
Kirehe	45			9	54
Ngoma	39			6	45
Bugesera	45	3		8	56
Total	948	75	43	134	1,200

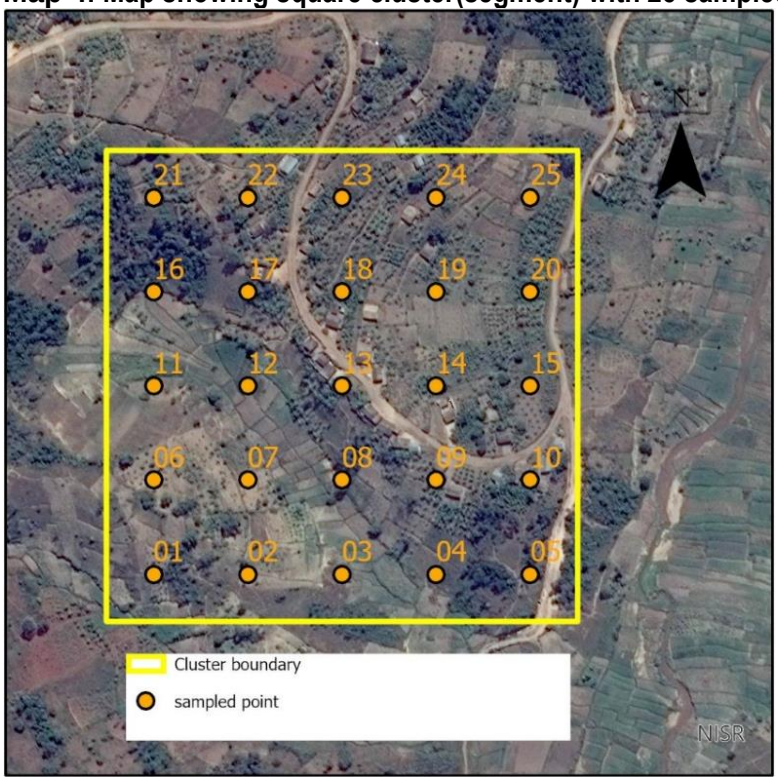
Source: NISR, SAS 2024

[1] Bankier M.D. (1988) Power allocations: determining sample sizes for subnational areas. The American Statistician, Vol. 42, n. 3 pp. 174-177.

At the second stage, 25 sample points are systematically selected, following a special distance of 60 meters between points. Sample points serve as reporting units within each segment. Enumerators visit each point, identify and delineate the plots in which the sample point falls, and collect records of land use and related information.

The recorded information represents the characteristics of the whole segment which are extrapolated to the stratum level and hence the combination of strata within each district provides district area related statistics.

Map 4: Map showing square cluster(segment) with 25 sampled points



Source: NISR, SAS 2024

2.1.5. Weighting Procedures

Based on the stratified two-stage sample design used with the new area frame, the first stage sampling probability for the sample segments in each stratum is calculated as:

$$p_{1h} = \frac{n_h}{N_h}$$

Where:

p_{1h} = probability of selection of sample segments in stratum h (district by stratum)
n_h = number of sample segments selected in stratum h
N_h = total number of segments in the area frame for stratum h in each stratum

The second stage probability was calculated at the plot level based on the assumption that the plots within each sample segment were implicitly selected with PPS using the area of the plot as the measure of size. Therefore, the second stage probability of selection can be expressed as follows:

$$p_{2hi} = \frac{g_{hi} \times A_{hij}}{A_{hi} \times g_{hij}}$$

Where:

$p2_h$ = Probability of selection of the plot in segment h
ghi = Number of grid squares selected in the i-th sample segment of stratum h;
Ahij = Area of the j-th sample plot selected in the i-th sample segment of stratum h
Ahi = Area of the i-th sample segment of stratum h;
ghij = Number of selected grid squares in the j-th sample plot of the i-th sample segment of stratum h

The weight of a sample plot is equal to the inverse of the first and second stage probabilities of selection:

$$W_{Phij} = \frac{1}{p_{1h} \times p_{2hi}} = \frac{N_h \times A_{hi} \times g_{hij}}{n_h \times g_{hi} \times A_{hij}}$$

Where:

W_{Phij} = weight for the j-th sample plot in the i-th sample segment in stratum h

2.1.6. Sampling errors computation

The sample survey results can be subject to two types of errors: (i) sampling errors and (ii) non-sampling errors. Non-sampling errors encompass all sources of errors unrelated to sampling, occurring throughout all aspects of the survey process during data collection and processing. They are categorized into four types: coverage errors, measurement errors, non-response errors, and processing errors. While researchers take steps to minimize these errors during the survey design and implementation phases, it's practically impossible to eliminate them. Non-sampling errors, in particular, can be extremely challenging to identify and quantify accurately. Despite our best efforts, there's always some degree of uncertainty associated with survey results due to the presence of these errors.

Sampling errors are associated with the sampling selection process, arising from observing a sample instead of the entire population. They denote the disparity between the estimate derived from a sample survey and the true value that would result if a census of the whole population were conducted under the same conditions.

In order to examine the precision of the most important estimates from the SAS 2024 Season A data and the statistical efficiency of the agricultural area frame and sample design, it is important to calculate the sampling errors and corresponding coefficients of variation (CVs) for these estimates, such as the total area in each major crop. The sampling error of each estimate is measured by the standard error, which is the square root of the variance. The Complex Samples module of SPSS and Stata use a linearized Taylor series variance estimator that considers the stratification and clustering in the sample design.

The SPSS Complex Samples software had been used to calculate the sampling errors and CVs for estimates of the total area of major crops from the SAS data.

The formula for the estimate of a total can be expressed as follows:

$$\hat{Y} = \sum_{h=1}^{L} \sum_{i=1}^{n_h} \sum_{j=1}^{m_{hi}} W'_{hi}\, y_{hij} \ ,$$

Where:

L = number of strata

yhij = value of variable y for the j-th sample household in the i-th sample segment in stratum h

The variance estimator for a total used by the Complex Samples module of SPSS and Stata can be expressed as follows:

Variance Estimator for a Total

$$V(\hat{Y}) = \sum_{h=1}^{L} \left[\frac{n_h}{n_h - 1} \times \sum_{i=1}^{n_h} \left(\hat{Y}_{hi} - \frac{\hat{Y}_h}{n_h} \right)^2 \right],$$

Where:

$$\hat{Y}_{hi} = \sum_{j=1}^{m_h} W'_{hi}\, y_{hij}$$

yhij = value of variable y for the j-th sample plot in the i-th sample segment of stratum h

$$\hat{Y}_h = \sum_{i=1}^{n_h} \hat{Y}_{hi}$$

The survey estimate of a ratio is defined as follows:

$$\hat{R} = \frac{\hat{Y}}{\hat{X}} \ ,$$

where $\hat{Y}$ and $\hat{X}$ are estimates of totals for variables y and x, respectively, calculated as specified previously.

In the case of a stratified two-stage sample design, means and proportions are special types of ratios. In the case of the mean, the variable X, in the denominator of the ratio, is defined to equal 1 for each unit so that the denominator is the sum of the weights. For a proportion, the variable X in the denominator is also defined to equal 1 for all units; the variable Y in the numerator is binomial and is defined to equal either 0 or 1, depending on the absence or presence, respectively, of a specified characteristic for the unit.

The variance estimator for a ratio used by SPSS Complex Samples and Stata can be expressed as follows:

Variance Estimator for a Total

$$V(\hat{Y}) = \sum_{h=1}^{L} \left[(1 - f_h) \times \frac{n_h}{n_h - 1} \sum_{i=1}^{n_h} \left(\hat{Y}_{hi} - \frac{\hat{Y}_h}{n_h} \right)^2 \right],$$

Where:

Fh = first stage probability for stratum h; (1- fh) is the finite population correction (fpc) factor

$$\hat{Y}_{hi} = \sum_{j=1}^{m_h} W'_{hi}\, y_{hij}$$

yhij = value of variable y for the j-th sample plot in the i-th sample segment of stratum h

$$\hat{Y}_h = \sum_{i=1}^{n_h} \hat{Y}_{hi}$$

Variance Estimator for a Ratio

$$V(\hat{R}) = \frac{1}{\hat{X}^2}\left[V(\hat{Y}) + \hat{R}^2 V(\hat{X}) - 2\,\hat{R}\,COV(\hat{X},\hat{Y})\right],$$

Where:

$$COV(\hat{X},\hat{Y}) = \sum_{h=1}^{L}\left[(1-f_h)\times\frac{n_h}{n_h - 1}\sum_{i=1}^{n_h}\left(\hat{X}_{hi} - \frac{\hat{X}_h}{n_h}\right)\left(\hat{Y}_{hi} - \frac{\hat{Y}_h}{n_h}\right)\right]$$

$V(\hat{Y})$ and $V(\hat{X})$ are calculated according to the formula for the variance of a total.

In addition to calculating the standard error, the program also computes the Design Effect (DEFF) for the main indicator, which is the area under cultivation. The Design Effect is defined as the variance of an estimate based on the actual complex sample design divided by the corresponding variance from a simple random sample of the same size. It serves as a measure of the relative statistical efficiency of the sample design, taking into account both the stratification and clustering present in the sample design.

The presence of clustering typically increases the design effect, owing to the intra-cluster correlation of plots within the segments. Simultaneously, the land-use stratification of the segments tends to decrease the design effects, as it proves to be more efficient than a simple random sample. This dual consideration of both factors provides a comprehensive assessment of the efficiency of the sample design in capturing the nuances of the area under cultivation. The estimates of the total area of major crops at the national level and the corresponding measures of precision (standard error (SE), the coefficient of variation (CV), the 95 percent confidence interval, the design effect (DEFF), and number of unweighted observation (n of sample plots)) from the SAS 20224 Season A data are presented in Table 35 on the Annexes.

2.2. Data collection procedures

SAS data collection is carried out into two distinct phases: the first phase, known as screening, is done during the planting period. It consists of delineating all plots containing the sampled points in all sampled segments all Large-Scale Farmers (LSF) who have grown crops in the current season and recording information related to agricultural land use, grown crops and crop area, and expected harvesting period for. The second phase involves collecting data in the agricultural plots identified during screening activity, which relates to crop production, agricultural inputs, and the agricultural practices.

2.2.1. Time frame and coverage

During the data collection for Season A 2024, the SAS was carried out across all 30 districts of the country, gathering data from 1,200 segments and 370 large-scale farmers. The season's data collection started on December 3rd, 2023, and was concluded on March 28th, 2024. Specifically, the screening phase took place from December 3rd, 2023, to January 3rd, 2024, while the harvesting period started on January 18th and ended on March 28th, 2024. The survey achieved a 100% response rate, with full coverage of all sampled segments and active participation from all operators of the sampled plots as well as all sample large scale farmers.

2.2.2. Field staff

During this season, experienced 155 enumerators and 29 team leaders served in the field data collection after a refresher training. To ensure data quality, high-level supervision was conducted throughout the data collection activities.

2.2.3. Data collection tools

2.2.3.1. Survey questionnaires

SAS utilizes two main questionnaires: the Screening questionnaire and the Plot interview questionnaire. The Screening Questionnaire is designed to gather information on the plot, focusing primarily on aspects such as land use, plot area, and the crops grown. On the other hand, the Plot Interview questionnaire is specifically designed to collect detailed information about the sampled plots, including crop production, agricultural inputs used, and agricultural practices applied.

2.2.3.2. Data collection applications

The SAS data collection applications were based on three main software applications:

- ⇨ Arc GIS field map, which utilizes GIS software and external GPS linked to tablets via Bluetooth to accurately measure crop areas.
- ⇨ CSPro software, known for its efficiency in census and survey administration, facilitating data collection, entry, and management processes. Csentry data collection tool has been developed by an IT staff specialized for the SAS survey, enabling data collection from sampled plots and large-scale farmers.
- ⇨ Survey123 is used to collect screening data for large-scale farmers.

2.3. Data quality assurance

Data quality assurance is achieved through a comprehensive approach, involving enumerator training, continuous data monitoring, supervision of data collection activities, and data editing throughout the season.

2.3.1. Training of enumerators

Prior to data collection, enumerators underwent training from 13th to 30th November 2024, at the NISR training center, which covered the overview of the new upgrade of the SAS, data collection procedures and ethics, screening procedures, plot interview questionnaire content, and the use of data collection applications such as Survey 123, Arc GIS field map, and CSEntry.

2.3.2. Fieldwork monitoring

2.3.2.1. Monitoring attendance and performance of enumerators

Effective monitoring of enumerator attendance and performance is vital for ensuring task efficiency and contribution. The monitoring system used during 2024 SAS season A relies on capturing GPS metadata, including location and GPS time, which differs from the device time and cannot be modified by the user. Whenever the enumerator sent data to the server, the metadata accompanies it, enabling analysis of attendance (starting and ending time), location during data collection, and performance metrics such as the number of completed tasks.

2.3.2.2. Attending the sample location and Use of high precision GPS

The SAS collects data from observation points grouped into square segments of 300 by 300 meters. Enumerators were required to collect data within a one-meter distance buffer around each observation point, enforced to ensure accuracy. Any observation outside this buffer is marked as an error and rejected by the central database. To measure plot areas, high-precision GPS units are employed, along with correction services, achieving 95 percent sub-meter measurement accuracy and addressing precision challenges.

2.3.2.3. Field Monitoring Dashboard

A field monitoring dashboard used is an online web application offering a visual representation of real-time data collected from various field operations. It provides a centralized and accessible platform for monitoring and managing activities, resources, and performance in the field.

2.3.2.4. Field supervision

In the 2024 Season A, intensive field supervision was conducted to ensure the data quality. The first supervision field visit comprising 25 NISR staff took place from October 10th to 24th, 2023. Subsequently, during the harvesting phase, which took place, from January 14th to 27th, 2024 a team of 15 NISR staff was involved in the field supervision. Throughout both phases, supervisors were dispatched to all districts to provide continuous oversight and support to field personnel. Their responsibilities included providing technical guidance, monitoring the execution of data collection activities, and ensuring compliance with the data collection ethics and completeness of the workload, among others.

2.3.2.5. Data Editing

During the 2024 season A, a monitoring system involving the GIS tools and data editors was used to ensure quality assurance. The data collection is monitored using dashboard and Google Sheets. Editors conduct daily follow-ups to clean data, identifying and rectifying discrepancies using STATA do files based on logical patterns and feedback from training sessions, aiming to provide a cleaned raw dataset for further analysis.

2.4. Data processing and analysis process

The analysis involved several steps from organization of raw dataset, data management, cleaning, checking for outliers and dealing with missing data to ensure the quality and cleaned dataset before tabulation.

2.4.1. Data management process

SAS data are collected electronically using tablets and are then transmitted directly to the NISR servers. The data analyst team downloads and imports the data from CSPro into STATA software for further examination, including checking, cleaning, and tabulation.

Exploratory analysis of the dataset is conducted for all variables to assess the sample's completeness, identifying missing data or incomplete observations. Any identified cases are sent back to the field for verification and completion. Exploratory techniques such as descriptive statistics (summary statistics, frequency tables) and graphical methods (histograms, box plots, etc.) are employed to detect missing values, incomplete data, and potential abnormalities or outliers within the dataset.

2.4.2. Detecting outliers and dealing with missing values

2.4.2.1. Missing values and duplicates observation

During data collection, the CSPRo application's built-in validation rules detect missing, omitted, or skipped variables. Error messages appear on the tablet's screen during interviews when enumerators skip questions that require responses. After completing the interview but before sending data to the servers, an error message notifies users if any questions have been left unanswered or if duplicate questionnaire IDs are identified.

Once data is downloaded and imported into STATA from the servers, the data analyst merges the area dataset with the crop dataset and conducts preliminary checks, cleaning, and necessary transformations before analysis. A do file is developed to check the completeness of data for screening and plot/harvest datasets.

A team of data analysts checks the data on a daily basis, and any inconsistencies found are communicated to field workers for correction and clarification.

2.4.2.2. Detecting and dealing with outliers

Outliers are checked for all quantitative variables, including crop production, fertilizer quantity, seed quantity, agricultural input prices, irrigation costs, and other related expenses. Two approaches are employed to detect outliers for variables such as crop production and input quantities, while a single approach is applicable for the remaining variables.

The first approach involves comparing the value per hectare of land to the standard quantity optimum provided in the guidelines from the Ministry of Agriculture, known as "AGENDA AGRICOLE," for the same land size. Any values found to be 1.5 times greater than the standard values are flagged as potential outliers and subsequently sent back to field workers for verification and confirmation.

The second approach utilizes statistical processes to detect outliers. In SAS, various statistical methods such as standard deviation and graphical methods like normal box plots are utilized in combination to identify possible outliers within the dataset.

2.4.3. Methods for Estimating Area and Yield

2.4.3.1. Estimation of area Approach

NISR adheres to and applies methodologies and guidelines outlined by (FAO, 2017) and (EAC, 2022) regarding area and yield estimation. Among several method proposed, NISR has opted for the use of high precision GPS to measure crop area due to its high accuracy and efficiency compared to alternative methods. For yield measurement, NISR relies on farmer estimations.

2.4.3.2. Process of measuring the area

After the identification of the plot boundaries, the enumerators mark GPS points location in approximately every three meters and at each corner of the plot while moving around its perimeter. Then a polygon is obtained when the starting and final points connect. The area is finally computed automatically by GIS software linked to the enumerator's GPS and based on the resulting shape.

2.4.3.3. Process of measuring the yield

Yield data are calculated by considering both the plot and crop areas, alongside the crop production reported by the farmer within the sampled plot. This calculation involves dividing the total production, converted into kilograms, by the estimated crop areas measured in hectares.

