LIVESTOCK DEVELOPMENT STRATEGY

2024-2029

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Table of Contents

List of Tables

List of Figures

List of Acronyms and Abbreviations

ADECOR : Rwanda Consumer's Rights Protection Organization

AI : Artificial Insemination

AOAC : Association of Official Analytical Chemists

ARDP : Agricultural and Rural Development Policy (EAC)

ASF : Animal Source Food

AU : African Union

BAU : Business As Usual

CAADP : Comprehensive African Agricultural Development Program

CEPAR : Coffee Exporters and Processors Association of Rwanda

CFC : Crossbreed Family Chicken

CSP : Commercial Specialized Piglet fattening

DOC : Day-Old Chicks

EAC : East African Community

ENABEL : Belgian Development Agency

EU : European Union

FAO : Food and Agriculture Organization

GDP : Gross Domestic Product

HLIs : High Learning Institutions

ICT : Information and Communication Technology

IFAD : International Fund for Agricultural Development

IFD : Improved Family Dairy

IFP : Improved Family Mixed Pig

ITFC : Improved Traditional Family Chicken

JICA : Japan International Cooperation Agency

KG : Kilogram

KOICA : Korea International Cooperation Agency

LDS : Livestock Development Strategy

LiDeSA : Livestock Development Strategy for Africa

LMP : Livestock Master Plan

LSWG : Livestock sub-sector Working Group

MINICOM : Ministry of Trade and Industry

MININFRA : Ministry of Infrastructure

MLI : Medium Level of Investments

MINAGRI : Ministry of Agriculture and Animal Resources

MT : Metric Tons

MTR : Mid-Term Review

NAEB : National Agricultural Export Development Board

NAP : National Agriculture Policy

NGOs : Non-governmental Organizations

NISR : National Institute of Statistics of Rwanda

NST1 : National Strategy for Transformation

PEAL : Poultry East Africa Limited

PESTEL : Political, Economic, Social, Technological, environmental, legal analysis

PPP : Public-Private Partnership

PSF : Private Sector Federation

PSTA 4 : Four Strategic Plan for Agricultural Transformation

RAB : Rwanda Agricultural and Animal Resources Development Board

RBS : Rwanda Bureau of Standard

RCA : Rwanda Cooperative Agency

RCVD : Rwanda Council of Veterinary Doctors

REMA : Rwanda Environment Management Authority

R-FDA : Rwanda Food and Drugs Authority

RGFBO : Rwanda Goats Farmers and Breeders Organization

RICA : Rwanda Inspectorate, Competition and Consumer Authority

RLI : Recommended Level of Investments

RNDP : Rwanda National Dairy Platform

RPHC5 : Rwanda Population and Housing census 5

RPIA : Rwanda Poultry Industry Association

RRFA : Rwanda Rabbit Farmers Association

RSFBO : Rwanda Sheep Farmers and Breeders Organization

RWF : Rwandan Francs

SDGs : Sustainable Development Goals

SIDESS : Sustainable Intensification Decision Support System

SIP : Strategy and Investment Plan

SWOT : Strengths, Weakness, Opportunities, and Threats

USAID : United State of America International Development

US$: United State Dollar

VAF : Vision Agribusiness Farm

VC : Value Chain

WOAH : World Organization for Animal Health

YGP : (Seven) Year Government Program

Glossary

Definitions are provided for the purpose of this Livestock Development Strategy only. They are mentioned to minimize misinterpretation and enhance clarity in the meaning of different terms used in the document.

Agriculture: is the art and science of cultivating the soil, growing crops, and raising livestock to provide food, wood, and other products.

Animals: means any vertebrate or invertebrate other than a human being

Agro-industrial wastes: are by-products of the primary processing of crops, including brans, milling offal, brewers, molasses, etc. which can be processed or used as animal feed supplements.

Artificial Insemination: is the technique of collecting semen from male animals, processing it and inserting it via a pipette (using AI gun) into the female reproductive tract.

Biosecurity: refers to measures aimed at preventing the introduction and/or spread of harmful organisms (e.g., viruses, bacteria, parasites, chemicals, etc) to livestock, human beings, and plants.

Biotechnology: is the use of biological systems to produce a product, the use of biology to develop new products, methods and organisms intended to improve human health and society or the use of techniques of biotechnology to indirectly provide a product, process, or service.

Beef cattle production: refers to the process of raising bulls, cows, steers, heifers and calves of bovine species for the purpose of producing meat.

Crop residues: are materials left on cultivated land (e.g., straw, stem, leaves, husk, pulp, stubble, etc.) after the crop has been harvested that have a feeding value to livestock.

Crossbreeding: The act or process of producing offspring by mating purebred individuals of different breeds. It is the process or act of producing offspring

particularly through mating two purebred individuals from different breeds, varieties, or even species.

Dairy value chain: This encompasses the various stages of value chains like production, transportation, processing, packaging, storage and marketing. Means stages of value addition from the milk production to consumption. , processing or manufacturing of milk into milk products.

Embryo transfer: is the technique of removing an embryo from one female (donor) and inserting it into the reproductive tract of another female (recipient/foster).

Exotic breeds: It means ‘‘foreign/ imported improved breed’’ livestock species that originate from foreign countries being introduced in the country.

Extension service: is the transfer of technology from experts (from public and private institutions) to livestock farmers. This can be done also by skilled farmers.

Genetic materials: Any material (gene, semen, embryos, fragment, molecule, etc.) of plant, animal, microbial or other origin that carries genetic information and that passes it from one generation to the next.

Gene bank: a physical repository, in one or more locations, where the samples of animal or plant genetic resources are preserved or conserved. These may include animals, plants, embryos, oocytes, sperms, ova and DNA material.

Inbreeding: refers to the mating of close relatives within a breed.

Livestock: farm animals regarded as an asset

Livestock sub-sector: is the term used to describe all activities involving all aspects of livestock sub-sector development.

Livestock support services: These are all activities that support the livestock sub-sector. These include capacity building (training), research, extension, animal health services, credit and loans, farm machinery, feed reserves/cold chain or storage, transport, processing, input supply, marketing, etc.

Local breed (indigenous): a breed that is adapted to a specific habitat and that has been shaped, often over centuries, by the cultural preferences of a particular community.

Milk product: refer to products derived from milk by any approved process.

One health approach: is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals, and ecosystems. It recognizes that the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and interdependent.

Private sector: the part of an economy that is controlled by the state

Public-private partnership: a joint approach in which the public and private sectors agree on responsibilities, share resources, and risks to achieve common objectives that deliver benefits in a sustainable manner.

Public sector: the part of an economy that is controlled by the state.

Policy: a set of instruments aimed at reaching specified objectives.

Stakeholder: a person or body with an interest or concern in animal production and health

Strategy: is the path taken to achieve a particular set of objectives.

Transboundary diseases: are defined as highly contagious and transmissible epidemic diseases of livestock which have the capability for rapid spread to new areas and regions regardless of national borders and have serious socio-economic and public health consequences.

Veterinary services: services that deal with prevention, examination, management, diagnosis and treatment of disease, disorders, and injury in animals. Along with these, they deal with animal rearing, husbandry, breeding, feeding, research, and product development.

Veterinary Sanitary Mandate: a Public Private Partnership agreement between the government's veterinary services authority and the accredited private

veterinarians, which would enable the government to provide various interventions to animal health and other services in the veterinary domain as might be requested by the public and private sector veterinarians.

Veterinary drugs: include pharmaceuticals, chemicals and biologicals used for preventing, diagnosing, and treating diseases of animals.

Zoonosis: disease that can be transmitted from animals to humans and vice versa. Zoonotic pathogens may be bacterial, viral or parasitic, or may involve unconventional agents and can spread to humans through direct contact or through food, water or the environment.

Foreword

The Ministry of Agriculture and Animal Resources has the pleasure to present the Livestock Development Strategy in Rwanda. This document reflects our unwavering commitment to the sustainable growth and transformation of the livestock sub-sector, a vital component of our nation's agricultural landscape.

Rwanda's journey towards economic prosperity has been marked by resilience, innovation, and a deep-rooted understanding of the critical role that agriculture plays in our development agenda. As we embark on this strategic planning process for the livestock sub-sector, we recognize that livestock farming is not merely an economic venture but a cornerstone of our cultural heritage and a key contributor to food security and rural livelihoods.

The livestock sub-sector has the potential to significantly enhance food production, improve farmers' incomes, and contribute to the overall economic transformation of our nation. However, realizing this potential requires a well-defined and coordinated strategy that addresses the unique challenges and opportunities within the sector.

This strategic plan is the result of a collaborative effort involving stakeholders from government institutions, private sector entities, development partners, and local communities. It is a testament to the spirit of inclusivity and shared responsibility that defines Rwanda's development approach. This document outlines our vision for the future of livestock development in Rwanda, focusing on key areas such as animal health, breeding, nutrition, and market access. Our strategic goals are designed to promote sustainable practices, enhance productivity, and ensure the welfare of both animals and farmers.

The Ministry of Agriculture and Animal resources would like to express its gratitude to all those who have contributed to the development of this strategic plan. Your insights, expertise, and dedication have been invaluable in shaping a roadmap that aligns with our national development priorities and aspirations. As we move forward, let us remain committed to the principles of sustainability, inclusivity, and innovation. Together, we can build a vibrant and resilient livestock sub-sector that not only meets the needs of today but also paves the way for a prosperous and sustainable future for all Rwandans.

Executive Summary

The Ministry of Agriculture and Animal Resources "MINAGRI" has the mission of promoting the sustainable development of a modern, efficient, and competitive agriculture and livestock sub-sector, in order to ensure food security, agriculture export and diversification of the production for the benefit of the farmer and the economy of the Country. Livestock is one of the major agricultural activities in the country that is contributing toward achieving food and nutrition security. The livestock sub-sector contributed 3.0% of the National Gross Domestic Product while the overall agriculture share was 27%. In addition, there are other contributions of the livestock sub-sector such as the supply of food products of animal origin, manure, and biogas that fulfill cultural roles in livestock farming communities. Those commodities are considered as an economic asset, as well as a symbol of wealth and social status.

The vision of the LDS is that the livestock sub-sector should be, by 2029, sustainable and globally competitive; using improved and highly productive livestock to ensure food security, improved income for Rwandans taking into consideration the environment conservation through improved professional farming practices, improved genetics, animal health and nutrition. The mission of the livestock sub-sector is "to ensure that the livestock sub-sector is developed and managed sustainably by creating an enabling environment and producing high quality animal products while providing services that increase productivity, value addition, market access and income generation". The overall objective of the livestock development strategy is to "develop a competitive and more efficient livestock sub-sector that contributes adequately to the improvement of the wellbeing of the Rwandan people". The (specific) objectives of this strategy are aligned with the pillars settled by MINAGRI for livestock development.

The Livestock Development Strategy (LDS) hinges on the recognition that the livestock sub-sector plays a key role in achieving the SDGs; in the implementation of the Comprehensive Africa Agriculture Development Program (CAADP) under NEPAD and the renewal of the CAADP commitments in 2014 through the Malabo Declaration; and the EAC Livestock Policy. Further the LDS is in line with the Rwanda Vision 2050 towards the long-term strategic direction for *"the Rwanda we want " that* is overarching goals of promoting economic growth

and prosperity and high quality of life for Rwandans. In addition, the Strategy is in line with the National Agriculture Policy (NAP), PSTA4, and NST1.

The LDS elaboration process has identified several challenges and corresponding mitigation measures which will be addressed through the strategic objectives and proposed interventions. Key among them include low production potential of existing livestock species, scarcity of animal feeds and poor feeding practices, limited availability of high adaptive and performing breeds, poor animal health services and disease outbreaks, poor animal products processing and value addition, low investment capital, high informal market rate for animal products, limited flow of market information, limited knowledge and skills among value chain actors, poor research and delivery of extension services, unpredictable weather conditions and climate change, weak enforcement of policy and legal framework in livestock sub-sector, among others.

To address these challenges, the pillars for LDS are: (i) To modernize animal resources production, promote food and nutrition security; (ii) To develop inclusive livestock market systems for increased incomes; (iii) To strengthen the systemic enablers, and (iv) To promote digitalization, climate change mitigation and adaptation in livestock sub-sector. The LDS finally provides a detailed implementation framework and mechanisms for monitoring and evaluation.

CHAPTER ONE. INTRODUCTION

The Livestock Development Strategy (LDS) has been initiated under the leadership of the Ministry of Agriculture and Animal Resources (MINAGRI) based on the policy framework and orientation from the Vision 2050, National Strategy for Transformation (NST1), and the National Agriculture Policy (NAP). Among the five pillars of the Vision 2050 for the Republic of Rwanda, the third one is the "Agriculture for Wealth Creation". The agriculture sector will play a key role in food security, nutrition, exports, and create a strong linkage to industry and services sectors. As it has contributed to two third of poverty reduction in the last two decades, it is expected that the agriculture sector will be *"equally transformed by both women and men professional farmers and commercialized value chains"* (Vision 2050).

This noble ambition of LDS will be achieved through:

- Modern market-oriented and climate resilient agriculture
- Use of modern inputs and technologies to maximize productivity,
- Access to agriculture finance and risk sharing facilities,
- Integration within global value chains for higher-value products.

Key strategic interventions have been defined and planned such as strengthening the commercialization of crop and animal resource value chains; establishment of a program to improve professionalization of livestock farmers and increase their output in terms of quality, volume and productivity; attraction of the private sector and farmers to invest in flagship projects in the livestock sub sector; and putting in place the mechanisms to increase access to finance for farmers.

All above are aligned with the policy agenda of specific policy actions as formulated by the NAP. Those actions are under the four pillars of the NAP which are: a) Enabling environment and responsive institutions; b) Technological Upgrading and Skills Development; c) Productivity and Sustainability; d) Inclusive Markets and Off-Farm Opportunities[1] . Under the livestock sub-sector, the policy agenda is to increase the animal resources production and productivity.

[1] MINAGRI (2018). National Agriculture Policy.

To achieve this noble objective, Rwanda requires to have clear plans, elaborated strategies, and detailed sets of actions for the development of the Livestock sub-sector, with appropriate monitoring and evaluation processes, and mobilization of needed resources through collaboration with various stakeholders. The Ministry of Agriculture and Animal Resources has developed the National Agricultural Policy (NAP), Strategic Plan for Agricultural Transformation (PSTA 4), and Livestock Master Plan, which provide policy direction as a base of the efforts for livestock development. However, the Livestock Master Plan ended in June 2022 and PSTA4 is ending by June 2024. Therefore, MINAGRI has developed this Livestock Strategy to streamline the livestock interventions to feed in PSTA 5 as core sector strategy.

1.1 Livestock sub-sector in Rwanda

Livestock is one of the major agricultural activities in the country that is contributing toward achieving food and nutrition security. According to MINAGRI[2], the livestock sub-sector contributed 13.0% of the National Gross Domestic Product while the overall agriculture share was 25%. In addition, Livestock sub-sector plays significant roles in eradicating hunger and malnutrition (food security, nutrition and healthy diets), providing manure (natural fertilizer), clean energy (biogas), generating employment, and socio-cultural values in livestock farming communities. Those commodities are considered as an economic asset, as well as a symbol of wealth and social status.

According to RPHC5[3] , at national level, 63% of private households are engaged in crop farming activities such as cultivation and management of plants, grown for food or animal feed or other commercial uses. 50% of households are engaged in livestock rearing (husbandry) defined as the rearing and management of livestock for the purpose of producing meat, milk, eggs and other products that can be used for profits or subsistence.

The main types of livestock owned or reared by private households in Rwanda are cows (28% of the households), followed by goats (19%), pigs (15%), chickens (12%) and rabbits (6%). Other livestock types (sheep, beehives, etc.) are found in a few households (less than 5% of all households). Considering the estimates of livestock by numbers reared by households and large-

[2] MINAGRI (2023). Annual report, 2022-2023 FY.
[3] NISR (2023). Fifth Population and Housing Census-2022 (RPHC5)

scale farmers (individuals, cooperatives/associations, companies, and institutions), the MINAGRI annual report (2023) indicated that the overall livestock heads estimations are as follows: Cattle (1,644,692); Goats (1,995,636), Sheep (440,214), Pigs (1,123,075), Rabbits (656,153) and Poultry (6,047,215). These figures highlight the livestock sub-sector's substantial potential to contribute to food security and improve livelihoods for Rwandans[4].

According to MINAGRI, the national milk production increased from 503,130 Metric Tons in 2013 to 1,061,301 Metric Tons in 2022/23. It is expected to grow and reach 1,274,554 Metric Tons of milk per year by 2024 as the National target. In the FY 2022/2023, the production of meat has reached 197,778 MT, 17,344 MT of eggs, and 6,027 MT of hides and skin [5]. The targets were defined by the PSTA 4 by 2024 as follows: 1,274,554 MT of milk; 215,058 MT of meat; 19,403 MT of eggs; and 13,477 MT of hides and skin. The consumption of milk is at 78.7 lt /person/year while the national target is to reach 80 lt/person by 2024; the consumption of meat is at 13.2 kg/pers/year while the consumption of eggs is at 1.4 kg/pers/year.

According to Rwanda Statistical YearBook[6] , the exports of meat have reached 5,485,017 Kgs for total earnings of 8,873,580 US$; the milk was 12,432,764 liters for 8,064,676 US$ while the hides and skins were 3,719,395 Kgs for 2,878,507 US$[7].. The exports for live animals are also highlighted in the same report. The cow export was 43,861 heads at net value of 12,401,341 US$; pigs' exports was 69,473 heads worth 5,703,759 US$; goats export is estimated to 80,505 heads with net value of 2,876,768 US$; sheep export was 14,582 heads worth 410,452 US$; poultry export estimated at 581,306 heads at net worth of 2,128,239 US$[8].

Rwanda's diverse livestock exports offer rich insights for their ongoing livestock development strategy but also highlight areas for technical, strategic, financial, and policy interventions.

Technical: The export mix, including hides and skins alongside meat and milk, suggests potential for a circular economy within the livestock sub-sector. Utilizing livestock waste

[4] MINAGRI (2023). Annual Report, 2022-2023 FY
[5] MINAGRI (2023). Annual Report, 2022-2023 FY
[6] NISR (2022). Rwanda Statistical YearBook
[7] NAEB (2022). Annual NAEB 2021-2022 Agriculture Exports Performance
[8] NISR (2022). Rwanda Statistical YearBook

streams for value-added products like fertilizer or biogas could improve resource efficiency and environmental sustainability. Integrating livestock production with food systems by utilizing manure as fertilizer would further strengthen the ecological cycle.

Strategic: While meat exports generate the highest revenue, live animal exports also hold significant potential. Prioritizing breeding programs and disease control to improve live animal quality and compliance with international standards could unlock lucrative high-value markets. Diversifying exports beyond cow exports to goats and poultry holds strategic advantage, spreading risks and catering to niche markets.

Financial: Disparities in export values highlight the need for targeted financial interventions. De-risking the subsector for smaller players exporting pigs, goats, sheep, and poultry could involve microfinance or insurance schemes, boosting their resilience and access to markets.

Policy: The data underscores the need for data-driven policymaking. Analyzing regional distribution of export strengths and challenges could inform customized extension services, infrastructure investments, and regulatory frameworks fostering efficient value chains in each region. Aligning with the country's food security goals and promoting local processing capacity through incentives would further strengthen the sector.

In the nutshell, these findings provide valuable input for the livestock development strategy. By focusing on circularity, strategic diversification, targeted financial support, and evidence-based policy interventions, Rwanda can unlock the full potential of its livestock exports, enhancing food security, environmental sustainability, and the long-term prosperity of its livestock sector.
Between 2010 and 2023, the domestic consumption per capita per year vis a vis need for livestock products has grown by 101% for milk (37.3 liters in 2010 up to 78.7 liters in 2023); by 103.41 % for meat (6.44 kilos in 2010 up to 14.2Kg in 2023); by 48 % for eggs (0.47 kg in 2010 up to 1.4 Kg in 2023)[9].

[9] MINAGRI (2023). Annual Report, 2022-2023 FY

According to the population census[10],the Rwandan population is currently 13,246,394. The annual population growth has been estimated at 2.3% over the next ten years, meaning that Rwanda will have a population of 16,375,704 by 2030 (22% increase from 2021) and 23,030,046 by 2050 (71% increase from 2021)[11]. It is forecasted that this population growth will be correlated to the increased demand and consumption of animal products assuming that this population will have an increased purchasing power as an indicator of living standards of upper middle income by 2035.[12]. This growing market demand provides an opportunity for investment and thus for rural livelihood transformation. Due to agro-ecological conditions conducive to intensification, the livestock sub-sector provides major opportunities to further increase its contribution to the economy. With a rapidly growing population, increasing urbanization and rising incomes, the demand for Animal Source Food (ASF) is expected to increase significantly for the foreseeable future.

1.2 Context and Rationale for Livestock Development Strategy (LDS)

According to National Agriculture Policy[13], the Livestock Development Strategy (LDS) took place within a context shaped by multiple international and national policies, strategies, and framework. The international instruments which have significant impact for Rwanda LDS include; Sustainable Development Goals (SDGs), Agenda 2063: Africa We Want (AU), African Union's (AU) Comprehensive African Agricultural Development Program (CAADP), East African Community (EAC) Vision 2050, EAC Livestock Policy and the EAC Agricultural and Rural Development Policy and Strategy.

In Rwanda, the livestock sub-sector is governed by a number of policies aimed at promoting sustainable livestock production and protecting animal health and welfare. Rwanda has put in place a range of policies to promote sustainable livestock production and protect animal health and welfare. Those policies are, but not limited to: Vision 2050, National Strategy for Transformation (NST 1), National Agriculture Policy (NAP); Fourth Strategic Plan Agriculture

[10] NISR (2023). Fifth Population and Housing Census-2022 (RPHC5)
[11] FAO (2023). Statistical YearBook (https://www.fao.org/3/cc8166en/online/cc8166en.html)
[12] Republic of Rwanda (2015). Vision 2050
[13] MINAGRI (2018). National Agriculture Policy

Transformation (PSTA 4). These policies are aimed at improving the productivity and profitability of the livestock sub-sector while ensuring the protection of the environment and the health and welfare of both animals and humans. As per Vision 2050, Rwanda is committed to increasing animal products in order to meet the modern dietary needs of the population.

Through the Livestock Development Strategy (LDS), the role of all key actors in the livestock value chain is clearly outlined, the key personnel for various roles are identified and financial projections for the period 2024-2029 defined. For the LDS plan to be realistic a comprehensive SWOT and PESTEL analysis are included and reflect the realities of the production constraints, opportunities, threats, policy environment, markets and sustainable strategies proposition for livestock development.

The rationale behind the Livestock Development Strategy is to modernize the livestock industry, develop inclusive livestock market systems, and promote consumption of animal source food while conserving the environment. The aim is to support the livelihoods of livestock farmers through increased incomes and self-sufficiency in food of animal origin and thus addressing the goals set in Vision 2050. Furthermore, the strategy considered the potential that the country has as regard to the livestock sub-sector development, enhancement of public-private partnership, advances in science and technology as well as value addition and livestock sub-sector access to local, regional and international competitive markets.

1.3 Methodology for the elaboration of LDS

This strategy was elaborated through a consultative process and participatory approach involving key stakeholders. The review of the existing literature in the livestock sub-sector has also been used. The information presented, has been collected in major policy documents such as Vision 2050, NST1[14], PSTA4, the livestock Master Plan, and many others on a regional and global level[15]. The related government directives, regulations, acts, laws to livestock sub-sector have been also consulted, and the interviews with relevant stakeholders.

[14] REPUBLIC OF RWANDA, National Strategy for Transformation (NST 1) 2017-2024.
[15]Republic of Rwanda, Updated Nationally Determined Contribution (NCDs), 2023.

The primary data were obtained through face to face interviews using structured questionnaires and group discussions held with key concerned stakeholders (farmers, processors, animal products marketers, input suppliers and veterinary service providers) along the livestock value chain. The list of interviewed farmers and other actors are attached as annex to this LDS document.

Participatory/interaction meetings and workshops have also been held between the consultant team and key stakeholders. Firstly, seven focus groups have been organized to discuss with stakeholders in different value chains. The Focus Group Discussions (FGDs) have been conducted in Bugesera and Nyagatare in Eastern Province; Gicumbi and Musanze in Northern province; Kamonyi and Huye Districts in Southern Province; and in Rubavu District for Western Province. Details value chains targeted per Districts, Dates and list of participants are presented in the annex.

Secondly, two workshops have been organized by MINAGRI with dairy and beef cattle actors (43 persons) on 5th October 2023 and small stock actors (50 persons) on 6th October 2023 respectively aiming at gathering information on current status of livestock sub-sector through SWOT analysis where Strength, Weakness, Opportunities, Threats have been identified. In addition, key achievements, implementing challenges, gaps, lessons learnt; and proposed actions to be undertaken for achieving livestock development objectives have been formulated in the workshops. Key institutions and concerned officials have been purposely selected to serve as key informants and relevant information collected to understand the current status and interventions in the livestock sub-sector. The list of key informants is also presented in the annex.

The secondary data have been gathered through consultation and desk review of existing literature of key sector documents including the Livestock Development Strategy for Africa (LiDeSA) 2015-2035, Agriculture and Rural Development Strategy for the EAC 2005-2030[16], EAC Livestock Strategy[17], NST1, NAP, PSTA 4, the livestock master plan, and small animals' strategy, MINAGRI annual reports , NISR reports, NAEB, project documents, partners reports

[16] EAC Secretariat (2005), Agriculture and Rural Development Strategy for East African Community (2005-2030), 2005.
[17] EAC, EAC Livestock Policy, 2016

(RCVD, ENABEL, FAO, etc) have been analyzed through SWOT analysis and strength, weakness, opportunities, threat (SWOT) identified. Key achievements, implementing challenges, gaps, lessons learnt have been highlighted.

CHAPTER TWO. PERFORMANCE OF THE LIVESTOCK SUB-SECTOR

2.1 Policies and Legal framework guiding Livestock sub-sector

In this section, the existing policies and legal framework, guiding and supporting the livestock sub-sector, are briefly analyzed and summarized below:

Policies:

Vision 2050: Rwanda's Vision 2050 articulates the long-term strategic direction for *"the Rwanda we want*" and the enabling pathways to achieve this ambition. The Vision is anchored around five pillars: human development, competitiveness and integration, agriculture for wealth creation, urbanization and agglomeration, accountable and capable state institutions. Under the agriculture pillar, the vision is to increase productivity and develop professional agriculture services with strong downstream and upstream linkages to primary agriculture. The goals are to achieve mechanization of agriculture and use of high-tech inputs. The vision is to achieve agricultural transformation, with the sector being market-driven, with linkages to urbanization and trade, and nearly 15 times more productive than today. Agriculture value added per worker will also need to increase to more than 8-fold by 2035, and more than triple again by 2050 for comparative levels of high-income countries.

National Strategy for Transformation (NST 1): NST 1 is the Seven Year Government Program (7YGP) that supports Rwanda to transit from Vision 2020 to Vision 2050 and this strategy provides a platform and is expected to lay the foundations for decades of sustained growth and transformation that will accelerate the move towards achieving high standards of living for all citizens. The focus of NST 1 is on three pillars: economic transformation, social transformation and transformational governance. Under economic transformation, NST 1 acknowledges that the agricultural sector and livestock sub-sector have not reached their full potential and the strategy is to invest in climate resilient techniques for farming coupled with improvements in value chains which are expected to yield significant future gains in both growth

and poverty reduction. According to NAP[18] and NST1 (2017-2024), agriculture will remain the backbone of the Rwanda economy[19].

National Agriculture Policy (NAP): Agriculture production is expected to increase in order to meet socio-economic and food and nutrition security needs. The main focus is to increase production, modernize and increase productivity of livestock, establish a program to improve professionalization of livestock farmers and increase their output in terms of quality, volume and productivity; attract private sector and farmers to invest in flagship projects in the livestock sub sector. Animal genetic improvement is believed to be one of the main engines for livestock sub-sector development. Under NAP, genetic improvement has been given more priority as backed up by policy actions towards improving local breeds through reproductive technologies.

Strategic Plan for Agriculture Transformation (PSTA 4): The Ministry of Agriculture and Animal Resources is implementing the fourth edition of Strategic Plan Agriculture Transformation (PSTA 4) to accelerate transformation in agriculture, it considers a range of sub-sector strategies including animal genetic improvement strategy, meat value chain development strategy, small ruminant development strategy, and dairy marketing strategy.

Although much has been done in the agriculture sector, there are some gaps in the policy formulation. For example, in terms of veterinary supplies (mainly drugs and vaccines), there are policies which regulate veterinary drugs and services, however, there is a need for strong enforcement of these policies.

In order to regulate the livestock sub-sector, several legal instruments (laws and regulations) have been put in place to substantially promote and develop the sub-sector. The elaboration of LDS took into consideration the existing legal framework that is supporting the livestock sub-sector development. Therefore, the implementation of the livestock strategy for the next five years should take into consideration the relevant laws and institutions for sustainable animal production, improved value addition and market access, investment in animal resource

[18] MINAGRI (2018). National Agriculture Policy
[19] REPUBLIC OF RWANDA, National Strategy for Transformation (NST 1) 2017-2024.

development, and the establishment of an enabling environment. Leveraging these regulations, the livestock strategy will help address gaps and challenges raised by different stakeholders.