2.4.4. Data analysis

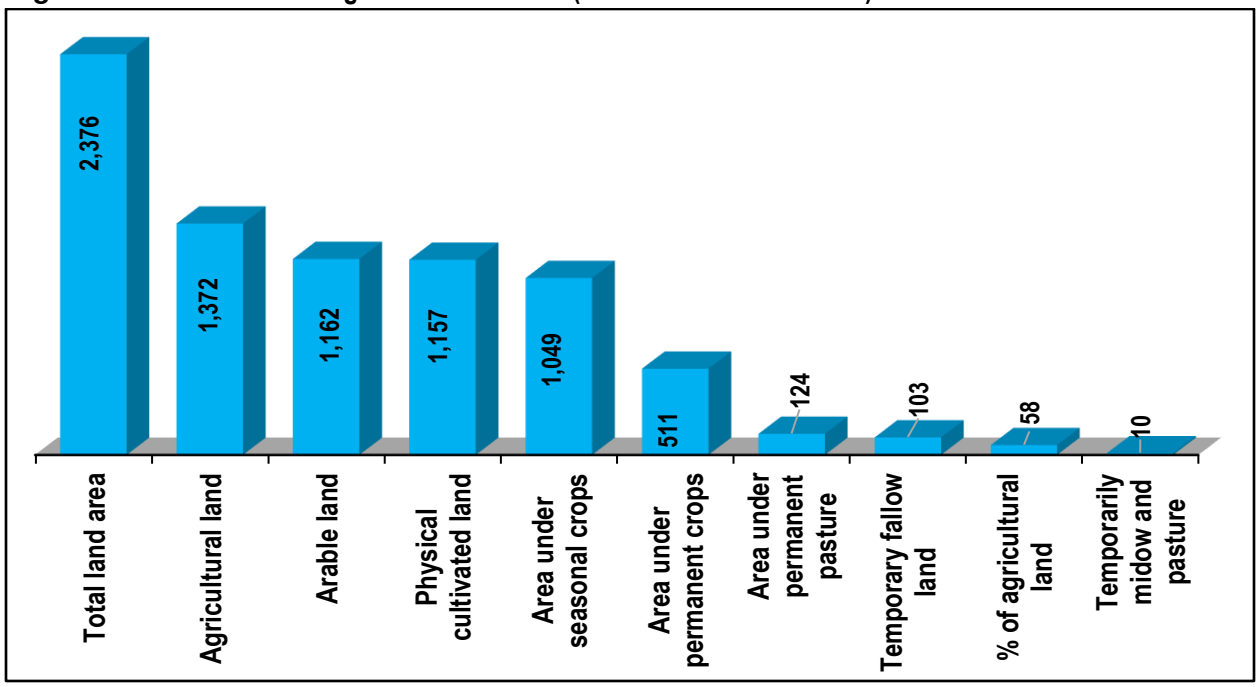
The survey data are analysed using STATA software, which offers robust capabilities for data management, including importing, cleaning, merging, and manipulating datasets. These features facilitate data preparation for analysis. Additionally, STATA enables the development of tabulation commands and the generation of survey tables, graphs, and charts for inclusion in survey reports. Furthermore, SPSS and STATA softwares are utilized for estimating survey sampling errors, ensuring the accuracy and reliability of the survey results.

III. SURVEY FINDINGS

This section highlights key results of SAS 2024 Season A related to crop area (physical land use, cultivated area, and harvested area), yield, production, agricultural inputs, and agricultural practices in Rwanda.

3.1. Agricultural land use

Figure 1: 2024 Season A - Agricultural land use (in thousands of hectares)

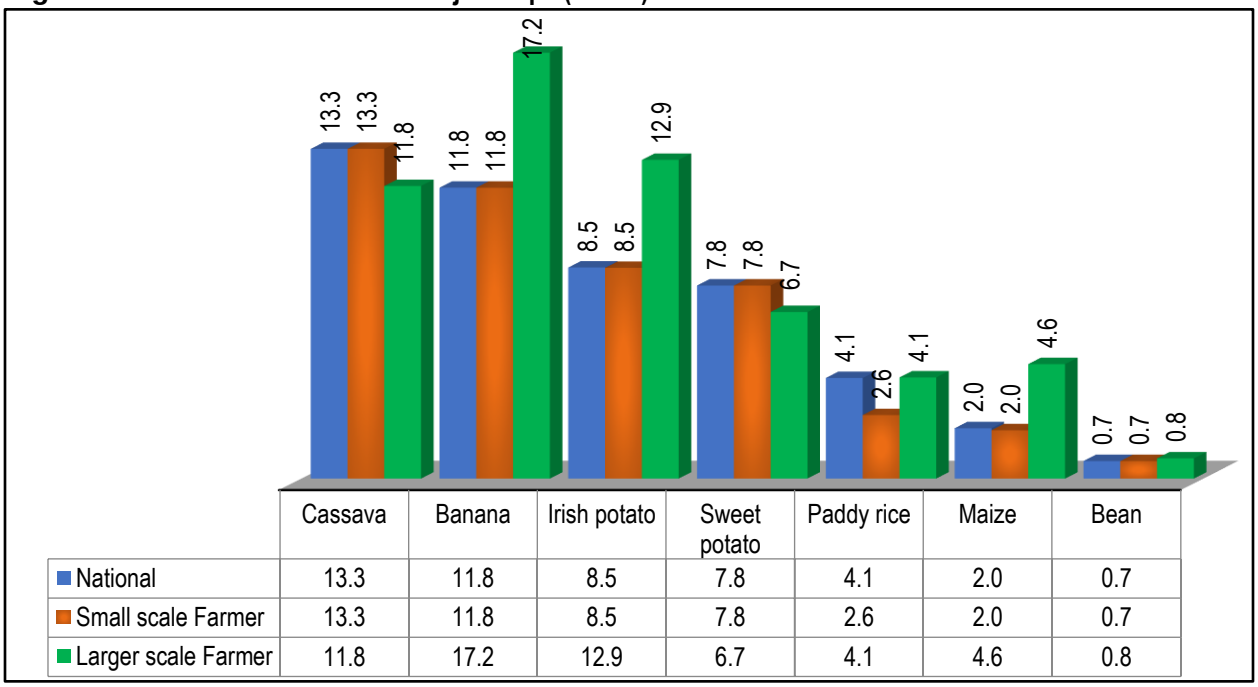


Source: NISR, SAS 2024

The total land area of the country is estimated to be 2.376 million hectares, with 1.372 million hectares (approximately 58% of the total land area) used for agricultural purposes. In 2024 Season A, 1 million hectares were allocated to Seasonal crops, 0.511 million hectares were allocated to permanent crops, while 0.124 million hectares were allocated to permanent pasture. (See district details in Table 7).

3.2. Crop area, yield and production estimates for major crops

Figure 2: 2024 Season A - Yield of major crops (MT/ha)



	Cassava	Banana	Irish potato	Sweet potato	Paddy rice	Maize	Bean
National	13.3	11.8	8.5	7.8	4.1	2.0	0.7
Small scale Farmer	13.3	11.8	8.5	7.8	2.6	2.0	0.7
Larger scale Farmer	11.8	17.2	12.9	6.7	4.1	4.6	0.8

Source: NISR, SAS 2024

The survey's estimates related to yield, cultivated area, and production for major crops are summarized below:

Maize: The national average yield was 2 tons per hectare, with small scale farmers harvesting 2 tons per hectares and Large-Scale Farmers harvesting 4.6 tons per hectares; the cultivated area was estimated at 249,435 hectares, an increase of 10 percent from season A of 2023. The production was estimated at 507,985 metric tons, an increase of 30 percent from season A of 2023. (See district details in Tables 5, 9-13)

Beans: The national average yield of was 709 kilograms per hectare, with small scale farmers harvesting 709 kilograms per hectare and Large-Scale Farmers harvesting 817 kilograms per hectare; the cultivated area was estimated at 329,001 hectares, an increase of 5 percent season A of 2023. The production was estimated at 233,142 metric tons, an increase of 18 percent when compared to season A of 2023. (See district details in Tables 5, 9-13).

Paddy rice: The national average yield was 4.1 tons per hectare, with small scale farmers harvesting 2.6 tons per hectares and Large-Scale Farmers harvesting 4.1 tons per hectare; the cultivated area was estimated at 17,173 hectares, an increase of 6 percent from season A of 2023. The production was estimated at 69,098 metric tons, an increase of 8 percent from season A of 2023. (See district details in Tables 5, 9-13).

Irish potato: The average yield was 8.5 tons per hectare, with small scale farmers harvesting 8.5 tons per hectares and Large-Scale Farmers harvesting 12.9 tons per hectare. the cultivated area was estimated at 54,048 hectares, a decrease of 3 percent from season A of 2023. The production was estimated at 460,830 metric tons, an increase of 1 percent from season A of 2023. (See district details in Tables 5, 9-13).

Sweet potato: The national average yield was 7.8 tons per hectare; the cultivated area was estimated at 95,683 hectares, a decrease of 10 percent from season A of 2023. The production was estimated at 692,945 metric tons, an increase of 4 percent from season A of 2023. (See district details in Tables 5, 9-13).

Cassava: The national average yield was 13.3 tons per hectare. The harvested area was estimated at 38,833 hectares while the cultivated area was estimated at 251,019 hectares, an increase of 5 percent from season A of 2023. The production of cassava was at 518,044 metric tons, a decrease of 15 percent when compared to season A of 2023. (See district details in Tables 5, 9-13).

Banana: The average yield was 11.8 tons per hectare, with an average yield of 11.8 tons per hectare for small scale farmers and 17.2 tons per hectare for large-scale farmers. The harvested area was estimated at 109,985 hectares while the cultivated area was estimated at 273,223 hectares, an increase of 7 percent from season A of 2023. The production of banana was estimated at 1,294,683 metric tons, an increase of 6 percent when compared to 2023 season A. (See district details in Tables 5, 9-13).

Table 5: 2024 Season A Cultivated area, harvested area, production, and yield by crop.

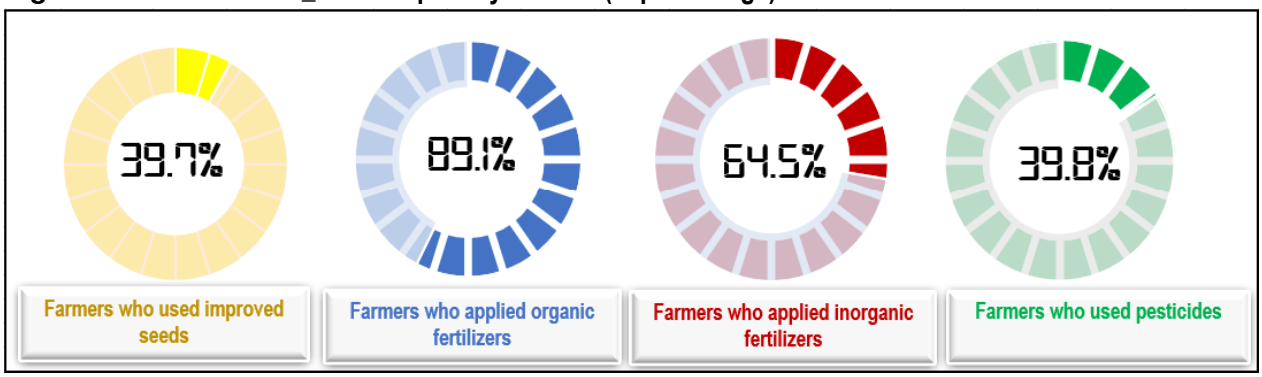
	Cultivated area (Ha)		Harvested area (Ha)		Production (MT)		Yield (MT/ha)	
Crop/crop groups	**2024 A**	**2023 A**	**2024 A**	**2023 A**	**2024 A**	**2023 A**	**2024 A**	**2023 A**
Cereals	**307,448**	**288,933**	**307,128**	**286,013**	**630,768**	**506,618**	**(NA)**	**(NA)**
Maize	249,435	226,982	249,276	224,976	507,985	390,879	2.0	1.7
Sorghum	34,720	38,979	34,719	38,935	47,452	46,296	1.4	1.2
Paddy rice	17,173	16,135	16,973	16,070	69,098	63,688	4.1	4.0
Wheat	2,618	2,975	2,617	2,891	3,371	3,527	1.3	1.2
Other cereals	3,544	3,862	3,544	3,856	2,862	2,706	0.8	0.7
Tubers and Roots	**425,516**	**422,570**	**194,980**	**204,793**	**1,763,124**	**1,815,906**	**(NA)**	**(NA)**
Cassava	251,019	239,221	38,833	45,182	518,044	608,693	13.3	13.5
Sweet potato	95,683	106,670	88,708	90,657	692,945	667,598	7.8	7.4
Irish potato	54,048	55,613	53,957	55,583	460,830	454,355	8.5	8.2
Taro &Yams	24,766	21,066	13,482	13,371	91,306	85,259	6.8	6.4
Banana	**273,223**	**255,290**	**109,985**	**107,411**	**1,294,683**	**1,219,408**	**11.8**	**11.4**
Cooking banana	102,458	96,262	40,365	39,234	587,981	555,973	14.6	14.2
Dessert banana	44,094	37,009	15,503	15,459	133,317	129,371	8.6	8.4
Banana for beer	126,671	122,019	54,118	52,718	573,386	534,065	10.6	10.1
Legumes and Pulses	**380,325**	**363,724**	**380,280**	**363,524**	**264,682**	**220,504**	**(NA)**	**(NA)**
Beans	329,001	312,279	328,961	312,160	233,142	197,212	0.7	0.6
Bush bean	208,831	204,238	208,790	204,118	135,287	107,905	0.6	0.5
Climbing bean	120,170	108,041	120,170	108,041	97,856	89,307	0.8	0.8
Pea	10,245	10,475	10,244	10,472	7,042	6,834	0.7	0.7
Groundnut	9,563	11,191	9,563	11,191	5,328	4,687	0.6	0.4
Soybean	31,515	29,778	31,513	29,701	19,171	11,771	0.6	0.4
Vegetables & Fruits	**29,474**	**26,889**	**23,700**	**19,961**	**171,183**	**155,255**	**(NA)**	**(NA)**
Vegetables	19,142	16,758	18,322	16,382	145,933	132,699	8.0	8.1
Fruits	10,332	10,131	5,378	3,579	25,250	22,556	4.7	6.3
Fodder crops	9,567	9,731	8,795	8,557	136,047	98,164	15.5	11.5
Other crops	58,137	61,409	8,684	9,266	119,236	47,473	13.7	5.1
Total	**1,483,731**	**1,428,545**	**1,033,552**	**1,000,239**	**4,379,725**	**4,063,804**	**(NA)**	**(NA)**

Source: NISR, SAS 2024

3.3. Use of inputs

The results related to the use of agricultural inputs (seeds, fertilizers, and pesticides) are presented in terms of percentage of farmers who applied such agricultural inputs throughout the season.

Figure 3: 2024 Season A_Use of inputs by farmers (in percentage)



Source: NISR, SAS 2024

3.3.1. Use of seeds

In season A of 2024, 39.7 percent of farmers used improved seeds. In regard to farmer type[2], 38.4 percent of small-scale farmers (SSF) and 87.3 percent of Large-Scale Farmers (LSF) used improved seeds (See Figure 3). The major sources of improved seed were NGO/companies, accounting 40.9 percent, and agro-dealers accounting for 37.2 percent (See details in Tables 8, 18-21).

3.3.2. Use of fertilizers

In the 2024 Season A:

- ⇨ 89.1 percent of farmers applied organic fertilizer, with 89.5 percent of small-scale farmers and 76.4 percent of Large-Scale Farmers utilizing it.
- ⇨ 64.5 percent of farmers applied inorganic fertilizer, with 63.8 percent of small-scale farmers and 90.8 percent of Large-Scale Farmers using it (See Figure 3).
- ⇨ The main sources of inorganic fertilizers were NGOs/companies and agro-dealers, accounting for 45.3 percent and 40.8 percent, respectively.
- ⇨ The most commonly used inorganic fertilizers in this season were DAP, UREA, and NPK, comprising 43.7 percent, 40.3 percent, and 12.9 percent, respectively (See details in Tables 8, 22-26).

3.3.3. Use of pesticides

In season A of 2024, 39.8 percent of farmers applied pesticides. According to farmer type, 38.6 percent of small-scale farmers and 82.9 percent of Large-Scale Farmers applied pesticides respectively (See Figure 3). Rocket, Dithane and Cypermethrin were the most used pesticides with 41.3 percent of farmers, 19.8 percent and 13.2 percent respectively (See details in Tables 27 & 28).

[2] Farmer type refers to category of farmers as defined in the survey; a farmer is either a small scale or a large scale.

3.4. Agricultural practices

The survey covered information related to agricultural practices used by farmers (irrigation, anti-erosion activities mechanization and agroforestry). Results are presented in terms of percentage of farmers involved in such practices throughout the 2024 season A.

Figure 4: 2024 Season A - Use of agricultural practices

Source: NISR, SAS 2024

3.4.1. Irrigation practices

In season A of 2024, 7.5 percent of farmers practiced irrigation. This included 6.4 percent of small-scale farmers and 48 percent of Large-Scale Farmers (See Figure 4). Out of farmers who practiced irrigation 57 percent practiced the modern irrigation. In regard to source of water, Lakes/stream and underground water were the most used sources of water for irrigation with 52.9 percent and 29.5 percent respectively (See details in Tables 8,29-31).

3.4.2. Erosion control measures

In 2024 Season A, 90.6 percent of farmers practiced anti-erosion activities where 90.5 percent of small-scale farmers and 94.3 percent were Large-Scale Farmers protected their land against erosion (See Figure 3). Cover plants was the most used type of anti-erosion with 60.3 percent of farmers. The farmland experienced less erosion where the predominant erosion types were those with a low degree of erosion (splash and wind erosion, which accounted for 49.9 percent and 34.9 percent respectively. 45.6 percent of farmers practiced agroforestry, while 1 percent of farmers used mechanical equipment in their agricultural activities. (See details in Tables 8, 29, 32 and 33).

3.5 Gross Value Added (GVA) of major crops

The Gross Value-Added (GVA) of various crops is presented in constant 2017 prices. The findings indicate that the Overall Gross Value Added per hectare increased in 2023 compared to the preceding year.

Table 6: Main crops Gross Value Added in constant 2017 prices (Billion Frw /ha)

Crops	2016	2017	2018	2019	2020	2021	2022	2023
Maize	402,114	309,457	365,527	373,066	389,059	387,754	390,303	407,284
Sorghum	274,987	296,000	298,689	274,485	280,068	299,996	302,122	323,073
Paddy rice	1,304,073	1,633,520	1,492,544	1,718,397	1,691,890	1,799,480	1,799,248	1,757,086
Wheat	237,012	282,068	306,210	329,278	289,132	303,795	321,878	348,790
Cassava	177,496	305,145	1,377,459	1,629,739	1,642,935	1,653,322	1,648,255	1,597,292
Sweet potato	808,499	784,244	899,497	890,254	932,227	903,969	950,888	966,903
Irish potato	1,230,891	1,713,831	1,444,199	1,700,490	1,544,227	1,551,234	1,425,235	1,421,940
Cooking banana	185,884	199,565	3,715,919	3,623,122	3,180,479	3,089,892	3,119,720	3,130,968
Dessert banana	122,667	117,981	2,163,072	1,481,763	1,162,979	1,162,822	1,132,818	1,154,426
Banana for beer	108,416	102,332	1,122,757	879,672	931,198	958,935	974,510	1,009,727
Beans	401,317	391,605	410,264	391,121	318,642	334,063	333,464	334,969
Pea	1,086,082	1,060,761	964,611	1,049,992	1,365,309	1,355,647	1,284,987	1,059,662
Groundnut	177,694	187,362	221,069	183,218	187,008	186,608	185,329	187,590
Soybean	55,189	52,694	48,631	61,358	57,232	55,754	60,963	48,952
Overall GVA	**853,218**	**906,817**	**965,556**	**1,013,106**	**1,039,414**	**1,105,663**	**1,114,229**	**1,150,316**

Source: NISR, SAS 2024

MAIN TABLES

Table 7: 2024 Season A_Agricultural land use per district (,000Ha)

District	Total land area	Agricultural land	% of agricultural land	Arable land	Physical cultivated land	Area under seasonal crops	Area under permanent crops	Temporary fallow land	Temporarily meadow and pasture	Area under permanent pasture
Nyarugenge	13.1	5.2	39.7	3.72	4.67	3.21	2.84	0.52	0.01	0.02
Gasabo	42.7	21.3	49.9	19.09	19.05	17.35	10.53	1.39	0.09	0.87
Kicukiro	16.6	5.8	34.8	5.15	5.28	4.71	2.53	0.41	0.03	0.07
Nyanza	67.0	45.5	67.9	43.22	41.91	39.68	14.02	3.19	0.39	0.40
Gisagara	67.5	47.4	70.2	45.20	40.37	38.75	14.41	6.44	-	0.59
Nyaruguru	101.0	34.2	33.8	30.57	30.07	26.08	9.40	4.10	0.39	-
Huye	58.1	34.4	59.3	32.52	29.37	28.04	11.19	4.43	0.05	1.48
Nyamagabe	109.1	44.1	40.4	38.40	36.89	31.11	13.27	7.17	0.12	0.01
Ruhango	62.6	44.6	71.3	39.70	38.90	33.33	14.57	5.72	0.70	-
Muhanga	64.1	39.3	61.4	36.42	33.93	30.29	17.02	5.42	0.76	-
Kamonyi	65.8	47.0	71.4	41.21	42.23	37.03	17.76	4.12	-	0.62
Karongi	78.8	43.1	54.6	35.80	38.76	30.99	19.54	4.09	0.60	0.25
Rutsiro	66.1	32.7	49.6	26.19	29.57	22.62	13.81	2.91	0.66	3.77
Rubavu	33.9	22.9	67.6	21.45	20.83	19.86	4.13	1.41	0.32	1.67
Nyabihu	54.0	29.6	54.8	28.73	28.02	27.18	2.99	1.41	0.14	4.80
Ngororero	66.7	42.5	63.8	39.59	38.57	35.12	15.43	3.91	0.72	3.08
Rusizi	91.6	37.6	41.1	33.73	36.02	32.01	11.32	1.61	-	-
Nyamasheke	94.8	36.2	38.2	30.66	33.66	28.04	14.55	2.44	0.12	0.06
Rulindo	56.6	33.3	58.7	27.85	30.84	25.66	14.16	2.07	0.24	0.35
Gakenke	70.0	43.8	62.6	39.68	40.29	36.01	15.85	3.48	0.31	0.06
Musanze	50.9	29.6	58.2	28.52	28.25	27.04	4.52	1.15	0.43	0.25
Burera	58.4	37.5	64.1	36.89	35.73	34.62	4.55	1.72	0.43	-
Gicumbi	82.5	48.2	58.4	45.81	41.90	39.30	13.09	5.81	0.40	0.45
Rwamagana	65.1	44.6	68.4	40.36	39.58	36.51	17.25	3.30	0.63	1.70
Nyagatare	191.5	145.1	75.8	81.60	81.09	76.25	79.53	5.18	0.17	58.87
Gatsibo	153.3	76.9	50.2	63.09	66.86	61.34	34.47	1.52	0.30	8.55
Kayonza	180.0	93.6	52.0	64.46	60.56	58.08	43.88	5.81	0.57	27.26
Kirehe	114.2	74.6	65.3	66.38	69.52	63.09	28.18	3.23	0.07	1.82
Ngoma	80.3	56.2	70.1	49.38	51.09	47.36	26.76	1.82	0.20	3.32
Bugesera	120.2	75.2	62.6	67.06	63.34	58.46	19.63	7.66	0.94	4.19
National	**2,376**	**1,372**	**57.7**	**1,162**	**1,157**	**1,049**	**511**	**103**	**10**	**124**

Source: NISR, SAS 2024

Table 8: 2024 Season A_Area under agricultural practices

District	Modern irrigated agricultural land (Ha)	Agricultural area under erosion control	Agricultural area under agroforestry trees	Agricultural area under fertilizer application	
				Inorganic fertilizer	Organic fertilizer
Nyarugenge	-	2,870	1,609	477	1,811
Gasabo	335	14,556	7,653	5,599	13,723
Kicukiro	113	3,004	3,340	1,344	2,908
Nyanza	761	34,127	21,229	9,078	26,061
Gisagara	2,750	30,228	15,636	15,661	29,322
Nyaruguru		27,613	11,108	13,531	21,386
Huye	1,038	26,312	9,592	8,653	19,687
Nyamagabe	61	34,725	15,652	14,613	25,198
Ruhango	949	32,892	13,033	6,838	24,367
Muhanga	191	35,399	11,619	6,837	24,604
Kamonyi	205	36,227	25,429	8,409	27,705
Karongi	240	32,940	16,185	12,614	25,167
Rutsiro	-	27,522	14,380	9,407	20,361
Rubavu	-	17,571	7,427	10,040	7,521
Nyabihu	-	25,474	9,952	14,487	21,488
Ngororero	112	37,728	19,049	14,077	31,328
Rusizi	1,516	20,550	22,237	21,459	23,855
Nyamasheke	470	28,562	22,252	13,593	22,901
Rulindo	268	26,797	12,517	11,908	23,794
Gakenke	20	40,901	15,351	20,248	32,085
Musanze	-	22,176	11,056	13,181	18,113
Burera	-	31,332	15,269	17,020	28,771
Gicumbi	-	43,925	19,338	13,311	34,998
Rwamagana	625	31,988	25,758	17,618	29,409
Nyagatare	2,841	43,123	71,790	43,597	37,223
Gatsibo	2,539	59,585	40,562	32,477	46,171
Kayonza	2,562	43,978	27,275	25,705	32,891
Kirehe	2,529	46,878	42,478	35,691	45,010
Ngoma	976	38,015	31,049	19,466	33,132
Bugesera	1,652	31,600	40,724	17,392	26,782
National	22,753	928,599	600,549	454,331	757,769

Source: NISR, SAS 2024

Table 9: 2024 Season A_Cultivated area by crop type and district (Ha)

District	Maize	Sorghum	Paddy rice	Wheat	Other cereals	Cassava	Sweet potato	Irish potato	Yams & Taro	Banana	Cooking banana	Dessert banana	Banana for beer	Beans	Bush bean	Climbing bean	Pea	Groundnut	Soybean	Vegetables	Fruits	Fodder Crops	Other crops	Total developed land
Nyarugenge	748		-	-	-	1,257	456	70	120	1,727	606	307	814	1,874	1,853	21	-	4	88	146	-	-	960	7,450
Gasabo	3,522	-	303	-	4	5,633	1,253	557	284	5,533	2,484	1,270	1,779	6,963	6,450	513	50	134	905	819	306	358	299	26,924
Kicukiro	1,253	-	85	-		850	460	14	512	1,462	651	238	573	1,366	1,354	12	-	8	59	106	36	33	387	6,629
Nyanza	5,974	618	456	-	44	17,206	2,494	281	777	9,844	2,682	2,006	5,156	12,778	10,892	1,887	184	353	2,342	404	69	301	1,165	55,291
Gisagara	6,058	931	2,950	-	104	13,454	2,303	274	958	13,245	3,771	2,795	6,679	14,265	13,523	742	9	228	1,860	242	24	-	1,135	58,038
Nyaruguru	4,498	-	-	-	52	7,811	5,392	2,194	1,041	4,842	1,495	1,018	2,329	7,929	1,413	6,516	309	32	921	196	49	392	3,554	39,210
Huye	4,721	-	998		102	8,460	2,793	525	257	7,029	2,102	1,808	3,119	11,488	7,923	3,565	149	51	2,051	750	2,346	85	1,128	42,932
Nyamagabe	5,877	-	23	41	12	5,666	6,439	3,615	1,169	7,578	2,178	893	4,508	9,297	2,727	6,570	1,099	-	1,418	361	67	183	4,605	47,450
Ruhango	4,163	58	895	-		16,275	2,413	119	1,598	8,552	1,579	1,752	5,221	9,671	7,874	1,797	26	256	3,530	468	60	596	1,529	50,208
Muhanga	1,913	114	181	-	199	8,813	4,024	360	2,826	18,128	3,519	2,298	12,310	7,432	3,402	4,030	104	13	2,474	429	299	691	905	48,904
Kamonyi	5,737	-	203	-	36	13,350	2,561	475	501	11,380	1,519	1,745	8,116	12,412	10,664	1,748	60	851	3,294	799	173	60	2,412	54,304
Karongi	6,516	-	-	-	-	9,254	4,950	651	1,704	11,490	2,700	1,870	6,920	7,010	1,693	5,317	132	33	1,555	678	223	699	2,787	47,683
Rutsiro	5,922	-	-	-	-	2,555	3,109	3,449	1,396	7,325	1,943	1,272	4,110	3,380	605	2,775	524	-	825	369	97	657	3,182	32,789
Rubavu	2,246	127	-	-	-	187	717	6,287	113	2,389	928	373	1,087	7,815	770	7,045	436	-	169	1,387	132	232	1,542	23,779
Nyabihu	3,077	354	-	412	5	781	2,566	8,402	21	1,370	306	328	736	8,519	251	8,269	709	-	-	998	290	132	1,988	29,624
Ngororero	3,792	228	-	374	6	8,375	6,333	2,033	1,901	11,013	1,721	2,014	7,278	11,727	1,190	10,537	516	-	1,674	744	85	523	1,317	50,639
Rusizi	7,922	50	1,481	-	-	20,154	1,835	242	1,541	5,936	2,268	591	3,078	11,716	10,110	1,606	44	288	447	770	1,163	48	3,356	56,994
Nyamasheke	5,632	15	377	-	143	17,268	4,025	-	2,795	6,924	2,198	1,238	3,488	6,736	1,851	4,885	119	443	832	826	199	178	5,154	51,665
Rulindo	5,011	-	17	95	20	4,151	3,998	1,414	205	6,091	1,811	1,383	2,897	10,064	4,188	5,876	405	41	572	940	121	49	3,831	37,023
Gakenke	9,171	-	16	-	599	8,353	6,802	1,275	1,552	14,767	3,071	2,345	9,351	9,733	1,759	7,974	698	186	753	534	571	132	2,167	57,309
Musanze	6,148	1,528	-	792	-	393	2,015	3,867	235	2,372	964	544	863	8,655	442	8,213	246	-	60	1,176	410	431	1,481	29,808
Burera	10,181	1,056	-	507	51	490	4,317	4,959	140	2,409	993	188	1,227	10,738	584	10,154	1,690	-	27	491		559	279	37,895
Gicumbi	6,072	337	-	395	29	2,617	7,828	3,309	122	6,110	2,544	1,568	1,999	16,827	4,334	12,493	1,646	369	295	798	218	665	1,210	48,847
Rwamagana	10,678	-	502	-	85	9,576	2,301	1,028	195	12,603	7,609	2,101	2,893	14,448	14,379	69	32	885	773	1,050	702	544	1,423	56,826
Nyagatare	32,303	11,421	1,980	-	1,049	5,953	1,747	710	298	12,540	6,805	1,582	4,153	16,650	14,943	1,707	243	1,147	810	647	52	145	694	88,389
Gatsibo	22,179	4,659	1,664	-	144	5,328	2,349	2,357	218	21,324	11,621	2,716	6,988	20,962	18,676	2,286	269	571	893	711	0	237	2,185	86,049
Kayonza	17,432	3,778	1,694	-	450	16,591	1,839	2,278	458	11,737	7,357	1,563	2,817	17,623	17,282	341	117	292	749	1,076	190	514	695	77,513
Kirehe	25,064	2,506	941	1	43	10,487	1,707	1,496	985	20,390	12,259	1,480	6,651	21,297	19,651	1,646	299	337	752	473	67	67	4,409	91,322
Ngoma	15,963	681	876	-	309	17,515	2,092	1,495	635	16,396	9,045	2,561	4,791	16,340	14,869	1,471	121	537	594	404	2,065	205	1,468	77,696
Bugesera	9,661	6,260	1,533	-	58	12,217	4,569	314	211	10,719	3,729	2,247	4,742	13,286	13,180	106	6	2,503	794	351	319	851	890	64,541
National	249,435	34,720	17,173	2,618	3,544	251,019	95,683	54,048	24,766	273,223	102,458	44,094	126,671	329,001	208,831	120,170	10,245	9,563	31,515	19,142	10,332	9,567	58,137	1,483,731
SSF	242,339	34,711	232	2,537	3,536	250,973	95,662	53,862	24,764	273,062	102,322	44,081	126,659	328,378	208,225	120,154	10,232	9,562	30,933	18,986	9,857	9,010	57,136	1,455,774
LSF	7,096	9	16,941	81	7	46	21	186	2	161	136	13	12	623	606	17	13	1	582	156	475	557	1,001	27,957

Source: NISR, SAS 2024

Table 10: 2024 Season A_Harvested area by crop type and district (Ha)

District	Maize	Sorghum	Paddy rice	Wheat	Other cereals	Cassava	Sweet potato	Irish potato	Yarms & Taro	Bananas	Cooking banana	Dessert banana	Banana for beer	Beans	Bush bean	Climbing bean	Pea	Groundnut	Soybean	vegetables	Fruits	Fodder crops	Other crops	Total Developed land
Nyarugenge	748	-	-	-	-	189	317	70	13	719	222	122	375	1,848	1,827	21	-	4	88	146	-	-	371	4,513
Gasabo	3,523	-	299	-	4	850	1,035	557	65	2,065	880	431	754	6,962	6,449	513	50	134	905	819	149	360	38	17,814
Kicukiro	1,253	-	85	-	-	49	439	14	54	492	202	71	220	1,366	1,354	12	-	8	59	106	27	33	30	4,014
Nyanza	5,974	618	445	-	44	4,454	2,394	281	303	3,573	1,223	575	1,775	12,778	10,892	1,887	184	353	2,342	404	11	300	95	34,554
Gisagara	6,484	931	2,896	-	104	1,005	2,270	274	272	3,757	1,005	707	2,045	14,265	13,523	742	9	228	1,860	236	24	-	-	34,613
Nyaruguru	4,415	-	-	-	52	817	4,706	2,188	501	1,779	666	323	790	7,929	1,413	6,516	309	32	921	196	-	392	65	24,302
Huye	4,727	-	987	-	102	1,108	2,779	525	179	2,947	852	708	1,387	11,488	7,923	3,565	149	51	2,051	708	887	85	-	28,775
Nyamagabe	5,696	-	23	41	12	1,027	6,090	3,554	376	2,924	545	317	2,062	9,297	2,727	6,570	1,098	-	1,418	336	61	183	-	32,135
Ruhango	4,163	58	854	-	-	3,591	1,515	119	571	3,352	514	547	2,291	9,671	7,874	1,797	26	256	3,530	454	-	539	142	28,840
Muhanga	1,912	114	180	-	199	2,066	4,024	360	1,947	7,405	1,128	831	5,446	7,432	3,402	4,030	104	13	2,474	403	240	574	160	29,608
Kamonyi	5,717	-	203	-	36	1,920	2,435	475	307	4,526	603	652	3,271	12,412	10,664	1,748	60	851	3,293	799	53	60	15	33,163
Karongi	6,480	-	-	-	-	1,100	4,406	651	1,065	4,902	829	584	3,489	7,010	1,693	5,317	132	33	1,555	504	54	603	388	28,884
Rutsiro	5,922	-	-	-	-	74	3,109	3,423	1,145	3,095	743	425	1,927	3,380	605	2,775	524	-	825	343	52	480	219	22,592
Rubavu	2,246	127	-	-	-	-	680	6,287	113	1,099	431	130	539	7,815	770	7,045	436	-	169	1,387	42	232	621	21,255
Nyabihu	3,077	354	-	412	5	200	2,548	8,402	7	488	105	100	283	8,519	251	8,269	709	-	-	998	114	132	1,472	27,438
Ngororero	3,792	228	-	374	6	1,252	5,708	2,033	1,062	5,335	770	799	3,766	11,727	1,190	10,537	516	-	1,674	547	29	361	298	34,942
Rusizi	7,927	50	1,478	-	-	834	1,835	242	1,440	2,355	870	199	1,286	11,716	10,110	1,606	44	288	447	759	677	48	235	30,376
Nyamasheke	5,632	15	376	-	143	2,462	3,448	-	1,481	2,830	875	333	1,622	6,736	1,851	4,885	119	443	832	801	164	119	124	25,726
Rulindo	4,982	-	17	95	20	667	3,998	1,413	70	2,446	655	488	1,303	10,064	4,188	5,876	405	41	572	899	62	49	1,305	27,105
Gakenke	9,172	-	16	-	599	1,170	6,802	1,275	1,419	6,124	1,040	792	4,292	9,733	1,759	7,974	698	186	753	528	522	132	581	39,710
Musanze	6,098	1,528	-	792	-	24	2,015	3,868	137	896	307	241	348	8,654	442	8,212	246	-	60	1,176	131	380	1,399	27,405
Burera	9,964	1,056	-	507	51	46	2,748	4,959	46	892	316	40	537	10,738	584	10,154	1,690	-	27	485	-	559	97	33,867
Gicumbi	6,056	337	-	395	29	600	7,585	3,307	35	2,294	930	562	802	16,827	4,334	12,493	1,646	369	295	797	8	665	71	41,316
Rwamagana	10,683	-	503	-	85	941	2,179	1,028	111	5,227	3,260	835	1,132	14,448	14,379	69	32	885	773	1,050	286	508	579	39,320
Nyagatare	32,300	11,421	1,968	-	1,049	832	1,568	710	81	5,307	2,944	649	1,714	16,618	14,911	1,707	243	1,147	808	482	37	129	65	74,765
Gatsibo	22,183	4,659	1,659	-	144	1,091	2,242	2,357	74	9,405	5,543	1,331	2,531	20,966	18,681	2,286	269	571	893	711	-	235	43	67,503
Kayonza	17,429	3,778	1,682	-	450	3,469	1,839	2,278	221	4,957	3,214	616	1,127	17,623	17,282	341	117	292	749	1,076	28	513	73	56,575
Kirehe	25,096	2,506	922	1	43	1,802	1,677	1,496	166	7,601	4,275	566	2,760	21,317	19,671	1,646	299	337	751	433	-	67	39	64,553
Ngoma	15,963	680	873	-	309	3,638	1,901	1,495	150	6,915	3,847	846	2,222	16,340	14,869	1,471	121	537	594	391	1,604	205	-	51,717
Bugesera	9,661	6,259	1,508	-	58	1,552	4,414	314	70	4,276	1,572	685	2,019	13,279	13,173	107	6	2,503	794	351	116	851	158	46,172
National	249,276	34,719	16,973	2,617	3,544	38,833	88,708	53,957	13,482	109,985	40,365	15,503	54,118	328,961	208,790	120,170	10,244	9,563	31,513	18,322	5,378	8,795	8,684	1,033,552
SSF	241,591	34,711	245	2,578	3,536	38,822	88,689	53,775	13,482	109,923	40,312	15,498	54,112	328,321	208,168	120,154	10,232	9,562	30,933	18,175	5,181	8,292	8,043	1,006,094
LSF	7,685	9	16,727	39	7	11	19	181	-	62	52	4	6	639	623	17	12	1	580	147	196	503	640	27,458