The following are some of the current legal instruments guiding the livestock sub-sector:

Strategies:

- Strategic Plan for Agricultural Transformation, Phase 4[20]
- National Agriculture Policy[21]
- Livestock Master Plan[22]
- Strategic Plan for Animal Nutrition Improvement Program for Rwanda[23]
- National Meat Value Chain Strategy[24]
- Rwanda Animal Genetic Resources Improvement Strategy and Implementation Plan[25]

Laws:

- Law No. 003/2018 of 09/02/2018 establishing Rwanda Food and Drug Authority (Rwanda-FDA) and determining its mission, organization and functioning
- Law No. 31/2017 of 25/07/2017 establishing Rwanda Inspectorate, Competition and Consumer Protection Authority (RICA) and determining its mission, organization and functioning
- Law Nº 13/2017 of 14/04/2017 establishing National Agricultural Export Development Board (NAEB) and determining its mission, organization and functioning
- Law No. 56/2013 of 09/08/2013 establishing Rwanda Council of Veterinary Doctors (RCVD) and determining its mission, organization and functioning
- Law N° 50/2013 of 28/06/2013 establishing Rwanda Standards Board (RSB) and determining its mission, organization and functioning

[20] MINAGRI 2018. Strategic Plan for Agriculture Transformation 2018-2024
[21] MINAGRI (2018). National Agriculture Policy
[22] MINAGRI (2017). National Master Plan
[23] HTSPE (2009). Support to Institutional Component of Support Project to Strategic Plan for Transformation of Agriculture Rwanda Animal Nutrition Strategy, Final Report, 14 April 2009. HTSPE Job No: 100703
[24] MINECOFIN (2022). National Meat Value Chain Strategy
[25] MINAGRI (2022). Rwanda Animal Genetic Resources and Implementation Plan (2022-2025)

- Law n°38/2010 of 25/11/2010 establishing Rwanda Agriculture Board (RAB) and determining its responsibilities, organization and functioning
- Law No. 54/2008 of 10/09/2008 determining the prevention and fight against contagious diseases for domestic animals in Rwanda
- Organic Law No. 53/2008 of 02/09/2008 establishing Rwanda Standards Board (RSB) and determining its responsibilities, organization and functioning
- Law No. 33/2002 of 06/11/2002 regarding livestock identification

Standards:

- RSB, 2020: Animal Feed Production, Processing, Storage and Distribution, Code of Practice (RSB, 2020)
- Rwanda Standards 190:2019: Water Quality Livestock Feeding Tolerance Limits
- Rwanda Standards East African Standards 90:2019: Compounded Poultry Feeds
- Rwanda Standards 99: 2017: Compounded Poultry Feeds Specification
- Rwanda Standards 98: 2015: Animal Feed Production, Processing, Storage and Distribution Code of Practice
- Rwanda Standards CAC/RCP 54: 2009: Code of Practice on Good Animal Feeding
- Rwanda Standards East African Standards 231: 2001: Bone Meal for Compounding Animal Feed Specifications
- Rwanda Standards East African Standards 230: 2001: Maize Bran as Livestock Feed Specifications
- Association of Official Analytical Chemists (AOAC) 942.05: Ash of Animal Feed

Ministerial orders:

- Ministerial Order No. 013/11.30 of 18/11/2010 on transport and trade of meat
- Ministerial Order No. 012/11.30 of 18/11/2010 on animal slaughtering and meat inspection
- Ministerial Order No. 009/11.30 of 18/11/2010 on stray cattle and other domestic animals
- Ministerial Order No. 008/11.30 of 18/11/2010 determining the organization of veterinary pharmacy practices

Utilizing the existing legal frameworks especially those creating institutions (RAB, NAEB, RSB, RICA, Rwanda-FDA, RCVD) enhance the synergy to address the livestock sub-sector challenges comprehensively.

2.2 Institutional framework and stakeholders' analysis

Institutional framework and stakeholders' analysis are essential components of organizational management. They help to identify and understand the structures, processes, and key actors involved in a particular context. The table below illustrates those stakeholders and their respective interventions:

Table 1: Stakeholders Analysis

Stakeholders	Role in LDS/description	Services offered
Primary (livestock producers, transporters, processors, service providers, inputs suppliers, traders, consumers)	Key actors who are involved in the day-to-day livestock value chain activities from farm-table-farm. These primary actors in the livestock value chain, may sell fresh animal products, transform or add value to the livestock products.	▪ Farming activities. ▪ Distribution of animal products. ▪ Processing/value addition and diversification of products. ▪ Selling animal products. ▪ Market information and business linkages. ▪ Adoption and applying advanced livestock development technologies. ▪ Participating in livestock platforms business development, networking, and linkages. ▪ Provision and exchange of information through capacity building. ▪ Consumption of animal products
Livestock farmers' organization (RNDP, RPFA, RPIA, RSFBO, RGFBO, RRFA, etc) and affiliated cooperatives	Key players in livestock value chains development, advocacy, and coordination.	▪ Mobilization and organization of livestock Value chain actors. ▪ Capacity building. ▪ Resources mobilization, Lobbying and advocacy
Government institutions (MINAGRI, MINALOC, MINICOM, MoE, RAB, RICA, Rwanda-FDA, RSB, NAEB, REMA, RWB, HLIs, etc)	They provide and implement direct or indirect interventions (policies, guidelines, enabling environment) supporting livestock value chain development.	▪ Creating enabling business environment ▪ Elaborating policies and strategies. ▪ Enforcing laws and regulations. ▪ Provide technical and financial support.

		▪ Implementing related programs and projects. ▪ Establishment and harmonization of standards and trade protocols. ▪ Information gathering, management and extension.
Development partners (ENABEL, USAID, IFAD, FAO, CGIAR, WFP, RYA	They are stakeholders supporting the livestock value chain development.	▪ Technical and Financial Support ▪ Projects implementation

2.3 SWOT Analysis of Livestock in Rwanda

Despite its significant role, the livestock sub-sector has not fully contributed to sustainable development, food and nutrition security and the livelihoods of the citizens. To better understand the challenges facing the livestock sub-sector, a situational analysis of the sub-sector was undertaken focusing on strengths, weaknesses, opportunities, and threats. This assessment provides essential information on key issues that need immediate, long-term, and sustainable interventions of the LDS. The SWOT analysis has been conducted through two levels:

Firstly, the livestock sub-sector has been analyzed through the existing literature especially in the **Livestock Master Plan (2017-2022**) and **Strategy and Investment Plan for the Small Animal.**

An in-depth assessment of the Livestock Master Plan (2017-2022) has been conducted to show its achievements, gaps, challenges and provide recommendations that led to the elaboration of the Livestock Development Strategy.

In the cattle subsector, the assessment shows that the cattle population increased from 1,391,219 in 2016/17 to 1,644,692 in 2022/23. While there is an increase, it falls short of the 2021/22 target by 92,666, indicating a gap in achieving the set targets by the LMP. Meat production increased significantly from 43,554MT in 2016/17 to 197,778 MT in 2022/23, surpassing the target. This represents a notable achievement in the production capacity of the cattle subsector. The milk production increased from 747 million liters in 2016/17 to 1,061,301 liters in 2022/23. However, there is a substantial shortfall compared to the target of 1.2 billion liters, suggesting a significant gap in achieving the set target by LMP. The cattle population did

not meet the 2021/22 target, suggesting challenges in the implementation of measures to increase the cattle population. The vast difference between the target (2.2 billion liters) and the actual achievement (1,061,301 liters) for milk production highlights a significant shortfall. This may be due to various factors such as low productivity, disease, poor feeding practices, inadequate infrastructure, and many more.

In the poultry subsector, chicken meat production has increased from 15,715 metric tons in 2018/19 to 37,351 metric tons in 2021/22, exceeding the LMP target of 35,170 metric tons. The eggs production has increased from 243.6 million eggs in 2018/19 to 17,344 million eggs in 2022/23, far exceeding the LMP target of 513.1 million eggs.

In pig farming, the pig population increased from 19,945,000 in 2016/17 to 501,548,000 in 2021/22. This indicates a substantial achievement in meeting the target, surpassing it significantly. The pig meat production increased from 19,869,000 MT in 2016/17 to 12,379,000 MT in 2021/22. While there's an increase, it falls short of the 2021/22 target by 15,492,000 MT, indicating a significant gap. Factors such as disease outbreaks, feed quality, or breeding practices may contribute to this gap and the LDS took into consideration removing those challenges in the next five years and beyond to increase meat production and products.

In goat farming, the comparison of the LMP targets and current reports shows that the goat population decreased from 2,705,780 in 2016/17 to 1,995,636 in 2022/23. However, this represents a decrease from the baseline, indicating a deviation from the expected growth. Goat meat production showed an increase from 12,254 MT in 2016/17 to 4,561.36 MT in 2021/22, but it fell significantly short of the 2021/22 target, revealing a substantial gap. The decline in the goat population raises concerns about factors such as disease, management practices, or environmental issues that need to be investigated and addressed. But also, the subsector is more informal and difficult to collect reliable data to reflect the real picture of goat production.

In Sheep Population, the sheep population decreased from 700,000 in 2016/17 to 440,214 in 2022/23. However, this falls short of the 2021/22 target by 326,452, indicating a gap in achieving the set targets. The data on actual achievement for sheep meat production are not provided by any report consulted. The sheep population growth did not meet the 2022/23 target, indicating challenges in herd management, breeding practices, or external factors affecting sheep

population growth. The absence of data on sheep meat production targets and achievements creates a challenge in assessing the success and challenges in this critical aspect of the sheep subsector, and shows how the subsector is substantially informal.

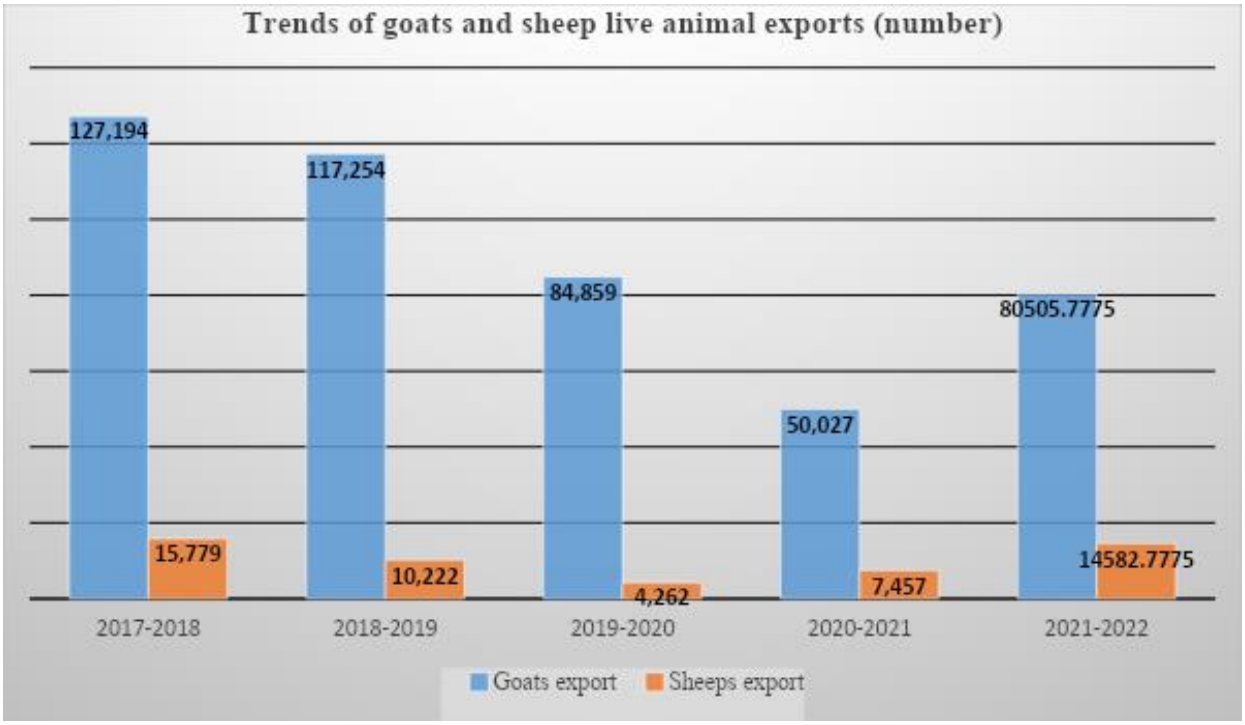

Figure 1: Trends of goats and sheep live animal exports (number)

In rabbit farming, the omission of the Rabbit sub-sector has been observed in the 2016/2017 Livestock Master Plan. This absence has been acknowledged, and it is now incorporated into the value chain, underscoring its importance in the newly formulated livestock strategy. The exclusion of the Rabbit subsector has limited the ability to highlight its achievements, identify gaps and challenges, where the LDS emphasizes the need for focused attention on the Rabbit subsector, and shows its importance in the socio-economic welfare of Rwandans in the next five years.

The Strategy and Investment Plan for the Small Animal Industry in Rwanda ended by 2017 defined the challenge of launching a small animal industry with five objectives/targets namely maintaining domestic market; increasing small stock meat market share; becoming globally competitive; developing export opportunities; and increasing incomes of small-scale producers and improving livelihoods of the poorest. The vision was “launching a small animal industry:

from a subsistence activity to an income-generating activity and export strength". To achieve this vision, three strategic axes have been identified that are enhancing production, value addition of by-products and marketing. Under these strategic axes, 8 components have been defined including genetic improvement, animal nutrition and animal health for the enhancing production; value addition of skin sector, goat dairy, and wool sector; and filling the domestic market, and finally increasing the access to the regional and international market for marketing[26].

The analysis of LMP is imperative to recognize the overarching importance of an inclusive and integrated approach in its implementation until today. While COVID-19 could have impacted the implementation of LMP, several other factors were likely to have contributed to the shortfall in achieving LMP targets. Understanding what worked and what didn't allow for building upon successes and addressing weaknesses, recognition of the obstacles faced and potential areas for improvement helped in formulating targeted interventions.

The impact assessment of the LMP considered the four dimensions namely Relevance, Efficiency, Effectiveness, and sustainability. The assessment ensured that the LMP was relevant in terms of its alignment with national priorities. This has been assessed through the LMP's goals and objectives in comparison with national development priorities, contributing to broader social and economic development goals. The responsiveness to stakeholder needs is another indicator of relevance where the LMP addresses their concerns and interests and responds by their engagement.

The analysis of implementation processes revealed some bottlenecks or obstacles that hampered progress such as COVID 19 pandemic and suggested countermeasures and improvement strategies for streamlining procedures where the LMP was not fully efficiently implemented.

To assess the effectiveness, the targeted achievements were compared to actual outcomes for various indicators for example milk production. The assessment identified some gaps and limitations in achieving the set targets and limitations of the implemented strategies, providing insights for improvement in the new development strategy.

[26] MINAGRI, Strategic and Investment Plan to strengthen the animal genetic improvement in Rwanda, 2012.

Through LMP assessment, the positive impact has been observed on the target beneficiaries including farmers, consumers, and the wider economy, to measure its overall effectiveness in achieving its objectives. For sustainability, the assessment highlighted the remarkable institutional capacity development within relevant government agencies and other stakeholders. It ensured that those are equipped with the necessary skills and resources to effectively implement the new development strategy and sustain its achievements over time.

Secondly, the SWOT analysis of the livestock sub-sector has been conducted through observation of existing features, interviews with farmers across the country, knowledge sharing workshops, technical meetings, and focus groups discussion conducted in different Districts. The summary of the existing strengths, weaknesses, opportunities, and threats is presented in the table below:

By considering these dimensions, the assessment ensured that the LMP (2017-2022) was relevant to the needs of Rwanda and its stakeholders, efficiently utilized available resources, effectively achieved its objectives, and laid the foundation for sustainable growth and development in the livestock sub-sector. The insights gained from the assessment were crucial for drafting a new livestock development strategy that builds upon past achievements, addresses existing gaps and challenges, and guides the future direction of the livestock sub-sector.

Table 2: A SWOT analysis of livestock sub-sector in Rwanda

Strengths	**Weaknesses**
▪ National Land Policy guiding the efficient land use management; ▪ Various livestock species with local and adapted improved breeds; ▪ Cultural and religious beliefs that favor livestock sub-sector development; ▪ Availability of breeding technologies (AI, MOET, etc); ▪ Farmers having basic knowledge and skills, and willing to venture modern and market-oriented farming; ▪ Local, regional and international markets for livestock products; ▪ Infrastructures (roads/feeder roads,	▪ Large number of animals are kept by smallholder farmers under subsistence rather than for commercial purpose; ▪ Insufficient animal feeds both in quantity and quality; ▪ Inadequate feed quality control and standards enforcement mechanisms; ▪ Limited working capital of animal feeds factories; ▪ Low performance of local breeds and limited availability of improved breeding stock; ▪ Poor delivery and adoption of breeding technology services (poor adoption and

energy, transportation, processing, preservation); - Enabling policies and regulatory framework that favor farming, processing, and marketing of livestock and their products; - Conducive climate conditions for farming in all ecological zones; - Good governance and leadership.	delivery of AI services); ▪ Limited affordability of high performing breeds (dairy, beef, sheep and goat) among farmers; ▪ Prevalence of transboundary diseases; ▪ Limited availability of quality commercial day-old chicks; ▪ Local hatcheries performance is very limited (poor quality of day-old chicks); ▪ Limited veterinary services delivery; ▪ Limited quality control of drug supply; ▪ Insufficient skills among animal health services providers; ▪ Cultural self-animal treatment among producers; ▪ Limited livestock infrastructures; ▪ Informal market for animal products (milk, meat, eggs) and middlemen determining and influencing the price; ▪ Limited investment in in value addition in the livestock sub-sector; ▪ Poor adoption and utilization of livestock insurance; ▪ Insufficient inspection of animal products for quality and safety compliance; ▪ Limited research and dissemination of best-bet innovations and technologies; ▪ Limited technologies adoption and digitalization of VC development activities; ▪ Land scarcity for dairy and beef farming; ▪ Limited jobs creation especially for youth and women; ▪ Insufficient business-oriented mindsets among livestock VC actors; ▪ Insufficient PPP in the livestock sub-sector; ▪ Poor recording, reporting and traceability systems for livestock production value chain;

	▪ Weak organization of Value Chain actors
Opportunities	**Threats**
▪ Good climate conditions favoring livestock farming; ▪ Good leadership (governance and political will) to support all stakeholders across livestock value chain; ▪ Availability of enabling policies to support the development of the livestock sub-sector; ▪ Increased recognition of the contribution of the livestock sub-sector to food security and nutrition, poverty alleviation and economic growth; ▪ Availability of some improved breeds, genetic improvement facilities and technologies; ▪ Increasing demand for livestock products and by-product partly driven by rising consumer populations, incomes and urbanization; ▪ Increasing number of veterinary practitioners; ▪ Increasing number of investors willing to collaborate in livestock sub-sector; ▪ Growing interest of development partners to support the livestock sub-sector; ▪ Regional, continental, and international trade integration providing opportunities for the livestock sub-sector.	▪ High cost of production inputs (drugs, fuel, feeds, etc); ▪ Lack of regular pricing policies for livestock products; ▪ Diseases and outbreaks/ transboundary diseases; ▪ Vulnerability of livestock sub-sector to climate change and- induced shocks; ▪ High population density putting pressure on land allocated for farming; ▪ Insecurity in the region hampering the cross-borders marketing; ▪ Substantive exit of the youths (manpower) from the currently low rewarding occupation of livestock farming in favor of urban based livelihoods; ▪ Limited competitiveness of locally produced livestock products on the international markets; ▪ Unsupportive financial services by financial institutions to livestock farmers; ▪ High competition between humans and livestock on available feed resources (feed stuff).

2.4 Livestock Production and Productivity Features

2.4.1 Land, water, and pastures

Land

The landscape is dominated by grassy uplands with altitudes varying across the country. The majority of the land in Rwanda is used for agriculture. The hillsides are often terraced to maximize arable land for farming, as agriculture plays a crucial role in the country's economy and sustenance. Rwanda faces challenges related to land scarcity due to its small size and a growing population. This has led to intensive land use practices, sometimes resulting in soil erosion and environmental degradation.

The escalating population growth exerts pressure on available land resources, causing land parcels to become increasingly fragmented. Land holding per household is estimated at 0.4 ha., which is a reduction from 0.6 ha in 2012[27] . Meanwhile, the median landholding per agriculture household is now less than 0.2 ha[28]. All else equal, agricultural landholdings are projected to continue declining as the population doubles over the next 30 years[29] . Especially youth have limited access to land, as an estimated 70% of 16–30-year-olds have no access to land in Rwanda.

With Rwanda's land constraints, there is a need to optimize land usage. This requires promoting the farming of small animals like poultry, pigs, and small ruminants, providing sustainable income sources for farmers and diversifying protein sources for consumers. In addition, investing in programs that prioritize land conservation and restoration of degraded lands can expand the availability of productive agricultural areas. By rehabilitating marginal lands, we can reduce trade-offs and ensure the sustainable use of land resources, enabling long-term agricultural growth. Furthermore, protect agriculture and against encroachment following the Land Use Masterplan 2020.

[27] NISR (2022). Agriculture Household Survey
[28] NISR (2021). Rwanda-Comprehensive Food Security and Vulnerability Analysis 2021
[29] NISR (2023). Fifth Population and Housing Census-2022 (RPHC5)

Water

Rwanda is home to several lakes, rivers and streams crossing the country, providing water for various purposes, including irrigation and domestic use. Due to its dense river network and large wetlands, the country is sometimes threatened mainly by riverine floods. The risk of flood hazards heightens with the increase of the population accompanied by the scarcity of land that has pushed people to settle in marginal land and flood-prone areas. The flood analysis of the selected catchments shows that the total area affected by the flood is around 0.7 percent (197 km^2) of the country. Despite also the abundance of water resources, there are challenges related to watering systems for veterinary clinics, slaughter houses, livestock farms and processing facilities. The livestock sector is also affected by drought and excessive rains, which limits the availability of water and feeds, and increases vulnerability to pests and diseases. While subsistence farmers practicing rain fed agriculture are most affected, climate variability affects all agricultural subsectors and lowers annual agricultural production and productivity.

In Eastern and Southern provinces, limited availability of water and feed (irregular rains and drought) have an impact on a decreased livestock production. There is a need to promote water harvesting and small-scale irrigation technologies in order to reduce run-off and increase drought resistance as well as produce food (grains and fodder) for animal consumption.

Pastures production

Pastures and fodder production and management in Rwanda is compromised with crop production, land scarcity and climate changes effects. To address these challenges, geographical considerations should be prioritized. That is why the Ministry of Agriculture and Animal Resources has provided special instructions (zero-grazing policy) to reform farming practices in four districts of the Eastern province: Nyagatare, Gatsibo, Kayonza, and Kirehe[30]. The main objective of these instructions is to ensure sustainable land use for increased dairy productivity. It is stipulated that only 30% of the land shall be used for zero-grazing dairy cattle production while the 70% remaining will be used for specific crops (Maize, Beans/Soybeans) that support livestock in terms of animal feed production.

[30] MINAGRI (2023). Annual Report, 2022-2023 FY

Access to quality seed for fodder production, and access to quality water for animal feeding, coupled with the high cost of machinery used in fodder harvesting and processing are also key challenges to farmers. However, some initiatives about fodder grasses and legume production, and distribution have been made for the last year, and currently over 20,000Ha are being cultivated for forage production countrywide[31]. For example, 33,750 Kakamega seedlings, 23,080 calliandra trees, 10,670 leucaena trees were distributed. 54.6MT of Napier grass cuttings, Brachiaria and Panicum splits have been produced and 696 kg of seeds of Chloris, Leucaena, Panicum, Desmodium, Mucuna and Barley fodder were also produced. Additionally, 3,127 farmers were trained on forage production, harvesting and conservation, as well as on general ruminant livestock husbandry. There is a need to develop technical interventions in growing climate smart forages, use of crop residues, processing and conserving forages to ensure that sufficient livestock feed production especially during the dry season.

2.4.2 Dairy cattle productivity

The number of dairy cattle has reached 1,644,692 million cattle and the national milk production increased from 503130 Metric Tons in 2013 to 1,061,301Metric Tons in 2023 and is expected to grow as the national target is to reach 1,274,554 Metric Tons of milk per year by 2024[32]. The National per capita annual milk consumption increased from 37.3Kg/person in 2010 to 75.3Kg/person in 2021/22 and the national target is to reach at least 80 Kg/person by 2024. The country counts a total of 132 Milk Collection Centres (MCCs) with a total installed cooling capacity of 483,000L per day; 50 milk processing plants (7 large and 43 SMEs) with a total installed capacity of 254,000L/day and there is a milk powder processing plant in Nyagatare District under construction which will have 500,000L/day processing capacity per day.

[31] MINAGRI (2023). Annual Report, 2022-2023 FY
[32] MINAGRI 2018. Strategic Plan For Agriculture Transformation 2018-2024

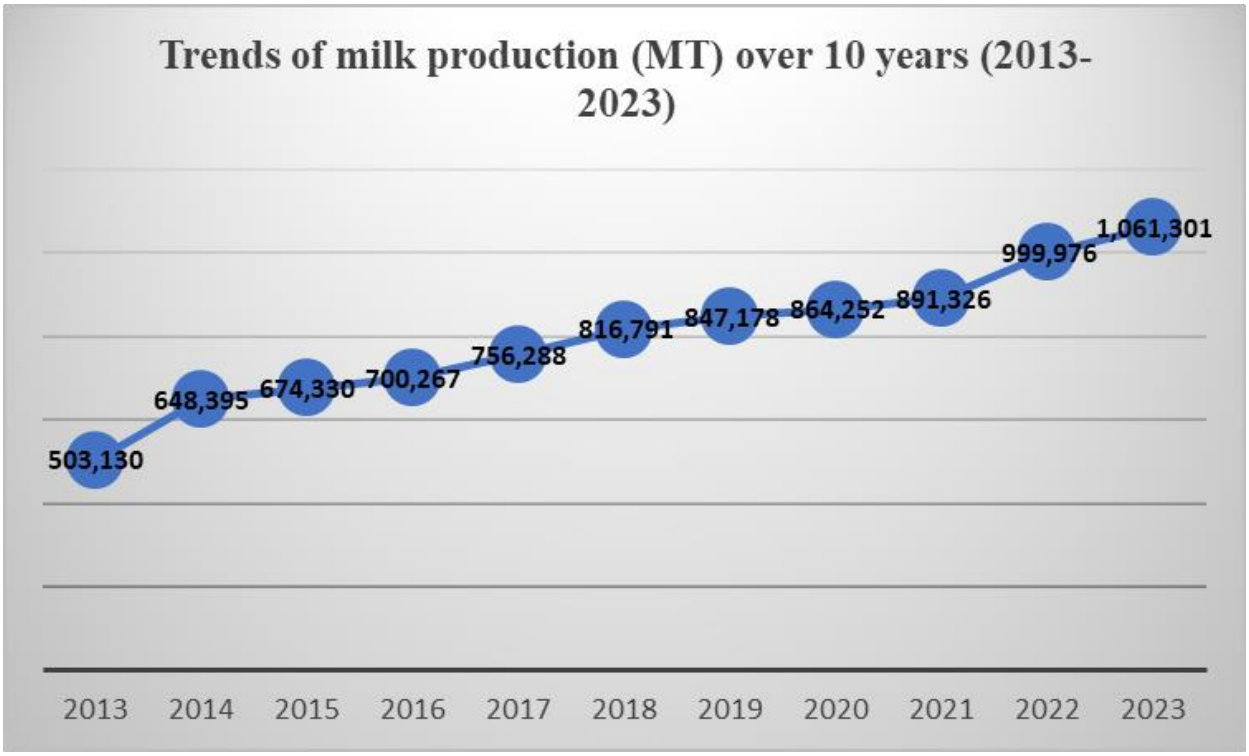

Figure 2: Trends of Milk production (2013-2023)[33]

In Rwanda there are five milk sheds as follows: The Eastern province (29% of the country's lactating cows), the Western province (21% of the country's lactating cows), the Southern province (28% of the country's lactating cows), the Northern province (18% of the country's lactating cows), and the Kigali peri-urban area (4% of the country's lactating cows)[34].

Regarding the rearing systems, in Rwanda dairy farmers raise animals under three production systems namely zero-grazing system, semi-grazing system, and extensive (open grazing).

The **zero-grazing system:** according to the recent statistics, 94% of the animals are kept under zero-grazing farms and have an average productivity of 3.5 kg/head/day of milk[35] (FAO, 2022b). This system consists of feeding cut-and-carry forage (mostly Napier grass, *Pennisetum*

[33] MINAGRI (2023). Annual Report, 2022-2023 FY

[34] NISR (2020). Rwanda Agriculture Household Survey

[35] Ronnie Ahumuza, Gilbert Mutoni, Emily Ouma1, Ben Lukuyu, Joseph Nshokeyinka and Alan Duncan (2022). Feeds Interventions under the Rwanda Dairy Development Project-farmers' perceptions regarding sustainability and impact.

purpureum) and crop residues to animals that are kept in sheds[36]. It is the most widely practiced in all regions but more dominant in peri-urban areas of Kigali and in the Southern Province due to the scarcity of grazing land resources in the country as a result of their turnover to crop cultivations in response to population growth[37]. It is characterized by low productivity due to several reasons including limited skills among farmers, poor access to livestock extension and advisory services and inputs, limited diversified forages).

Semi-grazing consists of a mixture of zero and open grazing where cattle are kept in stalls, fed on both forages, and grazed. It is primarily practiced in the Eastern province, 4% of the Rwandan dairy cows are kept in semi-grazing stalls and have an average milk productivity of 3.2 kg/head/day[38]. However, the geographical locations of which semi-grazing system is more dominant, are characterized by prolonged dry seasons (3-4 months) which can negatively affect water and feed availability, animal health and their productivity [39]

The **pastoral (open grazing)** system is based on the availability of free access to individual or communal grazing lands for animals. It is mostly practiced in the Western and Northern highlands, where rangeland of about 12,000 ha (Gishwati plateau) has been demarcated and leased to the local community and cooperative for livestock farming[40]. Only 2% of the national dairy herd is kept in open-grazing farms, with an average milk productivity of 4.3 kg/head/day. Animals farmed in this type of system have generally good access to water and pasture, which positively impact their productivity.

2.4.3 Beef Cattle productivity

Cattle population in Rwanda including improved dairy, beef cattle is estimated at 1.436 million heads of cattle out of which 16% are local breeds, 20 % Holstein-Friesian, 43% Holstein-Friesian

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[36] Ntabakirabose Gaspard, Mbabazi Mbabazize, Mpatswenumugabo Jean Pierre, Izamuhaye Jean Claude, David Mwehia Mburu (2022). Impact of zero grazing practices on livestock production among smallholder farmers in Rwanda: A Case study of Burera and Gicumbi Districts.

[37] M. Mutimura, A.B. Lussa, J. Mutabazi, C.B. Myambi, R.A. Cyamweshi and C. Ebong (2013). Status of Animal Feed Resources in Rwanda. Tropical Grasslands-Forrajes Tropicales, 1, 109-110. https://doi.org/10.17138/TGFT(1)109-11

[38] Feed the Future Innovation Lab for Livestock Systems (2016). Rwanda: Animal Sources Foods Production and Marketing Brief.

[39] Management Entity. 2022. The Livestock System in Rwanda – An Overview. Gainesville, FL, USA: Feed the Future Innovation Lab for Livestock Systems.