Source: NISR, SAS 2024

Table 11: 2024 Season A_Average yield by crop type and district (Kg/Ha)

District	Maize	Sorghum	Paddy rice	Wheat	Other cereals	Cassava	Sweet potatoes	Irish potatoes	Yams & Taro	Bananas	Cooking Banana	Dessert banana	Banana for beer	Beans	Bush bean	Climbing bean	Peas	Ground nuts	Soya beans	Vegetables	Fruits	Fodder crops	Other crops
Nyarugenge	1,390	-	-	-	-	12,689	6,431	2,624	3,442	11,901	11,955	10,048	12,472	549	542	1,105	-	498	431	6,872	-	-	47,339
Gasabo	1,688	-	3,867	-	683	12,037	8,066	5,355	4,292	11,093	12,602	7,968	11,116	651	627	947	611	690	656	9,879	9,234	12,008	880
Kicukiro	1,590	-	3,870	-	-	12,077	8,197	4,696	5,354	11,039	11,567	10,946	10,584	586	584	723	-	261	514	3,191	3,527	22,136	4,406
Nyanza	1,895	1,403	4,367	-	610	13,871	6,561	5,313	5,401	8,980	7,716	8,262	10,084	559	559	557	1,038	383	383	5,674	4,467	49,777	43,276
Gisagara	2,221	1,087	3,665	-	2,372	13,065	6,632	2,785	2,716	9,295	7,095	9,275	10,383	579	583	500	405	581	616	6,833	3,526	-	-
Nyaruguru	1,865	-	-	-	441	12,925	10,269	5,050	7,639	11,628	14,265	8,534	10,669	731	602	759	651	249	482	7,942	-	12,127	1,415
Huye	1,864	-	3,534	-	622	14,136	7,343	3,986	7,659	10,733	12,515	8,977	10,535	614	599	646	913	649	699	7,585	2,457	12,370	-
Nyamagabe	1,715	-	1,706	1,159	134	13,169	8,681	6,725	5,482	9,752	8,968	8,113	10,212	625	584	642	489	-	490	7,705	5,530	6,876	-
Ruhango	1,619	740	4,545	-	-	14,880	8,280	3,360	4,411	9,875	9,370	6,612	10,768	489	466	589	880	323	520	7,698	-	11,532	4,683
Muhanga	2,037	2,266	1,995	-	804	14,637	7,407	4,139	11,258	10,859	12,700	9,276	10,720	516	429	589	1,176	159	506	7,708	9,546	15,475	15,335
Kamonyi	1,891	-	3,502	-	371	13,915	5,536	3,879	10,683	10,238	13,196	7,512	10,237	443	423	567	807	523	636	7,043	4,886	13,485	66
Karongi	1,739	-	-	-	-	8,849	8,621	7,062	4,366	12,035	14,433	11,443	11,565	1,003	758	1,081	909	160	801	6,948	3,798	8,248	20,217
Rutsiro	1,377	-	-	-	-	13,658	8,463	7,379	4,825	12,007	13,616	8,667	12,122	848	545	914	673	-	710	8,234	6,892	22,414	15,420
Rubavu	1,906	620	-	-	-	-	7,807	12,923	2,608	11,299	12,872	6,745	11,139	753	486	783	538	-	368	10,215	6,076	15,208	3,043
Nyabihu	1,833	1,170	-	1,215	656	9,442	7,083	12,287	2,396	9,329	12,308	6,723	9,137	995	638	1,006	798	-	-	8,102	8,985	24,019	272
Ngororero	1,552	708	-	738	868	14,614	7,197	5,505	6,439	8,545	9,042	8,407	8,473	801	695	813	626	-	685	9,377	6,041	10,287	39,481
Rusizi	1,849	899	4,628	-	-	13,048	7,350	5,903	3,534	11,102	11,055	8,475	11,541	775	752	919	621	569	775	7,306	5,934	13,532	306
Nyamasheke	1,642	831	3,926	-	619	11,646	5,006	-	7,218	9,319	10,369	7,738	9,077	804	654	860	622	558	803	6,051	8,988	26,456	101,711
Rulindo	1,910	-	3,367	898	726	12,334	7,389	5,759	6,930	10,157	12,447	8,928	9,466	709	617	775	674	1,496	636	8,809	3,256	11,848	23,670
Gakenke	1,841	-	4,877	-	845	13,318	7,684	5,932	10,241	11,221	14,008	8,009	11,139	726	533	768	611	805	567	6,187	4,649	7,173	17,653
Musanze	1,763	1,495	-	1,521	-	4,072	8,271	12,472	6,004	10,717	13,601	8,193	9,918	1,007	1,008	1,007	976	-	971	9,919	3,898	20,719	5,863
Burera	1,952	1,453	-	1,531	498	12,902	8,911	10,165	2,269	10,639	12,982	7,043	9,525	837	671	846	745	-	1,409	7,479	-	15,189	16,786
Gicumbi	1,697	1,252	-	1,213	1,100	12,809	9,569	8,727	6,899	11,019	14,216	6,636	10,381	754	723	765	704	308	483	8,421	5,379	11,468	7,881
Rwamagana	1,748	-	3,719	-	672	14,519	8,280	6,679	13,431	14,806	17,631	9,708	10,432	605	606	463	225	636	644	8,492	5,614	13,518	3,513
Nyagatare	2,984	1,634	4,257	-	770	12,952	5,769	5,468	5,463	14,267	17,182	8,900	11,294	883	857	1,116	601	635	915	7,693	9,087	62,045	2,227
Gatsibo	1,971	1,190	4,298	-	1,017	12,790	8,937	5,147	5,850	13,506	15,892	8,762	10,775	716	700	845	905	761	426	7,824	-	27,000	14,534
Kayonza	1,945	1,079	3,173	-	509	12,440	6,533	3,224	244	13,817	16,209	9,157	9,543	734	730	920	713	442	373	5,873	3,328	18,326	16,112
Kirehe	2,376	1,036	4,901	1,777	771	14,455	6,015	4,791	4,206	13,752	15,948	8,582	11,410	729	736	652	582	492	1,506	9,872	-	4,011	72
Ngoma	2,002	1,171	4,461	-	1,113	12,640	8,042	4,076	4,082	13,922	16,397	8,595	11,664	768	761	838	276	489	609	4,989	3,103	15,612	-
Bugesera	1,527	1,380	4,643	-	553	15,133	7,071	2,856	4,506	12,042	15,844	8,444	10,303	489	487	771	551	546	301	8,113	7,504	4,151	4,281
National	2,038	1,367	4,071	1,288	808	13,340	7,812	8,541	6,772	11,771	14,567	8,599	10,595	709	648	814	687	557	608	7,965	4,695	15,469	13,731
SSF	1,955	1,367	2,568	1,284	808	13,341	7,812	8,526	6,772	11,768	14,562	8,598	10,595	709	648	814	688	557	580	7,968	4,637	15,846	14,523
LSF	4,632	2,144	4,093	1,567	727	11,839	6,740	12,895	-	17,231	18,020	13,937	12,454	817	799	1,500	571	1,384	2,096	7,512	6,223	9,248	3,788

Source: NISR, SAS 2024

Table 12: 2024 Season A_Average yield of Large-Scale Farmers by crop type and district (Kg/Ha)

District	Maize	Sorghum	Paddy rice	Wheat	Other cereals	Cassava	Sweet potatoes	Irish potatoes	Yams & Taro	Bananas	Cooking Banana	Dessert banana	Banana for beer	Beans	Bush bean	Climbing bean	Peas	Ground nuts	Soya beans	Vegetables	Fruits	Fodder crops	Other crops
Gasabo	3,304	-	3,867	-	-	-	10,112	2,025	-	15,562	15,885	13,326	16,003	587	587	-	-	-	-	6,782	1,691	21,365	1,640
Kicukiro	4,288	-	3,870	-	-	-	-	-	-	13,721	13,721	-	-	406	406	-	-	-	1,810	-	5,902	22,301	-
Nyanza	2,269	-	4,567	-	-	-	-	-	-	9,921	11,125	9,724	9,709	979	979	-	-	-	-	4,533	1,901	-	5,237
Gisagara	3,392	-	3,675	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nyaruguru	3,875	-	-	-	-	-	15,037	34,474	-	8,009	15,538	5,518	13,056	-	-	-	-	-	-	-	-	28,009	-
Huye	3,696	-	3,567	-	-	-	-	-	-	-	-	-	-	529	529	-	-	-	-	11,715	-	20,504	-
Nyamagabe	3,274	-	-	-	-	-	-	17,500	-	-	-	-	-	2,271	-	2,271	1,979	-	-	-	-	-	-
Ruhango	1,742	-	4,545	-	-	13,513	-	-	-	12,123	-	8,960	15,930	931	931	-	-	-	-	-	-	91,489	-
Muhanga	2,847	-	1,950	-	-	-	-	14,284	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kamonyi	5,322	-	3,502	-	-	-	-	-	-	-	-	-	-	482	482	-	-	-	2,215	-	-	-	66
Karongi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,242
Rubavu	2,280	-	-	-	-	-	-	14,978	-	15,178	15,215	9,534	-	685	-	685	553	-	-	-	-	37,371	556
Rusizi	3,655	-	4,636	-	-	-	-	-	-	-	-	-	-	1,067	1,067	-	-	-	-	-	10,484	-	105
Nyamasheke	-	-	3,926	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	963
Rulindo	3,537	-	3,367	1,763	-	-	-	13,054	-	-	-	-	-	1,381	-	1,381	776	-	-	9,016	-	-	1,649
Gakenke	3,292	-	4,877	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Musanze	-	-	-	1,169	-	-	-	12,740	-	-	-	-	-	-	-	-	434	-	-	-	-	10,295	-
Gicumbi	2,650	-	-	1,924	-	-	4,386	8,413	-	10,564	10,564	-	-	1,122	-	1,122	463	-	-	13,540	-	4,839	392
Rwamagana	4,238	-	3,718	-	-	-	5,070	5,138	-	17,848	18,481	12,019	-	1,129	1,086	2,731	-	-	-	9,152	3,835	22,587	5,355
Nyagatare	6,506	977	4,258	-	713	-	22,149	9,523	-	19,703	19,913	21,755	15,006	1,351	1,351	-	-	-	1,767	13,337	9,087	40,248	967
Gatsibo	4,064	-	4,304	-	1,362	-	8,586	-	-	18,761	18,325	25,256	-	535	535	-	-	-	2,459	6,546	-	9,395	6,342
Kayonza	4,922	-	3,210	-	-	6,961	4,619	6,737	-	18,791	18,791	-	-	1,159	1,159	-	-	-	-	4,936	1,947	14,034	16,112
Kirehe	6,514	-	4,914	1,777	-	-	-	11,045	-	-	-	-	-	850	850	-	-	-	2,121	2,058	-	-	72
Ngoma	3,149	-	4,461	-	-	1,599	7,010	-	-	16,547	17,817	12,082	12,477	1,511	1,511	-	-	-	157	3,830	3,140	11,050	-
Bugesera	3,032	2,791	4,669	-	-	-	13,812	7,015	-	15,525	17,253	15,342	13,203	1,095	1,097	1,021	1,589	1,384	-	9,411	15,364	2,537	4,268
National	4,632	2,144	4,093	1,567	727	11,839	6,740	12,895	-	17,231	18,020	13,937	12,454	817	799	1,500	571	1,384	2,096	7,512	6,223	9,248	3,788

Source: NISR, SAS 2024

Table 13: 2024 Season A_Crop production by crop type and district (MT)

District	Maize	Sorghum	Paddy rice	Wheat	Other Cereals	Cassava	Sweet potatoes	Irish potatoes	Yams & Taro	Banana	Cooking banana	Dessert banana	Banana for beer	Beans	Bush bean	Climbing bean	Pea	Ground nuts	Soya bean	Vegetables	Fruits	Fodder crops	Other crops	**Total**
Nyarugenge	1,040	-	-	-	-	2,400	2,039	182	43	8,556	2,650	1,226	4,680	1,014	991	23	-	2	38	1,002	-	-	17,546	**33,864**
Gasabo	5,945	-	1,155	-	3	10,228	8,345	2,983	280	22,907	11,091	3,431	8,385	4,529	4,043	486	31	93	594	8,093	1,374	4,324	33	**70,914**
Kicukiro	1,993	-	327	-	-	591	3,596	66	288	5,430	2,331	775	2,324	800	791	9	-	2	30	338	95	728	133	**14,418**
Nyanza	11,319	867	1,944	-	27	61,788	15,708	1,495	1,634	32,090	9,437	4,753	17,900	7,143	6,092	1,051	191	135	897	2,291	47	14,928	4,133	**156,638**
Gisagara	14,399	1,011	10,613	-	246	13,128	15,054	762	739	34,924	7,131	6,558	21,235	8,255	7,884	371	4	133	1,146	1,613	84	-	-	**102,111**
Nyaruguru	8,235	-	-	-	23	10,565	48,326	11,053	3,825	20,691	9,504	2,757	8,430	5,794	851	4,944	201	8	444	1,556	-	4,750	92	**115,562**
Huye	8,812	-	3,488	-	63	15,664	20,406	2,094	1,371	31,636	10,663	6,356	14,617	7,049	4,747	2,302	136	33	1,434	5,371	2,180	1,052	-	**100,790**
Nyamagabe	9,770	-	39	47	2	13,523	52,872	23,902	2,064	28,518	4,890	2,575	21,053	5,812	1,592	4,220	537	-	695	2,590	337	1,258	-	**141,965**
Ruhango	6,741	43	3,881	-	-	53,437	12,545	400	2,521	33,101	4,816	3,619	24,665	4,728	3,670	1,058	23	83	1,835	3,492	-	6,212	665	**129,705**
Muhanga	3,895	257	359	-	160	30,240	29,809	1,491	21,921	80,408	14,323	7,711	58,375	3,832	1,459	2,373	123	2	1,251	3,107	2,295	8,886	2,458	**190,496**
Kamonyi	10,812	-	712	-	13	26,721	13,479	1,843	3,282	46,339	7,955	4,897	33,487	5,498	4,507	991	49	445	2,093	5,629	258	812	1	**117,987**
Karongi	11,269	-	-	-	-	9,737	37,988	4,596	4,652	58,997	11,961	6,685	40,351	7,034	1,284	5,750	120	5	1,245	3,501	205	4,976	7,834	**152,160**
Rutsiro	8,155	-	-	-	-	1,015	26,309	25,257	5,526	37,165	10,119	3,681	23,365	2,865	330	2,536	353	-	586	2,823	361	10,760	3,374	**124,550**
Rubavu	4,281	79	-	-	-	-	5,307	81,253	295	12,423	5,546	876	6,001	5,887	374	5,513	235	-	62	14,166	252	3,529	1,891	**129,660**
Nyabihu	5,642	414	-	501	3	1,893	18,048	103,239	17	4,549	1,296	670	2,584	8,479	160	8,319	566	-	-	8,083	1,027	3,161	400	**156,022**
Ngororero	5,886	161	-	276	5	18,294	41,081	11,192	6,839	45,590	6,960	6,718	31,911	9,389	827	8,563	323	-	1,147	5,126	176	3,716	11,781	**160,981**
Rusizi	14,655	45	6,840	-	-	10,887	13,485	1,430	5,090	26,144	9,617	1,685	14,842	9,078	7,601	1,477	27	164	347	5,548	4,016	651	72	**98,478**
Nyamasheke	9,250	12	1,478	-	88	28,679	17,263	-	10,686	26,375	9,071	2,577	14,727	5,413	1,210	4,203	74	247	668	4,848	1,478	3,144	12,603	**122,307**
Rulindo	9,519	-	58	85	15	8,231	29,544	8,139	484	24,843	8,153	4,355	12,336	7,140	2,586	4,554	273	61	364	7,917	201	581	30,900	**128,354**
Gakenke	16,889	-	77	-	507	15,583	52,269	7,561	14,533	68,720	14,569	6,340	47,812	7,063	938	6,126	427	150	427	3,264	2,426	948	10,265	**201,108**
Musanze	10,754	2,285	-	1,205	-	99	16,668	48,242	823	9,605	4,177	1,972	3,456	8,719	446	8,273	240	-	58	11,663	510	7,867	8,205	**126,942**
Burera	19,448	1,535	-	776	25	594	24,485	50,403	105	9,493	4,100	278	5,115	8,986	392	8,594	1,259	-	38	3,630	-	8,498	1,636	**130,911**
Gicumbi	10,276	422	-	479	31	7,683	72,585	28,866	241	25,274	13,225	3,728	8,322	12,687	3,135	9,552	1,159	114	143	6,715	41	7,632	558	**174,905**
Rwamagana	18,669	-	1,869	-	57	13,669	18,042	6,867	1,489	77,399	57,480	8,107	11,812	8,741	8,709	32	7	563	497	8,915	1,607	6,872	2,035	**167,300**
Nyagatare	96,373	18,667	8,377	-	809	10,774	9,045	3,881	443	75,716	50,576	5,778	19,362	14,681	12,777	1,905	146	729	740	3,706	336	8,024	144	**252,591**
Gatsibo	43,730	5,544	7,130	-	147	13,958	20,036	12,132	435	127,017	88,089	11,658	27,270	15,015	13,084	1,931	244	435	381	5,561	-	6,334	623	**258,723**
Kayonza	33,902	4,076	5,338	-	229	43,150	12,017	7,343	54	68,487	52,091	5,638	10,757	12,928	12,614	314	84	129	280	6,319	95	9,407	1,176	**205,012**
Kirehe	59,621	2,596	4,517	2	33	26,042	10,087	7,168	698	104,520	68,171	4,857	31,492	15,548	14,475	1,073	174	166	1,131	4,271	-	269	3	**236,844**
Ngoma	31,952	797	3,893	-	344	45,990	15,291	6,094	612	96,271	63,085	7,269	25,917	12,543	11,310	1,233	33	263	361	1,949	4,979	3,195	-	**224,567**
Bugesera	14,752	8,640	7,003	-	32	23,484	31,215	898	316	51,495	24,905	5,787	20,802	6,491	6,409	82	3	1,368	239	2,847	871	3,532	675	**153,860**
National	**507,985**	**47,452**	**69,098**	**3,371**	**2,862**	**518,044**	**692,945**	**460,830**	**91,306**	**1,294,683**	**587,981**	**133,317**	**573,386**	**233,142**	**135,287**	**97,856**	**7,042**	**5,328**	**19,171**	**145,933**	**25,250**	**136,047**	**119,236**	**4,379,725**

Source: NISR, SAS 2024

Table 14: 2024 Season A_the Use of production by farmers (in percentage)

Crops	Sold	Own consumption	Wages for hired labour	Farm rent	Offered as gift	Barter trade / Exchanged with other things	Seeds	Fodder purpose	Stored	Post harvesting losses	Other usage
Maize	43.4	43.8	1.5	2.7	5.2	0.0	0.6	0.4	1.5	0.4	0.3
Sorghum	64.8	21.2	2.1	3.2	4.1	0.0	2.2	0.0	1.0	0.9	0.6
Paddy rice	81.7	17.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0
Wheat	49.3	32.6	0.0	0.0	4.5	0.0	12.1	0.3	0.0	0.0	1.2
Other cereals	34.7	41.3	1.7	3.2	8.5	0.0	6.7	0.0	2.1	1.7	0.0
Sweet potato	36.6	54.1	1.6	0.7	5.3	0.0	0.0	1.5	0.1	0.0	0.2
Irish potato	58.3	25.7	0.7	0.4	3.6	0.1	10.5	0.1	0.0	0.5	0.1
Yam & Taro	20.1	68.8	1.9	0.1	6.0	0.4	2.5	0.0	0.0	0.0	0.2
Cassava	71.2	24.1	0.9	1.0	2.4	0.0	0.0	0.1	0.1	0.2	0.2
Bush bean	24.2	50.9	1.7	2.2	5.0	0.1	12.7	0.0	2.1	0.7	0.4
Climbing bean	15.7	61.1	1.1	0.7	7.3	0.1	11.8	0.0	1.5	0.5	0.2
Pea	41.0	42.7	0.4	0.0	3.3	0.1	11.5	0.0	0.5	0.4	0.1
Groundnut	29.8	36.9	0.6	0.9	4.9	0.1	25.2	0.1	1.2	0.1	0.2
Soybean	26.0	47.2	0.7	1.4	4.4	0.2	17.3	0.0	1.4	0.3	0.8
Cooking banana	65.6	30.4	0.7	0.1	2.7	0.0	0.0	0.0	0.0	0.0	0.4
Dessert banana	70.2	26.2	0.1	0.1	2.6	0.0	0.0	0.0	0.0	0.2	0.6
Banana for beer	83.9	10.7	0.2	0.0	3.8	0.0	0.0	0.1	0.0	0.7	0.5
Vegetables	76.7	16.9	0.3	0.3	3.9	0.0	0.6	0.0	0.0	0.9	0.3
Fruits	86.3	8.7	0.3	0.3	3.9	0.0	0.0	0.0	0.0	0.2	0.2
Fodder crops	2.4	0.0	2.3	0.0	0.6	0.1	0.0	93.9	0.0	0.0	0.7
Other crops	84.0	7.7	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.3	5.8

Source : NISR, SAS 2024

Table 15: 2024 Season A_Cultivated area by cropping system and district (Percentage)

District	Cropping system	
	Pure Cropping	Mixed Cropping
Nyarugenge	42.09	57.91
Gasabo	24.53	75.47
Kicukiro	23.61	76.39
Nyanza	25.98	74.02
Gisagara	24.16	75.84
Nyaruguru	46.55	53.45
Huye	31.15	68.85
Nyamagabe	46.83	53.17
Ruhango	38.54	61.46
Muhanga	33.78	66.22
Kamonyi	30.37	69.63
Karongi	39.92	60.08
Rutsiro	41.58	58.42
Rubavu	60.95	39.05
Nyabihu	60.86	39.14
Ngororero	36.41	63.59
Rusizi	29.84	70.16
Nyamasheke	41.46	58.54
Rulindo	37.73	62.27
Gakenke	42.76	57.24
Musanze	62.14	37.86
Burera	47.28	52.72
Gicumbi	39.64	60.36
Rwamagana	21.24	78.76
Nyagatare	31.96	68.04
Gatsibo	30.74	69.26
Kayonza	26.97	73.03
Kirehe	31.49	68.51
Ngoma	24.27	75.73
Bugesera	31.58	68.42
National	35.42	64.58
SSF	33.84	66.16
LSF	95.67	4.33

Source: NISR, SAS 2024

Table 16: 2024 Season A_Sowing dates by district (Percentage)

District	Before 01/09	Between 01-15 /09	Between 16- 30/09	Between 01-15/10	Between 16- 31/10	After 31/10	Other season	Total
Nyarugenge	2.14	13.23	15.48	30.83	9.7	6.1	22.51	100
Gasabo	3.62	31.18	28.22	6.56	1.32	2.67	26.42	100
Kicukiro	3.2	7.73	25.72	33.4	8.09	8.83	13.02	100
Nyanza	6.89	8.4	17.35	30.9	10.31	9.6	16.54	100
Gisagara	2.54	23.4	24	24.56	4.97	4.09	16.43	100
Nyaruguru	14.54	17.5	15.97	18.95	5	13.77	14.25	100
Huye	1.79	23.07	13.81	25.45	10.98	9.04	15.86	100
Nyamagabe	11.23	33.28	16.38	14.36	3.85	11.06	9.83	100
Ruhango	5.64	15.09	18.77	23.82	9.07	9.16	18.44	100
Muhanga	6.94	17.16	16.71	8.37	3.65	15.28	31.88	100
Kamonyi	3.42	23	24.59	17.2	3.68	4.79	23.32	100
Karongi	5.36	37.34	15.12	9.28	1.88	5.99	25.03	100
Rutsiro	17.41	27.04	20.59	7.37	2.64	1.89	23.07	100
Rubavu	20.53	30.35	18.03	4.8	2.29	6.87	17.12	100
Nyabihu	15.57	38.8	17.58	7.61	2.68	10.01	7.75	100
Ngororero	15.18	23.76	18.12	11.92	3.63	7.81	19.57	100
Rusizi	3.34	22.53	47.43	7.62	0.93	2.3	15.85	100
Nyamasheke	9.42	37.87	17.15	7.86	2.35	4.42	20.93	100
Rulindo	11.47	39.86	15.65	6.59	2.85	6.96	16.62	100
Gakenke	12.71	36.88	12.42	6.37	2.1	5.77	23.76	100
Musanze	23.28	37.57	14.33	5.13	0.49	4.72	14.5	100
Burera	16.59	29.63	19.02	12.64	5.77	8.16	8.19	100
Gicumbi	8.25	32.57	22.05	9.64	2.52	5.8	19.18	100
Rwamagana	1.94	35.58	27.1	10.79	1.7	2.97	19.93	100
Nyagatare	5.69	51.22	18.07	2.31	0.28	1.05	21.38	100
Gatsibo	1.66	40.79	21.48	7.52	1.01	1.46	26.09	100
Kayonza	0.31	15.01	32.15	22.38	3.66	2.9	23.6	100
Kirehe	0.92	19.33	28.09	21.68	2.68	3.26	24.03	100
Ngoma	2.16	35.57	21.67	8.8	1.4	0.77	29.63	100
Bugesera	1.96	16.94	25.9	25.99	5.99	5.39	17.84	100
National	**7.68**	**28.41**	**20.77**	**13.63**	**3.68**	**6.02**	**19.82**	**100**

Source: NISR, SAS 2024

Table 17: 2024 Season A_Sowing date by crops (Percentage)

Crops	Before 01/09	Between 01-15 /09	Between 16- 30/09	Between 01-15/10	Between 16- 31/10	After 31/10	Other season	Total
Maize	4.4	40.4	30.4	17.5	4.9	2.5	0.0	100
Sorghum	17.8	44.9	25.4	10.7	0.8	0.5	0.0	100
Paddy rice	76.3	12.6	0.0	0.2	0.0	10.9	0.0	100
Wheat	2.6	23.3	17.4	33.1	11.0	12.6	0.0	100
Other cereals	7.7	54.7	26.2	9.9	1.4	0.0	0.0	100
Sweet potato	30.7	13.7	7.3	13.8	6.1	28.4	0.0	100
Irish potato	15.2	33.9	21.7	13.0	5.3	11.0	0.0	100
Taro & Yams	18.8	35.0	15.4	10.2	5.1	15.5	0.0	100
Cassava	5.9	33.3	19.6	11.1	3.4	6.7	20.1	100
Bush bean	1.3	32.3	34.7	26.1	4.5	1.2	0.0	100
Climbing bean	3.4	47.7	33.1	13.7	1.5	0.7	0.0	100
Pea	10.7	40.9	24.0	16.2	3.0	5.2	0.0	100
Groundnut	1.6	39.1	38.8	18.4	1.9	0.3	0.0	100
Soybean	1.1	33.5	30.5	23.8	8.3	2.9	0.0	100
Cooking banana	0.3	2.1	1.0	0.2	0.2	0.7	95.5	100
Dessert banana	0.2	1.1	0.6	0.0	0.1	0.4	97.6	100
Banana for beer	0.0	0.9	0.1	0.1	0.0	0.5	98.4	100
Vegetables	21.4	23.0	11.4	16.8	7.6	19.9	0.0	100
Fruits	0.0	17.1	0.6	2.3	0.4	2.7	76.9	100
Fodder crops	0.5	2.9	1.4	2.0	1.3	2.2	89.8	100
Other crops	67.5	12.7	3.6	5.1	1.1	7.3	2.7	100

Source: NISR, SAS 2024

Table 18: 2024 Season A_Use of seeds by farmer type per district (Percentage)

District	Percentage of farmers who used improved seeds			Percentage of sampled plots in which improved seeds was used			Percentage of land size in which improved seeds were used		
	Overall	SSF	LSF	Overall	SSF	LSF	Overall	SSF	SSF
Nyarugenge	37.82	37.82		32.95	32.95		34.66	34.66	
Gasabo	47.18	45.31	82.35	42.89	40.67	54.93	42.14	40.74	88.89
Kicukiro	48.02	47.13	100.00	39.06	37.50	77.78	43.57	41.94	97.85
Nyanza	45.14	44.11	100.00	40.38	39.19	78.95	41.54	40.32	89.50
Gisagara	46.79	45.40	80.00	42.37	41.14	70.83	46.25	43.49	72.16
Nyaruguru	25.38	23.03	100.00	22.51	20.37	84.62	21.96	20.90	99.27
Huye	44.34	41.13	92.31	39.19	35.60	80.00	42.64	39.91	91.89
Nyamagabe	26.74	26.64	50.00	22.42	22.13	42.86	22.80	22.79	30.22
Ruhango	35.58	34.85	85.71	30.97	29.66	76.47	30.28	28.52	92.54
Muhanga	18.26	17.05	77.78	15.53	14.15	81.82	14.97	13.35	91.58
Kamonyi	47.19	46.36	83.33	40.00	39.44	62.50	40.26	39.60	72.11
Karongi	33.47	33.33	100.00	29.42	29.30	100.00	29.47	29.37	100.00
Rutsiro	19.67	19.67		17.56	17.56		17.75	17.75	
Rubavu	24.67	24.13	75.00	22.84	22.36	44.44	22.84	22.78	50.40
Nyabihu	24.66	24.66		21.88	21.88		23.58	23.58	
Ngororero	17.08	17.08		14.48	14.48		14.48	14.48	
Rusizi	51.49	51.30	60.00	44.99	44.79	54.55	46.44	44.13	86.52
Nyamasheke	24.01	23.46	57.14	20.29	19.75	57.14	18.79	17.95	78.56
Rulindo	41.22	40.72	80.00	35.71	35.76	34.78	35.31	35.30	37.20
Gakenke	26.87	26.69	50.00	22.17	21.99	50.00	22.12	21.77	89.76
Musanze	27.33	26.89	100.00	23.41	22.37	80.00	23.94	23.69	86.01
Burera	38.62	38.62		33.60	33.60		33.78	33.78	
Gicumbi	29.43	28.78	100.00	25.00	23.23	66.67	22.95	22.83	77.44
Rwamagana	60.25	58.77	81.25	52.09	55.56	42.13	59.17	58.75	75.60
Nyagatare	60.03	57.40	88.46	52.31	48.95	68.89	55.84	54.07	91.28
Gatsibo	54.38	52.22	100.00	47.34	45.05	71.43	51.12	48.74	98.63
Kayonza	54.84	52.56	96.30	46.31	45.55	50.00	51.41	49.56	91.58
Kirehe	53.21	52.62	100.00	50.82	48.71	97.30	52.67	50.71	99.86
Ngoma	50.83	49.92	80.00	43.81	42.56	57.81	42.98	41.91	86.27
Bugesera	46.57	43.58	91.11	46.10	39.28	77.51	41.83	39.36	95.45
National	**39.69**	**38.44**	**87.30**	**35.47**	**33.62**	**62.78**	**37.71**	**36.30**	**88.77**

Source : NISR, SAS 2024

Table 19: 2024 Season A Seed type by crops (Percentage)

Crop	Traditional seeds	Improved seeds	Total
Maize	35.36	64.64	100
Paddy rice	87.27	12.73	100
Wheat	94.23	5.77	100
Irish potato	95.78	4.22	100
Cassava	99.71	0.29	100
Bush bean	99.72	0.28	100
Climbing bean	99.78	0.22	100
Pea	99.86	0.14	100
Soybean	99.09	0.91	100
Cooking banana	99.38	0.62	100
Dessert banana	98.71	1.29	100
Banana for beer	99.50	0.50	100
Vegetables	66.06	33.94	100
Fruits	89.75	10.25	100
Fodder crops	98.98	1.02	100
Other crops	87.51	12.49	100
National	**85.83**	**14.17**	**100**

Source: NISR, SAS 2024

Table 20: 2024 Season A_Percentage of farmers by source of improved seeds per district

District	Sources of improved seeds							
	Government (MINAGRI/ RAB/NAEB)	Recognized seed multipliers	Agro-dealers	NGOs/ Companies	Market	Agriculture cooperative	Other source	Total
Nyarugenge	14.29	4.76	80.95	-	-	-	-	100
Gasabo	-	4.00	70.67	9.33	10.67	5.33	-	100
Kicukiro	2.70	5.41	89.19	-	-	2.70	-	100
Nyanza	0.90	3.60	23.42	55.86	11.71	3.60	0.90	100
Gisagara	-	7.37	29.47	49.47	7.37	5.26	1.05	100
Nyaruguru	-	5.77	26.92	51.92	9.62	5.77	-	100
Huye	-	4.95	52.48	29.70	0.99	11.88	-	100
Nyamagabe	5.77	7.69	23.08	61.54	-	1.92	-	100
Ruhango	2.60	11.69	37.66	36.36	6.49	3.90	1.30	100
Muhanga	4.88	12.20	14.63	41.46	19.51	4.88	2.44	100
Kamonyi	6.60	3.77	40.57	24.53	8.49	12.26	3.77	100
Karongi	7.58	1.52	19.70	63.64	6.06	-	1.52	100
Rutsiro	-	-	33.33	57.58	9.09	-	-	100
Rubavu	3.45	17.24	41.38	13.79	15.52	5.17	3.45	100
Nyabihu	3.33	15.00	36.67	21.67	16.67	3.33	3.33	100
Ngororero	10.81	-	29.73	43.24	8.11	-	8.11	100
Rusizi	8.79	1.10	21.98	64.84	-	3.30	-	100
Nyamasheke	-	7.41	22.22	62.96	3.70	1.85	1.85	100
Rulindo	1.56	9.38	40.63	40.63	1.56	4.69	1.56	100
Gakenke	2.60	-	48.05	38.96	2.60	7.79	-	100
Musanze	5.43	6.52	38.04	39.13	6.52	3.26	1.09	100
Burera	2.31	7.69	46.15	37.69	3.85	0.77	1.54	100
Gicumbi	2.60	2.60	53.25	25.97	14.29	-	1.30	100
Rwamagana	1.56	14.06	42.19	39.84	0.78	1.56	-	100
Nyagatare	3.47	13.37	46.53	33.17	0.99	1.49	0.99	100
Gatsibo	1.63	1.09	37.50	50.00	2.72	6.52	0.54	100
Kayonza	8.40	5.88	47.06	25.21	7.56	5.88	-	100
Kirehe	2.69	3.23	18.28	58.06	-	16.13	1.61	100
Ngoma	12.86	4.29	10.00	64.29	-	7.14	1.43	100
Bugesera	1.44	10.79	41.73	29.50	12.23	4.32	-	100
National	**3.70**	**6.54**	**37.15**	**40.92**	**5.40**	**5.18**	**1.11**	**100**

Source: NISR, SAS 2024

Table 21: 2024 Season A_Percentage of crops by source of seeds

Crop	Government (MINAGRI/RAB/	Recognized seed multipliers	Agro dealers	NGOs/	Market	Agriculture cooperative	Other source	Total
Maize	3.04	2.16	40.18	47.42	3.88	2.66	0.67	100
Paddy rice	0.75	36.84	1.50	-	0.75	60.15	-	100
Wheat	31.58	10.53	15.79	36.84	-	-	5.26	100
Irish potato	10.20	52.04	10.20	7.14	18.37	-	2.04	100
Cassava	16.67	45.83	2.08	4.17	6.25	22.92	2.08	100
Bush bean	11.63	25.58	27.91	25.58	4.65	-	4.65	100
Climbing bean	57.14	7.14	7.14	28.57	-	-	-	100
Pea	50.00	-	25.00	-	25.00	-	-	100
Soybean	21.43	21.43	25.00	7.14	7.14	17.86	-	100
Cooking banana	15.15	21.21	-	15.15	45.45	-	3.03	100
Dessert banana	15.22	39.13	13.04	10.87	10.87	2.17	8.70	100
Banana for beer	23.08	38.46	11.54	-	26.92	-	-	100
Vegetables	2.69	8.38	47.60	6.29	29.34	0.90	4.79	100
Fruits	18.03	62.30	3.28	6.56	9.84	-	-	100
Fodder crops	18.60	6.98	39.53	2.33	32.56	-	-	100
Other crops	18.42	30.26	3.95	6.58	11.84	18.42	10.53	100

Source: NISR, SAS 2024

Table 22: 2024 Season A_Use of organic fertilizer by farmer type per district (Percentage)