[40] Africa SDG Index and Dashboards Report, 2018.

crosses, 5% Jersey, 12% Jersey cross, 2% Sahiwal and cross and 3% other cross. Very few specialized breeds of beef cattle are observed in Rwanda (e.g. Charolais, Simmental, Boran, Sahiwal etc.) and the main source of beef comes from local breeds and their crosses with mainly Holstein Friesian and Jersey. In 2022/23 FY, 197,778 MT of meat were produced wherein 74 % was from beef and the remaining 26% came from sheep and goats[41].

Considering the size of available land relative to the food needs of the human population, the land available for large-scale forage feed production for cattle is indeed very limited. Thus, the utilization of crop residue such as rice straw, maize stoves, bean and soya straw could provide extra income to farmers organized into cooperatives and will increase the productivity of beef cattle and hence increase the income to cattle keepers.

Currently, the majority of beef animals slaughtered come from local smallholder farmers who grow or purchase 1 up to 10 cattle, fatten them until they reach slaughter weight. Few commercialized beef farmers such as Gako Meat Company ltd, IMPROBEEF and others have emerged to address the issues of beef meat scarcity in Rwanda. For example, Gako Meat Company Ltd, a Public Private Partnership (PPP) initiative has so far about 5,000 cows on the farm seated on 5.919 hectares with a progressive plan of shifting from rearing general cows to hybrid beef cows to gradually attain the goal of having 56,000 cows in the feedlots (for fattening) and a target of slaughtering 86,400 cows annually. It is expected that with more investment, and shift from subsistence production system to commercial beef farming under large scale or feedlots system, the beef industry will be able to supply locally and export market needed beef products.

2.4.4 Productivity of small ruminants

Goat and Sheep (Small ruminant) production is a key livelihood strategy for small-holder farming communities in many countries of Sub-Saharan Africa such as Rwanda. The small ruminants fulfill multiple livelihood functions including providing income, acting as a source of nutrition, as a means of storing capital and a range of other cultural functions. The Rwandan goat and sheep industries contributed around 26% (51.4MT) total meat production of 197,778 MT in

[41] MINAGRI (2023). Annual Report, 2022-2023 FY.

2022/23FY., despite the slow growth of the total production and reduction in animal population for both goats and sheep[42]. In Rwanda, goat and sheep farming is mainly rural and family-based, with around 87% of goats and 88% sheep being reared in rural areas[43].

According to MINAGRI[44],there is a slight decrease in both goat and sheep populations, whereby the goat's population is currently 1,995,636 whereas the sheep population is 440,214, respectively. The reported small ruminant population belong to 643,420 goat farmers and 155,525 sheep farmers. Despite the significant contribution of goats and sheep to read meat production, the reported decrease in terms population was attributed to several factors including poor production potential of local breeds, lack of good breeding stock, high inbreeding rate, inadequate feed resources and animal health care, disease outbreaks, unorganized market for small ruminant, lack of organized goat and sheep producers' association, lack of investment among others.

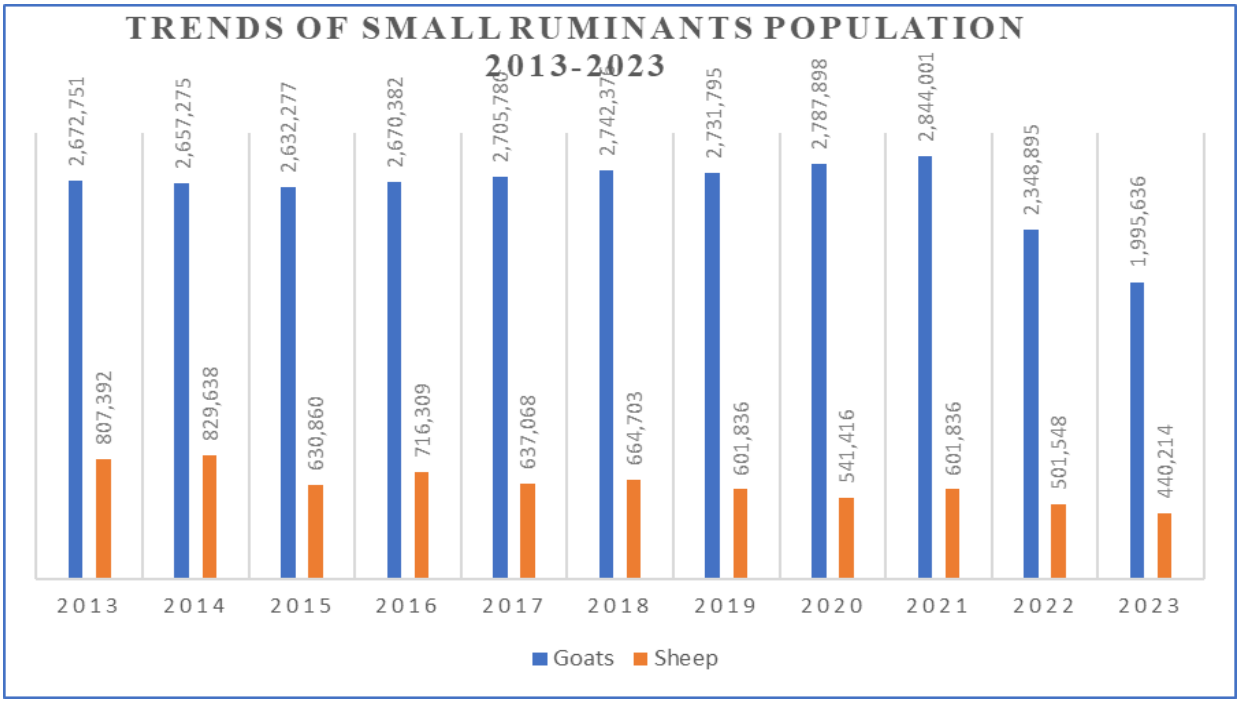


Figure 3: Trends of goats and sheep populations over 10 years (2013-2023)

[42] MINAGRI (2023). Annual Report, 2022-2023 FY
[43] NISR (2021). National Agriculture Household Survey
[44] MINAGRI (2023). Annual Report, 2022-2023 FY

2.4.5 Productivity of poultry

The poultry sector in Eastern Africa has been substantially growing in the 5-7 years, driven by several factors highlighted above. Similarly, the Rwanda poultry sector is growing and performing well along with the population and high demand of animal protein. The population of chicken has increased from 4,687,984million in 2013 to 6,067,215 million in 2023 showing an increase of 65.5% in the last 10 years. In 2017, the Government of Rwanda adopted the Livestock Master Plan (LMP), a blueprint for the development of the livestock sub-sector with key focus on the white meat industry, of which poultry products were at the core. According to LMP[45], investment of US $ 61.4 million spread over a period of five years. Rwanda was aiming to increase poultry meat and eggs by more than two times annually whereby 17,344MT of eggs were produced in 2022/2023 from 6,324 MT in 2013 (Figure 4).

The above targets were also expected to be achieved by facilitating the rearing of the Improved Traditional Family Chicken (ITFC), Crossbreed Family Chicken (CFC) and expanded specialized/Commercial Chicken (SP) systems-with Layers.

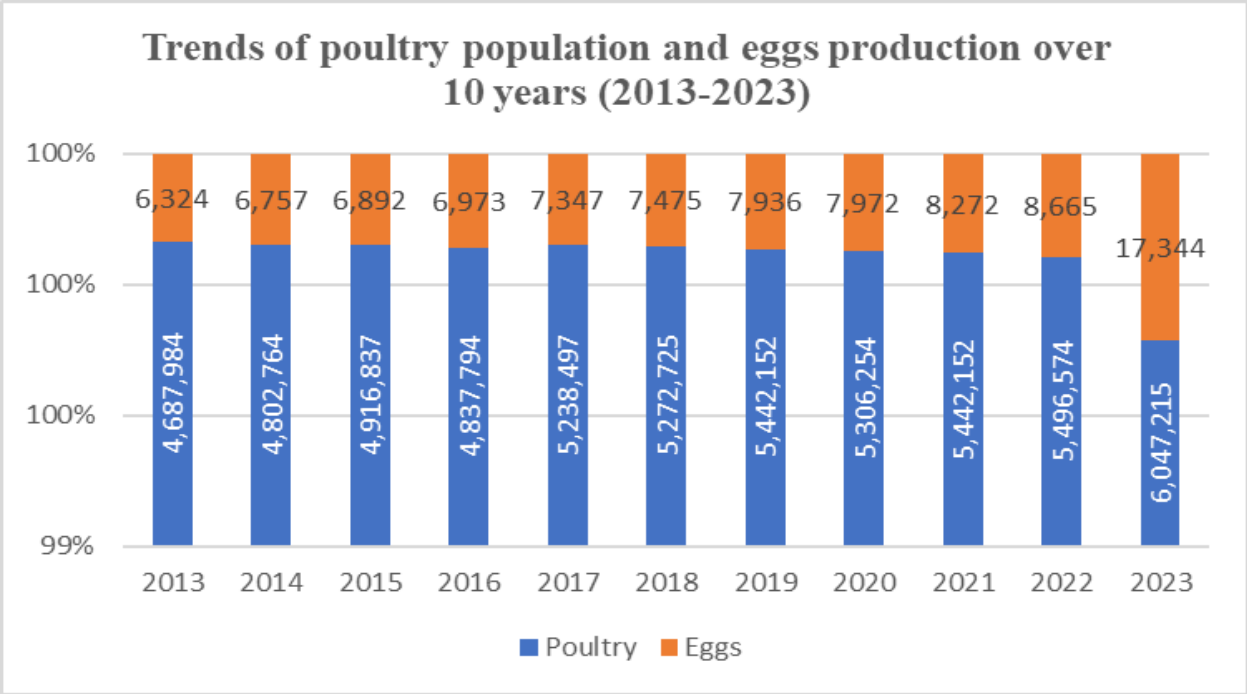


Figure 4: Trends of poultry population and productivity over 10 years (2013-2023)

[45] MINAGRI (2018). Rwanda Livestock Master Plan

Regarding the production systems, there are two coexisting systems in Rwanda including the traditional/extensive system versus commercial chicken production system. The most dominant is the traditional village poultry which is relatively well-distributed throughout rural, urban and peri-urban areas. It is characterized by minimal biosecurity measures; use of non-conventional feed resources, high disease prevalence, lack of technology and by a direct connection between producers and consumers. Despite its dominance, this traditional system results in low production rates and high risks and losses linked to poor management, pests, predators and disease outbreaks[46].

The commercial poultry sector in Rwanda still remains in the initial stage of development. It is characterized by the farmers who keep larger flock sizes than village poultry and are market oriented. Moreover, commercial farms implement basic biosecurity measures and use of modern equipment in feeding, watering, vaccination and egg collection. In this system, there are broiler and layer farms whereby the chickens are raised either on deep litter or in battery cages[47]. The chickens' breeds/ecotypes mostly used here are exotic layers or broilers or cross-breed chickens. The poultry products (eggs and meat) produced in this system are then sold to local businesses: supermarkets, small shops and restaurants[48].

There are different inputs and services required in the poultry farming business. The main ones are day-old chickens, poultry pens/houses, feeds and water, electricity, drugs and medicines, technical and manpower, human resources and poultry products markets. Concerning the sourcing of Day-old Chicks, there are four major hatcheries operating in Rwanda and these hatcheries obtain the parent stocks from Netherlands (Hendrix Genetics), and Mauritius. Despite the presence of these local hatcheries, the demand of DOC in Rwanda continues to exceed supply. Commercial farms are still importing the DOC or fertilized eggs from Belgium, the Netherlands, Uganda and Kenya. In Rwanda, the most distributed and dominant breeds are

[46] Susanna Cocchini and Emily ter Steeg (2019). Poultry Sector Analysis Rwanda based on the Poultry Learning Event 2019. The kingdom of Netherlands.

[47] Jean Pierre Munyaneza, Jean de Dieu Rukundo, Aaron Niyonsaba (2022). Review on challenges and opportunity of poultry production systems, genetic resources, and improvement in Rwanda. DOI: 10.12972/jang.20210014

[48] J Mahoro, T K Muasya, F Mbuza, R Habimana, A K Kahi, (2017). Characterization of indigenous chicken production systems in Rwanda, Poultry Science, Volume 96, Issue 12, 2017, Pages 4245-4252.

Cobb 500 and Ross 308 (broiler), Isa Brown and Lohman Brown, Hyline (Layers), Kuroiler, Sasso (Dual-purpose) and local indigenous breeds (non-distinct). The farmers have two options to procure poultry feed. They either buy it or formulate and produce their own feeds.

The growing domestic and regional markets for poultry products has spurred investment in the subsector, attracting both local and international funds. The rapid increase in investment in the subsector (mainly for the last three years), is shown by the growing number of agribusinesses in poultry farming, and Investments in feed manufacturing. Eggs and broilers are produced by small, medium and large poultry farmers, with the majority of output purchased by small traders for delivery to city outlets (wholesalers, exporters and retailers). The National per capita annual eggs consumption increased from 0.63Kg/person in 2018 to 1.4Kg/person in 2022/23[49].

According to the study conducted by ENABEL (2020), despite a remarkable growth, the poultry sector face several technology challenges/gaps including: lack of specialized skills/low technology uptake and poor application of regulatory standards and lack of standard poultry housing systems; lack of standard poultry housing systems; lack of appropriate breeding stock; feed factories operate under capacity due to inadequate supply of raw materials; inadequate technical skills and financial capacity as well irregular supply and costly DOCs; low level of adoption and use of improved technologies; lack of investment capital; poor extension and veterinary services; weak poultry sector regulations, standards and certification among others.

2.4.6 Productivity of pigs

The pig production in Rwanda is gaining importance owing to the shift from ruminant to monogastric livestock production, as is the case in many developing countries. In 2018, pork production represented 21% of meat production in Rwanda and the pig population was estimated to be 1,330,461 and the current pig population is estimated at 1,123,075 heads. The decrease in the number of pig population was attributed to high mortality of pigs experienced in 2022/2023 due to African Swine Fever outbreak, swine Erysipelas and leptospirosis diseases[50].

[49] MINAGRI (2023). Annual Report, 2022-2023 FY
[50] MINAGRI (2023). Annual Report, 2022-2023 FY

Pig farming is mainly practiced in different parts of the country but mainly concentrated in southern and western parts of Rwanda. The growth has been driven by the growing appetite for pork, disease control in pigs, availability of animal feeds, and high returns that farmers get from pig farming.

In Rwanda, the majority of pig producers are smallholder farmers who rear pigs in their backyards and house them in semi-permanent structures. The traditional pig rearing system is the most predominant production system found in the country where 1 – 2 local breeds of sows are kept in the backyard and fed on kitchen waste and agricultural by-products. Most pig breeds used in these systems are local breeds that are characterized by a very slow growth, high mortality rate, limited prolificacy and have a very low productivity because of production diseases and inadequate feeding and housing system (structures). Semi-intensive production system is also practiced in the country where improved breeds are kept/ and some commercial pig production management principles are applied[51].

Modern pig husbandry practices (intensive production system) have recently been introduced in Rwanda. In this system, the swine are usually of imported breeds (exotic breeds) and are kept in confinement and fed with concentrated feed, provided with clean water, vaccines, and other important inputs. Some standards management practices are also observed although in a limited way. The herd size in the system ranges from 10- 400 head of pigs. However, in a recent study commissioned by ENABEL Rwanda, it was found that although most farmers sampled had adopted intensive production systems, there was limited adoption of technology[52].

Currently, over 70% pig enterprises in Rwanda are rearing exotic breeds and the most popular pig breeds are Large White, Landrace, and Pietrain followed by indigenous and some crossbreeds between these exotic and indigenous ones. Recently, a new exotic breed, Duroc Jersey and combrough, have been introduced in the country. It is also notable that there are no breeding programs either at national or farm level. Pig producers decide to breed any type of breeds according to their availability but also production purpose. Commercial farmers mainly

[51] Shyaka, A., Quinnell, R. J., Rujeni, N., & Fèvre, E. M. (2022). Using a value chain approach to map the pig production system in Rwanda, its governance, and sanitary risks. Frontiers in Veterinary Science, 8, 720553.
[52] ENABEL (2020). Technology audit for piggery value chain in Rwanda.

use improved breeds, while traditional farmers solely rely on the indigenous or crossbreeds. Lack of breeding centres (seed stock nucleus) poses a serious problem, since the majority of pigs in the country are highly inbred.

Artificial insemination (AI) technology in pigs, is a newly introduced breeding method in Rwanda. Few semen production centres exist in the country, mainly in the Northern Province (Rulindo District - Kisaro centre, Gicumbi district: Kageyo centre at VAF and Musanze District - Busogo centre, at the University of Rwanda) and in the eastern province (Rwamagana District - Muyumbu Breeding Centre and Bugesera district: Ntarama centre), and in the South Province (RAB - Station Muhanga) and in the Western province (Rusizi-Heritage college of agri-farming centre). At these centres, semen, exotic breeds, and their crosses are also sold to farmers, therefore, they are seen as breeding stocks for pig population genetic improvement. However, in many areas of the country, the scarcity of semen production centres leads to the only choice of natural mating technique in pig production amongst smallholder farmers.

2.4.7 Livestock products supply (Meat, milk, eggs, Hides and skins)

Rwanda has recorded a remarkable increased growth in livestock products supply due to various policy interventions. The major policy interventions include One cow per family program, provision of improved breeds and adoption breeding technologies, strengthening animal health and infrastructure development, livestock production inputs subsidized program, livestock insurance scheme, availing animal feed resources and enhancing animal feeding practices. Different programs and projects under auspices of the government of Rwanda together with partnering institutions such as Livestock intensification program, Girinka program, small stock development, among others have contributed tremendously in increasing the livestock products over the years.

The milk production increases from 503,130MT in 2012 to 1,061,301MT in 2023; meat production supply increases from 74,519MT in 2012 to 197,778MT in 2023; eggs production increases from 6,324MT in 2012 to 17,344 MT in 2023; while the hides and skin also show an unprecedented increase from 3,814MT in 2012 to 6,027MT in 2023.

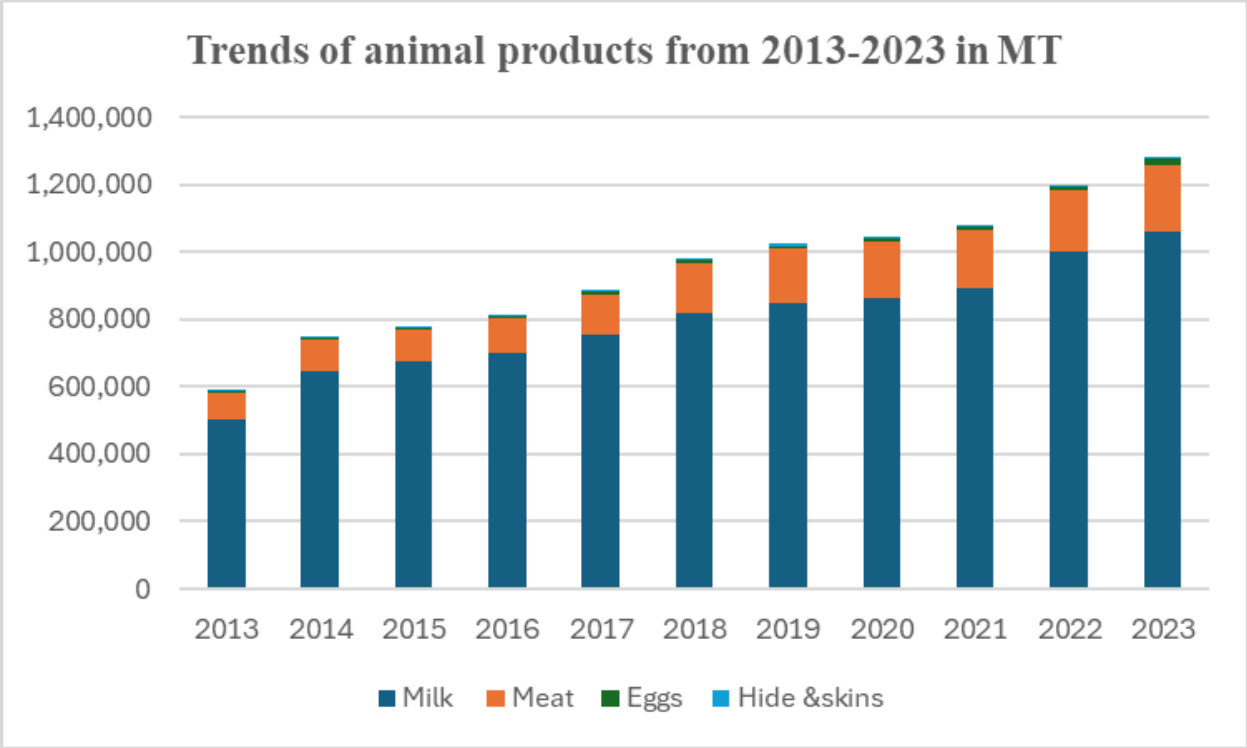


Figure 5: Trends of Animal Products 2013-2023[53]

2.4.8 Livestock sub-sector export productivity

The agriculture sector remains the backbone of the Rwandan economy and the largest source of employment countrywide. In Fiscal Year 2022/23, the share of agriculture in Rwanda's gross 2023 domestic product was 25% and its contribution to the national exports earned was 34%. The PST4 Mid-Term Review (MTR) revealed an increased agricultural production and productivity, and this undoubtedly contributed to the average GDP growth of 6% in the last five years while the stunting prevalence rate dropped from 38% in 2015 to 33 % in 2020.

[53] MINAGRI (2023). Annual Report, 2022-2023 FY

Figure below summarizes the values of exports (revenue in US$) for a range of livestock products between 2017/18 and 2021-2022[54].

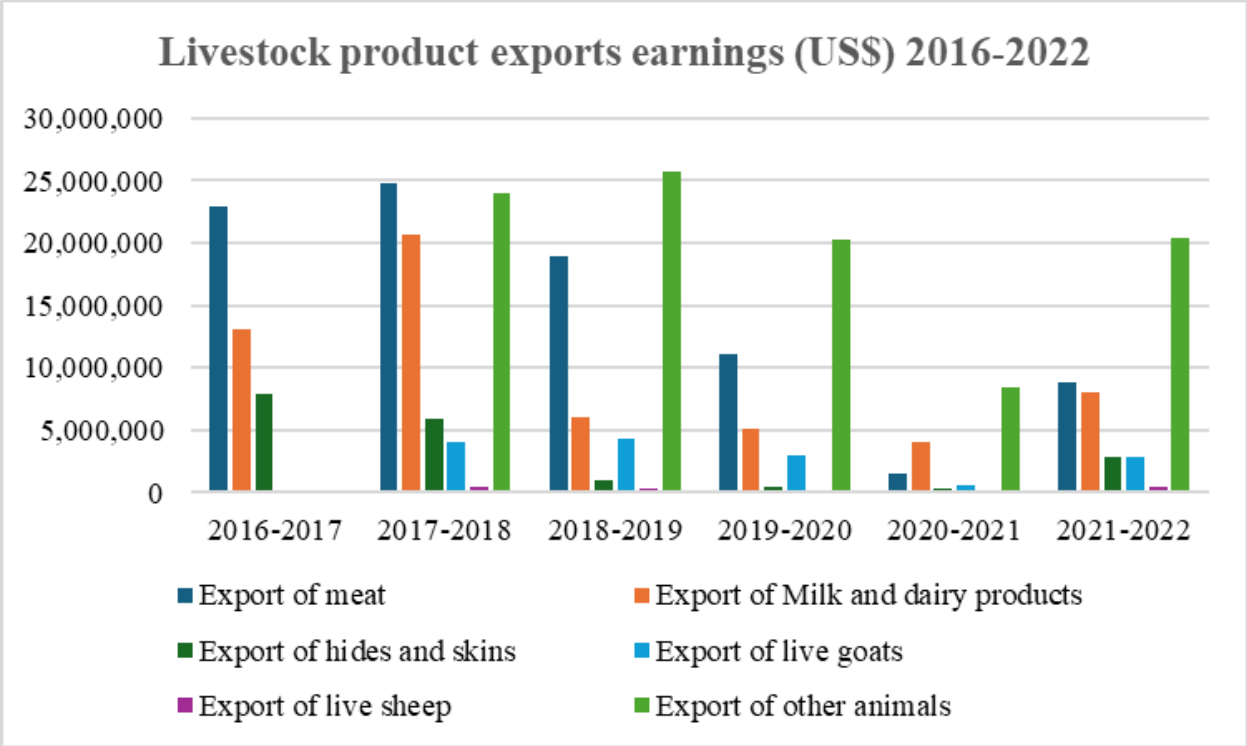


Figure 6: Livestock product export earnings (US$) 2016-2022

2.4.9 Status of livestock health in Rwanda

Rwanda has made efforts to improve livestock health and productivity through various initiatives such as disease management, veterinary services, livestock identification and traceability, livestock insurance scheme, and research and development. Despite a remarkable progress in animal health, Rwanda is still facing several challenges including trans-boundary and emerging epidemic diseases of animals such as East Coast fever, foot and mouth disease, Lumpy skin diseases, brucellosis, mastitis, and tick borne diseases in cattle, Swine Erysipelas, African Swine Fever, Leptospirosis in Pigs, Newcastle Disease, Gumboro, Salmonellosis and coccidiosis in Poultry, Peste des petits Ruminants (PPR) in goats and sheep, among others. These are most attributed to the weak implementation of the epidemio-surveillance programme and limited knowledge and skills among livestock producers on diseases early detection, diagnosis, and application of biosecurity measures/herd-health programs. In addition, lack of sufficient animal

[54] NISR (2022). National Statistical YearBook

health infrastructures (e.g., animal clinics, laboratories, spraying facilities, animal markets, etc.) compromises veterinary services provision. For example, there are only five (5) laboratories: Rubirizi National Veterinary Laboratory which offers diagnostic services in the areas of bacteriology, serology, virology, helminthology, protozoology and entomology and pathology. In addition to its central laboratory in Kigali, 4 satellite laboratories are located in Nyagatare, Musanze, Rubavu and Huye.

To tackle the above challenges, each year mass vaccination programs and other control measures are being conducted. For example, in 2022/23 FY, animal diseases control was conducted through mass vaccination of animals against economically important and zoonotic diseases. The vaccination campaigns target the outbreak-prone diseases such as Foot and Mouth Disease (FMD), Black Quarter (BQ)/Anthrax, Lumpy Skin Disease (LSD), Rift Valley Fever (RVF), Brucellosis, and Rabies. A total of 261,184 cows were vaccinated against FMD; 1,331,633 cows against LSD, 759,728 cows were vaccinated against BQ, 1,267,970 cows were vaccinated against RVF, 81,638 cows vaccinated against brucellosis and 9,761 dogs were vaccinated against rabies[55].

With increasing investments in the livestock sector, coupled with growing demand for veterinary services and limited-service providers in the public sector, efforts have been made in strengthening the veterinary services to provide better healthcare for livestock. This includes increasing the number of trained veterinarians and improving access to veterinary care in rural areas and outsourcing the veterinary service activities from the private sector in both formal and informal means. To support availability of veterinary service infrastructures, fifteen (15) proximity veterinary posts were constructed to support farmers accessing proximity extension service delivery.

Apart from that, Livestock identification and traceability systems have been established to monitor and control disease outbreaks, management of cattle reproduction events (Artificial insemination, fertility), animal health events (vaccinations, diseases treated, drugs used). production events (milk, growth, feeding, etc), and especially the management of cattle pedigree

[55] MINAGRI (2023). Annual Report, 2022-2023 FY

details for having improved breeds in the future. It also helps in tagging animals for easy registration, identification and tracking when need arises.

Livestock insurance scheme has been introduced to enable farmers to access financial services and ensure flow of credit to the agriculture sector by de-risking agriculture activities through insurance. It helps mitigate risks and losses incurred by farmers due to unpredictable natural disasters, pests and diseases that affect their livestock and crops. So far, 48,962 cows are insured, 274,506 poultry insured, and 7300 pigs insured. The government has also supported research and development in livestock health. This includes efforts to develop disease-resistant breeds and improve overall livestock productivity.

In addition, an Animal Resources Permit Management System (ARPMS); a web-based application managing animal transportation permits was established to help Rwanda citizens to acquire live animals permits such as internal movement, transit, import and export.

CHAPTER THREE. THE LIVESTOCK DEVELOPMENT STRATEGY (LDS) AND IMPLEMENTATION PLAN

This chapter covers the mission, and vision for Livestock Development Strategy. It also articulates the strategic objectives, outcomes, outputs, and core interventions that will be implemented to meet the strategic objectives and mitigate the identified issues, challenges, and gaps.

3.1 Livestock Development Strategy

3.1.1 Vision of LDS

The vision of the livestock sub-sector is that *"By the year 2029, there should be a sustainable and globally competitive livestock sub-sector, using adapted and highly productive livestock breeds that contribute food security, improved income and livelihood for Rwandans taking into consideration the environment conservation".*

3.1.2. Mission

The mission of the LDS is:
"*To develop and manage sustainably the livestock sub-sector by creating an enabling environment and producing high quality animal products while providing services that increase productivity, value addition, market access and profitability*".

3.1.3 Objectives

The **overall objective** of the livestock development strategy is to ***"Promote a competitive, efficient and sustainable livestock sub-sector that contributes adequately to the improvement of the wellbeing of the Rwandan people"***. The **strategic (specific) objectives** are aligned with the following three pillars for livestock development:

- To modernize animal resources production, promote food and nutrition security
- To develop inclusive livestock market systems for increased incomes.
- To strengthen the systemic enablers

Three cross cutting components are proposed along all value chains in defining the interventions to achieve the strategic objectives. The cross cutting are gender mainstreaming and youth employment, the modernization of the livestock systems through digitalization, and the promotion of climate change mitigation and adaptation.

Livestock sub-sector is a source of many valuable products and by-products. This sector contributes a lot to the economic growth and human livelihoods. However, the potential opportunities for livestock development have not been fully exploited. As revealed by different stakeholders, the development of this sector has been impeded by various factors including: low production potential of exiting livestock species, scarcity of animal feeds and poor feeding practices, limited availability of high adaptive and performing breeds, poor animal health services and disease outbreaks, poor animal products processing and value addition, low investment capital, high informal market rate for animal products, limited flow of market information, limited knowledge and skills among value chain actors, poor research which results to insufficient digitalization and innovative interventions and delivery of extension services, unpredictable weather conditions and climate change, weak enforcement of policy and legal framework in livestock sub-sector. These constraints will have to be addressed in this five year-strategic plan, in order to achieve the intended livestock sub-sector contributions to food security and economic development.