	Percentage of farmers who applied organic fertilizer			Percentage of plots in which organic fertilizer was applied			Percentage of land size in which organic fertilizer was applied		
District	Overall	SSF	LSF	Overall	SSF	LSF	Overall	SSF	LSF
Nyarugenge	66.7	66.7		70.6	70.6		72.2	72.2	
Gasabo	85.2	85.3	82.4	82.1	82.1	87.1	85.4	85.0	96.0
Kicukiro	73.5	73.0	100.0	70.1	70.1	55.6	73.6	72.9	92.1
Nyanza	87.2	86.9	100.0	71.5	71.5	81.8	76.0	75.4	97.7
Gisagara	91.6	92.3	73.7	83.5	83.5	94.1	85.3	84.3	99.7
Nyaruguru	95.4	95.3	100.0	85.4	85.4	84.6	86.1	85.9	98.8
Huye	87.0	86.6	92.3	85.7	85.7	100.0	81.4	80.4	100.0
Nyamagabe	95.6	95.6	100.0	83.9	83.9	100.0	82.8	82.8	100.0
Ruhango	90.0	90.5	57.1	77.1	77.1	92.3	75.7	75.1	98.7
Muhanga	98.4	98.4	100.0	75.9	75.9	100.0	78.8	78.4	100.0
Kamonyi	92.5	92.3	100.0	74.3	74.3	82.4	76.0	75.5	96.2
Karongi	95.3	95.5	0.0	73.3	73.3	0.0	76.3	76.3	0.0
Rutsiro	91.9	91.9		80.4	80.4		82.9	82.9	
Rubavu	73.2	72.9	100.0	60.1	60.1	66.7	52.1	52.0	84.5
Nyabihu	96.4	96.4		80.9	80.9		81.9	81.9	
Ngororero	97.7	97.7		82.8	82.8		87.2	87.2	
Rusizi	89.8	91.3	20.0	88.4	88.4	100.0	85.8	85.6	100.0
Nyamasheke	94.6	95.3	57.1	86.9	86.9	100.0	84.8	84.6	100.0
Rulindo	97.7	97.7	100.0	88.2	88.2	95.5	89.5	89.5	95.4
Gakenke	97.9	98.1	75.0	81.9	81.9	100.0	85.7	85.6	100.0
Musanze	89.9	89.8	100.0	75.6	75.6	40.0	71.3	71.3	70.8
Burera	95.1	95.1		83.9	83.9		86.4	86.4	
Gicumbi	98.2	98.2	100.0	85.3	85.3	96.3	87.0	87.0	97.4
Rwamagana	88.5	89.0	81.3	88.0	88.0	74.4	89.5	89.6	84.3
Nyagatare	76.0	76.7	69.2	64.7	64.7	77.7	66.5	66.0	88.1
Gatsibo	88.8	88.8	90.0	73.1	73.1	80.7	80.3	80.0	87.9
Kayonza	78.3	79.1	63.0	70.0	70.0	76.8	73.9	73.9	73.3
Kirehe	85.3	85.6	66.7	77.2	77.2	100.0	80.4	79.5	100.0
Ngoma	89.1	89.4	80.0	71.7	71.7	87.5	74.5	74.0	96.2
Bugesera	72.9	73.9	57.8	59.1	59.1	100.0	60.4	59.1	100.0
National	89.1	89.5	76.4	79.2	79.2	84.0	79.1	78.8	94.8

Source : NISR, SAS 2024

Table 23: 2024 Season A Use of inorganic fertilizer by farmer type per district (Percentage)

	Percentage of farmers who used inorganic fertilizers			Percentage of plots in which inorganic fertilizer was applied			Percentage of land under which inorganic fertilizer was applied		
District	Overall	SSF	LSF	Overall	SSF	LSF	Overall	SSF	LSF
Nyarugenge	24.4	24.4		10.1	10.1		12.3	12.3	
Gasabo	51.3	49.4	88.2	26.1	26.1	43.7	30.3	28.5	83.4
Kicukiro	53.7	52.9	100.0	18.3	18.2	77.8	27.5	25.4	97.7
Nyanza	45.3	44.3	100.0	17.2	17.2	50.0	23.0	21.1	96.6
Gisagara	60.6	59.0	100.0	30.4	30.4	100.0	40.5	34.4	100.0
Nyaruguru	85.3	84.9	100.0	41.7	41.7	84.6	52.1	51.4	98.8
Huye	54.2	51.2	100.0	27.3	27.3	85.0	31.6	27.9	97.7
Nyamagabe	68.1	68.0	100.0	39.9	39.9	100.0	45.9	45.8	100.0
Ruhango	42.7	41.9	100.0	14.2	14.2	58.8	19.1	16.9	98.8
Muhanga	56.4	55.6	100.0	19.6	19.6	100.0	21.5	19.9	100.0
Kamonyi	47.4	46.2	100.0	20.5	20.5	82.4	21.5	20.0	96.2
Karongi	66.5	66.7	0.0	33.5	33.5	0.0	36.2	36.2	0.0
Rutsiro	61.9	61.9		29.5	29.5		35.1	35.1	
Rubavu	69.8	69.4	100.0	42.2	42.2	44.4	50.4	50.4	40.2
Nyabihu	73.3	73.3		45.6	45.6		53.4	53.4	
Ngororero	70.5	70.5		32.7	32.7		38.2	38.2	
Rusizi	84.0	83.9	90.0	58.4	58.4	72.7	67.1	66.1	85.3
Nyamasheke	76.0	75.6	100.0	45.9	45.9	100.0	47.6	46.9	100.0
Rulindo	72.0	71.9	80.0	38.7	38.7	65.2	43.9	43.7	85.5
Gakenke	82.2	82.2	75.0	48.9	48.9	75.0	53.0	52.8	92.8
Musanze	78.4	78.3	100.0	40.2	40.2	60.0	47.1	47.0	83.5
Burera	74.6	74.6		40.8	40.8		48.2	48.2	
Gicumbi	60.2	59.8	100.0	26.5	26.5	66.7	32.5	32.4	87.4
Rwamagana	59.0	56.8	90.6	37.6	37.6	34.5	45.4	44.6	74.1
Nyagatare	73.9	71.7	98.1	36.3	36.3	77.0	54.6	52.3	96.7
Gatsibo	64.7	63.0	100.0	34.2	34.2	65.7	49.8	47.3	97.9
Kayonza	61.1	59.7	85.2	38.5	38.4	46.6	42.7	40.5	83.7
Kirehe	70.5	70.3	88.9	41.0	41.0	89.2	55.1	53.3	97.5
Ngoma	67.6	66.9	90.0	29.2	29.2	60.6	38.8	37.5	88.5
Bugesera	51.3	50.6	62.2	20.8	20.8	38.5	28.5	26.7	66.4
National	64.5	63.8	90.8	34.0	34.0	56.6	41.6	40.2	91.0

Source: NISR, SAS 2024

Table 24: 2024 Season A_Percentage of farmers by source of inorganic fertilizers per district

District	Government (MINAGRI/ RAB/NAEB)	Agro dealers	NGOs/ Companies	Market	Agriculture cooperative	Other source	Total
Nyarugenge	15.8	76.3	-	2.6	5.3	-	100.0
Gasabo	0.6	65.5	11.3	13.6	8.5	0.6	100.0
Kicukiro	1.1	96.8	-	2.1	-	-	100.0
Nyanza	8.9	20.6	56.1	4.8	8.5	1.2	100.0
Gisagara	3.0	37.2	45.1	9.2	5.6	-	100.0
Nyaruguru	1.4	26.0	68.7	0.7	2.9	0.4	100.0
Huye	2.2	46.6	44.0	0.4	6.5	0.4	100.0
Nyamagabe	6.6	39.9	49.8	3.0	0.3	0.3	100.0
Ruhango	15.2	24.2	52.1	2.4	6.2	-	100.0
Muhanga	10.9	13.6	59.1	6.6	9.7	-	100.0
Kamonyi	2.3	46.5	33.5	4.6	11.2	1.9	100.0
Karongi	17.8	18.1	60.7	0.6	0.6	2.2	100.0
Rutsiro	6.0	48.1	39.9	4.9	-	1.1	100.0
Rubavu	1.5	86.7	10.3	1.1	0.4	-	100.0
Nyabihu	0.6	75.6	22.9	0.6	0.3	-	100.0
Ngororero	0.5	31.7	61.6	5.7	0.5	-	100.0
Rusizi	2.8	26.5	66.0	4.3	0.3	0.3	100.0
Nyamasheke	3.0	22.3	69.0	4.8	0.6	0.3	100.0
Rulindo	4.9	55.2	33.9	2.1	3.5	0.4	100.0
Gakenke	2.3	46.2	46.4	2.8	2.3	-	100.0
Musanze	9.1	52.5	34.6	3.5	0.3	-	100.0
Burera	12.4	46.2	37.8	1.9	0.9	0.7	100.0
Gicumbi	7.5	45.7	35.1	10.5	0.9	0.3	100.0
Rwamagana	3.7	42.8	50.2	0.3	2.7	0.3	100.0
Nyagatare	4.6	54.6	35.9	-	2.8	2.2	100.0
Gatsibo	2.8	45.9	46.6	0.5	3.5	0.7	100.0
Kayonza	14.1	46.9	31.3	6.6	0.6	0.6	100.0
Kirehe	9.9	17.9	54.5	2.5	12.8	2.3	100.0
Ngoma	14.5	21.2	56.8	2.9	4.0	0.7	100.0
Bugesera	0.5	39.3	47.6	7.8	4.8	-	100.0
National	6.2	40.8	45.3	3.6	3.4	0.6	100.0

Source: NISR, SAS 2024

Table 25: 2024 Season A_Source of inorganic fertilizer by type of fertilizer

Fertilizer name	Government (MINAGRI/ RAB/ NAEB)	Agro dealers	NGOs/ Companies	Market	Agriculture cooperative	Other source	Total
NPK 17-17-17	2.4	58.8	28.0	5.3	4.0	1.5	100
NPK 20-10-10	63.9	13.1	9.8	3.3	8.2	1.6	100
NPK 25-5-5	84.2	5.3	10.5	-	-	-	100
NPK 22-6-12	55.2	41.4	-	-	3.5	-	100
Other NPK	18.4	69.4	8.2	-	4.1	-	100
Urea	4.8	39.9	47.9	3.3	3.2	1.0	100
liquid urea (Mbonea M)	3.4	42.4	37.3	5.1	11.9	-	100
DAP	4.4	38.1	51.3	3.0	2.6	0.6	100
KCL/MOP	-	40.0	-	20.0	40.0	-	100
Omax	-	66.7	33.3	-	-	-	100
Winner	-	54.6	36.4	-	9.1	-	100
Yara Viva	10.0	10.0	40.0	20.0	10.0	10.0	100
Amidas	-	33.3	33.3	-	16.7	16.7	100
Cereal	5.7	60.0	17.1	-	8.6	8.6	100
Boaster	6.8	64.4	11.9	6.8	8.5	1.7	100
DI Grow	-	100.0	-	-	-	-	100
Lime	6.0	40.2	46.2	1.7	5.1	0.9	100
Other type of fertilizer	0.9	61.8	16.4	0.9	8.2	11.8	100

Source: NISR, SAS 2024

Table 26: 2024 Season A Percentage of plots by type of inorganic fertilizer per district

District	NPK	Urea	DAP	KCL/MOP	Lime	Others	Total
Nyarugenge	10.5	57.9	29.0	-	-	2.6	100
Gasabo	19.3	48.7	31.9	-	-	-	100
Kicukiro	12.4	39.1	43.8	-	-	4.8	100
Nyanza	13.4	46.6	37.5	-	1.3	1.3	100
Gisagara	8.2	41.9	47.0	-	0.3	2.6	100
Nyaruguru	13.4	31.3	49.6	-	4.6	1.1	100
Huye	16.9	45.1	35.6	-	0.4	2.1	100
Nyamagabe	13.6	35.8	44.9	-	4.0	1.6	100
Ruhango	9.7	49.7	37.7	-	-	2.9	100
Muhanga	18.0	36.0	43.3	-	0.6	2.3	100
Kamonyi	8.8	46.3	39.2	-	1.7	4.2	100
Karongi	2.9	48.0	48.8	-	0.3	-	100
Rutsiro	26.2	25.9	37.6	-	9.1	1.1	100
Rubavu	49.1	22.7	25.8	-	-	2.4	100
Nyabihu	42.3	24.7	28.9	-	0.3	3.9	100
Ngororero	12.8	35.4	47.0	-	4.4	0.5	100
Rusizi	9.8	43.5	45.6	-	0.5	0.6	100
Nyamasheke	12.5	35.9	49.7	-	1.3	0.5	100
Rulindo	15.5	41.6	40.1	-	1.2	1.7	100
Gakenke	8.8	38.9	51.5	-	0.6	0.2	100
Musanze	26.6	33.3	36.5	-	-	3.7	100
Burera	13.7	38.9	45.8	-	-	1.5	100
Gicumbi	19.5	34.8	41.1	-	1.8	2.7	100
Rwamagana	8.7	45.2	45.6	-	-	0.5	100
Nyagatare	4.7	47.8	42.7	-	0.1	4.8	100
Gatsibo	6.2	46.6	44.7	0.3	0.2	2.0	100
Kayonza	9.1	40.9	46.6	0.2	0.8	2.4	100
Kirehe	6.4	40.5	49.7	0.1	0.3	3.1	100
Ngoma	5.0	45.7	46.8	-	-	2.5	100
Bugesera	10.2	38.1	50.2	0.2	0.7	0.7	100
National	12.9	40.3	43.7	0.0	1.0	2.0	100

Source: NISR, SAS 2024

Table 27: 2024 Season A_Use of pesticides by farmer type per district (Percentage)

District	Percentage of farmers who used pesticides			Percentage of plots in which pesticides were used			Percentage of land size in which pesticides were used		
	Overall	SSF	LSF	Overall	SSF	LSF	Overall	SSF	LSF
Nyarugenge	20.5	20.5		62.6	62.6		53.9	53.9	
Gasabo	40.7	38.4	82.4	42.7	42.7	40.4	53.3	50.8	83.7
Kicukiro	36.7	35.6	100.0	31.3	31.3	85.7	50.5	48.7	99.0
Nyanza	40.4	39.4	90.0	42.2	42.2	79.0	54.3	51.7	97.4
Gisagara	41.5	39.1	100.0	40.2	40.2	100.0	55.8	44.2	100.0
Nyaruguru	66.1	65.0	100.0	32.0	32.0	84.6	39.2	37.9	98.8
Huye	44.3	40.9	96.2	49.2	49.2	94.4	63.0	58.6	99.7
Nyamagabe	36.5	36.2	100.0	57.0	57.0	100.0	63.0	62.8	100.0
Ruhango	42.3	41.7	85.7	41.2	41.2	60.0	42.6	39.4	99.7
Muhanga	46.4	45.4	100.0	33.4	33.4	90.9	35.4	32.5	96.1
Kamonyi	44.9	44.3	75.0	48.6	48.6	71.4	45.2	43.5	90.6
Karongi	25.8	25.9	0.0	44.7	44.7	0.0	49.9	49.9	0.0
Rutsiro	34.1	34.1		36.9	36.9		47.8	47.8	
Rubavu	67.1	66.8	100.0	79.0	79.0	44.4	80.0	80.1	40.2
Nyabihu	55.6	55.6		72.7	72.7		75.4	75.4	
Ngororero	24.6	24.6		48.7	48.7		53.3	53.3	
Rusizi	24.9	23.7	80.0	32.9	32.9	88.9	58.6	50.1	99.8
Nyamasheke	26.6	25.6	85.7	35.2	35.2	100.0	38.3	34.9	100.0
Rulindo	59.0	58.5	100.0	36.5	36.5	90.0	48.8	48.7	75.6
Gakenke	50.7	50.5	75.0	42.3	42.3	100.0	47.1	46.6	100.0
Musanze	68.7	68.5	100.0	61.7	61.7	66.7	64.2	64.1	85.2
Burera	59.8	59.8		59.7	59.7		66.2	66.2	
Gicumbi	41.1	40.6	100.0	46.8	46.8	63.0	50.4	50.2	81.8
Rwamagana	33.2	29.8	81.3	70.7	70.7	55.6	81.0	80.5	87.2
Nyagatare	24.8	19.8	78.9	31.4	31.3	81.8	57.3	51.1	97.0
Gatsibo	28.4	25.8	83.3	52.4	52.4	68.0	68.1	64.4	88.9
Kayonza	36.1	33.3	85.2	45.6	45.6	52.4	64.8	61.7	85.8
Kirehe	37.4	36.6	100.0	55.2	55.2	97.2	70.7	68.2	93.6
Ngoma	28.7	26.8	90.0	42.6	42.6	85.2	56.9	53.3	98.3
Bugesera	25.5	23.6	53.3	34.1	34.1	98.2	41.2	33.6	99.3
National	39.8	38.6	82.9	47.6	47.6	73.3	57.0	54.5	94.6

Source : NISR, SAS 202

Table 28: 2024 Season A Percentage of plots by type of pesticides per district

District	Type of pesticides									
	Dithane	Ridomil	Dimethoate	Cypermetrin	Dursiban	Pilkare	Rocket	Beam	Other pesticide	Total
Nyarugenge	21.1	2.6	15.8	5.3	-	-	42.1	-	13.2	100
Gasabo	17.9	2.7	7.3	5.3	-	-	49.0	2.7	15.2	100
Kicukiro	7.7	3.9	3.9	9.6	-	-	57.7	-	17.3	100
Nyanza	5.7	-	2.6	4.5	-	-	80.9	1.9	4.5	100
Gisagara	4.3	-	2.1	9.2	-	-	73.1	8.5	2.8	100
Nyaruguru	22.5	0.9	-	10.8	-	-	51.4	-	14.4	100
Huye	6.4	-	-	16.3	-	-	60.5	9.3	7.6	100
Nyamagabe	28.7	3.5	-	33.6	-	-	32.9	-	1.4	100
Ruhango	1.7	-	0.8	8.3	1.7	0.8	81.8	4.1	0.8	100
Muhanga	13.5	8.4	0.8	12.6	0.8	-	55.5	1.7	6.7	100
Kamonyi	11.6	4.4	3.3	5.5	-	-	66.3	1.7	7.2	100
Karongi	3.9	-	6.4	34.6	-	-	47.4	-	7.7	100
Rutsiro	62.9	11.4	3.8	11.4	-	-	8.6	-	1.9	100
Rubavu	32.0	22.4	12.2	18.9	-	-	11.4	-	3.2	100
Nyabihu	36.0	7.6	9.4	14.2	-	-	16.6	-	16.2	100
Ngororero	22.5	3.1	6.1	18.4	-	-	43.9	-	6.1	100
Rusizi	16.7	-	22.2	19.4	-	-	26.9	1.9	13.0	100
Nyamasheke	13.6	1.5	13.6	16.7	-	-	43.9	3.0	7.6	100
Rulindo	22.5	5.6	6.1	5.1	-	-	50.0	0.5	10.2	100
Gakenke	6.1	6.1	-	40.0	-	-	38.8	-	9.1	100
Musanze	27.8	6.5	8.2	14.6	-	-	26.6	-	16.3	100
Burera	23.1	5.1	15.9	8.1	-	0.3	43.7	-	3.9	100
Gicumbi	37.0	2.4	1.4	3.4	-	-	41.8	-	13.9	100
Rwamagana	12.0	1.5	9.8	10.1	-	-	45.7	2.9	18.1	100
Nyagatare	12.2	2.1	7.1	14.3	-	-	31.1	5.9	27.3	100
Gatsibo	11.6	2.0	4.0	7.0	0.5	-	58.8	2.0	14.1	100
Kayonza	15.5	2.1	7.1	8.8	-	-	44.4	5.4	16.7	100
Kirehe	8.8	1.0	4.4	11.1	-	0.7	58.3	6.7	9.1	100
Ngoma	10.7	0.5	7.1	8.2	-	-	49.0	3.6	20.9	100
Bugesera	5.5	1.8	4.3	14.1	-	-	52.8	8.0	13.5	100
National	19.8	5.4	6.9	13.2	0.1	0.1	41.3	2.2	11.0	100

Source: NISR, SAS 2024

Table 29: 2024 Season A Percentage of farmers who practiced agricultural practices.