The strategic areas have been derived from the livestock sub-sector situation analysis and the lessons learnt from the implementation of the previous strategic plans and LMP. They have also been informed by strategic pillars and priorities for agriculture and livestock development in SDGs, CAADP, EAC livestock policy, Rwanda Vision 2050, NST1, PST4, LMP, NAP, strategy and investment plan for small animal industry in Rwanda, and other agricultural related policies and strategies.

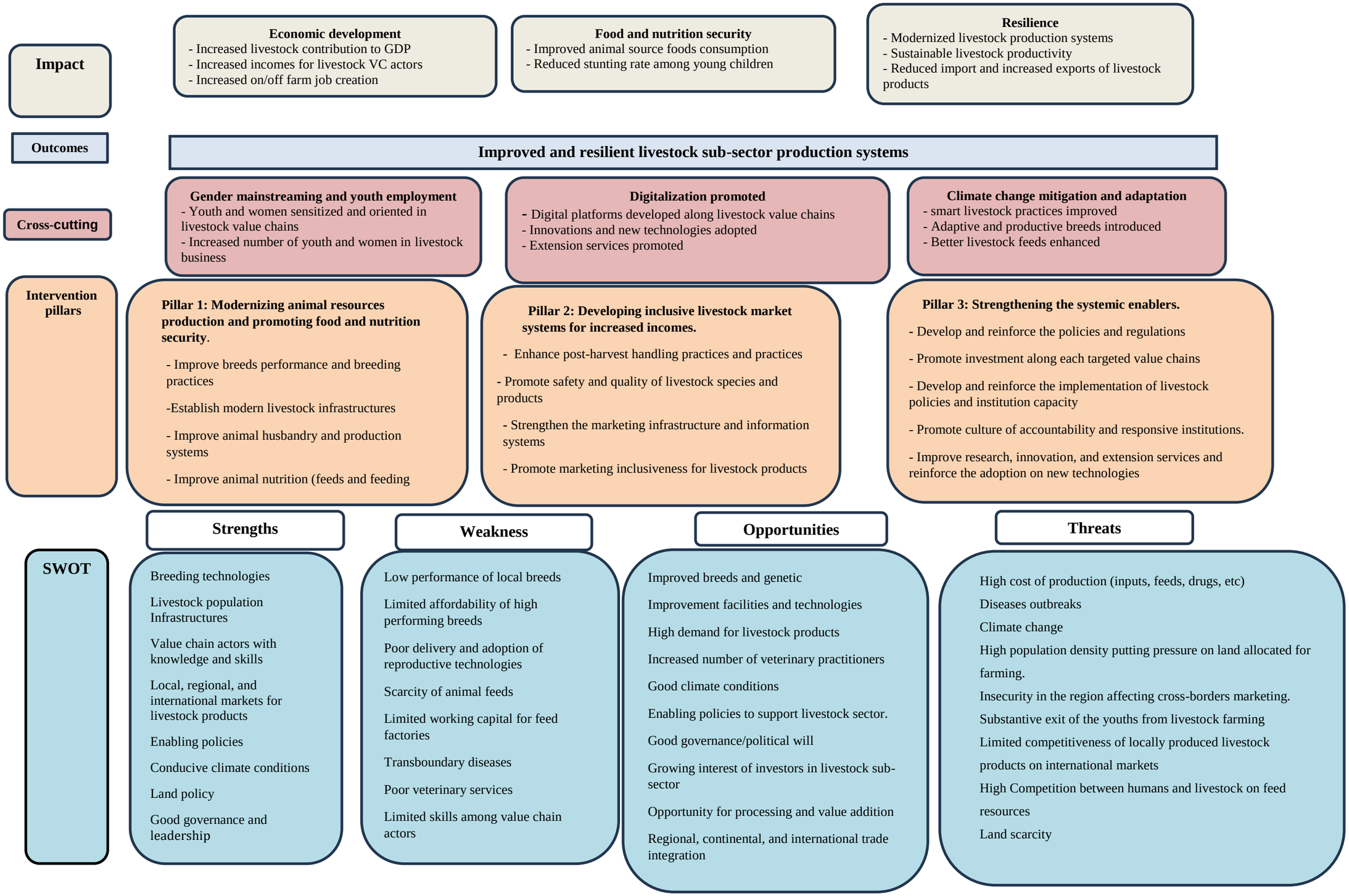
Therefore, the outcomes have been derived from the specific objectives as follow:

i. Modernizing sustainable animal resources production, promoting nutrition, and food security;
ii. Developing inclusive livestock market system for increased incomes;
iii. Strengthening the systemic enablers.

3.1.4 Theory of change

A Theory of Change is a specific and measurable description of a social change that forms the basis for planning, ongoing decision-making and evaluation. For the strategic change under development three theory of change is illustrated in Figure 7.

Figure 7: Theory of Change for LDS



3.1.5 LDS Implementation Framework

The overall strategic framework of the Livestock Development Strategy is clearly presented in the table below:

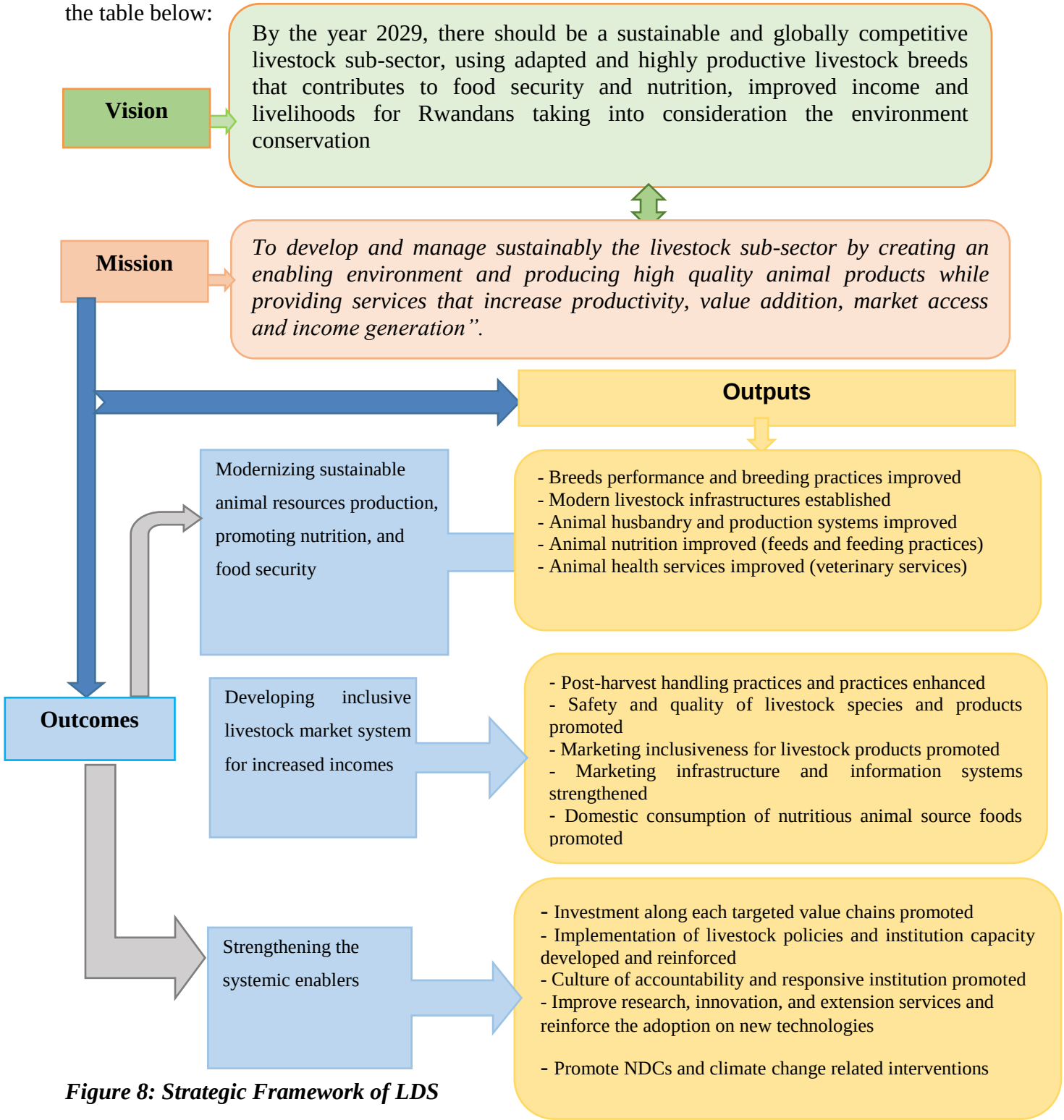


Figure 8: Strategic Framework of LDS

3.2 Key activities of the strategy

The following sections describe narratively the summary of key activities, in alignment with proposed outcomes, outputs, based on the identified issues, challenges and gaps in all value chains. Therefore, the summarized implementation plan for every value chain is elaborated with performance indicators, targets, responsible institutions/departments, and budget estimation to execute them.

3.2.1 Outcome I: Modernizing sustainable animal resources production, promoting nutrition, and food security

Under this outcome, five key strategic areas have been proposed that need improvement to sustain the production of animal products and consistently ensure the increased productivity to farmers and other actors in the livestock sub-sector. Those strategic areas include:

(i) Improving breeds performance and breeding practices: include interventions/activities related breeding programs for locally adapted and exotic breeds in all value chains; animal identification system, infrastructure development for recording and genetic evaluation; the delivery and adoption of AI facilities and breeding services; research on breeds performance and adaptability for all value chains;

(ii) Improving animal husbandry and production systems. This will focus on activities related to zero grazing interventions in animal husbandry systems, forage seeds systems, and shed construction.

(iii) Establishing modern livestock infrastructures this will include the support to market extension to enable millers/factories, support infrastructure such as electricity, farm machinery, cleaned water distribution, tanks, boreholes, irrigation schemes for forage production.

(iv) Improving animal nutrition with the main focus on feeds and feeding practices. It includes mainly activities related to production of forage seeds multiplication, preservation and commercialization of pasture and fodder, investment in storage and marketing of concentrates and feed supplements, feed ration formulation and best feeding practices; research directed towards utilization of marshlands and livestock-crop integration systems, promoting use and conservation of locally available feed resources and better use of agro-industrial by-products

from the processing of cereals (grains) as concentrates/supplements for animal feeding, and interventions related to water infrastructure;

(v) Improving animal health services that mainly will focus on veterinary services. This includes the animal welfare in animal production and transportation; surveillance, mapping and diseases control interventions; empowerment of veterinary service regarding the required tools and equipment; veterinary laboratories, clinics, and mobile veterinary labs. This includes also the activities related to research and production of safe, effective and affordable veterinary vaccines, use of veterinary drugs and biological and furthermore regarding the PPP model in provision of veterinary services for example through the veterinary sanitary mandate, livestock insurance scheme, CAHW's with skills and equipment.

3.2.2 Outcome II: Developing inclusive livestock market system for *increased incomes*

This includes the interventions related to

(i) Post-harvest handling practices that focus on investment in animal products processing, transportation and commercialization; reduction of post-harvest losses;

(ii) Safety and quality of livestock species and products that include activities related to quality assurance for all animal products value chain actors (farmers, productive alliances, aggregators, inputs suppliers, transporters, processors, retailers); application of quality standards, inspection, certification of animal products; quality and safety control laboratories for animal products;

(iii) Marketing inclusiveness for livestock products will include the activities related to animal products trade and licensing; quality-based pricing to encourage quality animal products production; regular pricing guidelines for animal products;

(iv) Marketing infrastructure and information systems will include activities related to animal products facilities such MCCs, slaughter houses, abattoirs, processing factories, collection and selling points for animal products; market data analysis and dissemination systems; research outputs, innovations, export/import market requirements;

(v) Promoting domestic consumption of nutritious animal source foods that focus on awareness campaigns and nutrition related activities.

3.2.3. Outcome III: Strengthening the systemic enablers

This focus on:

(i) Promoting investment along each targeted value chains that include multipliers of forage seed and distribution of seeds to small scale farmers; capacity of existing commercial animal feed factories; establishment of animal products processing, cold chain, feed reserves and feed factories; establishment of private animal health services delivery; public private partnership (PPP) in utilization of government available grazing land and livestock infrastructures; establishment of new animal products processing plants; investments in livestock farm machinery and equipment (farm technology); high genetic proven bulls and disseminate high semen quality.

(ii) Developing and reinforcing the implementation of livestock policies and institution capacity include activities related to breeding strategy and practices; grading and pricing policy for animal products; regulations for animal feeds manufacturing, standards and formulation of commercial feeds and non-conventional feeds; guiding policy for adoption and application of PPP model in public livestock facilities; private veterinary services delivery and private public partnership in service delivery; animal products traceability policy; regulations for veterinary profession, drugs and pharmaceutical supply and distribution/usage; uptake of livestock insurance scheme in all value chains; free and quality-based competitive market for animal products; support to policies, standards and regulations; support to national farmers organizations and stakeholders' platforms; repository database on market and investment opportunities.

(iii) Promoting culture of accountability and responsive institutions that include interventions to support National farmers and other actors' platforms and Council of Veterinary Doctors; training, fund mobilization and accountability; inter-sectoral coordination for livestock sub-sector development activities.

(iv) Improving Research, innovation and extension services that focus on activities/interventions related to development of training manuals and research proposals and documents; establishment of the in-house and coaching program for farmers and other actors in all value chains; investment in livestock research activities; infrastructure and facilities for training and extension services for young, women and farmers. The adoption of new technologies based on research and developing the policies and regulations on digital platforms and technologies that include creating

supporting software in farm management, animal products processing, marketing and M&E activities. Related activities include the adoption of new technologies and innovation;

All outputs in all value chains include the activities that are cross cutting where they consider the activities related to youth and women integration in livestock sub-sector through empowering them. The off-farms activities are proposed to young people to attract them to be engaged in the livestock sub-sector in the diverse jobs created especially in processing, marketing, transport, and commercialization activities. Climate change related interventions and promoting NDCs such as reduction in CH4 emissions from enteric fermentation and in GHG emissions from manure management, promoting climate resilient livestock, climate resilient postharvest and value addition facilities and technologies. The new LDS considers the cross-cutting issues and defines the interventions related to impacts and vulnerability to climate change such as disaster risk monitoring, integrated early warning system and disaster response plans, access to finance through resource mobilization.

3.2.4 Implementation Plan and Summarized budget of the LDS

The overall responsibility for the Implementation of this Livestock Development Strategy (LDS) lies with MINAGRI top management supported by the respective roles of each department and unit but also the affiliated governmental institutions. In addition, all members of staff of MINAGRI and affiliated institutions will also be accountable for performance on LDS targets set at the department or unit level. Before the implementation itself, the strategy will be cascaded to all levels of the Ministry and integrated into the performance management framework. The annual action plans will be developed at all levels which will be aligned with this strategy, outcomes, outputs, and activities with defined targets.

The implementation matrix for every value chain outlines the department or unit responsible for each activity. Heads of Department/Unit will be solely responsible for results in each activity under their respective department/unit. The accountability framework will be defined and cascaded further through departmental Strategic Plans, Annual Work Plans, Individual Work Plans and Performance Appraisal System (PAS), all of which will be aligned to this LDS.

Table 3: Summarized budget for the implementation of the strategy

(refer to detailed implementation plans per value chain in annex I)

Outcomes	Outputs	Budget in 000,000 Rwf in 5 years							Total Budget	Contributions in %		
		Dairy VC Budget	Beef VC Budget	Pig VC Budget	Poultry VC Budget	Goats VC Budget	Sheep VC Budget	Rabbit VC Budget		Government	Private sector	Development partners
Modernizing sustainable animal resources production and promoting nutrition and food security	I.1 Breeds performance and breeding practices improved	12,655	5,165	15,500	37,620	17,350	7,670	7,000	**102,960**	20%	50%	30%
	I.2 Modern livestock infrastructure established	22,250	10,125	3,700	5845	7,000	7,075	1,500	**57,495**	20%	50%	30%
	I.3 Animal husbandry and production systems improved	3,150	3,085	2,400	7700		1,420	900	**18,655**	20%	60%	20%
	I.4 Animal nutrition enhanced (Animal feeds and feeding practices promoted)	5,300	6,520	13,400	22700	19,270	3,400	1,600	**72,190**	20%	60%	20%
	I.5 Animal health services improved (veterinary services)	21,927	19,945	13,000	16500	9,600	9,500	9,500	**99,972**	30%	40%	30%
Developing inclusive livestock market system for increased incomes	II.1 Post-harvest handling practices enhanced	7,200	3,700	4,700	4600	11,900	-	2,000	**34,100**	20%	60%	20%
	II.2 Safety and quality of animals and animal products promoted	3,782	8,435	3,700	4300	3,000	4,235	700	**28,152**	20%	60%	20%
	II.3 Marketing inclusiveness for animal products improved	6,900	390	700	2000	5,000	-	600	**15,590**	20%	60%	20%
	II.4 Marketing infrastructure and information systems strengthened	3,785	3,450	800	2500	9,650	1,200	800	**22,185**	40%	20%	40%
	II.5 Domestic consumption of nutritious animal source foods promoted	6,700	4,700	2,700	1300	2,540	785	1,700	**20,425**	10%	80%	10%
Strengthening the systemic	III.1 Enabling investment environment along livestock value	16,735	9,200	2,000	5800	4,350	3,900	1,500	**43,485**	30%	50%	20%

enablers	chain created											
	III.2 Implementation of existing policy created and reinforced	5,565	4,125	6,400	3500	1,350	2,220	4,000	**27,160**	50%	20%	30%
	III.3 Culture of accountability and responsive institution promoted	1,745	595	2,000	4600	1,670	510	700	**11,820**	40%	40%	20%
	III.4 Improved research, innovation, and extension services and adoption on new technologies reinforced	11,475	5,235	11,500	1800	2,500	4,985	3,400	**40,895**	40%	20%	40%
	III.5 NDCs and climate change related interventions promoted	12,525	9,095	13,400	4300	9,713	3,260	7,200	**59,493**	30%	40%	30%
Total Budget LDS (5 years)		**141,694**	**93,765**	**95,900**	**125,065**	**104,893**	**50,160**	**43,100**	**654,577**	**29%**	**44%**	**27%**

Stakeholders	***Contribution in 000,000 RWf***
Government	**189,827**
Private Sector	**288,014**
Development Partners	**176,736**

3.2.5 Projections on livestock and livestock products

A. Livestock and livestock products projections under the BAU scenario (2023/2024 – 2028/2029)

In the Business As Usual (BAU) scenario, we navigate the anticipated outcomes and implications of maintaining the current level of investment and practices in Rwanda's livestock sector. This strategic approach envisions a continuation of existing strategies and resource allocations without significant deviations, providing a stable baseline for analysis. Within the BAU framework, our focus is on carefully examining the likely outcomes based on the current trajectory of investment and practices. This scenario anticipates a gradual or moderate growth in the livestock sector, leveraging historical trends and existing conditions. BAU assumes that the current strategies are sufficient to sustain a certain level of growth, embodying a commitment to maintaining production levels and meeting essential objectives.

Time series forecasting predicts the future population of the livestock based on the previously observed values of the livestock in Rwanda. The goal is to forecast the annual livestock population so that we can align the ministry's activities accordingly. From the analytics point of view, we obtain the patterns in the past data and help forecast the future livestock. Depending on the characteristics of data obtained from MINAGRI (2022-2023) report, econometric modeling techniques/ Time series like ARIMA, without the seasonality component was considered and its diagnostics as linear regression could not capture nonlinear trends or sudden changes in the population dynamics. Below is the output of the ARIMA of livestock population

Table 4: Projections of livestock population (2024-2029)

Year	**Base year 2023/2024**	**2024-2025**	**2025-2026**	**2026-2027**	**2027-2028**	**2028-2029**	**% Change**
Cattle	1,644,692	1,527,481	1453684	1407222	1,377,969	1,359,551	-17.3
Goats	1,995,636	2,358,705	2606795	2606795	2,606,795	2,606,795	30.6
Sheep	440,214	563209.8	631747.9	631747.9	631747.9	631,747.9	43.5
Pigs	1,123,075	1,179,228	1,238,189	1,299,998	1,364,798	1,432,587	27.6
Rabbits	656,153	772998.7	852246.8	905995.3	942449.1	967,173.10	47.4
Poultry	6,047,215	6,349,576	6,666,054	6,999,356	7,351,324	7,723,890	27.7

The ARIMA model for cattle population indicates a downward trend (17%) over the next five years (2023/2024 and 2028-2029), reflecting the implementation of a 'zero grazing' policy, which suggests a departure from traditional free-range grazing practices. Additionally, the shift from local breeds to improved breeds characterized by higher milk production and better beef quality. The whole target for all the value chains is based on only the investment scenario which is to double from the current level of population from the base year number (2023/2024) to the Forecast Year number (2028-2029).

Livestock products estimates _BAU scenario

Table 5: Projections of livestock products (2024-2029) in MT

Year	**Base year 2023/2024**	**2024-2025**	**2025-2026**	**2026-2027**	**2027-2028**	**2028-2029**	**% Change**
Milk	1,061,301	1,114,366	1,167,431	1,220,496	1,273,561	1,326,626	75
Meat	197,778	207,666.9	217,555.8	227,444.7	237,333.6	247,222.5	75
Eggs	17,344	18,211.2	19,078.4	19,945.6	20,812.8	21,680	75
Hides & skin	6,027	6,328.35	6,629.7	6,931.05	7,232.4	7,533.75	75

The ARIMA model for livestock products (2024-2029) in MT

The table gives a thorough summary of the forecasts for the livestock products, for a period of 2024-2029 in MT. The projected years are indicated in the "Year" row, where the initial figures of livestock products are reflected for the "Base Year 2023/2024". The remaining columns, "2024-2025" and upwards, present estimated numbers of livestock products. It can also be seen that there is a consistent increasing trajectory over the designated duration by guaranteeing a gradual increment in the livestock product's estimated values.

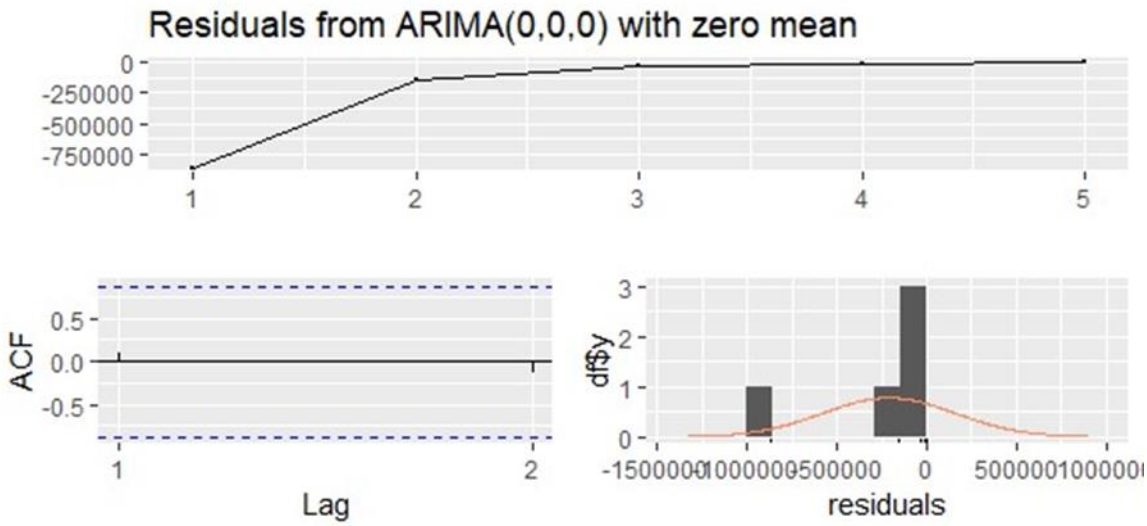


Figure 9: RIMA Plot for livestock Products

B. Livestock and livestock products under the recommended level of investment scenario (RLI)

The Recommended Level of Investment (RLI) stands as a proactive and visionary strategy tailored to achieve precise national development objectives in Rwanda's livestock sector. This strategic approach entails a deliberate and targeted increase in investment, reflecting a commitment to optimizing productivity, addressing challenges, and stimulating robust growth. RLI represents a strategic financial commitment aimed at supporting pivotal interventions, embracing cutting-edge technologies, and fostering innovative initiatives that hold the potential for significant improvements in livestock production.

This recommended scenario is guided by the assumptions given by the current situation of the livestock sub sector as discussed deeply with different stakeholders and some factors have been applied to generate needed changes in the development of the livestock production and productivity. Those factors are namely (i) The population of Rwanda is expected to be 15.4 million inhabitants in 2029 (NISR, 2022), in addition this population will need to be fed but also enough animal source food to fight against malnutrition; (ii) Rwanda is targeting to reach FAO standard of animal source food consumption; (iii) the new regulations and guidelines to accelerate the production systems of the livestock subsector (e.g. zero grazing policy implementation); (iv) human development patterns and the shift from red meat consumption to white meat consumption; (v) Technologies, innovation, and digital development in food systems;

and (vi) climate change mitigation and adaptation systems will impact positively to the sustainable growth of livestock production and productivity systems.

Anticipating accelerated and substantial growth, RLI is engineered to bring about transformative changes within the livestock sector. The increased investment is not merely a numerical adjustment; rather, it is a catalyst intended to optimize productivity and achieve specific targets within a well-defined timeframe of (2023/2024 – 2028/2029). RLI encompasses a spectrum of targeted interventions and innovations, including the adoption of modern technologies, capacity building, infrastructure development, and research initiatives. These initiatives are meticulously designed to enhance productivity, ensure sustainability, and elevate the overall performance of Rwanda's livestock sector.

Table 6: Animal Population in Rwanda (2023/2024 – 2028/2029) under RLI Scenario

Year	Base year 2023/2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	% Change
Cattle	1,644,692	1,665,250.65	1,677,586	1,702,256	1,718,703.1	1,813,742	65
Goats	1,995,636	2,394,763.2	2,753,978	3,073,279	3,352,668.5	3,532,275.7	77
Sheep	440,214	519,452.52	814,395.9	924,449.4	1,056,513.6	1,360,261.3	209
Pigs	1,123,075	1,212,921	1,347,690	1,459,998	1,909,227.5	2,639,226.3	135
Rabbits	656,153	665,995.295	852,998.9	984,229.5	1,049,844.8	1,699,436.3	159
Poultry	6,047,215	7,256,658	7,135,714	8,466,101	9,070,822.5	10,643,098	76

The table above provides the analysis of the projected increase in the animal population with the corresponding interventions for cattle, goats, sheep, pigs, rabbits, and poultry in Rwanda. The data used for forecasting is extracted from MINAGRI report (2022-2023), and the forecast represents the Recommended Level of Investment (RLI) to achieve the national development objectives in the 5th year of the LDS period (2028-29).

Cattle Population: The cattle population in the base year is 1,644,692, projected to increase to 2713741.8 in 2028/2029, representing a substantial 65percent growth. The surge could be

attributed to improved breeding practices, enhanced veterinary care, and nutrition. Despite an increase in the cattle population due to shift from traditional breeds towards improved dairy breeds and cross-breeds, the increase is below the remarkable increase in the rest of population, this reflects anticipated results of implementing the Ministerial guidelines aimed at developing intensive dairy system under zero grazing (30%) and using 70% of land for crop production and land scarcity for grazing. The interventions should focus on in areas of improved husbandry and management practices such as increasing water availability through rainwater harvesting and ensuring cows have water ad libitum; increasing awareness and training of farmers to treat and feed cows with crop by products; availing mineral salts ad libitum and ensuring hygiene and prevention of diseases.

Goats Population: The base year goat population is 1,995,636, projected to reach 3532275.7MT in 2028/2029, reflecting a 77percent growth. The increase may be facilitated by interventions like breeding improvement, disease prevention, and sustainable farming practices.

Sheep Population: The sheep population, starting at 440,214 in the base year, is estimated to grow to 1360261.3MT in 2028/2029, indicating a 209percent growth. Interventions might involve sustainable breeding practices, disease control, and improved animal husbandry.

Pigs Population: The pig population is projected to increase from 1,123,075 in the base year to 2639226.3MT in 2028/2029, demonstrating a 1350percent growth. Interventions could include improved animal husbandry, disease prevention, and increased investment in the pork processing industry.

Rabbits Population: Starting at 656,153 in the base year, the rabbit population is forecasted to reach 1699436.3MT in 2028/2029, indicating a 159 percent growth. Possible interventions may involve promoting efficient rabbit farming practices, disease control, and access to quality feed.

Poultry Population: The poultry population is projected to increase from 6,047,215 in the base year to 10643098MT in 2028/2029, showing a 76 percent growth. Interventions may include advancements in poultry farming practices, disease control, and market access improvement.

Key livestock products (2023/2024 – 2028/2029) under RLI Scenario

Embarking on a 2050 visionary journey, the Livestock Subsector in Rwanda stands at the cusp of transformative growth from 2023/2024 to 2028/2029. This comprehensive analysis delves into the anticipated surge in key livestock products - milk, meat, eggs, and hides & skin - under the recommended Level of Investment (RLI) Scenario. Through rigorous examination and insights derived from technical workshops, focus group discussions, and key informant interviews, this roadmap not only outlines the baseline and forecasted production data but also illuminates strategic interventions poised to propel Rwanda's livestock sector into a realm of sustainable prosperity.

Table 7: Key livestock products in Rwanda (2023/2024 and 2028/2029)

Year	**Base year 2023/24**	**2024-25**	**2025-26**	**2026-2027**	**2027-2028**	**2028-2029**	**% Change**
Milk (MT)	1,061,301	1,485,821	2,080,149	2,912,209	4,077,093	5,707,931	140
Meat (MT)	197,778	257,111	334,245	434,518	564,874	734,336	130
Eggs (MT)	17,344	24,282	33,994	47,592	66,629	93,280	140
Hides & skin	6,027	12,416	24,108	30,135	42,189	50,024	730

In this dynamic landscape, the analysis foresees a remarkable surge in production across all key livestock products:

Milk Production: The baseline milk production in 2023/2024 is 1,061,301 MT, with a forecasted increase to 5,707,931 MT in 2028/2029, representing a substantial 140.0percent growth per year. **Meat Production:** The base year meat production of 197,778 MT is expected to experience a substantial increase, reaching 734,336 MT in 2028/2029, reflecting a 130percent growth per year. **Eggs Production:** A significant rise in egg production is projected from 17,344 MT in the base year to 93,280 MT in 2028/2029, indicating an impressive 140 percent growth per year. **Hides & Skin Production:** Hides & skin production is estimated to increase

from 6,027 MT in the base year to 50,024MT in 2028/2029, demonstrating a 730 percent growth per year.

The substantial growth along value chains products could be facilitated and attributed to the interventions in improved animal husbandry practices; increased of investments in the processing industry; disease prevention, control and treatment; sustainable farming systems and techniques; increased access to quality feed; improved transportation and storage infrastructures; enhanced access to markets more efficiently and reduced post-harvest losses; supported research initiatives to develop high-yielding and disease-resistant livestock breeds, etc. Those interventions are more detailed in the implementation plans for every targeted value chain.

The projected increase in animal populations and products in Rwanda indicates a positive trend and transformative direction for Rwanda. The interventions proposed, provide a targeted and actionable roadmap (see details in the implementation plan, annex I) for the government to support farmers and enhance the overall livestock industry. These interventions align with the identified needs and challenges faced by each livestock type, ensuring a holistic and sustainable approach to achieving the projected growth. By fostering sustainable practices, embracing technological advancements, and strategically addressing challenges, this holistic approach ensures not just growth but resilience in the Livestock Subsector. The stage is set to champion these interventions, steering the Livestock Subsector towards a future marked by prosperity, sustainability, and holistic development. The projected animal populations and products in the RLI have been the basis of the budget estimation for each intervention as presented in the detailed implementation plans in annex I of the LDS.

3.3 Costing methodology

The costing of strategic objectives and activities are determined taking into account existing studies on costs of specific operation, and adjusting these to the Rwandan context. Many studies[56] have been consulted such as costs of HACCP system implementation, feasibility studies for the implementation of slaughterhouses, mapping of fodder resources, cost-benefit analysis of Rwanda Poultry, Dairy[57], animal feed technologies value chains, to mention a few[58],[59].).

The smooth implementation of LDS would be effective and efficient if it is timely done with adequate and sufficient financial means. The private sector could be a real driver of the LDS investments and implementation based on the budget estimates from a public-sector perspective. The LDS will inform the Government of Rwanda, through MINAGRI, of the targeted investments necessary to develop the livestock sub-sector and stimulate the crowding-in of the private sector. It is mostly needed for resource mobilization, planning and budgeting for the full implementation of the proposed over the 5 years. It is also from the public-sector perspective, estimating the necessary resources that the public sector needs to mobilize and allocate. These targeted public investments provide the necessary public goods and create a conducive environment necessary for the transformation of the sector, and support to the private sector in driving this change.

In addition, the budgeting process presented below includes investments associated with strategies/activities led by MINAGRI and its associated agencies. Based on the budgeting purposes, this process will avoid duplication with other agencies and institutions, especially the development partners' interventions for other sectors in outputs that are cross-sectoral, such as feeder roads and climate change information.

The budget has been proposed using a bottom-up approach to ensure linkages with existing government plans and budgets, as well as other Ministerial (sub) sector plans aiming at achieving the Vision 2050 ambitions. Under each strategic objective, the strategies and activities included

[56] Ben Lukuyu, Gregory Sikumba, Isabelle Balteneweck and Alice Njehu (2013). Costs and benefits analysis of feed technologies promoted by East Africa Dairy Development Project (EADD).
[57] Mikhail Miklyaev, Shahryar Afra and Melani Schultz (2017). Cost-Benefit Analysis of Rwanda's Dairy Value Chains.
[58] Mikhail Miklyaev, Shahryar Afra and Majid Hashemi (2017). Cost-Benefit Analysis of Rwanda' Poultry Value Chains.
[59] Enabel, (2020). Undertaking Technology Audit of Poultry Value Chain in Rwanda.

in the implementation Plan have been organized with the appropriate outputs with relevant performance indicators. Therefore, the targets have been disaggregated into annual quantities in direct linkage with the targets over the 5-year period. In some cases, detailed activities were defined and grouped as sub-output under each strategic objective.

The MINAGRI technical team has contributed to ensure that LDS costing is built on existing sub-sector strategies and budgets. This has involved the contributions from other relevant stakeholders, other Ministries, and Agencies. This process of LDS strategies/activities budgeting has assumed the constant inflation rate of 9.75 per cent per annum calculated from the current inflation rate 14.5% in 2023 and the projection of 5% in 2029[60].

The estimates of the LDS budget and needs provide an indicative perspective on the resources needed for an effective implementation. The annual planning and budgeting processes will require further detailed analysis based on the programs and subprograms to better specify the costs associated with the priority activities. This will be done in compliance with the estimations of the LDS in the implementation plans below for every value chain targeted.

[60] (www.statista.com/statistics/452136/inflation-rate-in-rwanda/)

3.4 Risk Analysis and Management

The LDS has identified a number of risks that may affect the successful implementation of prioritized projects and activities. The table below summarizes the risks and the proposed mitigation measures.

Table 8: Risk Analysis framework and mitigation measures

Risk Factor	***Probability of Risk (1-10)***	***Impact of Risk (1-10)***	***Risk Factor (1-100)***	***Mitigation measures***
Climate Change	5	6	30	Enhance climate change adaptation and reinforce mitigation strategies in planning, implementation of LDS interventions, Digitalization of the sector
Floods and land sliding in livestock farming zones	3	3	9	Increase and reinforce land restoration and water resources management projects in the livestock zones
Livestock diseases outbreaks	7	8	56	Regular Vaccination campaigns, strong mechanisms for Livestock movement control, Treatment and pesticide application based on research
Excessive land fragmentation	5	3	15	Sustainable land management policies and long-term master plans
Pandemic	5	7	35	Regular Vaccination campaigns, Strong Quarantine mechanisms, livestock actors awareness rising interventions
Incursion of diseases from neighboring countries of unknown or indeterminate disease status (trans-boundary diseases)	7	9	63	LDS will engage more with trading partners through membership to regional and international trade groupings, preparedness for strong emerging sanitary standards, and implement them upfront to avoid disruption of trade
Insecurity in the region	5	9	45	Promote peace initiatives and interventions, open many corridors for livestock products

				markets,
Inflation and high exchange rate on international market	6	7	42	Promote job creation to increase purchasing power of Rwandan people; enhance internal economic growth initiatives
Lack of sufficient funds to finance LDS	2	2	4	Put in place strong strategies to mobilize financial resources

3.5 Stakeholder matrix and analysis for LDS 2024-2029 Implementation

The stakeholders in the livestock development play a critical and complementary role for the realization of Livestock Development Strategy objectives and successful implementation of this strategy. The livestock sub-sector has a wide range of stakeholders that provide services such as producers as farmers themselves, provision of inputs, financial (bank, insurance) services, markets and market information, research and training, information and advocacy among others. Table below maps some of the stakeholders and their complementary roles that MINAGRI will cooperates with to implement efficiently the LDS:

Table 9: Stakeholders Matrix and Analysis

Stakeholder's Category	Stakeholder expectations from MINAGRI for Livestock Development	MINAGRI for Livestock Expectations
Research Organizations	- Policy guidance with clear plans and elaborated strategies - Enhanced linkages and networks with other research Institutions and stakeholders at local level -Develop and dissemination new innovations in livestock farming and value addition	Key sources of Livestock technologies and innovations, genetic resources, knowledge, information and data; Involvement in research agenda setting and capacity building
Regulators	Legal and regulatory frameworks well designed	- Involvement in Policy dialogue, advocacy - Enforcement and adherence to laws, standards, and regulations
Teaching and Learning Institutions	Opportunities for internship and industrial linkages for skills development and capitalization of research findings	- Provision of skilled manpower (veterinarians and Vet technicians); Technology Development &Transfer; Facilitating exchange programs
Farmers/Farmer Organizations/ Unions/ Associations/Cooperatives	Channel of increasing production of livestock products and by-products; organizing farmers for their capacity building; Research findings, innovations and technology packages for adaption and up-scaling	Promotion of adoption of new technologies in livestock production; Participation in policy making; Increasing production and productivity of livestock products in quantity and quality
Development Partners	Policy guidance and coordination,	Financial Support for livestock development programs and projects; and capacity building
Financial Institution	Provide policy guidance in livestock development programs and projects financing; Policy set up on livestock related	Facilitate and provide credit facilities in all livestock value chains;

	loans and other financial products	
Insurance Companies	Policy guidance and regulate the insurance scheme	Enhance insurance scheme and introduce it in all livestock value chains
Private Sector Federation and collated institutions	Enabling business environment, Research and innovations development that are commercially viable	Resources, current technologies, awareness creation and capacity building
Civil Society organizations	Enabling policy to facilitate CSOs interventions especially in enhancing the community awareness	Support the livestock related projects and support the government initiatives
Ministries, Government Institutions and agencies	Support and collaboration in development and implementations of policies, legal frameworks, projects and programs	Synergies and Capacity building
Parliament (Deputes and Senates)	- Development the legislations and approve the budget that addresses the livestock needs - Ensuring transparency and accountability	Approval of the budgets and enactment laws; Advocate for the increase of budget allocated to livestock sub-sector
Local Government institutions at all levels	Involvement in policy formulation, disseminations of research findings and innovations and setting of the livestock research agenda	Support in development and implementations of policies and legal frameworks; Efficient and effective implementation of policies, regulations, and strategies; Being responsible and accountable of LDS
Print and Electronic Media	Enhance information communication on livestock sub-sector	Information dissemination, enhance community awareness through publicity, advertisements, and different dialogues related to livestock sub-sector

Extension service providers	Research findings, innovations and technology packages for dissemination and up-scaling by the relevant value chain actors	Promoting technology uptake and commercialization
Professionals	Delivery of quality services in an ethical manner	Assurance of compliance of standards and regulation
Regional and International Organizations	Partnership and collaboration, compliance to treaties, agreements and protocols	Capacity building, international lobbying and technical support
Joint Agriculture Sector Consultation	Strong and frank collaboration and priority setting	Lobby and advocate for implementation of policies, programs and laws in the livestock sub sector.

IV. COORDINATION, MONITORING AND EVALUATION FRAMEWORK

The established institutional framework charged with the coordination of the joint programs will develop indicators for monitoring and evaluation, the MINAGRI and affiliated institutions will ensure development of adequate capacity to undertake this livestock strategy.

4.1 Implementation Coordination

The Strategy would be implemented over a period of 5 years 2024-2029, spread in 5 phases of one fiscal year each. Prior to the implementation of the LDS, a framework for coordination will be developed that takes into consideration vertical and horizontal linkages. The MINAGRI will widely coordinate the government institutions and all stakeholders/actors involved in the livestock sub-sector. The Livestock sub-sector Working Group (LSWG) will guide the implementation of the Strategy. For its effective and efficient implementation, it will be necessary to strengthen the institutional capacity within the stakeholders/actors charged with the coordination of the joint programs and plans and harmonizing priorities thereof. This will require enough personnel at ministerial level and affiliated institutions where the insufficiency of staff has been observed through the MINAGRI and RAB structures analysis. In addition, few staff are in place but unqualified to some extent such as veterinary scientists and specialists to mention few.

At the government level, all Ministries involved will be charged with the implementation of the Strategy and will form an Inter- Ministerial Coordination Team for close supervision. This will also include stakeholders, development partners, Private Sector, civil society organizations in the relevant fields. While at local government level, the coordination teams will be formed at all local administrative entities (From the village-Isibo up to Province level).

4.2 Monitoring and Evaluation (M & E)

In order to effectively monitor the implementation of LDS, a common monitoring system will be used at all levels of implementation. The MINAGRI will be responsible for monitoring the implementation of the LDS at government institutions level based on their respective mandates

and missions (RAB, NAEB, RICA, Programs and projects,….). The LSWG will be a review team and established to undertake the M & E tasks. The projects and programs will be monitored and reports submitted quarterly. The Districts will be responsible for monitoring the programs that fall within their settings and particularities. Monitoring activities will be augmented by the data generated from various components of the government Monitoring System for development programs and projects.

The M&E mechanisms are proposed to guide the planning of M&E activities and reports and will be used along the implementation of LDS. Some of them are briefly summarized here below:

Table 10: M&E Mechanisms

M&E mechanism	Summary	Frequency
LDS Approval and dissemination	In addition to validation process, the LDS will be approved by the Government and authorize his implementation	Once in the first six months of 2024
Annual performance Contracts and related Actions Plans	Performance contracts and Actions plans elaborated by each division/Department/Unit at the ministerial and affiliated institutions level on their respective responsibilities based on their mandates and mission in the sector. They will clearly define activities, annual targets, and timelines according the implementation plan of LDS	At annual basis, before the beginning of every fiscal year (phase of LDS)
Monitoring and evaluation Missions for supervision	The Ministry will conduct, as settled in his mandate, the supervision of the Strategic Plan's implementation, conjointly with stakeholders at all levels: development partners, farmers organizations and associations representatives, other actors, Private sector, Civil society, HLIs, and many more.	Quarterly and annual missions organized and report produced
Annual Review Meeting	MINAGRI will organize different meetings with stakeholders and actors in the livestock sub-sector to discuss the implementation progress of the LDS. The organization of these meetings will facilitate the follow up and inform decision	Biannual

	makers, and all stakeholders to identify challenges and take countermeasures actions.	
LSWG Meetings	Many meetings will be organized especially to discuss the Implementation Progress of LDS	Biannual meetings will be organized in general but also specific meetings could be organized for every value chain targeted by LDS if needed
External Evaluators	Specialists contracted by MINAGRI will review the subject of the LDS. The analysis could cover administrative, financial, and management processes especially the planning, budgeting, monitoring and reporting systems of the Ministry, collated institutions and development partners in LDS implementation	Each fiscal years/phase
Internal Management meetings (senior and ordinal)	Regular review of key strategic results area of the LDS, regular and timely tracking of the major activities undertaken by the Ministry through the livestock sub-sector, focusing on relevant priorities in response to raised gaps, challenges, and issues in the livestock sub-sector defined by this LDS. Those meetings will discuss the emerging risks and related management among other topics.	
Reporting System	The report system and formats will be designed based on the performance indicators defined by this LDS. The responsibility of reporting will be assigned to special department in the Ministry and supporting unities from different stakeholders	Quarterly monitoring and evaluation reports
Sharing lessons and learning	The lessons will be shared with all stakeholders and inform the adjustment of strategic ambitions, objectives, key interventions of LDS	In the Quarterly and annual reports

ANNEXES

I. Implementation plan matrix

I.1 Dairy Value Chain

I. Outcome: Modernizing sustainable animal resources production and promoting nutrition and food security									
I.1 Output: Animal nutrition enhanced (Animal feeds and feeding practices promoted)									
Activities	**Performance Indicators**	**Responsible institutions**	**Baseline**	**Target**					**Budget (000,000 Rwf)**
				2024-2025 FY	**2025-2026 FY**	**2026-2027 FY**	**2027-2028 FY**	**2028-2029 FY**	
1.1.1. Develop and disseminate the climate -resilient fodder varieties	Number of drought-tolerant fodder varieties developed and disseminated	MINAGRI, RAB, HLIs, Development partners	6,497 ha been planted with best resilient fodder species	7,500 ha	8,500 ha	9,500 ha	8,700 ha	7,000 ha	3,000
1.1.2. Support capacity building on production of forage seeds (climate smart forages)	At least 70% farmers are using fodder conservation technologies	MINAGRI, RAB, HLIs developmental partners	3127 farmers trained	25%	50%	75%	80%	90%	2,000
	Numbers of forage seeds multipliers and farmers trained	MINAGRI, RAB, HLIs development partners	3127 farmers trained	4000	5000	5000	5000	5000	300

1.1.3.Strenghen capacity building of farmers on feed ration formulation and farm management technics	Number of extension technician trained on ratio formulation and farm management technics	MINAGRI, RAB,RNDP, HLIs development partners	N/A	1000	1500	1500	1500	1500	150
	Number of farmers and farm managers trained on ratio formulation and farm management technics	MINAGRI, RAB,RNDP, HLIs development partners	N/A	4000	5000	5000	5000	5000	250
	Number of farmers/ farm managers using (adopted) apps and software for ratio formulation and farm management	MINAGRI, RAB, RNDP,HLIs development partners	N/A	200	500	750	1000	1500	300
1.1.4.Strenghten fodder production, conservation and commercialization of pasture and fodder (haymaking and silage) including Hydroponics and use of crop residues	Number of tons of forage, hey, and silage produced	MINAGRI, RAB, development partners	3,183 trained farmers	3,500	4,000	4,500	5,000	5,000	2,000
1.1.5.Enforce the construction of standardised sheds and rain water harvesting systems (zero-grazing	Number of farms with standard shed, water harvesting and manure pit	MINAGRI, RAB, MINALOC, development partners	N/A	30%	50%	90%	100%		5,000

policy)									
1.1.6.Enhance linkages between public and private to establish strategic animal feed reserves (proper feed stuffs/ingredients storage facilities) and enforce contract farming	Number of PPP partnership in feed reserves established, and number of contract farming established	MINAGRI, RAB, private sector, development partners	110 forage storage facilities constructed, 2000 silage bags distributed	2	3	0	0	0	1,500
1.1.7.Support livestock farmers to acquire appropriate production infrastructure (Electricity,farm machinary, shed, water tanks/boreholes, feeds, etc)	Number (%) of farmers aquired appropriate infrastructure (machinery for fodder harvesting and processing)	MINAGRI, RAB, PSF, MINICOM, Development partners	4 baler and4 tractor machines, 145 chopper machines, 12 milking machines distributed	30%	50%	60%	70%		20,000
1.1.8.Support the distribution of quality (clean) water for livestocks	Number of farms accessing parmenent water supply increased	MINAGRI, RAB, PSF, WASAC, Rwanda Water Board, Development partners	19 boreholes solar-powered constructed in 2022	30%	50%	60%	70%	75%	10,000

	Number of farms accessing clean water increased	MINAGRI, RAB, PSF, WASAC, Rwanda Water Board, Development partners	N/A	30%	50%	60%	70%	75%	15,000
1.1.9.Support farmers to access irrigation facilities for forage production and establish buffer zones along the marshlands for fodder production	Number of irrigation systems Established	MINAGRI, RAB, WASAC, Development partners	68,126ha (68% irrigated marshland)	70%	75%	77%	80%	85%	4,500
	Number of farmers with solar water pumping systems for irrigation increased	MINAGRI, RAB, REG, Development partners	N/A	70%	75%	77%	80%	85%	1,000
I.2 Output: Dairy breeds performance and breeding practices improved									
1.2.1.Support and empower the establishment of the national breeding programmes for dairy breeds (centres)	Numbers of the national breeding programmes established	MINAGRI, RAB, Development partners	1		1	2	0	0	15,000
	Number of breeding farms supported and certified		N/A		50	50	50	50	750

1.2.2.Strengthening the capacity the AI technicians	Number of AI technicians trained	MINAGRI, RAB, RCVD, Development partners	286 AI technicians trained (2023 FY)	300	300	300	300	300	3,000
1.2.3.Promote the delivery and adoption of AI technology, embryo transfer and synchronization breeding services	Number of farmers adopted AI and embryo transfer technology increased	MINAGRI, RAB, RCVD, Development partners	251,649 doses of semen availed (2022 FY), 110,495 Cows inseminated and 42,195 borne calves registered, 40% overall AI success rate	50%	53%	60%	65%	67%	2,500
	over 60% of AI success rates achieved	MINAGRI, RAB, RCVD, Development partners	Overall AI success rate 40%	50%	53%	60%	65%	67%	
1.2.4.Ensuring the availability of AI facilities and establisment of liquid nitrogen plants (1 in each province)	2 liquid nitrogen plants established	MINAGRI, RAB, Development partners	2 Liquid Nitrogen Plant established in Rubona and Rubirizi RAB stations (261,274 lts of LN produced in 2022),		1	1			1,500
	6 liquid nitrogen plants operators trained	MINAGRI, RAB, Development	2 liquid nitrogen plants		4				

		partners	operators						
1.2.5.Support private AI service providers with AI kits and liquid nitrogen tanks and refresher trainings	Number of AI kits and liquid nitrogen tanks provided	MINAGRI, RAB, RCVD, Development partners		350	350	350	350	350	2,000
1.2.6.Promote dairy Breeders Association for sustainable dairy cattle breeding and conservation	Number of dairy breeders' association promoted	MINAGRI, RAB, RNDP, Development partners	1 Inyambo Association	1	1	1			400
1.2.7.Promote and support research on genetic improvement and innovative technologies (AI, MOET, IVF laboratory, Genomic Selection)	Number of studies conducted to improve success rate of AI, MOET and Pregnancy Diagnosis (using rapid kits, ultrasounds, etc).	MINAGRI, RAB, HLIs, Development partners	N/A	5	5	5	5		250
	Number of laboratory for Ovum Pick-up, IVF (in vitro fertilisation), and Embryo production established	MINAGRI, RAB, HLIs, Development partners	N/A		1				1,000
	Number of Bovine sperm sorting technologies (sexed semen) acquired	MINAGRI, RAB, HLIs, Development partners	N/A	1					450

1.2.8.Strengthen animal identification and performance recording system (software, equipment and training)	Number of dairy animal identified and registered	MINAGRI, RAB, RNDP, HLIs, Development partners	1,417,328 Cattles rigistered into database	95%	100%	100%	100%	100%	1,000
	Number of identification tools (ear-tags) acquired	MINAGRI, RAB, RNDP, HLIs, Development partners	N/A	600000	600000	600000	600000	600000	
	Number of RFID	MINAGRI, RAB, RNDP, HLIs, Development partners	53517	100000	100000	100000	100000	100000	
	Number of identification equipments/ machines acquired	MINAGRI, RAB, RNDP, HLIs, Development partners	N/A	0	5	0	0		100
1.2.9.To support and commission studies on establishment cattle herd structure and productivity levels for different genotypes in different agro-ecological zones of Rwanda	Number of studies conducted	MINAGRI, RAB, RNDP, HLIs, Development partners	N/A		5				125

1.2.10.Acquire new germplasm (Semen, embryos, and live animals)	Number of new germplasm acquired	MINAGRI, RAB, RNDP, HLIs, Development partners	10000	10000	10000	10000	10000	10000	330
I.3 Outuput: Animal health and veternary services improved									
1.3.1.Strenghen the capacity of farmers and other key players on animal health and welfare along the production cycle	Number of farmers trained	MINAGRI, RAB, RCVD, Development partners	10950 livestock farmers were trained on Heifer Cornerstone	10000	15000	15000	15000	15000	3000
	number of veterinary and animal resource officers and practitioners trained	MINAGRI, RAB, RCVD, Development partners	At least 32 technicians trained (2022/22FY)	416	600	600	600	600	450
	Number of inputs suppliers trained	MINAGRI, RAB, RCVD, Development partners	N/A						250
	Number of CAHWs trained	MINAGRI, RAB, RCVD, Development partners	1,065 L-FFS across the country and 48 L_FFS Master trainers	1200	1200	1200	1200	1200	300

1.3.2.Undertake and strengthen the national epidemio-surveillance, mapping and diseases control programme	Number of diseases survilance studies conducted on the key diseases (FMD, LSD, BQ, RVF, Rabies, Mastitis and Brucellosis)	MINAGRI, RAB, HLIs, RCVD, Local government, Development partners	The samples tested are 1,372 of RVF; 2,104 of FMD; 273 of Mastitis; 5,601of Brucellosis Cattle.	50% cattle tested	50% cattle tested	50% cattle tested	50% cattle tested	50% cattle tested	350
	Number of dairy animal vaccinated against FMD, LSD, BQ, RVF, Rabies, ECF, and Brucellosis	MINAGRI, RAB, HLIs, RCVD, Local government, Development partners	A total of 261,184 cows were vaccinated against FMD; 1,331,633 cows against LSD; 759,728 cows were vaccinated against BQ; 1,267,970 cows were vaccinated against RVF, 81,638 cows vaccinated against brucellosis (2022/23FY)	100% dairy cattle vaccinated	100% dairy cattle vaccinated	100% dairy cattle vaccinated	100% dairy cattle vaccinated	100% dairy cattle vaccinated	3,000
1.3.3.Strengthening and reinforcing trans-boundary disease control and reporting mechanisms	Number of cowsvaccinated	MINAGRI, RAB, RCVD, HLIs, Development partners	N/A	1,450,000 cows	1,500,000 cows	1,550,000 cows	1,550,000 cows	1,550,000 cows	200

	Number of awareness campaigns conducted	MINAGRI, RAB, RCVD, HLIs, Development partners	N/A	30	30	30	30	30	475
1.3.4.Empower the veterinary practioners (continuous capacity building and facilitate them to acquire the required tools and equipment)	Number of animal resources officers and veterinary practioners supported	MINAGRI, RAB, HLIs, Development partners	N/A	350 vets	450vet	500 vet	500 vet	500 vet	1,500
	Number of vet tools and equipment provided	MINAGRI, RAB, HLIs, Development partners	N/A						
1.3.5.Strengthen the disease diagnosis and treatment facilities (veterinary laboratories, clinics, and mobile veterinary labs)	Number of diseases diagnosed	MINAGRI, RAB, Private sector, HLIs, Development Partners	The samples tested are 1,372 of RVF; 2,104 of FMD; 273 of Mastitis; 5,601of Brucellosis Cattle.	50%	50%	50%	50%	50%	5,500
	Number of lab reagents and consumables	MINAGRI, RAB, Private sector, HLIs, Development Partners	5 vet labs, 4 private vet clinics, 15 spray races						2,300

1.3.6.Strengthen and empower the National veterinary services department/ center to provide animal health service at country level/ equip the national veterinary laboratory (both human resources and required materials)	Number of sufficient lab technicians and animal health experts recruited	MINAGRI, RAB, Development partners	N/A						750
	Number of satellite labs strengthened and equipped	MINAGRI, RAB, Development partners	1 National veterinary Lab, 4 Satellite veterinary laboratories rehabilitated and 15 proximity veterinary posts						5,500
1.3.7.Establish animal disease outbreak risk and disaster preparedness mechanisms	Contigency funds available	MINAGRI, RAB, Development partners	N/A						3,000
	Taskforce established	MINAGRI, RAB, Development partners	N/A						

1.3.8.Support research and production of safe, effective and affordable veterinary vaccines and drugs for enhancing animal health	Feasibility study conducted	MINAGRI, RAB, HLIs, Development partners	N/A		1				250
	Vaccine and drugs production plants established	MINAGRI, RAB, HLIs, Development partners	N/A		1				10,000
	Number of vaccines and drugs developed and adopted	MINAGRI, RAB, HLIs, Development partners	N/A			10,000 doses	10,000 doses	10,000 doses	15,000
1.3.9.Regulate use of veterinary drugs and biological	Number of veterinary drugs and biological items regulations formulated	MINAGRI, RAB, RSB, Rwanda-FDA, Development partners	N/A	2	3	5			100
1.3.10.Reinforce the PPP model and promote the veterinary sanitary mandate for veternary services provision	Veterinary sanitary mandate implemented	MINAGRI, RAB, RCVD, Development partners	1						10,000
Sub-total (A)									**155,330**
II. Outcome: Developing inclusive livestock market system for increased incomes									

II.1 Output: Safety and quality of milk and milk products promoted									
Activities	**Performance Indicators**	**Responsible institutions**	**Baseline**	**Targets/Outputs**					**Budget (000,000 RWF)**
				24-25	**25-26**	**26-27**	**27-28**	**28-29**	
2.1.1.Provide capacity building on quality and safety assurance for all dairy value chain actors (farmers, transporters, processors, retailers)	Number of dairy value chain actors trained	MINAGRI, RAB, RNDP, RSB, Rwanda FDA RICA, Development partners	N/A	300	400	500	600	700	120
	Number of training materials developed and distributed	MINAGRI, RAB, RNDP, RSB, Rwanda FDA RICA, Development partners	N/A	2	2		2	2	
2.1.2.Enforce the implementation of quality standards and regulations for milk and milk products (strengthen inspection and certification)	Number of milk and milk products aggregators, processors, and sellers trained	MINAGRI, RAB, RNDP, RSB, Rwanda FDA RICA, Development partners	119 milk collectors from 9 milk collection centers of Nyanza, Huye and Ruhango districts were coached,	180	185	190	191	200	200

	Number of milk and milk products aggregators, processors, and sellers inspected and certified	MINAGRI, RAB, RNDP, RSB, Rwanda FDA RICA, Development partners	N/A	500	750	1,000	1,000	1,000	475
2.1.3.Establish milk and milk products quality and safety control laboratory	Milk and milk products quality control and safety labs established and operational	MINAGRI, RAB, RNDP, RSB, Rwanda FDA RICA, Development partners	93 MCCs supported with quality and safety esting equipment	132MCCS	140 MCCs	160MCCs	160MCCs	160MCCs	1,000
	Number of lab technicians recruited	MINAGRI, RAB, RNDP, RSB, Rwanda FDA RICA, Development partners	N/A	132	140	160	160	160	1,500
2.1.4.Enforce regular testing and monitoring (antibiotics, Pathogens, pesticides, heavy metals, and contaminants) for whole raw milk produced along the supply chain	Number of milk testings along the milk supply chain	MINAGRI, RAB, RNDP, RICA, RSB, Development partners	132MCCs	150	160	180	180	180	500
	Number of monitoring reports	MINAGRI, RAB, RNDP, RICA, RSB, Development partners	N/A						

2.1.5.Strenghtnen and promote investment in milk processing	Number of milk processing plants established	MINAGRI, RAB, RNDP, PSF, RDB, RICA, RSB, FDA, Development partners	7 Milk processing plants (including the milk powder processing plants under construction) and 42 Dairy SMEs	1	3	2			1,000
	Number of quality milk products manufactured and sold	MINAGRI, RAB, RNDP, PSF, RDB, RICA, RSB, FDA, Development partners	N/A						
2.1.6.Establish and support the national antibiotics and drugs residues monitoring system in milk products	Number antibiotics and drugs residues identified and profiled	MINAGRI, RAB, RNDP, RICA, RSB, FDA, Development partners	N/A	50% of milk tested	60% of produced milk tested	70% of produced milk tested	70% of produced milk tested	70% of produced milk tested	1,000
II.2 Output: Marketing inclusiveness for dairy products promoted									