District	Farmers who protected land against erosion (%)			Farmers who used any mechanical equipment for agriculture activities %)			Farmers who practiced irrigation (%)			Farmers who practiced agroforestry (%)		
	Overall	SSF	LSF	Overall	SSF	LSF	Overall	SSF	LSF	Overall	SSF	LSF
Nyarugenge	68.6	68.6	-	-	-	-	7.1	7.1	-	34.7	34.7	-
Gasabo	89.4	88.8	100.0	0.6	0.3	5.9	11.8	10.0	47.1	39.0	38.1	58.8
Kicukiro	71.0	70.5	100.0	-	-	-	6.7	6.3	33.3	62.6	62.8	50.0
Nyanza	94.1	94.0	100.0	1.1	1.1	-	15.1	13.8	80.0	48.7	48.5	60.0
Gisagara	93.0	92.7	100.0	-	-	-	12.4	10.0	73.7	39.8	40.9	9.5
Nyaruguru	97.9	97.8	100.0	0.3	-	10.0	7.3	7.3	10.0	37.5	37.2	50.0
Huye	91.8	91.3	100.0	0.5	0.3	3.9	18.6	15.2	69.2	23.3	24.0	11.5
Nyamagabe	94.2	94.2	100.0	-	-	-	2.6	2.6	-	37.9	37.9	50.0
Ruhango	93.9	93.8	100.0	0.2	0.2	-	10.2	9.1	85.7	33.2	33.2	33.3
Muhanga	96.9	96.8	100.0	0.4	0.5	-	4.9	3.6	66.7	32.4	32.4	33.3
Kamonyi	94.0	93.9	100.0	0.2	0.2	-	10.3	9.2	58.3	56.2	56.6	33.3
Karongi	96.3	96.3	100.0	-	-	-	7.2	7.2	-	39.8	39.7	100.0
Rutsiro	95.3	95.3	-	-	-	-	1.2	1.2	-	46.0	46.0	-
Rubavu	94.7	94.7	100.0	0.3	0.3	-	0.8	0.8	-	32.5	32.1	75.0
Nyabihu	97.1	97.1	-	0.5	0.5	-	0.5	0.5	-	33.1	33.1	-
Ngororero	98.1	98.1	-	-	-	-	3.0	3.0	-	46.7	46.7	-
Rusizi	85.6	85.3	100.0	0.2	0.2	-	9.3	8.0	70.0	60.5	61.0	30.0
Nyamasheke	96.7	96.7	100.0	0.2	0.2	-	3.5	1.9	100.0	62.8	63.3	33.3
Rulindo	91.6	91.5	100.0	0.3	-	20.0	18.1	18.0	20.0	42.3	42.4	40.0
Gakenke	98.5	98.5	100.0	0.4	0.2	25.0	2.5	2.1	50.0	37.7	37.6	50.0
Musanze	87.4	87.3	100.0	0.6	0.2	66.7	1.2	1.2	-	39.4	38.9	100.0
Burera	96.0	96.0	-	-	-	-	2.5	2.5	-	41.7	41.7	-
Gicumbi	97.1	97.1	100.0	0.4	0.2	20.0	7.3	7.2	20.0	41.2	40.8	100.0
Rwamagana	92.8	92.6	96.9	0.6	0.4	3.1	6.3	3.9	40.6	61.0	61.1	59.4
Nyagatare	70.9	68.5	96.2	7.5	2.0	67.3	8.8	6.9	28.9	51.1	51.4	47.3
Gatsibo	92.5	92.3	96.7	3.2	2.1	26.7	5.3	4.4	23.3	50.8	50.6	54.8
Kayonza	81.0	80.2	96.3	2.3	0.4	37.0	11.2	8.0	70.4	38.3	38.6	33.3
Kirehe	80.2	79.9	100.0	2.2	1.8	33.3	4.3	3.4	77.8	57.4	57.7	33.3
Ngoma	89.6	89.2	100.0	0.8	-	25.0	8.6	7.2	55.0	60.0	60.1	57.1
Bugesera	82.0	83.1	64.4	1.5	1.3	4.4	14.3	12.5	40.0	55.8	55.1	68.1
National	90.6	90.5	94.3	1.0	0.5	19.5	7.5	6.4	48.0	45.6	45.6	46.8

Source : NISR, SAS 2024

Table 30: 2024 Season A Percentage of plots by types of irrigation used.

District	Modern irrigation					Traditional techniques
	Surface irrigation	Flood irrigation	Drip irrigation	Sprinkler irrigation	Pivot irrigation	
Nyarugenge	-	-	-	-	-	100.0
Gasabo	8.0	12.0	-	-	-	80.0
Kicukiro	33.3	33.3	-	-	-	33.3
Nyanza	26.8	31.7	-	-	-	41.5
Gisagara	27.6	34.5	-	-	-	37.9
Nyaruguru	-	-	-	-	-	100.0
Huye	4.8	59.5	-	-	-	35.7
Nyamagabe	25.0	-	-	-	-	75.0
Ruhango	-	42.9	-	-	-	57.1
Muhanga	15.4	23.1	-	-	-	61.5
Kamonyi	-	15.8	-	-	-	84.2
Karongi	44.4	-	-	-	-	55.6
Rutsiro						
Rubavu						
Nyabihu						
Ngororero	40.0	-	-	-	-	60.0
Rusizi	20.0	50.0	-	-	-	30.0
Nyamasheke	16.7	50.0	-	-	-	33.3
Rulindo	16.0	-	4.0	-	-	80.0
Gakenke	-	25.0	-	-	-	75.0
Musanze						
Burera	-	-	-	-	-	100.0
Gicumbi	-	-	-	-	-	100.0
Rwamagana	8.8	29.4	35.3	2.9	-	23.5
Nyagatare	3.0	36.4	-	-	21.2	39.4
Gatsibo	75.0	25.0	-	-	-	-
Kayonza	11.1	30.6	5.6	-	16.7	36.1
Kirehe	6.7	66.7	-	3.3	13.3	10.0
Ngoma	12.0	32.0	4.0	36.0	-	16.0
Bugesera	10.6	38.3	-	21.3	4.3	25.5
National	14.1	31.8	3.2	4.2	3.8	43.1

Source: NISR, SAS 2024

Table 31: 2024 Season A Percentage of plots by source of water used and district.

District	Source of water used				
	Rainwater	Water treatment	Underground	Lake / streams	Water catchment
Nyarugenge	-	25.0	25.0	50.0	-
Gasabo	-	3.9	26.9	61.5	7.7
Kicukiro	-	-	-	33.3	66.7
Nyanza	-	-	24.4	65.9	9.8
Gisagara	-	2.6	46.2	46.2	5.1
Nyaruguru	-	33.3	33.3	33.3	-
Huye	-	6.5	30.4	56.5	6.5
Nyamagabe	-	-	-	100.0	-
Ruhango	-	-	50.0	44.4	5.6
Muhanga	-	-	14.3	78.6	7.1
Kamonyi	5.3	-	21.1	73.7	-
Karongi	11.1	33.3	-	55.6	-
Rutsiro					
Rubavu					
Nyabihu					
Ngororero	20.0	-	40.0	40.0	-
Rusizi	-	-	10.0	90.0	-
Nyamasheke	5.3	5.3	47.4	42.1	-
Rulindo	-	3.9	46.2	38.5	11.5
Gakenke	11.1	-	11.1	77.8	-
Musanze					
Ngororero	-	-	66.7	33.3	-
Gicumbi	-	9.1	9.1	81.8	-
Rwamagana	8.8	-	11.8	58.8	20.6
Nyagatare	5.9	-	26.5	29.4	38.2
Gatsibo	-	6.3	43.8	18.8	31.3
Kayonza	-	2.6	7.7	51.3	38.5
Kirehe	-	-	64.7	26.5	8.8
Ngoma	3.2	-	29.0	54.8	12.9
Bugesera	-	2.0	26.0	64.0	8.0
National	2.0	3.1	29.5	52.9	12.6

Source: NISR, SAS 2024

Table 32: 2024 Season A Percentage of plots by type of anti-erosion activities and district

District	Type of anti-erosion activities									
	Ditches	Trees/Windbreak/ shelterbelt	Bench terraces	Progressive terraces	Cover plants	Water drainage	Mulching	Beds/ridges	Water channels	Others
Nyarugenge	13.4	16.4	-	-	59.7	-	4.0	0.6	5.8	-
Gasabo	12.3	3.6	1.4	5.8	66.7	2.4	1.8	2.8	3.3	-
Kicukiro	3.2	24.1	5.9	2.7	36.9	0.1	8.4	18.0	0.4	0.4
Nyanza	7.8	5.2	3.2	5.5	49.3	2.8	0.8	10.1	15.3	-
Gisagara	16.8	11.6	0.7	2.4	41.3	0.3	2.3	3.0	21.5	-
Nyaruguru	7.4	14.3	3.6	4.9	53.8	0.0	0.7	0.8	14.7	-
Huye	8.4	0.8	0.4	23.4	44.3	3.8	1.6	0.6	16.7	-
Nyamagabe	4.1	5.1	11.5	9.4	50.2	0.4	0.5	0.6	18.2	-
Ruhango	4.2	8.4	-	1.0	67.7	0.0	0.2	6.7	11.7	0.1
Muhanga	3.6	7.1	1.5	14.1	62.4	0.0	1.7	2.5	7.2	-
Kamonyi	8.4	7.9	0.2	2.1	68.5	0.0	1.5	5.5	5.6	0.2
Karongi	5.1	3.7	4.5	3.2	78.7	0.2	1.9	-	2.8	-
Rutsiro	2.9	4.7	8.9	4.5	74.3	0.2	0.8	-	3.7	-
Rubavu	0.3	16.4	20.2	0.0	21.9	-	0.6	39.8	0.8	-
Nyabihu	4.0	1.1	11.2	4.2	67.5	-	0.3	11.2	0.5	-
Ngororero	6.5	9.4	3.6	4.1	66.9	-	1.3	0.6	7.6	0.1
Rusizi	3.8	8.1	0.7	4.8	64.7	3.2	5.3	2.3	7.3	-
Nyamasheke	6.0	5.7	7.5	3.3	60.8	0.4	8.5	3.0	4.6	0.3
Rulindo	2.3	1.8	9.4	13.2	63.5	0.1	0.2	1.7	7.9	-
Gakenke	0.6	4.0	4.0	10.0	75.7	-	2.4	0.4	3.0	-
Musanze	4.7	8.2	2.8	1.4	44.4	-	0.5	37.4	0.5	-
Burera	1.8	7.0	6.4	12.9	55.7	-	0.2	14.9	1.0	-
Gicumbi	0.7	4.4	10.4	23.8	57.0	-	0.4	0.6	2.7	-
Rwamagana	18.9	4.7	9.1	4.9	54.6	2.1	0.5	0.3	4.9	-
Nyagatare	9.5	1.8	-	6.2	63.7	1.6	7.6	2.6	7.1	-
Gatsibo	1.0	4.7	1.5	18.3	63.8	0.2	1.2	3.0	6.4	0.1
Kayonza	4.6	0.4	8.4	0.6	60.0	0.2	2.0	9.1	14.7	-
Kirehe	8.9	2.2	1.8	0.9	80.7	0.0	5.3	-	0.1	-
Ngoma	3.0	16.5	2.9	6.8	66.4	0.1	1.9	0.6	1.7	-
Bugesera	10.2	14.1	2.4	10.4	49.0	0.1	2.1	10.4	1.2	-
National	5.2	6.5	5.2	8.2	60.3	0.5	1.7	5.1	7.4	0.03

Source: NISR, SAS 2024

Table 33: 2024 Season A_Percentage of plots by degree of erosion per district

District	Degree of erosion			
	Severe (Rill erosion, Gully erosion, Mass movement/Landslides)	Moderate (Diffuse overland flow erosion, overland flow erosion)	Low (Wind erosion)	Very Low (Splash erosion)
Nyarugenge	0.0	13.0	22.0	65.0
Gasabo	0.0	0.3	32.4	67.3
Kicukiro	0.2	18.7	35.1	46.0
Nyanza	0.9	15.9	70.2	13.0
Gisagara	1.3	5.1	28.5	65.1
Nyaruguru	2.3	9.2	58.4	30.2
Huye	0.0	1.2	16.5	82.3
Nyamagabe	1.7	18.6	56.9	22.8
Ruhango	1.6	18.3	44.9	35.3
Muhanga	0.9	11.1	42.6	45.4
Kamonyi	1.2	4.8	28.2	65.9
Karongi	8.5	27.5	11.2	52.9
Rutsiro	2.5	31.9	29.8	35.9
Rubavu	0.1	6.6	22.5	70.9
Nyabihu	0.5	17.8	26.5	55.2
Ngororero	7.2	22.7	37.8	32.3
Rusizi	1.6	22.2	20.6	55.6
Nyamasheke	3.5	19.9	18.4	58.2
Rulindo	5.1	27.2	22.5	45.2
Gakenke	2.1	20.8	49.3	27.8
Musanze	0.1	4.0	50.9	45.1
Burera	1.5	10.3	41.0	47.2
Gicumbi	0.4	8.3	48.4	42.9
Rwamagana	0.9	0.0	49.0	50.1
Nyagatare	0.8	19.9	36.1	43.3
Gatsibo	0.0	7.7	12.1	80.3
Kayonza	0.0	3.8	43.0	53.2
Kirehe	0.2	8.2	16.9	74.8
Ngoma	0.1	3.4	2.8	93.7
Bugesera	0.0	3.5	45.0	51.5
National	1.9	13.3	34.9	49.9

Source: NISR, SAS 2024

ANNEX

Annex 1: Concepts, definitions, and estimation methods

1. Total land area

Total land area at district level is the district area excluding area under inland water bodies. The definition of inland water bodies generally includes major rivers and lakes.

2. Agricultural area

The agricultural area includes arable land, land under permanent[3] crops and permanent pasture.

3. Arable land

Arable land includes land defined by the FAO as land under temporary crops (double-cropped areas are counted only once), temporary meadows for mowing or pasture, land under market and kitchen gardens and land temporarily fallow (less than five years). The abandoned land resulting from shifting cultivation is not included in this category. Data for arable land are not meant to indicate the amount of land that is potentially cultivable.

4. Permanent crop land

Permanent crops are sown or planted once and occupy the land for some years and do not need to be replanted after each annual harvest, such as cocoa, coffee and rubber. This category includes flowering shrubs, fruit trees, nut trees and vines, but excludes trees grown for wood or timber. The following crops are considered as permanent crops in SAS: Cooking banana, Dessert banana, Banana for beer, Avocado, Coffee, Sugar cane, Macadamia, Olive, Mango, Apple, Papaya, Orange, Lemon, Guava, Mulberry, Stevia, Jatropha, Palm, and Tea.

5. Permanent pasture land

Land used permanently (five years or more) for herbaceous forage crops, either cultivated or growing wild (wild prairie or grazing land).

6. Irrigated agricultural land

Area equipped for irrigation, which is actually irrigated, (sometimes expressed as a percentage of the total land area). Part of the area equipped for irrigation refers to area equipped to provide water to crops and includes areas equipped for full/partial control irrigation, equipped lowland areas, and areas equipped for spate irrigation. Part of the area equipped for irrigation which is irrigated refers to physical areas. Irrigated land that is cultivated more than once a year is counted only once.

[3] For some plots, permanent crops are mixed with temporary crops which mean that same area is counted in both arable land area and area under permanent crop.

7. Physical area

Physical area refers to the total area of the plot as physically measured. The physical agricultural area in a district is estimated by aggregating all weighted individual agricultural plots area for that district.

8. Crop area (cultivated area)

Crop area refers to the area occupied by a given crop in a plot considering its density or occupation. In context of Rwanda as well as many African countries, mixed cropping system is a general practice in agriculture. This practice makes it complex to estimate area under crop cultivation. In case of pure stands (for crop completely covering a plot), crop area is equal or less to physical plot area (if a crop is partially covering the plot, the share is estimated then applied to the plot area). In case of mixed crops, the share of each crop in the plot is estimated by enumerator by eye estimation method and applied to the physical area of the plot to obtain area for each specific crop planted in plot. In this context, the crop share is eye estimation of crop density or occupation in a plot (in %) basing on spacing between plants. Cultivated area at district level is equal to the total weighted crop areas within plots in the whole district.

Examples

- In case of pure stands, crop area will be equal to the physical area if the crop entirely covers the whole plot. Otherwise, the crop area will be less than physical area. For example, a plot of 1 hectare in which maize was grown and completely occupies the whole plot (100 % occupied), it means that cultivated area for maize is 1 hectare. On the other side let us assume that the maize crop occupies 80 % of the total plot area. In that case the area of maize equals 0.8 hectares (1hectare times 0.8).

- In case of mixed cropping system, specifically seasonal crops the crop area is less than physical area. For example, a plot of 1 hectare grown with maize and beans which occupies 60 % and 40 % of total plot area respectively. The maize area will be 0.6 hectare (1hectare times 0.6), and beans area will be 0.4(1hectare times 0.4). It is important to note that sum of shares of seasonal crops do not exceed one hundred percent.

- When seasonal and perennial crops are mixed in same plot, since perennial crops are permanent crops in nature, their shares are treated separately from seasonal crops. The sum of seasonal crops share does not exceed 100 %, while for perennial crops shares are given based on density (spacing between trees) and it may exceed 100 percent. For example, a plot of 1 hectare grown with maize, bean, and cassava with 60 %, 40 % and 50% shares respectively. Maize area will be 0.6 hectare (1hectare times 0.6), beans area will be 0.4(1hectare times 0.4), while cassava area will be 0.5 hectare (1hectare times 0.5).

9. Developed area

Developed area is the land covered by crops. Due to mixed cropping (over exploitation of agriculture land or under exploitation in case pure cropping), developed area can be less or greater than the physical area. Basing on the example provided above of the plot in which maize, beans and cassava have been mixed, maize has 0.6, beans have 0.4 while cassava has 0.5 ha. The developed area equals the sum of the crops area equivalent to 1.5 ha.

10. Harvested area

Area harvested is defined as the total number of hectares for all crops that is harvested in a given agriculture season. In case of crops considered as seasonal, the harvested area is assumed to be equal to the cultivated area. For perennial crops a farmer can decide to harvest a portion of land and stores the remaining production in the farm or harvest the whole plot for commercial or other purposes. In this case, the proportion of harvested area is estimated and applied to the plot area to obtain actual harvested area. For example, cassava which occupies 0.5 hectare has 5,000 trees of cassava. In agriculture Season B, if the farmer only harvested 1,250 trees. In this case, the farmer harvested only a quarter (0.125hectares) of the cultivated area.

11. Crop yield

Crop yield is defined as total reported quantity of harvested crop over the harvested area of that crop.

12. Crop production

Crop production is the product of crop yield and crop area (harvested). At district level, crop production is estimated by taking crop yield of crop produce times total harvested area in the district.