2.2.1.Strengthening the operationalization and professionalization of existing and new MCCs	Study on efficiency and sustainability of existing MCCS conducted	MINAGRI, RAB, RNDP, RICA, RSB, FDA, Development partners	132 MCC installed, capacity of 483,000 liters per day (only 239,837 litres collected/day: means 52.3% of its capacity)	55%	65%	75%	90%	100%	3,000
	Number of MCC that recruited technical/professional staffs increased	MINAGRI, RAB, RNDP, RICA, RSB, FDA, Development partners	132MCCs	150MCCs	160MCCs	180MCCs	180MCCs	180MCCs	
	Increase number of MCCs/cooperatives members trained, adoption rate of improved practices in farming and milk handling	MINAGRI, RAB, RNDP, RICA, RSB, FDA, Development partners	132MCCs	150MCCs	160MCCs	180MCCs	180MCCs	180MCCs	
	Number of MCCs operating towards full capacity increased	MINAGRI, RAB, RNDP, RICA, RSB, FDA, Development partners	132MCCs	150MCCs	160MCCs	180MCCs	180MCCs	180MCCs	
2.2.2.Expand the coverage of milk collection centers to reach more dairy farms in	Number of new collection points established	MINAGRI, RAB, RNDP, RICA, RSB, FDA, Development	50MCPs	10	10	10	10	10	2,000

underserved areas.		partners							
2.2.3.Streamline and digitize milk payment systems to ensure timely and transparent transactions with farmers.	Number of digital payment systems established	MINAGRI, RAB, RNDP, RICA, RSB, FDA, Development partners	N/A		1				500
2.2.4.Develop and implement sustainable business models for the milk collection center. Explore revenue-generating opportunities, cost-saving measures, and financial management practices.	Number of MCC with sustainable business model increased	MINAGRI, RAB, RNDP, RICA, RSB, FDA, Development partners	N/A	50%	75%	100%	100%	100%	500
2.2.5.Implement environmentally sustainable practices, such as waste management and energy efficiency, to minimize the ecological impact of the milk	Number of MCC with adoption of sustainable practices, reduction in environmental footprint.	MINAGRI, RAB, RNDP, RICA, RSB, FDA, Development partners	N/A	50%	75%	100%	100%	100%	500

collection center.									
2.2.6.Capacity building of technicians on operation, maintance, and repair of dairy equipments and machinaries	Number of trained technicians on operation and maintance of dairy equipments and machinaries	MINAGRI, RAB, RNDP, RICA, RSB, FDA, Development partners	N/A	150MCCs	160MCCs	180MCCs	180MCCs	180MCCs	75
2.2.7.Conduct an assessment of the cost of production of milk	Semi-annual assessments conducted	MINAGRI, RAB, RNDP, RICA, RSB, FDA, Development partners	N/A	1	1	1	1	1	
2.2.8.Conduct a feasibility study on composition-based pricing to establish price mechanism	Number of feasibility study conducted	MINAGRI, RAB, RNDP, RICA, FDA, Development partners	1	2	3	3	3	3	100
2.2.9.Develop a distinctive brand identity for local dairy products	One Market research on consumer preference for local dairy products	MINAGRI, RAB, RNDP, RICA, FDA, Development partners	N/A	1					100
	Number Local dairy brands developed and certified	MINAGRI, RAB, RNDP, RICA, FDA, Development partners	N/A	3 products	5 products	6 products	6 products	6 products	125

II.3 Output: Marketing infrastructure and information systems strengthened									
2.3.1.Conduct a comprehensive assessment of the existing dairy infrastructures	Assessment study conducted	MINAGRI, RAB, RNDP, RICA, FDA, Development partners	132 MCCs, 50 Milk processing plants, Milk zones	20%	30%	40%	50%	60%	50
2.3.2.Establish and strengthen new MCCs, milk collection points and milk zones	Number of new MCCs, MCPs and milk zones established	MINAGRI, RAB, MINICOM, Development partners	132 MCCs and 150 MCPs, 50Milk zones	20MCCs, 20MCPS, 10Milk zones	20MCCs, 20MCPS, 10Milk zones	20MCCs, 20MCPS, 10Milk zones	20MCCs, 20MCPS, 10Milk zones	20MCCs, 20MCPS, 10Milk zones	850
2.3.3.Develop and operationalize digital platforms and automated system for sharing market information	A digital platform developed	MINAGRI, RAB, MINICOM, Development partners	N/A	2	3	5	5	5	120
	An automated system functional	MINAGRI, RAB, MINICOM, Development partners	1	70%	100%	100%	100%	100%	150
	Number of actors trained and equipped with the system	MINAGRI, RAB, MINICOM, Development partners	N/A	500	650	1000	1000	1000	275
2.3.4.Improve logistics and transportation systems to ensure the timely and efficient collection of milk from	Feasibility study on modern logistics and transport systems conducted	MINAGRI, RAB, MINICOM, Development partners	N/A	1	1	1	1	1	2,000

various dairy farms and from MCC to market									
	Number of milk transporter/ identified, organized and licensed	MINAGRI, RAB, MINICOM, Development partners	N/A	500	500	500	500	500	135
	Reduction in transportation time, improvement in delivery reliability	MINAGRI, RAB, MINICOM, Development partners	N/A	50%	60%	70%	75%	80%	95
2.3.5.Facilitate the dissemination of information, research output and innovation to all stakeholders	Number of innovations adopted	MINAGRI, RAB, MINICOM, Development partners	N/A	2	3	5	10	10	110
	Research outputs and market information disseminated		N/A						
Sub-total (B)									**16,480**
III. Outcome: Strengthening the systemic enablers									
III.1 Output: Investment along each targeted value chains promoted									
Activities	**Performance Indicators**	**Responsibility**	**Baseline**	**Target/Outputs**					**Budget (in RWf 000,000)**

				24-25	**25-26**	**26-27**	**27-28**	**28-29**	
3.1.1.Promote investment through research, production and multiplication of forage varieties	Number of tons of improved forage seeds produced	MINAGRI, RAB, RICA, Developmental partners	84.3 tons of improved forage seeds produced	90MT	110MT	130MT	140MT	150MT	5,000
	Number of promissing high yielding forage varieties disseminated	MINAGRI, RAB, RICA, Developmental partners	6,497 hectares covered with improved forages	7,000 ha	8,500ha	12,500 ha	15,000ha	20,000ha	3,000
	Number of seed multipliers trained and certified	MINAGRI, RAB, RICA, Developmental partners	3,127 farmers were trained on forage production, harvesting, and conservation,	4500 farmers	5500 farmers	6000 farmers	6250 farmers	6500 farmers	850
3.1.2.Promote private sector investment in animal feed industry	Number of animal feed industry actors facilitated	MINAGRI, RAB, RICA, Developmental partners	12 feed processors	1	2	1			1,000
	Amount of capital invested in feed industry	MINAGRI, RAB, RICA, Developmental partners	N/A						
	number of new feed storage management technologies (warehouses-receipt system)	MINAGRI, RAB, RICA, Developmental partners	N/A	1	2	2	2	2	375

3.1.3.Attract investment in establishment of livestock products processing and cold chain infrastructures	Amount of capital invested in processing and cold chain	MINAGRI, RAB, RICA, PSF, Development partners	49Milk processing plants and Dairy SMEs	2	3	3	3	3	2,000
3.1.4.Promote investment in animal health services delivery	Number of veterinary clinics established	MINAGRI, RAB, RCVD, Development partners	4	5 vet clinics,	1 vet hospital				500
3.1.5.Promote the public private partnership (PPP) in utilization of government livestock infrastructures	Number of infrastructures managed under PPP	MINAGRI, RAB, MINALOC, Development partners	15 new District Livestock Markets constructed	2	3	5	5	3	1,500
	Number infrastructures privatised	MINAGRI, RAB, MINALOC, Development partners	N/A						
3.1.6.Promote investments in livestock farm mechanisation	Number of farm machineries and equipment accessed	MINAGRI, RAB, PSF, RICA Development partners	Mechanized farm operations stand at 42%	50% using farm machinery technologies	60% using farm machinery technologies	65% using farm machinery technologies	70% using farm machinery technologies	75% using farm machinery technologies	15,000

	Number of farmers using farm mechanisation	MINAGRI, RAB, PSF, RICA Development partners	2,251 farmers, cooperative and companies acquired farm machinery	3,000 farmers, cooperative and companies acquired farm machinery	3,500 farmers, cooperative and companies acquired farm machinery	4,000 farmers, cooperative and companies acquired farm machinery	5,000 farmers, cooperative and companies acquired farm machinery	6,500 farmers, cooperative and companies acquired farm machinery	
III.2 Output: Implementation of existing of livestock policies and institution capacity developed and reinforced									
3.2.1.Establish and enforce regulations on optimal land use in livestock production	Awareness and monitoring of regulations conducted	MINAGRI, RAB, Local Government, Land cencetr, Development partners	N/A	50%	70%	100%	100%	100%	120
	Percentage of farms complying with land use regulations	MINAGRI, RAB, Local Government, Land cencetr, Development partners	N/A	60%	70%	100%	100%	100%	
	farms productivity and profitability increased	MINAGRI, RAB, Local Government, Land cencetr, Development partners	N/A	50%	55%	60%	60%	60%	
3.2.2.Develop the grading and pricing guidelines for animal products	Grading and pricing guidelines developed	MINICOM, FDA, MINAGRI, Development partners	N/A	1	1	1	1	1	150

3.2.3.Enforce regulations on animal feeds manufacturing and commercialisation	Number of animal feeds actors licensed	MINICOM, FDA, MINAGRI, Development partners	N/A	100%	100%	100%	100%	100%	200
3.2.4.Promote and support private and public partnership in veterinary service delivery (enforcement of Veterinary Sanitary mandate and Livestock Insurance Scheme)	Number of private veterinary companies/cooperatives implimenting VSM	MINAGRI, RAB, RCVD, Development partners	N/A	60%	75%	80%	100%	100%	1,500
	Awareness and monitoring of VSM	MINAGRI, RAB, RCVD, Development partners	N/A	30	30	30	30	30	
3.2.5.Strengthen the uptake of livestock insurance scheme in dairy sub-sector	Number of animal insured	MINAGRI, RAB, RCVD, Development partners	48,962 cows insured (2022/23FY)	50,000	60,000	70,000	80,000	90,000	3000
3.2.6.Upgrading and interfacing the existing livestock digital systems	Number of users trained	MINAGRI, RAB, RCVD, Development partners	N/A	200	300	300	300	300	150
	Number of existing livestock digital systems interfaced	MINAGRI, RAB, RCVD, Development partners	1	2	2		2	2	75
3.2.7.Enforce the regulations (policy) for	Number of awareness compaigns about veterinary regulations	MINAGRI, RAB, RCVD, Developmental	N/A	30	30	30	30	30	100

veterinary profession, drugs and pharmaceutical supply and distribution/usage	conducted	partners							
	Number of farmers consulting veterinary professionals increased	MINAGRI, RAB, RCVD, Developmental partners	N/A	30%	45%	50%	60%	65%	
	Number of regular inspection of veterinary drugs distributors (pharmacies)	MINAGRI, RAB, RCVD, Developmental partners	N/A	30	30	30	30	30	80
3.2.8.Reinforce the regulation that governs milk and milk products trade and reorganise the milk supply chain	Quantity of milk and milk products sold in formal market increased	MINAGRI, RAB, RNDP, MINICOM/RICA, RSB, FDA, Developmental partners	75-80% milk informal trading	20% milk formal trading	50% milk formal trading	60% milk formal drading	70% milk formal trading	70% milk formal trading	345
	Number of dairy processing units complying with the regulation	MINAGRI, RAB, RNDP, MINICOM/RICA, RSB, FDA, Developmental partners	N/A	50	55	60	60	60	
	Number of MCCs having signed trade contracts from farm to processor/trader	MINAGRI, RAB, RNDP, MINICOM/RICA, RSB, FDA, Developmental partners	N/A	150MCCs	160MCCs	180MCCs	180MCCs	180MCCs	65
III. 3 Output: Culture of accountability and responsive institution promoted									

3.3.1.Strengthen the capacity of Livestock professional and farmers/platforms organisations (RCVD, RNDP, RPIA, RPFA, RGFBO, RSFBO, RRFA, etc)	Number of livestock professionals and platforms organisations strenghned	MINAGRI, RAB, RNDP, development partners	N/A						1,200
	Number of quartery and annual reports		N/A						
	Monitoring and evaluation conducted		N/A						
3.3.2.Strengthen the governance and management capacity of existing and new established farmer organisations (e.g. cooperatives, L-FFS groups, self-help groups, etc)	Number of farmer organisations well governed and managed	MINAGRI, RAB, Development partners	30 new cooperatives were trained on governance and Financial Management, and 30 existing cooperatives were coached on cooperative management	60	70	100	120	150	545
Sub-Total (C)									**36,755**
IV. Outcome: Promoting Digitalization, Climate change mitigation, and adaptation in livestock sub-sector									
IV.1. Output: Research, innovation and extension services promoted									

4.1.1.Develop, publish and disseminate the dairy cattle management training manuals	Number of farmers adopted best farming practices	MINAGRI, RAB, Development partners	20362 trained on best farming practices (2022/23)	25,000	30,000	33,000	35,000	35,000	120
	Number of training manuals developed	MINAGRI, RAB, Development partners	N/A	5	5	5	5	5	
4.1.2.Provide capacity building and refresher courses of National dairy master trainers	Number of master trainers trained	MINAGRI, RAB, Development partners	48 Master trainers	60	70	80	30	30	250
	Number refresher courses developed	MINAGRI, RAB, Development partners	N/A	1	1	1	1	1	
4.1.3.Establish the in-house and coaching program for dairy farmers and other actors in milk value chain	Number of training and coaching tools developed	MINAGRI, RAB, Development partners	N/A	5	5	5	5	5	1,500
	Number of VC actors trained	MINAGRI, RAB, Development partners	N/A	25,000	30,000	33,000	35,000	35,000	

4.1.4.Encourage, promote and support investment in livestock research activities	Number of livestock research activities conducted	MINAGRI, RAB, Development partners	N/A						300
	Number of innovations developed	MINAGRI, RAB, Development partners	4 technologies evaluated and disseminated (Cassava peels, black soldiers, Hydroponics, Sweet potatoes.) in 2022/23FY	6	7	8	9	10	
4.1.5.Strengthen linkages of research, extension and livestock/ dairy farmers	Number of applied research implemented	MINAGRI, RAB, HLIs, Development partners	N/A						1,500
	Number of exchange platforms established	MINAGRI, RAB, HLIs, Development partners	N/A	3	2	2	2		
4.1.6.Establish and strengthen infrastructure and facilities for training and extension services for youths and women	Number of youth and women trained	MINAGRI, RAB, HLIs, Development partners	840 Champions on Gender Learning System methodology trained	3,000	4,000	5,000	6,000	7,000	3,000

	Number of training facilities established	MINAGRI, RAB, HLIs, Development partners	N/A	1	2	1			
IV.2 Output: Policies and regulations on digital platforms and technologies developed and reinforced									
4.2.1.Create digital platforms for regular market linkage, information on price, market structures, and digital selling points	Number of digital and physical selling platforms created	MINAGRI, RAB, RNDP, Development partners	N/A	0	1	1	1	0	185
4.2.2.Establish and reinforce the policies and regulations to regulated digital plateforms	Number of regulations in place	MINAGRI, RAB, Development partners	N/A	1	0		0	0	75
IV.3 Output: Adoption of new technologies and innovation reinforced									
4.3.1.Develop new techonologies in the breeding centers	Number of breeding center/farms with new techonlogies available	MINAGRI, RAB, Development partners	1	0	10	10	10	0	2,000

4.3.2.Reinforce the milk products processing factories with new technologies	Number of milk processing plants equipped with new technologies	MINAGRI, RAB, RNDP, Development partners	7 MCCs acquired renewable solar energy, 20 MCCs have acquired milk testing equipment	2	5	5	5		2,000
4.3.3.Train dairy farmers, processors, traders on new technologies	Number of actors dairy value chain trained and adopted new technologies	MINAGRI, RAB, RNDP, Development partners	900 RNDP cluster members trained	400	500	800	1000	1000	545
IV.4 Output: Interventions related to Climate change enhanced									
4.4.1.Establish water smart practices such as water harversting,watering, irrigation, mulching, etc.	Number of farms with water smart facilities (rainwater harvesting facilities supplied)	MINAGRI, RAB,HLIs, Development partners	71,825 Ha under irrigation, Only 8.2% of farmers practiced irrigation, where 7%of small-scale farmers and 59.8% of large-scale farmers (SAS,2022)	35% of dairy farms with water systems	45% of dairy farms with water systems	55% of dairy farms with water systems	65% of dairy farms with water systems	70% of dairy farms with water systems	4,000

4.4.2.Establish Weather and knowledge - smart practices	Number of digital agro-climate advisory tools, radio, smart phone, TV	MINAGRI, RAB,HLIs, Development partners	1 mobile App with weather forecasts developed	2	2	2	2	2	500
4.4.3.Develop improved dairy breeds resistant and adapting to climate changes	Number of Improved climate-resilient dairy breeds	MINAGRI, RAB, HLIs, Development partners	N/A	2	2	2	2	2	500
4.4.4.Develop innovations on reducing greenhouse gas emission in dairy cattle farming	Number of greenhouse gas emission technologies developed (feeding, manure management, renewable energy technologies)	MINAGRI, RAB, HLIs Development partners	N/A	2	3	4	3	2	345
IV.5 Output: NDCs mitigation promoted									
4.5.1.Improve use of solar pumping system in irrigation for fodder and forages production	Number of dairy farmers using irrigation schemes	MINAGRI, RAB, Development partners	Only 8.2% of farmers practiced irrigation, where 7%of small-scale farmers and 59.8% of large-scale farmers (SAS,2022)	15%	30%	35%	40%	45%	1,500

4.5.2. Support and promote use of on-farm anaerobic digestion (bio-digestors) for production of renewable energy and manure compositing	Number of farmers adopted bio-digestors	MINAGRI, RAB, Development partners	N/A	10%	15%	20%	25%	30%	3,000
	Number of farmers growing climate resilient forages	MINAGRI, RAB, Development partners	33,750 Kakamega seedlings, 23,080 calliandra trees and 10,670 leuceuna trees distributed to farmers (2022/23FY).	50tons of improved forages seeds	55tons of improved forages seeds	60tons of improved forages seeds	65tons of improved forages seeds	70tons of improved forages seeds	3,000
4.5.3. Develop and distribute smart climate resilient forages seeds	Percentage of the reduction in methane emissions from enteric fermentation	MINAGRI, RAB, HLIs, Development partners	N/A	20%	30%	50%	40%	30%	
4.5.4.Promote the adoption of more efficient manure management systems	Percentage of farmers with improved manure management	MINAGRI, RAB, HLIs, Development partners	N/A	20%	40%	50%	60%	70%	1,250
	Percentage of reduction in GHG emissions from manure management	MINAGRI, RAB, Development partners	N/A	80%	60%	50%	40%	30%	

4.5.5.Develop climate resilient postharvest and value addition facilities and technologies of livestock products	Number facilities established	MINAGRI, RAB, Development partners	N/A	2	3	4	2		3,000
Sub total outcome VI									**28,570**
Grand Total (A+B+C)									**237,135**

I.2 Beef Value Chain

I. Outcome: Modernizing sustainable animal resources production and promoting nutrition and food security									
I.1 Output: Animal nutrition improved (feeds and feeding practices)									
Activities	**Performance Indicators**	**Responsibility**	**Baseline**	**Targets/Outputs**					**Budget (000,000 RWF)**
				24-25	**25-26**	**26-27**	**27-28**	**28-29**	
1.1.1Support capacity building of farmers on production of forage seeds multiplication, preservation and commercialization of pasture and fodder	Number of farmers and multipliers trained	MINAGRI, RAB, Development partners	4,558 ha been planted with best resilient fodder species	1000	1500	2,000	2,500	3,000	350
	Number of tons of pasture and fodder processed	MINAGRI, RAB, Development partners	54,653 bales of grass were produced during the fiscal year 2022-2023	60,000MT	65,000MT	70,000MT	80,000MT	90,000MT	1,200
1.1.2.Support investment in storage and marketing of concentrates and feed supplements	Number of investments in feed and concentrates supported	MINAGRI, RAB, Private sector, financial institutions, Development partners	7 feed factories	10	15				1,000

1.1.3.Build capacities of farmers on feed ration formulation and best feeding practices	Number of beef farmers supported	MINAGRI, RAB, Development partners	500	1000	1000	1000	1000	1000	540
	employement rate increment (% of youth and women participating in modern beef farming activities)	MINAGRI, RAB, Development partners	21.27% youth and 12.3 women	27% youth and 20% women	35% youth and 30% women	40%% youth and 30% women	40%% youth and 30% women	40%% youth and 30% women	
1.1.4.Strengthen the fattening practices for steers to slaughtering production systems to get quality and improved beef yield	Number of competitive modern beef farms for high-end markets	MINAGRI, RAB, Private sector, Development partners	654 Cattle Farmers (8.75% F),	500	500	500	500	500	3,000
1.1.5.Support research directed towards utilization of marshlands and livestock-crop integration systems	Number of marshlands used for feed production	MINAGRI, RAB, Development partners	N/A	40	50	50	60	60	350
	Number of farmers adopted livestock-crop integration	MINAGRI, RAB, Development partners	N/A	20%	25%	40%	50%	60%	
1.1.6.Promote use and conservation of locally available feed resources (crop residues: rice straw, maize cobs, maize stoves, soybean	Number of farmers maximizing use of crop residues	MINAGRI, RAB, Development partners	The 3,127 farmers were trained on forage production, harvesting, and	35%	40%	45%	50%	55%	550

straw, bean straw			conservation,						
1.1.7.Promote better use of agro-industrial by-products from the processing of cereals (grains) as concentrates/supplements for animal feeding	Number of beef farmers maximizing better use of agro-industrial by-products	MINAGRI, RAB, Development partners	N/A	20%	25%	35%	40%	50%	355
	Quantity of animal feeds produced	MINAGRI, RAB, Development partners							
1.1.8.Support and promote feedlot system (cattle fattening business) through beef farmers and breeders' association in Eastern Province (irrigated sites: Kirehe, Nyagatare, Gatsibo, Kayonza)	Tons of gains and left-overs (rice bran, maize bran, straws, stover, cobs) available as feeds, number fattened beef produced	MINAGRI, RAB, Development partners	12,089 ha available for irrigation and crop intensification	40,370 steer beefs	40,370 steer beefs	40,370 steer beefs	40,370 steer beefs	40,370 steer beefs	5,000

1.1.9.Establish livestock water infrastructure (watering systems) in the beef farming areas (Nyagatare, Kayonza, Kirehe, Gatsibo, Nyamasheke and Bugesera)	Number of farms with watering systems	MINAGRI, RAB, WASAC, Development partners	N/A	20%	50%	60%	70%	80%	1,350
I.2 Output: Dairy breeds performance and breeding practices improved									
1.2.1.Initiate inventory, characterization, evaluation and selection of indigenous/local beef breeds (within Ankole breeds)	Number of local beef breeds identified and selected	MINAGRI, RAB, HLIs, developmental partners	N/A	1	1	1			750
	Performance and features of local beef breeds documented	MINAGRI, RAB, HLIs, developmental partners	N/A						
1.2.2.Promote in partnership with private sector, the improvement of genetic potential of local breeds through crossbreeding with improved/exotic beef breeds	Number of improved beef breeds produced	MINAGRI, RAB, Private sector, Development partners	N/A	2	3	3	5	2	1,500

	Amount of beef products produced	MINAGRI, RAB, Private sector, Development partners	197,778MT of beef meat (2022/23FY)	200,000MT	250,000MT	300,000MT	320,000MT	350,000MT	3,500
1.2.3.Facilitate the introduction and import of the improved or pure line parent stocks (simmental, Boran, charolais, Brahman, Angus, Limousin, etc) of beef breeds to support genetic improvement and production	Number of improved and exotic beef imported	MINAGRI, RAB, Private sector, Development partners	N/A						1,575
	Number of farmers raising improved and exotic beef breeds	MINAGRI, RAB, Private sector, Development partners	N/A						
1.2.4.Ensure the availability of AI facilities, proven beef semen and liquid nitrogen	Number of AI facilities and liquid nitrogen plants established	MINAGRI, RAB, Private sector, Development partners	1National breeding center, 2 liquid nitrogen plants			1	1		1,500
	Amount of proven beef semen produced	MINAGRI, RAB, Private sector, Development partners	251,649 doses of semen availed (2022 FY), 110,495 Cows inseminated	100000 doses of semen	120000 doses	130000 doses of semen	160000 doses of semen	180000 doses of semen	1,200

			and 42,195 borne calves registered, 40% overall AI success rate						
1.2.5.Promote Breeders Association, Companies and beef breed societies for sustainable conservation and production	Number beef breeders supported	MINAGRI, RAB, Private sector, Development partners	N/A	2	3	3			275
1.2.6.Promote and support research on beef breeds performance and adaptability across different Agro-ecological zones	Number of research projects and outputs	MINAGRI, RAB, HLIs, Development partners	100	450	650	800	1012	150	450
	Number of SMEs supported, involving women and youth)	MINAGRI, RAB, HLIs, Development partners	N/A	12	20	30	35	40	350
1.2.7.Promote specialization in beef production systems (cow-calf, backgrounding, feedlot/finishing production) in the long-run (e.g., Gako Beef project, IMPROBEEF, etc)	Number of specialized beef farms	MINAGRI, RAB, Development partners	654 Cattle Farmers (8.75% F),	654 Cattle Farmers (8.75% F),	660 Cattle Farmers (8.75% F),	665 Cattle Farmers (15% F),	674 Cattle Farmers (25% F),	674 Cattle Farmers (30% F),	1,020

	Raised youth and women employment rate in MVC	MINAGRI, RAB, Development partners	21.27% youth and 12.3 women	27% youth and 20% women	35% youth and 30% women	40%% youth and 30% women	40%% youth and 30% women	40%% youth and 30% women	
1.2.8.Strengthen animal identification and performance recording system (software, equipment and training)	Number of profiling and recording tools produced	MINAGRI, RAB, HLIs, Development partners	1	100 % operational	101 % operational	102 % operational	103 % operational	104 % operational	200
I.3 Output: Animal health services improved (veterinary services)									
1.3.1.Provide capacity building on Animal welfare and husbandry, appropriate biosecurity measures and heard health programs	Number of training materials developed and disseminated	MINAGRI, RAB,RICA, MINICOM, Developmental partners	N/A	2	5	5	5	5	300
	Number of farmers trained	MINAGRI, RAB,RICA, MINICOM, Developmental partners	1,065 L-FFS across the country and 48 L_FFS Master trainers	350	400	450	500	400	550
1.3.2.Undertake surveillance, mapping and reinforce diseases control interventions	Number of diseases survilance studies conducted on the key diseases (FMD, LSD, BQ, RVF, Rabies, Mastitis	MINAGRI, RAB, HLIs, RCVD, Local government, Development partners	The samples tested are 1,372 of RVF; 2,104 of FMD; 273 of Mastitis;	50% cattle tested	50% cattle tested	50% cattle tested	50% cattle tested	50% cattle tested	250

	and Brucellosis)		5,601of Brucellosis Cattle.						
	Number of beef animal vaccinated against FMD, LSD, BQ, RVF, Rabies, ECF, and Brucellosis	MINAGRI, RAB, HLIs, RCVD, Local government, Development partners	A total of 261,184 cows were vaccinated against FMD; 1,331,633 cows against LSD; 759,728 cows were vaccinated against BQ; 1,267,970 cows were vaccinated against RVF, 81,638 cows vaccinated against brucellosis (2022/23FY)	100% beef cattle vaccinated	100% beef cattle vaccinated	100% beef cattle vaccinated	100% beef cattle vaccinated	100% beef cattle vaccinated	1,500
1.3.3.Enforcing procedure and systems for strict control and prevention of tick-borne and trans-boundary disease control	Prevention and control mechanisms of TB diseases in place	MINAGRI, RAB, HLIs, RCVD, Local government, Development partners	N/A	100% beef cattle vaccinated	100% beef cattle vaccinated	100% beef cattle vaccinated	100% beef cattle vaccinated	100% beef cattle vaccinated	1,000

1.3.4.Empower the veterinary service providers especially private service providers	Number of veterinary practitioners trained	MINAGRI, RAB, HLIs, RCVD, Local government, Development partners	At least 32 technicians trained (2022/22FY)	416	300	300	300	300	750
	Number of veterinary equipment and kits provided	MINAGRI, RAB, HLIs, RCVD, Local government, Development partners							1,000
1.3.5.Establish the disease surveillance facilities (veterinary laboratories, clinics, and mobile veterinary labs)	Number of veterinary labs constructed	MINAGRI, RAB, HLIs, RCVD, Local government, Development partners	1 National veterinary Lab, 4 Satellite veterinary laboratories rehabilitated and 15 proximity veterinary posts		2	2	1		5,500
	Number of vet clinics established	MINAGRI, RAB, HLIs, RCVD, Local government, Development partners			1	1			
1.3.6.Increase efficient in control, diagnosis and provision of animal movement permits	Number of disease free zones established	MINAGRI, RAB, RICA, Development partners	N/A		3				1,230

	Amount of safe and quality of beef products produced	MINAGRI, RAB, RICA, Development partners	197,778MT of beef meat (2022/23FY)	200,000MT	250,000MT	300,000MT	320,000MT	350,000MT	
1.3.7.Strengthen and equipping the established satellite laboratories (skilled human resources and required equipment and tools)	Number of satellite labs strengthened and equipped	MINAGRI, RAB, HLIs, RCVD, Local government, Development partners	1 National veterinary Lab, 4 Satellite veterinary laboratories rehabilitated and 15 proximity veterinary posts	5					7,300
	Number of farmers receiving vet services	MINAGRI, RAB, HLIs, RCVD, Local government, Development partners	N/A	30%	50%	60%	70%	80%	
1.3.8.Establish the disease risk management and disaster preparedness mechanisms	Contigency funds available	MINAGRI, RAB, Development partners	N/A						
	Taskforce established	MINAGRI, RAB, Development partners	N/A						
1.3.9.Promote initiative one health initiative with other collaborating	one health initiative in place	MINAGRI, RAB, RCVD, Developmental partners	N/A		1				500

partners									
Sub-Total									**45,895**
II. Outcome: Developing inclusive livestock market system for increased incomes									
II.1 Output: Safety and quality of beef and beef products promoted									
Activities	**Performance Indicators**	**Responsibility**	**Baseline**	**Targets / Outputs**					**Budget (000,000 RWF)**
				24-25	**25-26**	**26-27**	**27-28**	**28-29**	
2.1.1.Provide capacity building on Good (livestock) Agricultural and Hygienic Practices (GAPs and GHPs; Food safety and Management System, Hazard Analysis and Critical Control Point (HACCP)	Number of farmers, Butcheries, Meat inspectors, processors, Transporters, and Regulators trained	MINAGRI, RAB, RICA, MINICOM, Developmental partners	About 422 veterinarians; 28cross border veterinarians; 111 CAHW's; 25 processing companies trained	1000	1000	1000	1000	1000	7,000
	Number of butcheries sellers trained	MINAGRI, RAB, RICA, MINICOM, Developmental partners	About 422 veterinarians; 28cross border veterinarians;	100	100	100	100	100	

			111 CAHW's; 25 processing companies trained						
	Number of Meat Inspectors trained	MINAGRI, RAB, RICA, MINICOM, Development partners	About 422 veterinarians; 28cross border veterinarians; 111 CAHW's; 25 processing companies trained	30	30	30	30	30	
	Number Meat processors trained	MINAGRI, RAB, RICA, MINICOM, Development partners	About 422 veterinarians; 28cross border veterinarians; 111 CAHW's; 25 processing companies trained	30	30	30	30	30	
	Number of meat transporters trained and faciltated	MINAGRI, RAB, RICA, MINICOM, Development partners	About 422 veterinarians; 28cross border veterinarians; 111 CAHW's; 25 processing companies trained	10	10	10	10	10	

2.1.2.Encourage private producers, SMEs, and Firms to invest in medium and large scale specialized commercial beef farms for quality beef meat production and employment creation	Number of Private producers, SMEs and firms supported	MINAGRI, MINICOM, RAB, PSF, Development partners	170,524.6 MT (Quantity of meat production for domestic), 4,379.4 MT (meat production exported)	55,000MT	57,000MT	60,000MT	65,000MT	70,000MT	5,000
	Beef productivity increased	MINAGRI, MINICOM, RAB, PSF, Development partners	51,000MT	20%	30%	40%	50%	60%	
2.1.3.Develop and/ or review and enforce existing standards and regulations to ensure safety and quality meat production in Rwanda	HACCP Certification available; ISO 22000 Standard available; ISO 17020 for inspection bodies available (RICA& FDA implement these standards); ISO 9001 for QMS; ISO 19011 for audit management ; Other local and international standards	MINAGRI, MINICOM, RAB, PSF, Development partners	regulations and standards available	2	2	2	2		450

2.1.4.Develop and rehabilitate the existing slaughterhouses and modern abattoirs to operate as Abattoir Business models	Number of new slaughterhouse and abattoirs constructed and managed as Business models	MINAGRI, RAB, RICA, Development partners	Slaughterhouses, abattooirs and tueries (107) and only 15 modern slaughterhouses (RICA)	20 modern slaughterhouses	25 modern slaughterhouses	30 modern slaughterhouses	45 modern slaughterhouses	45 modern slaughterhouses	2,900
2.1.5.Increase the number and capacity of modern chilling/cooling facilities and promote small scale meat processing and value addition business in the country bordering areas (Nyagatare, Gicumbi, Rusizi and Rubavu Districts)	Number of modern chilling/cooling facilities in place	MINAGRI, RAB, RICA, Development partners	10 cold chain storage facilities	Feasability study + resources mobilisation	20	40	60	100+ enforced standards and regulations to enhance packaging of meat	2,000
	Increased quantity of meat exports	MINAGRI, RAB, RICA, Development partners	N/A	20%	30%	40%	60%	70%	
2.1.6.Establish and strengthen the joint inspections to enforce regulation at various steps of meat production, transport-trade, slaughtering, processing and trade	% of MVC operators (with at least 30 % women and 25% youth) demonstrating a satisfactory level of minimum compliance to meat quality and safety	MINAGRI, RAB, RICA, Developmental partners	Only 27.3% of abattoirs inspected by RIC in 2021 have indicated a relatively satisfying minimum	30%	40%	50%	60%	70%	125

(retailer, export)	standards (70% compliance for pre-determined		level of compliance						
	Number of certified meat processors/abattoirs	MINAGRI, RAB, RICA, Developmental partners	N/A	50%	70%	80%	100%	100%	250
2.1.7. Establish identification, recording and traceability system (digital) for safe and quality beef meat production (enhance compliance to GAPs, GHPs, and food safety standards)	A digital identification and traceability system of beef products in place	MINAGRI, RAB, RICA, Developmental partners	feasibility study +tool under development	implementation	implementrion	implementation	implementation	implementation	1,000
	Number of slaughterhouse/abattoirs complying to GAPS, GHPS, HACCP, and Food safety standards	MINAGRI, RAB, RICA, Developmental partners	N/A	30%	40%	50%	60%	70%	
2.1.8.Promote and facilitate investment in packaging and labelling to increase availability of	Number of enforced standards and regulations in packaging in place	MINAGRI, RAB, RICA, Development partners	feasibility study +tool under development	packing and labelling plant operattional	packing and labelling plant operattional	packing and labelling plant operattional	packing and labelling plant operattional	packing and labelling plant operattional	2,000

locally made, standard and affordable packaging materials									
	Number of packed and labelled beef products available	MINAGRI, RAB, RICA, Development partners	3	10	10	10	10	10	
2.1.9.Establish abattoir Business Model (ABM) linking producers, traders, abattoirs and meat market	Consultation among meat value chain stakeholders	MINAGRI, RAB, RICA, Developmental partners	Consultation among MVC stakeholders	Concept note development, ToRs and hiring Consultancy	Validation of the ABM concept Reportl	ABM in place and operational	ABM in place and operational	ABM in place and operational	85
II.2 Output: Marketing inclusiveness for beef and beef products promoted									
2.2.1.Encourage and promote the formation of beef producers and traders' associations	Number of beef producers and traders strengthened	MINAGRI, RAB, RICA, Development partners	strategic plan developed and approved	Associations activities implementation	Associations activities implementation	Associations activities implementation	Associations activities implementation	Associations activities implementation	150
2.2.2.Formalize beef products trade through capacity building and licensing of traders	Number of traders trained	MINAGRI, RAB, RICA, Development partners	50	70	100	100	100	100	55
	Number of licensed traders	MINAGRI, RAB, RICA, Development partners	30	50	70	80	80	80	

2.2.3.Establish the pricing and grading policy for beef and beef products	Grading and pricing policy in place	MINAGRI, RAB, RICA, Development partners	Consultation among MVC stakeholders	Concept note development, ToRs and hiring Consultancy	Pricing and grading policy approved	implementation	implementation	implementation	65
2.2.4.Introduce and Promoted a "Premium Price" concept, for meat complying with quality and safety standards, based on international certification scheme, including Bio-Products,	Number of international meat trade shows attended by key MVC operators (farmers, traders, processors, Inspectors)	MINAGRI, RAB, RICA, Development partners	N/A	2	2	3	3	3	120
II.3 Output: Marketing infrastructure and information systems strengthened									
2.3.1.Establish strategic market and holding grounds/ sale yards	Number of grounds/selling yards	MINAGRI, RAB, RICA, Development partners	15 District livestock markets rehabilitated and operational.	4	5	5	5	5	3,000
2.3.2.Promote public and private investments to increase capacity of cold chain for meat products, storage and transportation	Number of public and private investments increased	MINAGRI, RAB, RICA, Development partners	N/A	3	5	7	10	7	250
	Safety and chilled meat products increased	MINAGRI, RAB, RICA, Development	N/A						

		partners							
	Number of meat transportation van increased	MINAGRI, RAB, RICA, Development partners	N/A						
2.3.3.Establish and operationalize a digital platform for sharing and dissemination of information on national regulation, quality standards, inspection and certification requirements, available research outputs, innovations, export/import market requirements	A digital platforms for MVC information sharing in place	MINAGRI, RAB, HLIs, RICA, Developmental partners	N/A	1					350
	90% of MVC actors accessing information on time	MINAGRI, RAB, HLIs, RICA, Developmental partners	N/A	30%	50%	60%	70%	90%	
2.3.4.Modernize and enhance tanneries, with updated equipment and technology to treat skins and hides and curb environmental pollution	Number of modern and equipped tanneries	MINAGRI, RAB, RICA, Developmental partners	N/A	Feasibility study + resource mobilisation	5	10	40	50	1,000

	Reduced skins and hides losses	MINAGRI, RAB, RICA, Developmental partners	N/A	by 30%	by 40%	by 50%	by 60%	by 70%	
	Enhanced environment protection	MINAGRI, RAB, RICA, Developmental partners	N/A	40%	50%	60%	70%	80%	
2.3.5.Promote and support E-commerce of meat and meat products in order to diverse trading destinations and maximize profits and	Number of E-commerce platforms established	MINICOM, MINAGRI, RAB, Private sector, Development partners	Agri-Marketplace app, E-Soko App,	5	7	10	2	2	350
	Increased online buy of meat and meat products	MINICOM, MINAGRI, RAB, Private sector, Development partners	N/A						
Sub-Total									**26,150**
III. Outcome: Strengthening the systemic enablers									
III.1 Output: Investment along each targeted value chains promoted									
Activities	**Performance Indicators**	**Responsibility**		**Projected Targets**					**Budget (000,000 RWF)**

				23-24	**24-25**	**26-27**	**27-28**		
3.1.1.Support multipliers of forage seed and distribution of seeds to small scale beef farmers	Number of drought-tolerant fodder varieties developed and disseminated	MINICOM, MINAGRI, RAB, RICA, Private sector, Development partners	6,497 ha been planted with best resilient fodder species	7,500 ha	8,500 ha	9,500 ha	8,700 ha	7,000 ha	1,500
	Numbers of forage seeds multipliers and farmers trained	MINICOM, MINAGRI, RAB, RICA, Private sector, Development partners	3127 farmers trained	4000	5000	5000	5000	5000	
3.1.2.Establish and strengthen the capacity of existing commercial animal feed factories	Number of animal feed factories	MINICOM, MINAGRI, RAB, RICA, Private sector, Development partners	7		1	1			200
3.1.3.Attract local and international investor in establishment of beef processing, cold chain, feed reserves and feed factories	Number of beef processing plants	MINICOM, MINAGRI, RAB, RICA, Private sector, Development partners	N/A	5	5	5	5	5	1,000
	Number of feed reserves	MINICOM, MINAGRI, RAB, RICA, Private sector, Development partners	1,673.761 MT of Maize, 6,533.290 MT of beans, 520.25 MT of maize flour and 330	10	10	10	10	10	

			MT of rice have been purchased and stored as Strategic Grain reserve.						
	Number of cold chains	MINICOM, MINAGRI, RAB, RICA, Private sector, Development partners	N/A	10	10	10	10	10	
3.1.4.Promote the public private partnership (PPP) in utilization of government available grazing land and livestock infrastructures	Number of PPP partnership established	MINICOM, MINAGRI, RAB, RICA, Private sector, Development partners	N/A		2	2			1,500
	Number of public facilities utilized appropriately	MINICOM, MINAGRI, RAB, RICA, Private sector, Development partners	N/A						
3.1.5.Promote investments in livestock farm machinery and equipment (farm technology)	Number of farms adopted technology (machineries)	MINICOM, MINAGRI, RAB, RICA, Private sector, Development partners	N/A	30%	40%	50%	60%	65%	5,000
	Farm machinery and equipment	MINICOM, MINAGRI,	N/A						

	availed	RAB, RICA, Private sector, Development partners							
III.2 Output: Implementation of existing of livestock policies and institution capacity developed and reinforced									
Activities	**Performance Indicators**	**Responsibility**	**Baseline**	**Projected Targets**					**Budget (000,000 RWF)**
				23-24	**24-25**	**26-27**	**27-28**	**28-29**	
3.2.1.Establish the beef breeding strategy and regulation of breeding practices (breeding programs/policy)	Breeding strategy and regulations in place	MINAGRI, RAB, Private sector, Development partners	National Livestock Breeding and Production plan in place	100% approved	30% of activities implementarion	50% of activities implementarion	70% of activities implementarion	98% of activities accomplished	100
3.2.2.Establish and enforce regulations for animal feeds manufacturing, standards and formulation of commercial feeds and crop residues	Animal feed manufacturing and commercialization regulations in place	MINAGRI, RAB, MINICOM, RSB, Development partners	National Feed Security and Safety contingency plan in place	100% approved	Enforcement	Enforcement	Enforcement	Enforcement	100
3.2.3.Establish and operationalize a National Meat Traceability Scheme,	Number of quality meat products available	MINAGRI, RAB, RICA, Development partners	70% developed	100% approved	50% operational	70% operational	100% operational	100% operational	1,000

	Number of certified MVC traders	MINAGRI, RAB, RICA, Development partners	N/A	50	100	200	300		
3.2.4.Enforce the regulations (policy) for veterinary profession, drugs and pharmaceutical supply and distribution/usage along beef production chain	Regulations/ policy for veterinary profession, use and misuse of drugs in place	MINAGRI, RAB, RCVD, FDA, Development partners	sanitary mandate in place, veterinary regulations available	60%	80%	100%			500
3.2.5.Create career incentives and opportunities (Tax exemption, access to financial services) for new SMEs, women, and youth to be actively engaged in meat value chain segments including commercialization,	Number of new SMEs, women and youth received incentives	MINAGRI, RAB, MINICOM, RRA, Developmental partners	100	450	650	800	1012	1500	100
3.2.6.Strengthen the uptake of livestock insurance scheme in beef production sub-sector	Number of beef farmers adopted livestock insurance	MINAGRI, RAB, Insurance companies, Development partners	48,962 cows insured (2022/23FY)	30%	40%	50%	65%	70%	3,000
III. 3 Output: Culture of accountability and responsive institution promoted									

3.3.1.Establish and strengthen the governing structure and capacity of Rwanda breeders and beef farmers organization	Rwanda beef breeders and farmers organization in place	MINAGRI, RAB, Development partners	Association strategic plan developed and approved						865
3.3.2.Strengthen the inter-sectoral coordination for beef subsector development activities	Inter-sectoral coordination of beef sector in place	MINAGRI, RAB, RICA, PSF, Development partners	N/A						450
IV. Outcome: Promoting Digitalization, Climate change mitigation, and adaptation in livestock sub-sector									
IV.1 Output: Research and extension services improved									
4.1.1.Develop, publish and disseminate the beef cattle management training manuals	Number of farmers adopted best farming practices	MINAGRI, RAB, Development partners	20362 trained on best farming practices (2022/23)	3,000	4,000	4,500	5,000	5,500	350
4.1.2.Provide capacity building and refresher courses of beef value chain actors	Number of beef value chain actors trained	MINAGRI, RAB, RICA, Development partners	N/A	.	550	800	800	800	550
	Amount of quality beef products produced	MINAGRI, RAB, RICA, Development partners	170,524.6 MT (Quantity of meat production for domestic), 4,379.4 MT	55,000MT	57,000MT	60,000MT	65,000MT	70,000MT	

			(meat production exported)						
4.1.3.Support research production performance and adaptive beef breeds	Number of research supported	MINAGRI, RAB, RICA, Development partners	N/A	5	10	15	5	3	1,200
4.1.4.Strengthen linkages of research, extension and livestock/ beef farmers	Number of exchange platforms established; number of research projects and outputs	MINAGRI, RAB, RICA, Development partners	N/A	3	5	10	3	2	600
4.1.5.Establish and strengthen infrastructure and facilities Build capacities of women and young entrepreneurs in the MVC, by providing them with practical skills at each level of /segment of meat value chain through mentorship and internship programs,	Number of women and young entrepreneurs trained	MINAGRI, RAB, RICA, Development partners	840 Champions on Gender Learning System methodology trained	3,000	4,000	5,000	6,000	7,000	1,000
	Number of training materials developed	MINAGRI, RAB, RICA, Development partners	N/A	3	5	5	5	5	150

	Number of training infrastructure and facilities	MINAGRI, RAB, RICA, Development partners	N/A	1	1	1			
IV.2 Output: Policies and regulations on digital platforms and technologies developed and reinforced									
4.2.1.Create digital platforms for regular market linkage, information on price, market structures, and digital selling points	Number of digital and physical selling platforms created	MINAGRI, RAB, RICA, Development partners	N/A	1	2	1	1	0	250
4.2.2.Establish and reinforce the policies and regulations to regulated digital plateforms	Number of regulations in place	MINAGRI, RAB, RICA, Development partners	N/A	1	0		0	0	75
IV.3 Output: Adoption of new technologies and innovation reinforced									
4.3.1.Develop new techonologies in the breeding centers	Number of breeding center/farms with new techonlogies available	MINAGRI, RAB, Development partners	1	0	10	10	10	0	
4.3.2.Reinforce the beef products processing factories with new technologies for value addition	Number of beef products processing plants equipped with new technologies	MINAGRI, RAB, RICA, Development partners	N/A	2	5	5	5		1,500

4.3.3.Train Beef farmers, processors, traders on utilisation new value addition technologies	Number of actors beef value chain trained and adopted new technologies	MINAGRI, RAB, RICA, Development partners	N/A	300	500	600	800	1000	475
IV.4 Output: Interventions related to Climate change enhanced									
4.4.1.Establish watering systems such as smart water harversting, watering, smart irrigation for small-scale, etc.	Number of farms with water smart facilities (rainwater harvesting facilities supplied)	MINAGRI, RAB,HLIs, Development partners	71,825 Ha under irrigation, Only 8.2% of farmers practiced irrigation, where 7%of small-scale farmers and 59.8% of large-scale farmers (SAS,2022)	35% of dairy farms with water systems	45% of dairy farms with water systems	55% of dairy farms with water systems	65% of dairy farms with water systems	70% of dairy farms with water systems	4,000
4.4.2.Establish Weather and knowledge - smart practices	Number of digital agro-climate advisory tools, radio, smart phone, TV	MINAGRI, RAB,HLIs, Development partners	1 mobile App with weather forecasts developed	2	2	2	2	2	
4.4.3.Develop and introduce new improved beef breeds resistant and adapting to climate changes	Number of Improved climate-resilient beef breeds	MINAGRI, RAB, HLIs, Development partners	N/A	5	6	10			850

4.4.4.Develop innovations on reducing greenhouse gas emission in beef cattle farming	Number of greenhouse gas emission technologies developed (feeding, manure management, renewable energy technologies)	MINAGRI, RAB, HLIs Development partners	N/A	2	3	4	3	2	345
IV.5 Output: NDCs mitigation promoted									
4.5.1.Improve use of solar pumping system in irrigation for fodder and forages production	Number of beef farmers using irrigation schemes	MINAGRI, RAB, Development partners	Only 8.2% of farmers practiced irrigation, where 7%of small-scale farmers and 59.8% of large-scale farmers (SAS,2022)	15%	30%	35%	40%	45%	800
4.5.2. Support and promote use of on-farm anaerobic digestion (bio-digestors) for production of renewable energy and manure compositing	Number of farmers adopted bio-digestors	MINAGRI, RAB, Development partners	N/A	10%	15%	20%	20%	20%	1,350

4.5.3. Develop and distribute smart climate resilient forages seeds	Number of farmers growing climate resilient forages	MINAGRI, RAB, Development partners	33,750 Kakamega seedlings, 23,080 calliandra trees and 10,670 leuceuna trees distributed to farmers (2022/23FY).	50tons of improved forages seeds	55tons of improved forages seeds	60tons of improved forages seeds	65tons of improved forages seeds	70tons of improved forages seeds	1,500
	Percentage of the reduction in methane emissions from enteric fermentation	MINAGRI, RAB, HLIs, Development partners	N/A	20%	30%	50%	40%	30%	
4.5.4.Promote the adoption of more efficient manure management systems	Percentage of farmers with improved manure management	MINAGRI, RAB, HLIs, Development partners	N/A	20%	40%	50%	60%	70%	1,250
	Percentage of reduction in GHG emissions from manure management	MINAGRI, RAB, Development partners	N/A	80%	60%	50%	40%	30%	

4.5.5.Develop climate resilient postharvest and value addition facilities and technologies of livestock products	Number facilities established	MINAGRI, RAB, Development partners	N/A	2	3	4	2		1,000
4.5.6.Support and promote climate change adaptation technologies and practices (range management, smart forages, irrigation)	Number of technologies tackling climate change	MINAGRI, RAB, Development partners	N/A						2,000
Sub -Total									**9,965**
Grand Total: Beef Value Chain Budget in Five Years									**82,010**

I.3 Poultry Value Chain

I. Outcome: Modernizing sustainable animal resources production and promoting nutrition and food security									
I.1. Output: Poultry breeds performance and breeding practices improved									
Activities	**Performance Indicators**	**Responsible institutions**	**Baseline**	**Output/Target**					**Budget (000,000 Rwf)**
				24-25	**25-26**	**26-27**	**27-28**	**28-29**	
1.1.1. Establishing the parent stock farms & new private hatcheries and DOC multiplication centers	Number of poultry parent stock farms established	MINAGRI, RAB, Livestock Development Agencies, PSF, MINALOC	2 breeding centers established		3	4	5	6	1,000
	Number of new hatcharies established		6		1	1	1	1	4000
	Number of existing hatcharies streghtened		6 hatcharies						2000
1.1.2. Acquire poultry parent stocks (layers, broilers and dual purpose chciks)	Number of layer chicks purchased	MINAGRI, RAB, Development Partners	10,000,000 layer chicks	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	10,000
	Number of broiler chicks purcahsed		25,000,000 broiler chicks	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	8,000
	Number of dual purpose chicken purchased		25,000,000 dual purpose chicks	5,000,000	5,000,000	5,000,000	5,000,000	5000000	7500

1.1.3.Provide capacity building for parent stock breeders and hatcheries on breed selection and best farming practices	Number of parent stock breeders and hatcheries trained	MINAGRI, RAB, Livestock Development NGOs,Farmer Training Centers.	500 farmers trained in poultry breeding practices		600	700	800	1000	2,000
	% increase of adoption of best farming practices				25%	20%	16%	14%	120
1.1.4.Establish the DOC specialised brooding and pullet out growers farms	number of specialised brooding and pullet out growers farms	MINAGRI. DAROs. Development Partners in Livestock Health.	N/A		15	15	15	15	300
1.1.5.Characterising and mapping of poultry value chain actors	Number of poultry chain actors mapped	MINAGRI, RAB, Livestock Development NGOs,Farmer Training Centers.	25000comercial farmers mapped and get technical assistance		5000	5000	5000	5000	1,000
1.1.6.Put in place guidelines to monitor importation of DOC and fertile eggs	Number of guideline developped	MINAGRI. DAROs. Development Partners in Livestock Health.	At least 4 guideline		1.00	1	1	1	200

1.1.7.Promote and support research innovative technologies in Indigenous chicken (selection, Cryopreservation)	Number of innovative technolgies promoted	MINAGRI. DAROs. Development Partners in Livestock Health.	at leaset 10 technologies		3	3	3	3	500
1.1.8.Establish IC breeding and conservation model farms	Number of IC breeding and conservation model farms	MINAGRI. DAROs. Development Partners in Livestock Health.	N/A		2	2	2	2	1,000
	Number of IC model farms established		N/A		100	100	100	100	
sub-Total									37,620
I.2 Output: Modern livestock infrastructure established									
1.2.1.Develop Poultry demonstration and breeding centers in the RAB livestock centers, where genetic material can be kept, multiplied and sold/distributed to farmers and other interested parties	A production and breeding demo center for poultry at RAB in place	MINAGRI, RAB, Developmental partners	N/A	0	1	0	0	0	300
1.2.2. Enhance Storage Facilities and Silos	Percentage of poultry farmers adopting recommende d storage	MINAGRI, RAB	N/A	20%	20%	20%	20%	20%	5,000

	solutions.								
1.2.3.To Strengthen Irrigation Schemes	% of irrigation schemes implemented	MINAGRI, Rwanda Water Board	N/A	15%	20%	25%	30%	35%	545
sub-Total									5,845
I.3 Animal husbandry and production systems improved									
1.3.1. Upgrade Hatchery Standards	Percentage of hatcheries meeting quality standards (e.g., biosecurity)	RSB, RAB	N/A	25% Increase of hatcheries meeting all established biosecurity standards	30%	35%	40%	45%	200
1.3.2. improving knowledge on feed Mixing	Percentage increase in feed sellers and farmers participating in workshops	MINAGRI, RAB, HLI	N/A	15% increase in adoption of specific feed mixing practices	20% increase in adoption of specific feed mixing practices	25% increase in adoption of specific feed mixing practices	30% increase in adoption of specific feed mixing practices	35% increase in adoption of specific feed mixing practices	3000
1.3.3.To promote Hybrid Varieties Through Digital Means	Percentage of poultry farmers buying hybrid breeds through digital	MINAGRI, RAB	N/A	10% farmers using digital channels to purchase hybrid breeds	15%	20%	25%	30%	4,500

	channels (online marketplaces, e-commerce platforms, or mobile apps)								
Sub Total									***7,700***
I.4 Output: Animal nutrition enhanced (Animal feeds and feeding practices)									
1.4.1.Promote Innovation in Raw Material Production:	% of investors using innovative technologies for producing poultry feed ingredients (e.g., protein sources, grains, additives)	MINAGRI, RDB, MIN-ICT	N/A	5%	10%	15%	20%	25%	2,500
1.4.2. Improve Feed Quantity and Quality	Percentage increase in locally produced high-quality feed	MINAGRI, HLI and Feed Producers	N/A	10% percentage increase of the locally produced high-quality feed	20%	30%	40%	50%	1,000

1.4.3. Development and dissemination of sustainable feeding guidelines.	Percentage of poultry farmers trained on sustainable feeding practices.	MINAGRI NCST, RAB,Farmer Cooperatives and Associations.	50% poultry farmers trained on sustainable feeding practices.	60%		65%	70%	80%	200
1.4.4.Increased adoption of sustainable feeding practices.	Percentage increase in the adoption of sustainable feeding guidelines.	MINAGRI NCST, RAB,Farmer Cooperatives and Associations.	10% Increase in Adoption of Sustainable Feeding Guidelines	20%		30%	40%	50%	5,000
1.4.5.Establish alternative source of proteins (edible insects, plants/forage) to replace use of soybeans and fingerlings in formulation of poultry diet	Number of edible insect farms established	MINAGRI NCST, RAB,Farmer Cooperatives and Associations.	120		200	200	200	200	5,000
	Number of alternative sources of proteins in poultry diet	MINAGRI & Partner's	6			2	2	2	
	Number of processing plants established					1	1		

1.4.6.Promotion of climate-resilient forage crops(hydroponics and other forages)	Percentage increase in the cultivation of climate-resilient forage crops.	MINAGRI NCST, RAB,Farmer Cooperatives and Associations.	15% Increase in Cultivation of Climate-Resilient Forage Crops		25% Increase in Cultivation of Climate-Resilient Forage Crops	35%, Increase in Cultivation of Climate-Resilient Forage Crops	45%, Increase in Cultivation of Climate-Resilient Forage Crops	55%, Increase in Cultivation of Climate-Resilient Forage Crops	3,000
1.4.7.Increased availability of climate-resilient feed resources.	Quantitative improvement in the availability of climate-resilient feed resources.	MINAGRI NCST, RAB,Farmer Cooperatives and Associations.	500 metric tons of climate-resilient feed resources available		1,000 metric tons	1,500 metric tons	2,000 metric tons	2,500 metric tons	3,000
1.4.8.Development and promotion of precision feeding techniques.	-Number of poultry farmers trained on precision feeding techniques.	MINAGRI,RAB,Development partners	200 poultyfarmers trained on precision feeding techniques		3000	3000	3000	3000	2,000
1.4.9.Adoption of precision feeding practices among poultry farmers.	Percentage increase in the adoption of precision feeding practices		20% Increase in Adoption of Precision Feeding Practices		40%	60%	80%	100%	1,000
Sub Total									***22,700***
I.5 output: Animal health services improved (veterinary services)									
1.5.1. Strengthening Veterinary Capacity	Number of veterinary professionals	MINAGRI. DAROs. Development Partners in Livestock Health.	120 trained veterinary service		150	180	200	220	1,000

	trained.		providers						
	Percentage improvement in veterinary infrastructure.		20% improvement in veterinary infrastructure		30%	40%	50%	60%	2,000
1.5.2.Disease Control Programs	Number of disease control programs implemented.	MINAGRI, RAB, Development Partners	5 disease control programs		7	10	12	15	1,000
	Percentage reduction in poultry mortality rates.		20% Disease Outbreaks Reduction Target		15%	12%	10%	8%	5,500
1.5.3.Biosecurity Measures	Percentage of poultry farms implementing biosecurity measures.	MINAGRI, RAB, RPIA	30% of poultry farms implementing biosecurity measures		40	50	60	70	1,000
	Number of reported disease outbreaks.		20 Reported Outbreaks		15	10	8	5	3,000
1.5.4.Establish vaccination calendar for all types of chicken & aquire vaccines	Vaccination calendar established & number of poultry vaccines aquired	MINAGRI. DAROs. Development Partners in Livestock Health.		50000	500000	500000	500000	500000	2,000

1.5.5. Capacity building of laboratory technician of poultry diseases diagnostics	Number of staff trained	MINAGRI. DAROs. Development Partners in Livestock Health.			10	10	10	10	1,000
Sub-Total									16,500
II. Outcome: Developing inclusive livestock market system for increased incomes									
II.1 Post-harvest handling practices enhanced									
2. 1.1.Establishment private chicken slaughtering houses, connected with processing facilities and cold chain	Number of slaughter houses established , connected with cold room	Partners, MINAGRI	30 poultry slaughter facilities with cold room		15	15			2000
2. 1.2.Acquire of refrigerated trucks to transport poultry meat and egg	Number of trucks purcahsed	RAB, MINAGRI, MINICOM, RPIA	4 trucks			4			1000
2. 1.3.Introduction of new value-added Poultry products.	Number of new value-added products introduced.	MINAGRI, RPIA	5 New value-added poultry products introduced		8	10	12	15	600