Annex 2: SAMPLING ERRORS

Table 34: Sampling Errors for major crops at the national level Season A 2024 data

Crop name	Estimate	SE	CV	95% Confidence Interval		DEFF	No. observations (plots)
				Lower	Upper		
Maize	249,435	6,234	0.025	237,203	261,667	0.166	9,128
Sorghum	34,720	3,305	0.095	28,236	41,204	0.806	651
Bean	329,001	7,044	0.021	315,180	342,823	1.448	9,200
Paddy rice	17,173	73	0.004	17,029	17,316	0.000	2,180
Irish potato	54,048	3,201	0.059	47,768	60,329	1.397	1,564
Sweet potato	95,683	2,894	0.030	90,006	101,361	1.969	2,630
Soybean	31,515	1,539	0.049	28,496	34,534	0.237	1,353
Vegetables	19,142	1,380	0.072	16,434	21,849	0.402	781
Cooking banana	102,458	4,124	0.040	94,366	110,550	1.348	3,424
Dessert banana	44,094	1,871	0.042	40,423	47,765	1.541	3,199
Banana for beer	126,671	4,427	0.035	117,984	135,358	1.412	3,700
Cassava	251,019	6,223	0.025	238,808	263,230	1.156	5,119
Pea	10,245	938	0.092	8,405	12,086	1.228	528
Groundnut	9,563	816	0.085	7,962	11,164	1.246	399
Fruits	10,332	2,684	0.260	5,067	15,598	0.656	487

Annex 3: NISR STAFF WHO CONTRIBUTED TO SEASONAL AGRICULTURE SURVEY 2024 SEASON A

National Coordinators

- MURANGWA Yusuf, Director General
- MURENZI Ivan, Deputy Director General

Technical coordination

- MWIZERWA Jean Claude, Director of Economic Statistics Department
- BIGIRIMANA Florent, Census Program Manager
- ABAYISENGA Aimable, SAS Specialist
- NIYITEGEKA Beata, GIS Team Leader

Field work coordination

- KAMANZI SHINGIRO Jean Philbert, SAS Specialist
- MUKAMAZIMPAKA Francine, Perennial crops and horticulture statistician
- USABYIMANA Monique, Forestry and Environmental Statistician

Data analysis

- ABAYISENGA Aimable, SAS Specialist
- RWAYITARE Jean Bosco, SAS Specialist
- MUREBWAYIRE Divine, SAS Specialist

GIS

- NIYITEGEKA Beata, GIS Team Leader
- BIZIMUNGU Clément, Field operations Cartographer Officer
- KARERA Albert, Geometrician in charge of map design & production
- IRAMBONA Eddy Marcus, GIS Specialist
- MUNDERERE Theophile, GIS Specialist
- NDAZIGARUYE Alfred, GIS Support Staff
- NGABO MUHIRE Olympe, GIS Support Staff

Data processing

- SEBAHIRE Jean Népomuscène, Food Security & Agriculture Surveys Data Processing Officer
- NIYIGENA Eric, Application Admin and Data Processing Officer
- USABYIMANA Monique, Forestry and Environmental Statistician

Report writing and editing

- RWAYITARE Jean Bosco, SAS Specialist
- KAMANZI SHINGIRO Jean Philbert, SAS Specialist

Annex 4: NISR FIELD STAFF WHO PARTICIPATED IN DATA COLLECTION DURING 2024 SEASON A

S/N	Names	Position	Districts
1	MUKAMURENZI JOSIANE	Team leader	Bugesera
2	BIGIRIMANA CLAUDE	Enumerator	Bugesera
3	BIKORIMANA DIEUDONNE	Enumerator	Bugesera
4	HABARUGIRA ALEXIS	Enumerator	Bugesera
5	MUGAMBIRA THEOGENE	Enumerator	Bugesera
6	NTANKOVU JANVIERE	Enumerator	Bugesera
7	NYAMPINGA YANKURIJE JEANNINE	Enumerator	Bugesera
8	UMUBYEYI Clemantine	Enumerator	Bugesera
9	NSHIMIYIMANA CHRISTOPHILE	Team leader	Burera
10	BENIMANA Theophile	Enumerator	Burera
11	HAKIZIMANA Corneille	Enumerator	Burera
12	SINGIRANKABO JOSEPH	Enumerator	Burera
13	UMUHIRE ERNESTINE 2	Enumerator	Burera
14	UWIMPUHWE Assumpta	Enumerator	Burera
15	NZAMURAMBAHO LAMBERT	Team leader	Gakenke
16	IMANIRAHO JEAN PAUL	Enumerator	Gakenke
17	MAKUZA Prosper	Enumerator	Gakenke
18	MBYARIYEHE MANZI VALERY	Enumerator	Gakenke
19	NDORIMANA Theodomir	Enumerator	Gakenke
20	NYANGEZI JANVIER	Enumerator	Gakenke
21	NZARAMYIMANA Jean Marie Vianney	Enumerator	Gakenke
22	HABIMANA JEAN PAUL	Team leader	Gasabo
23	BIKORIMANA DIOGENE	Enumerator	Gasabo
24	HAGENIMANA CYPRIEN	Enumerator	Gasabo
25	KURADUSENGE ANNE FRANCINE	Enumerator	Gasabo
26	HABIMANA DJUMAINE	Team leader	Gatsibo
27	KANAMUGIRE Eustache	Enumerator	Gatsibo
28	KANYAMAHANGA VENANT	Enumerator	Gatsibo
29	MUKAMWUMVANEZA ANGELIQUE	Enumerator	Gatsibo
30	MUKARUYENZI PHOIBE	Enumerator	Gatsibo
31	MUSABYIMANA Judith	Enumerator	Gatsibo
32	NIYITEGEKA ALLY	Enumerator	Gatsibo
33	NIYOYITA JEAN DAMASCENE	Enumerator	Gatsibo
34	NIYONSABA GEMMIMA	Team leader	Gicumbi
35	BAGANYIRUMUREMYI VEDASTE	Enumerator	Gicumbi
36	MFURAKAZI Gylaine	Enumerator	Gicumbi
37	SEMATURO BONAVENTURE	Enumerator	Gicumbi
38	SIBONIYO JEAN CLAUDE	Enumerator	Gicumbi
39	UMUBYEYI CLARISSE	Enumerator	Gicumbi
40	RUGAMBA AUGUSTIN	Team leader	Gisagara
41	HITAYEZU JEAN DE DIEU	Enumerator	Gisagara
42	KAREMERA Jean de Dieu	Enumerator	Gisagara
43	NIYOGAKIZA Steven Rodriguez	Enumerator	Gisagara
44	TWAHIRWA Vital	Enumerator	Gisagara

S/N	Names	Position	Districts
45	UWAMBAJEMARIYA VICTOIRE	Enumerator	Gisagara
46	UWAMBAJIMANA Beata	Enumerator	Gisagara
47	MINANI ALBERT	Team leader	Huye
48	BICAMUMPAKA ILDEPHONSE	Enumerator	Huye
49	DUSABIMANA FORTUNEE	Enumerator	Huye
50	HITIMANA JACQUES	Enumerator	Huye
51	NEZA Irene	Enumerator	Huye
52	NSENGIYUMVA EMMANUEL	Enumerator	Huye
53	MUSABENDE ERNESTINE	Team leader	Kamonyi
54	MUHAWENIMANA OLIVE	Enumerator	Kamonyi
55	MUKAMAZIMPAKA Odette	Enumerator	Kamonyi
56	NKURUNZIZA JOSEPH	Enumerator	Kamonyi
57	NTAWUSIGIRYAYO ERIC	Enumerator	Kamonyi
58	NYIRANSABIMANA Alexiane	Enumerator	Kamonyi
59	NSENGIYUMVA SAMUEL	Team leader	Karongi
60	HABARUREMA Theogene	Enumerator	Karongi
61	HABIMANA Barnabe	Enumerator	Karongi
62	HARELIMANA JEAN DAMASCENE	Enumerator	Karongi
63	MUGENZI JONAS	Enumerator	Karongi
64	RUGIRA NKUBIRI Norbert	Enumerator	Karongi
65	SHYIRAMBERE Janvier	Enumerator	Karongi
66	KWITEGEREZA JEAN BAPTISTE	Team leader	Kayonza
67	CYUBAHIRO DANIEL	Enumerator	Kayonza
68	HABUMUGISHA JEAN PIERRE	Enumerator	Kayonza
69	MANIRAGABA JEAN MARIE VIANNEY	Enumerator	Kayonza
70	MUGANWA ROGER NORBERT	Enumerator	Kayonza
71	TURIMUMAHORO JEAN BOSCO	Enumerator	Kayonza
72	NSHIMIYIMANA BERNARD	Team leader	Kicukiro
73	KABAGWIRA ANGELIQUE	Enumerator	Kicukiro
74	NTAMUHANGA Christophe	Enumerator	Kicukiro
75	NYIRABAHIZI Rehema	Enumerator	Kicukiro
76	NDARUSHINZE PHILIPPE	Team leader	Kirehe
77	MANIBAHO OLIVIER DIALLO	Enumerator	Kirehe
78	MUKAMUTESI CLEMENTINE	Enumerator	Kirehe
79	MUKAYIRERE Claudette	Enumerator	Kirehe
80	NDAYISABA ALEXIS	Enumerator	Kirehe
81	NIYONSABA PROTOGENE SYLVESTRE	Enumerator	Kirehe
82	NYIRIGIRA Claude Said	Enumerator	Kirehe
83	TUGIRIMANA Emile	Enumerator	Kirehe
84	NDAGIRIYEMUNGU JEAN PIERRE	Team leader	Muhanga
85	AKUZWE EUSTACHE	Enumerator	Muhanga
86	MANIRAKIZA CHARLES	Enumerator	Muhanga
87	MUKANYIRIGIRA Christine	Enumerator	Muhanga
88	NGEZAHIMANA BOSCO	Enumerator	Muhanga
89	TINDIBASA DIDACIENNE	Enumerator	Muhanga
90	UMUHOZA MARIE CLAIRE	Team leader	Musanze

S/N	Names	Position	Districts
91	BAMURANGE JEANNE	Enumerator	Musanze
92	ISHIMWE DENYSE	Enumerator	Musanze
93	MUSHIMIYIMANA Immaculee	Enumerator	Musanze
94	NIYONSENGA JEAN DAMASCENE	Enumerator	Musanze
95	NTAWUHIGANAYO EMMANUEL	Enumerator	Musanze
96	MUHAYIMANA CLARISSE	Team leader	Ngoma
97	BIMENYIMANA THEOPHILE	Enumerator	Ngoma
98	MANIRAHO NHOUR	Enumerator	Ngoma
99	NYIRASONGA ALEXIE	Enumerator	Ngoma
100	SINGAYE Rukia	Enumerator	Ngoma
101	UWERA Clarisse	Enumerator	Ngoma
102	NAHIMANA JONATHAN	Team leader	Ngororero
103	HABIMANA Sylvestre	Enumerator	Ngororero
104	HAKIZIMANA Francois Regis	Enumerator	Ngororero
105	NIKUZE Patrick	Enumerator	Ngororero
106	NKUNDABERA Jean	Enumerator	Ngororero
107	NKURUNZIZA JEAN PIERRE	Enumerator	Ngororero
108	NYABYENDA J. DAMASCENE	Enumerator	Ngororero
109	NKERAMUGABA JEAN	Team leader	Nyabihu
110	AKINGENEYE ANITHA	Enumerator	Nyabihu
111	MUTESI CLAUDETTE	Enumerator	Nyabihu
112	NTIHEMUKA NAPHTAL	Enumerator	Nyabihu
113	NIYIGENA MELCHIOR	Team leader	Nyagatare
114	HABIHIRWE THÉOGÈNE	Enumerator	Nyagatare
115	MICOMYIZA INNOCENT	Enumerator	Nyagatare
116	MUGABO Patrick	Enumerator	Nyagatare
117	MUKANSANGA Marie Claudine	Enumerator	Nyagatare
118	NDAYAMBAJE Jmv	Enumerator	Nyagatare
119	NIYONSABA INNOCENT	Enumerator	Nyagatare
120	NSENGIYUMVA DONATIEN	Enumerator	Nyagatare
121	USABYE FRANCINE	Enumerator	Nyagatare
122	HABIYAREMYE SOULAYMANI	Team leader	Nyamagabe
123	HABYARIMANA JEAN PIERRE	Enumerator	Nyamagabe
124	MISAGO Ibrahim	Enumerator	Nyamagabe
125	MUSABYIMANA ANNE MARIE	Enumerator	Nyamagabe
126	NGENDAHIMANA J M V	Enumerator	Nyamagabe
127	UMUBYEYI M. GRACE	Enumerator	Nyamagabe
128	NISINGIZWE ROMAIN	Team leader	Nyamasheke
129	AHORUKOMEYE RICHARD	Enumerator	Nyamasheke
130	HABANABAKIZE Emile	Enumerator	Nyamasheke
131	MPAYIMANA JEAN CLAUDE	Enumerator	Nyamasheke
132	MUNYANKINDI Alphonse	Enumerator	Nyamasheke
133	NSHIZIRUNGU ALIPE	Enumerator	Nyamasheke
134	MUKESHIMANA EPIPHANIE	Team leader	Nyanza
135	BIZIMANA Jean de Dieu	Enumerator	Nyanza
136	MUNYENTWARI DIEUDONNE	Enumerator	Nyanza

S/N	Names	Position	Districts
137	NIYIDUHA OLIVE	Enumerator	Nyanza
138	NSHIMIYIMANA AUGUSTIN	Enumerator	Nyanza
139	NYIRABAGENZI Jeanne D'Arc	Enumerator	Nyanza
140	INEZA Marie Aime	Enumerator	Nyarugenge
141	MUHIRE Innocent	Enumerator	Nyarugenge
142	UWAMARIYA ANNE	Enumerator	Nyarugenge
143	NGWIJE OLIVIER	Team leader	Nyaruguru
144	HAKIZIMANA Valens	Enumerator	Nyaruguru
145	MBERINGANJI Arthur	Enumerator	Nyaruguru
146	NGENDAHIMANA Joseph	Enumerator	Nyaruguru
147	NIYOMUGABO Vincent	Enumerator	Nyaruguru
148	NYABYENDA JUVENS	Enumerator	Nyaruguru
149	NDIZEYE PIE	Team leader	Rubavu
150	MUKABATSINDA Monique	Enumerator	Rubavu
151	MUKESHIMANA LILIANE	Enumerator	Rubavu
152	NSABIMANA PATRICK	Enumerator	Rubavu
153	UWAJENEZA DELPHINE	Team leader	Ruhango
154	BIMENYIMANA JEAN BAPTISTE	Enumerator	Ruhango
155	HITABATUMA JMV	Enumerator	Ruhango
156	ISHIMWE Christelle	Enumerator	Ruhango
157	KAYITESI Christine	Enumerator	Ruhango
158	MUKADISI GODELIVE	Enumerator	Ruhango
159	MUHIRWA VÉDASTE	Team leader	Rulindo
160	GASHIRABAKE PROVIEN	Enumerator	Rulindo
161	HAVUMIRAGIRA PASCAL	Enumerator	Rulindo
162	MUKASHIMWE Pauline	Enumerator	Rulindo
163	NYIRABARATA Yvette	Enumerator	Rulindo
164	NYIRANSABIMANA PELAGIE	Enumerator	Rulindo
165	RWAMIGABO J. PIERRE	Enumerator	Rulindo
166	HABIHIRWE CELESTIN	Team leader	Rusizi
167	HARERIMANA Eugene	Enumerator	Rusizi
168	KWITONDA JEAN PAUL	Enumerator	Rusizi
169	NDIKUMANA Merci Dieu	Enumerator	Rusizi
170	NTAKIRUTIMANA EDOUARD	Enumerator	Rusizi
171	NZEYIMANA JEROME	Enumerator	Rusizi
172	HATEGEKIMANA SIXBERT	Team leader	Rutsiro
173	MANIRAGABA Anatole	Enumerator	Rutsiro
174	MWISENEZA OLIVIER	Enumerator	Rutsiro
175	NDIZIHIWE THEODOMIR	Enumerator	Rutsiro
176	NIYOMUGABA REGIS	Enumerator	Rutsiro
177	NSENGIMANA Philbert	Enumerator	Rutsiro
178	TUYISINGIZE LAURENT	Enumerator	Rutsiro
179	TUMUSENGE ERIC	Team leader	Rwamagana
180	ABIMANA JOYEUSE	Enumerator	Rwamagana
181	NDIRAMIYE EMMANUEL	Enumerator	Rwamagana
182	NSABIMANA FULGENCE	Enumerator	Rwamagana

S/N	Names	Position	Districts
183	NYIRAMANA JEANNINE	Enumerator	Rwamagana
184	UMUTONI Julienne	Enumerator	Rwamagana

Annex 5: List of Supervisors during 2024 season A Data collection

S/N	Names	Position
		SCREENING PHASE
1	MWIZERWA Jean Claude	Director of Economic Statistics Department
2	BIGIRIMANA Florent	Census Program Manager
3	ABAYISENGA Aimable	SAS Specialist
4	NIYITEGEKA Béatha	GIS Team Leader
5	SEBAHIRE Jean Népo	Food Security & Agriculture Surveys Data Processing Officer
6	IRAMBONA Eddy Mercus	GIS Specialist
7	RWAYITARE Jean Bosco	SAS Specialist
8	NIYIGENA Eric	Application Admin and Data Processing Officer
9	KAMANZI SHINGIRO Jean Philbert	SAS Specialist
10	MUKAMAZIMPAKA Francine	Perennial crops and horticulture statistician
11	MUTEBUTSI Alexis	SAS Specialist
12	MUREBWAYIRE Divine	SAS Specialist
13	KARERA Albert	Geometrician in charge of map design & production
14	NDAZIGARUYE Alfred	GIS Support Staff
15	MUNDERERE Theophile	GIS Specialist
16	USABYIMANA Monique	Forestry and Environmental Statistician
17	MUHIRE NGABO Olympe	GIS Support Staff
18	NIYOMUGABO Cassien	Investment and Government Financial Statistician
19	BIZIMUNGU Clément	Field operations Cartographer Officer
20	RWAGASANA Richard	Real Estate and Construction Statistician
21	KAMPOGO Julienne	Manufacturing Statistician
22	MUTAGURIRWA Jean de la Croix	Formal Sector Annual National Accounts Statistician
23	UYISABYE Valentine	Informal sector quarterly national accounts statistician
24	TWAGIRAYEZU Donath	Formal Sector Quarterly National Accounts Statistician
25	NTWAYINGABO Espoir	Statistical Methods & Sampling of Business Surveys Statistician
		HARVESTING PHASE
1	ABAYISENGA Aimable	SAS Specialist
2	RWAYITARE Jean Bosco	SAS Specialist
3	MUKAMAZIMPAKA Francine	Perennial crops and horticulture statistician
4	MUTEBUTSI Alexis	SAS Specialist
5	KAMANZI SHINGIRO Jean Philbert	SAS Specialist
6	MUREBWAYIRE Divine	SAS Specialist
7	SIBOMANA Oscar	Infrastructure and Industry Statistics Team Leader
8	BIZIMUNGU Clément	Field operations Cartographer Officer
9	MUHIRE NGABO Olympe	GIS Support Staff
10	NDAZIGARUYE Alfred	GIS Support Staff
11	SEBAHIRE Jean Népomuscène	Food Security & Agriculture Surveys Data Processing Officer