2. 1.4.Increased market demand for value-added poultry products.	Percentage increase in market demand for value-added products.	Agro-Processing Companies, Development Partners in Product Development.	10% increase in market demand for value-added poultry products		15%	20%	25%	30%	1000
Sub Total									***4,600***
II.2 Output: Safety and quality of Poultry and Poultry products promoted									
1.4.2. Implement quality assurance certification programs.	Percentage increase in farms obtaining quality assurance certification.	MINAGRI, RAB, Development Partners		10% increase in farms obtaining quality assurance certificatio n	15%	20%	15%	10%	2,000
1.4.5.Establish financial support programs for quality improvement.	Number of financial support programs implemented .	MINAGRI, RAB, Development Partners		0	2	3	3	4	1,000
	Percentage of increase in farmers accessing financial services			10%	15%	20%	25%	30%	1300
Sub Total									***4,300***
II.3 Output: Marketing inclusiveness for poultry products promoted									
2. 3.1. Establishment of a market linkage platform.	Number of market linkage	MINAGRI, RAB, RPIA, Development Partners	establishment of around 10 new platforms		20	25	30	30	500

	platforms established.								
2. 3.2. Increased number of poultry farms accessing new markets.	Percentage increase in poultry farms accessing new markets.		10%, increase in poultry farms accessing new markets		15%	20%	25%	30%	500
2. 3.3.Implementation of consumer education programs.	Number of consumer education programs implemented .	MINAGRI,RAB and her partners, Higher learning institutions, Consumer Awareness NGOs.	15, consumer education programs implemented.		20	25	30	35	500
2. 3.4.Increased awareness of nutritional benefits of poultry products.	Percentage increase in consumer awareness of poultry product benefits.		10% Increase in Consumer Awareness of poultry Product Benefits Target		15%	20%	25%	30%	500
Sub Total									***2,000***
II.4 Output: Marketing infrastructure and information systems strengthened									

2.4.1.Successful implementation of targeted marketing strategies.	Number of marketing strategies implemented.	MINAGRI, poultry Farmers' Cooperative Associations, Marketing and Business Development Agencies.	5 Marketing Strategies Implemented Target		7	8	10	12	500
2.4.2.Increased market share for poultry products.	Percentage increase in market share for poultry products.	Development Partners	5% increase in market share for poultry products		8%	10%	12%	15%	1000
2.4.3.Enhance the availability and sharing of knowledge, market information, and technologies through poulty product value platforms.	Number of information sharing platforms	MINAGRI, poultry Farmers' Cooperative Associations, Agro-Processing Companies, Development Partners in Value Chain Development.	3 value chain development initiatives implemented		3	0	0	0	1000
	Percentage improvement in poultry farmers' access to market information		5% increase in value chain actors' integration		7%	10%	12%	15%	
Sub-Total									**2,500**
II.5 Domestic consumption of nutritious animal source foods promoted									
2.5.1.Digital Campaigns to Address mindset that chicken meat is expensive	Percentage increase in consumers buying chicken meat through	MINAGRI, RAB	N/A	10% consumer buying chicken meat through	15%	20%	25%	30%	300

	digital channels			digital channels					
2. 5.2.Increased awareness of nutritional benefits of poultry products.	Percentage increase in consumer awareness of poultry product benefits.		10% Increase in Consumer Awareness of poultry Product Benefits Target		15%	20%	25%	30%	500
2. 5.3. Establishing egg collection and business hubs with production inputs, drugs, vaccines, extension and selling services	Number of egg collection hub established	RAB, MINAGRI, MINICOM, RPIA	60 egg hub		15	15	15	15	500
Sub-total									***1,300***
III. Outcome: Strengthening the systemic enablers									
III.1 Output: Enabling investment environment along poultry value chain created									
3.1.1. Encourage and increase the subsidies and taxes exemptions for new investors in poultry sub-sector	Increased percentage of poultrys investors	MINAGRI, RAB, MINICOM, RRA, Developmental partners	N/A	0	0	1	1	1	1,000
	Subsidies and taxes exemptions policy in place		N/A						

3.1.2. Enhance Financial Inclusion and Access to Banking Services	Increase in loan disbursement for poultry farming ventures	Financial Institutions, MINAGRI, RAB	N/A	5% increase in the number of loans disbursed	10%	15%	20%	25%	100
3.1.3.To Promote Sustainable Insurance Policies	Percentage of farmers with insurance coverage	MINAGRI, Insurance Providers	N/A	12500%	1000%	750	500	250	3,000
3.3.4.To strengthen the governance and management capacity of existing and new established farmer organisations	Number of poultry farmers trained	MINAGRI,RAB, and Farmers' Associations	N/A	500 farmers trained	600	700	800	1000	1,700
sub-Total									5,800
III. 2 Output: Implementation of existing policy created and reinforced									
3.2.1.Support and advocate for Poultry value chain actors, association and cooperatives inclusion in the national development strategies and priorities	Poultry sector development strategies and priorities in place	MINAGRI, RAB, RPIA, Developmental partners	N/A	1	1	1	1	1	1000

3.2.2.Create and reinforce the partnership of the Poultry farmers and other stakeholders and organization, forging partnerships between regional Poutry' farmers	A strong partnership of RPIA with other stakeholders in place	MINAGRI, RAB, RPIA, Developmental partners	0	1	1	1	1	1	1000
	number of events, study tours attended		0	1	2	3	4	5	1500
Sub Total									***3,500***
III. 3. Output: Implementation of existing policy created and reinforced									
3.3.1. To implement Climate-Resilient Poultry Farming Policies	Adoption rate of smart or precision poultry farming practices (like Automated feeding and watering systems)	MINAGRI, RAB	N/A	5% Increase adoption rate of any smart or precision poultry practice	10%	15%	20%	25%	4,000
3.3.2.To Implement Digital Disease Control Policies	Adaptation rate of existing cattle farm management platforms intergrated with health records in poultry farming	MINAGRI, HLI's vet department	N/A	5% Adaptation rate	10%	15%	20%	25%	600

Sub Total									***4,600***
III.4. Output: Culture of accountability and responsive institution promoted									
3.4.1. Facilitate and support the capacity/governance and activities implementation of Rwanda breeders and Poultry farmers' association	Number of RPIA activities implemented	MINAGRI, RAB, RPIA, Developmental partners	N/A	5	5	5	5	5	1,000
	RPIA governance structure in place	MINAGRI, RAB, RPIA, Developmental partners	N/A	1	1	1	1	1	600
3.4.2. Strengthen the inter-sectoral coordination for rabbit subsector development activities	Poultry subsector coordination team in place and functional	MINAGRI, RAB, RPIA, Developmental partners	N/A	1	1	1	1	1	200
Sub-total									***1,800***
III.5. Output: Research, innovation and extension services improved									
3.5.1.Support the development and delivery of extension services/ materials to farmers through farmers group, cooperatives, LFFS	number of extension materials in place	MINAGRI, RAB, Developmental partners	N/A	1	1	1	1	1	500

3.5.2.Support research on assessing the nutritive value of poultry meat, innovative ideas on use and value addition of poultry by-products	Number of innovative products from rabbit by-products in place	MINAGRI, RAB, HLIs, Developmental partners	N/A	0	1	1	1	1	300
3.5.2.To develop and strengthen training and technology transfer programs to key actors (including youth and women) to enable the development of appropriate packages/entrepreneurship skills	number of key actors, women and youth trained	MINAGRI, RAB, Developmental partners	0	100	100	100	100	100	2000
	training materials developed		0	1	1	1	1	1	1500
	% of business-oriented rabbit farmers		0	20%	30%	40%	50%	60%	
sub-Total									4,300
IV.0. Output: Nationally Determined Contributions promoted (NDCs)									
4.1.To promotion of Better Livestock Feed (i.e., Legume Fodder Species)	% of farmers adopting legume fodder in poultry's diets	MINAGRI, RAB, REMA, NLA, and RFA, FONERWA	N/A	20%	25%	40%	50%	60%	1,362
4.2.To establish an Integrated Early Warning System and Disaster Response Plans	Timely dissemination of early warnings to poultry farmers.	The National Platform for Disaster Management (NPDM)	N/A	15%	18%	20%	15%	10%	1,167

4.3.To Increased Use of On-Farm Anaerobic Digestion of Manure for Bioenergy (Bio-digestors)	% of bio-digestors installed on farms.	MINAGRI, RAB, REMA, NLA, and RFA, FONERWA	N/A	10%	15%	20%	20%	20%	3,000
4.4.To develop a Commercial-Scale Aerobic Composting Systems for Manure	Number of commercial composting facilities established.	MINAGRI, RAB, REMA, NLA, and RFA, FONERWA	N/A	4	5	6	7	4	5,834
Sub-Total									**11,363**
Grand Total									**98,808**

I.4 Pig Value Chain

I. Outcome: Modernizing sustainable animal resources production and promoting nutrition and food security									
I.1 Output: Pig breeds performance and breeding practices improved									
Activities	**Performance Indicators**	**Responsible institutions**	**Baseline**	**Output/Target**					**Budget (000,000 Rwf)**
				24-25	**25-26**	**26-27**	**27-28**	**28-29**	
I.1.1 Improving pig genetics	Number of pig semen doses collected	MINAGRI, RAB, HLIs, RPFA, Developmental partners	28,000	50,000	50,000	50,000	50,000	50,000	10,000
	Number of Sows inseminated	MINAGRI, RAB, HLIs, RPFA, Developmental partners	25,000	42,000	42,000	42,000	42,000	42,000	
	Quantities of laboratory consummables & equipments aquired for semen collection processes	MINAGRI, RAB, HLIs, RPFA, Developmental partners	NA	10,000	15,000	15,000	15,000	15,000	
	Consummables for artificial inseminations acquired	MINAGRI, RAB, HLIs, RPFA, Developmental partners	NA	15,000	15,000	15,000	15,000	15,000	
	Number of breeding stock aquired(Boars, Gilts , semen ,..)	MINAGRI, RAB, HLIs, RPFA, Developmental partners	48	100	100	100	100	100	

I.1.2 Streghtening and support the pig breeders and multipliers	Number of pig breeder supported and streghtened	MINAGRI, RAB, RPFA, Developmental	5	5	5	5	5		3,000
	Number of model farmes established				200	500	1,000	1,000	
	Number of pig breeder and multiplier certified		NA	100	100	100	100	100	
	number of farmers trained	MINAGRI, RAB, RPFA		100	100	100	100	100	
I.1.3 Enhance awareness campaigns on importance and benefits of using AI services among pig producers	Number of awareness compaigns conducted	MINAGRI, RAB, RPFA, Developmental		5	5	5	5	5	8,000
	% of AI adoption increase			0	1	1	1		
	-number of farmers trained			100	100	100	100	100	
I.1.4 To provide training and refresher courses for new and existing pig AI technicians	-Numbers of SOPs developed	MINAGRI, RAB, RPFA, Development Partners							4,000
	Number of inseminators trained	MINAGRI, RAB, RPFA, Development Partners							

I.1.5 Generate and promote technologies and innovations for pig genetic improvement	Number of technologies generated and promoted		3	2	2	2	2	2	10,000
I.1.6 Acquire new gemplasm(Boars, Gilts, Semen ,…)	Number of new germplasm aquired				300	300	300	300	1,000
I.1.7 Streghtening the AI centers and its sub-centers by improving the artificial insemination and semen delivery of system	Number of AI centers supported	MINAGRI,RAB, Development Partners		2	2	2	2		1,000
	AI consummables & equipments Aquired								
Sub Total									***37,000***
I.2 Output: Modern livestock infrastructure established									
I.2.1 Initiate many water supply projects to make water accessible and affordable to pig farms and farmers	Percentage of pig farms accessing safe water	MINAGRI, RAB, WASAC, Developmental partners		0	0	0	1	1	2,000
I.2.2 Establish new specialized piglet fattening farms(for youth and women)	Number of piglet fatterning farms established				5,000	20,000	20,000	20,000	200

I.2.3 Strengthen the existing pig slaughterhouses and establish meat collection business hub; input supplies(drugs, feeds,…); Meat storage (Cold room) connected with meat distribution vehicle	Number of slaughterhouses strengthened	MINAGRI, RAB		10	10	10			3,000
	Number of refrigerated meat vans purchased			50	50	50	50		
	Number of business hub established			2	2	2	2		
I.2.4 Promote the public private partnership (PPP) in utilization of government available livestock infrastructures and engage youth and women companies	Number of PPP operational	MINAGRI, RAB, MINICOM, RICA, PSF, Development Partners	-	1	1	1	1	1	500
	Percentage of better performing GoR infrastructures	MINAGRI, RAB, MINICOM, RICA, PSF, Development Partners		1	1	1			
I.2.5 Acquire of refrigerated trucks to transport meat	Number of refrigerated trucks acquired	MINAGRI, MINICOM, RAB, RPFA, Developmental					4		1,000

		partners							
Sub Total									***6,700***
I.3 Animal husbandry and production systems improved									
I.3.1 Support Capacity building of farmers on best farming practices (husbandry)	Number of training materials developed	MINAGRI, RAB, RPFA, HLIs, Developmental		2	2	2			1,200
I.3.2 Facilitate pig identification, registration and traceability	Number of pigs identified and recorded	NA	300,000	300,000	300,000	300,000	300,000		2,000
	Number of pigs traced	NA	200,000	200,000	200,000	200,000	200,000		
I.3.3 Characterising and mapping of pig value chain actors	Number of pig value chain actors mapped		NA	50,000	70,000	80,000	90,000	100,000	100
I.3.4 Strengthen capacity of village pig keeping households to compound quality feed/home ration from local and industrial feed materials to supplement their pigs	Number of training materials developed	MINAGRI, RAB, HLIs, Developmental partners		2	2	2	-	-	1,500

	Number of farmers trained			100	100	100	100	100	
Sub Total									***4,800***
I.4 Output: Animal nutrition enhanced (Animal feeds and feeding practices promoted)									
I.4.1 Strengthen the existing feed processing plants through technology transfer, marketing extension to enable them to operate at full capacity	Number of feeds processing plants strenghtened	MINAGRI, RAB, Developmental partners	6	6	6	6	6	6	5,000
I.4.2 Build capacity of farmers on technologies and methods of formulating feed rations using locally available materials	Number of farmers trained	MINAGRI, RAB, Developmental partners		100	100	200	200	100	2,000
	Number of feed folmula developped	MINAGRI, RAB, Developmental partners		50	50	50	50	50	
I.4.3 Support feed millers/factories to operate at full capacity	Number of pig feed mill established		4	1	1	1	1		10,000
	Numbers of investors facilitated	MINAGRI, RAB, RDB, Developmental partners		5	5	5	5	5	
	Cereals and leguminous yield increased	MINAGRI, RAB, Farmers		0	1	1	1	2	

	Number of increase of animal feed agro-processing factories			5	5	5	5	5	
I.4.4 Improve the capacities of pig feed quality and safety (HACCP) control laboratories.	number of feed millers certified			30	30	30			3,000
	Number of feed millers trained								
I.4.5 Establish commercial specialized piglet fattening units	Number of commercialised pig feedlot established	MINAGRI, RAB, RICA, FDA, Developmental partners	NA	30	30	30	30	30	10,000
I.4.6 Facilitate import of pig feed ingredients (raw materials) especially maize, soya beans	-Quantity of pig feed raw materials increased	MINAGRI, RAB, MINICOM, Developmental partners		0	0	1	1	70	3,000
	-policy of feed ingredients subsidies and tax exemptions in place			1	1	1	1	1	
Sub Total									***33,000***
I.5 Output: Animal health services improved (veterinary services)									
I.5.1 Vaccinate pig against Swine Eryspelas	Number of pigs vaccinated against Swine Eryspelas, …	MINAGRI, RAB,RCVD, Development Partners							5,000

I.5.2 Strengthen disease control targeting prevention, surveillance and control through collection and testion of blood of priority pig diseases (ASF, TGE, erysipelas etc.)	-Diseases prevalence reduced	MINAGRI, RAB, HLIs, RCVD, Developmental partners		1	1	0	0	0	1,000
	-Pig diseases and prevalence document available	MINAGRI, RAB, HLIs, RCVD, Developmental partners		1	1	1	1	1	
I.5.3 Provide capacity building on farm biosecurity and diseases prevention	-number of training materials developed	MINAGRI, RAB, HLIs, RCVD, Developmental partners		1	1	1	1	1	2,000
	-number of farmers trained			100	100	100	100	100	
I.5.4 Promote private health service providers through continuous capacity building and facilitation with veterinary incentives	number of veterinarians trained (at least 4 per sector)	MINAGRI, RAB, RCVD, Developmental partners		200	400	400	300	364	5,000
	Number of incentives provided			5	5	5	5	5	
I.5.5 Establish the specialized livestock diseases diagnosis laboratories, biosecurity protocols	Number of farmers receiving better veterinary services	MINAGRI, RAB, HLIs, RCVD, Developmental partners		0	0	1	1		2,000

and vaccinating regularly									
I.5.6 Acquire pig vaccines	Number of vaccines and drugs acquired								5,000
Sub-total									***20,000***
II. Outcome: Developing inclusive livestock market system for increased incomes									
Activities	**Performance Indicators**	**Responsible institutions**	**Baseline**	**Output/Target**					**Budget (000,000 Rwf)**
				24-25	**25-26**	**26-27**	**27-28**	**28-29**	
II.1 Output: Post-harvest handling practices and practices enhanced									
II.1.1 Facilitate the post-harvest handling of produce through good practices of managing the production, processing, storage, and targeting the market	Percentage of increase of Quantity of feed losses reduced	MINAGRI, RAB, RICA, FDA, Developmental partners		1	1	0	0	0	1,000
	Quantity of quality feeds increased	MINAGRI, RAB, PSF		0	0	1	1	2	
II.1.2 Establish pig slaughter houses/abattoirs and pork processing factories	-number of slaughterhouses and modern abattoirs	MINAGRI, RAB, RICA, PSF, Developmental partners		10	10	10	10	10	2,000

II.1.3 Support investment in processing and marketing of pig products	-Number of investments supported	MINAGRI, RAB, MINICOM, RICA, PSF, Development partners		5	5	5	5	5	200
II.1.4 Provide capacity buidling on pig products processing and value addition	Number of processors trained	MINAGRI, MINICOM, RAB, RPFA, Developmental partners		10	10	10	10		500
	Quantity of pork value added products								
II.1.5 Establish cold chain systems to reduce post-harvesting losses and pig products residues management (circular economy)	-number of cold chain facilities	MINAGRI, RAB, RICA, Development, private sector, partners		10	10	10	10	10	2,000
	-number of factories adopted circular system	MINAGRI, RAB, PSF		2	2	2	2	2	
Sub Total									***5,700***
II.2 Output: Safety and quality of pig and pig products promoted									
II.2.1 Sustain and assure the production of quality live pig, and affordable quality pork products	Percentage of pig and quality pig products increased	MINAGRI, RAB, RICA, Developmental partners		0	1	1	0	0	3,000

II.2.2 Establish pig and pig products inventory, identification and traceability systems	Identification and traceability system in place with pig products profiled	MINAGRI, RAB, MINICOM, RICA, PSF, Development Partners	-	1					200
	-number of processing plants	MINAGRI, RICA, PSF		40	40	40	40	40	1,000
II.2.3 Improve quality assurance of agro-industrial by-product and processed feeds	Feed quality and safety assurance system established	MINAGRI, RAB, FDA, Developmental partners		1	1	1	1	1	1,000
Sub Total									***5,200***
II.3 Output: Marketing inclusiveness for pig products improved									
II.3.1 Promote PPP model to improve pig market management and marketing systems	-number of PPP established	MINAGRI, RAB, RICA, Private sector, Developmental partners		5	5	5	5	5	1,000
	-number of pig market established			2	2	2	2	2	
II.3.2 Establish the pricing and grading policy for pig and pig products	Grading and pricing policy in place	MINAGRI, MINICOM, RAB, RICA, RPFA, Developmental partners		1					300

Sub Total									***1,300***
II.4 Output: Marketing infrastructure and information systems strengthened									
II.4.1 Create regional, and international market linkage between pig producers and pig slaughter houses/abattoirs/pork processors	Number of digital Platforms for market linkage and infrmation sharing created	MINAGRI, MINICOM, RICA, NAEB, Private sector, Developmental partners		1					400
II.4.2 Establish and provide regular market information to pig farmers on pricing and Markets structures	Percentage of pig producers accessing regular market information	MINAGRI, RAB, MINICOM, RICA, PSF, Development partners		0	0	1	1	1	400
Sub Total									***800***
II.5 Output: Domestic consumption of nutritious animal source foods promoted									
II.5.1 Establishing pork meat collection business hubs	Number of pork meat collection business hub established	MINAGRI, MINICOM, RAB, RPFA, Developmental partners					30		1,000
II.5.2 Create market linkage, information on price, market structures, and proxy selling points	Number physical selling points increased	MINAGRI, RAB, RRFA, Developmental partners		-	1	1	1	-	1,000

II.5.3 Conduct community campaign to increase the awareness for pork meat preparation and consumption based on factual benefits	number of awareness campaigns conducted	MINAGRI, RAB, Local government, RPFA, Developmental partners	-	30		30		30	500
	Percentage increase in pork products supply and consumption	MINAGRI, RAB		0	0	1	2	3	200
Sub Total									***2,700***
III. Outcome: Strengthening the systemic enablers									
III.1 Output: Enabling investment environment along pig value chain created									
Activities	**Performance Indicators**	**Responsibility**	**Baseline**	**Output/Target**					**Budget (000,000 Rwf)**
				24-25	**25-26**	**26-27**	**27-28**	**28-29**	
III.1.1 Establish and strengthen the capacity of existing commercial animal feed factories	-number of high performing animal feed factories	MINAGRI, MINICOM, RAB, RICA, FDA, Private sector, Developmental partners		5	5	5	5	5	1,000
	Percentage of quality and cheaper animal feeds available increased			0	0	0	1	1	

III.1.2 Attract local and international investor in establishment of pig processing, cold chain mechanisms (chilled and frozen pig products), feed reserves and feed factories	-number of animal feed factories	MINAGRI, RAB, MINICOM, RICA, PSF, Development Partners		5	5	5	5	5	2,000
	-number of cold chains established	MINAGRI, RAB, MINICOM, RICA, PSF, Development Partners		2	2	2	2	2	
	Percentage of Quality chilled and frozen pig products	MINAGRI, RAB, MINICOM, RICA, PSF, Development Partners		0	0	1	1	1	
Sub Total									***3,000***
III.2 Output: Implementation of existing policy created and reinforced									
III.2.1 Support and streghten pig breeding center based on digital performance monitoring and evaluation system	number of pig center with digital monitoring and evaluation system	MINAGRI,RAB, Development Partners		2	2	2	2		1,000
III.2.2 Elaborate and improve standards and regulations to guide the pig business value chain actors	-number of standards and regulations developed	MINAGRI, RAB, RSB, RICA, FDA, Private sector, Developmental partners			2	2			200

III.2.3 Strengthen public/private pig meat inspection especially in fighting against informal market and frauds of pig meat	-number of pig meat and products inspectors trained	MINAGRI, RAB, MINICOM, RICA, FDA, PSF, Development Partners	-	416	416	416	-	-	300
III.2.4 Build strong coordination mechanisms of the pig value chain through introduction of digitalized platforms	Number of Platforms	MINAGRI, RAB, MINICOM, RICA, FDA, PSF, Development Partners	-	1	1	1	-	-	100
III.2.5 Sensitize and empower youth and women to enter in pig industry businesses	number of youth and women mobilized and supported	MINAGRI, RAB, RYAF, Developmental partners	-	200	200	200	200	200	2,000
III.2.6 Establish and enforce regulations for animal feeds manufacturing, standards and formulation of commercial feeds and crop residues	Number of reviewed and new regulations on animal feeds	MINAGRI, RAB, RICA, RSB, FDA, Developmental partners		1	1	1	1	1	500
	Percentage of feed factories following set standards			0	1	1	1	-	

III.2.7 Enforce the live animal and pig products traceability policy	Percentage increase of safe and quality pig products marketed	MINAGRI, RAB, MINICOM, Developmental partners		0	1	1	1	-	200
III.2.8 Enforce the regulations (policy) for veterinary profession, drugs and pharmaceutical supply and distribution/usage along pig production chain	-number veterinary profession and drugs use regulations in place	MINAGRI, RAB, RCVD, Developmental partners		1	-	-	-	-	100
III.2.9 Encourage and increase the subsidies and taxes exemptions for new investors in pig sub-sector	Increased percentage of pig investors	MINAGRI, RAB, MINICOM, RRA, Developmental partners		0	0	1	1	1	1,000
	Subsidies and taxes exemptions policy in place			1	-	-	-	-	
III.2.10 Strengthen the uptake of livestock insurance scheme in pig production sub-sector	Incrreased percentage of farmers with livestock insurance	MINAGRI, RAB, Insurance companies, Developmental partners		1	1	1	1		4,000
	Number of pigs insured			1	1	1	1		
Sub Total									***9,400***

III 3 Output: Culture of accountability and responsive institution promoted									
III.3.1 Support and strengthen the Rwanda pig farmers association	RPFA reinforced and their activities implemented	MINAGRI, RPFA		1	1	1	1	1	500
III.3.2 Strengthen the inter-sectoral coordination for pig subsector development activities	Pig subsector coordination team in place and functional	MINAGRI, RAB, RRFA, Developmental partners	-	1	1	1	1	1	500
III.3.3 Strengthen Public and private sector collaboration (i.e. rationalize private and promixity of vet services, engage traders, and the pig industry/their organizations)	Percentage of farmers receiving appropriate vet services on time	MINAGRI, RAB, RCVD, Developmental partners		0	1	1	1	1	2,000
Sub Total									***3,000***
III.4 Output: Improved research, innovation, and extension services and adoption of new technologies reinforced									
III.4.1 Support the development and delivery of extension services/ materials to farmers through farmers group, cooperatives, LFFS	-number of extension materials in place	MINAGRI, RAB, Developmental partners		1	1	1	1	1	1,000

III.4.2 Strengthen pig demonstration and breeding centers in the RAB livestock centers, where genetic material can be kept, multiplied and sold/distributed to farmers and other interested parties	A production and breeding demo center for pig at RAB in place	MINAGRI, RAB, Developmental partners		-	2	2	2	-	3,000
III.4.3 Support research on assessing the nutritive value of pig meat, innovative ideas on use and value addition of pig by-products	Number of innovative products from pig by-products in place	MINAGRI, RAB, HLIs, Developmental partners		-	1	1	1	1	1,000
III.4.4 Create digital platforms for regular market linkage, information on price, market structures, and digital selling points	Number of digital and physical selling platforms created	MINAGRI, RAB, RRFA, Developmental partners		-	1	1	1	-	1,000
III.4.5 Establish and reinforce the policies and regulations to regulated digital plateforms	Number of regulations in place	MINAGRI, RAB, Developmental partners		1	1	1	-	-	1,000

III.4.6 Establish a market linkage platform.	One market linkage platform.	MINAGRI,MINICOM,RICA, RISA,MICT, MINALOC				1			500
III.4.7 Develop new techonologies in the breeding centers	Number of breeding center/farms with new techonlogies available	MINAGRI, RAB, Developmental partners	-	-	10	10	10	-	2,000
III.4.8 Generate and promote technologies and innovations for pig nutrition	Number of technologies generated and promoted		3	2	2	2	2	2	2,000
III.4.9 Generate and promote research on technologies and innovations for pig health	Number of technologies developped		NA	2	2	2	2	2	5,000
III.4.10 Reinforce the pigs slaughter houses/abattoirs and rabbit processing factories with new technologies	Number of pig slaughter houses /abattoirs equipped with new technologies	MINAGRI, RAB, RRFA, Developmental partners	-	2	5	5	5		2,000
III.4.11 Train pig associations members, farmers, processors on new technologies	Number of actors in pig value chain thrained and adopted new technologies	MINAGRI, RAB, RRFA, Developmental partners		100	200	200	200	200	1,000
Sub Total									***19,500***

IV.5 Output: NDCs and climate change related interventions promoted									
III.5.1 Establish rain water smart practices such as water harversting, irrigation, mulching,..	Number of farms with water smart facilities (rainwater harvesting facilities supplied)	MINAGRI, RAB, Developmental partners		*1,000*	1,000	1,000	1,000	1,000	1,000
III.5.2 Establish Weather and knowledge - smart practices	Number of digital agro-climate advisory tools, radio, smart phone, TV	MINAGRI, RAB, Developmental partners		2	2	2	2	2	500
III.5.3 Establish Breed-smart in pig farming	Number of Improved livestock breeds	MINAGRI, RAB, Developmental partners		2	2	2	2	2	500
III.5.4 Enhance the knolwedge of farmers on Carbon-smart/Nutrient-smart	Number of farmers trained on organic manual, tillage smart practices	MINAGRI, RAB, Developmental partners		1,000	1,000	1,000	1,000	1,000	400
III.5.5 Use of solar pumping systm in irrigation and farming	Number of irrigation schemes that use the solar pump	MINAGRI, RAB, Developmental partners		2	2	2	2	2	2,000
III.5.6 Increased use of on-farm anaerobic digestion of manure for bioenergy (bio-	Number of farmers adopted bio-digestors	MINAGRI, RAB, Developmental partners		100	100	100	100	100	1,000

digestors)									
III.5.7 Promote of better livestock feed (i.e. legume fodder species) and training in better livestock management	Percentage of increase of farmers with improved husbandary	MINAGRI, RAB, Developmental partners		0	0	0	1	1	2,000
	Percentage of the reduction in CH4 emissions from enteric fermentation	MINAGRI, RAB, Developmental partners		1	1	1	0	0	
III.5.8 Promote the adoption of more efficient manure management systems, including promotion of collective farms and training	Percentage of farmers with improved manure management	MINAGRI, RAB, Developmental partners		0	0	1	1	1	500
	Percentage of reduction in GHG emissions from manure management	MINAGRI, RAB, Developmental partners		1	1	1	0	0	500
III.5.9 Promote climate resilient livestock	Percentage of crossbreed livestock at national herd species	MINAGRI, RAB, Developmental partners		0	0	0	1	1	1,000

III.5.10 Develop climate resilient postharvest and value addition facilities and technologies of livestock products	Capacity of storage constructed in MT	MINAGRI, RAB, Developmental partners		2000MT	20000MT	2000MT	2000MT	1000MT	1,000
III.5.7 Expand livestock insurance	Number of livestock species under insurance	MINAGRI, RAB, Developmental partners		500,000	700,000	800,000	900,000	1,000,000	10,000
Sub Total									***20,400***
Grand Total (Pig VC in 5 Years: 2024-2029)									***172,500***

I.5 Goat Value Chain

I. Outcome: Modernizing sustainable animal resources production and promoting nutrition and food security									
I.2 Output: Goats Breeds Performance and Breeding Practices improved									
Activities	**Performance Indicators**	**Responsibility**	**Baseline**	**Outputs/Target s**					**Budget (in RWf 000,000)**
				24-25	**25-26**	**26-27**	**27-28**	**28-29**	
I.2.1. Establish goat genetic improvement programs.	Number of goat breeds included in genetic improvement programs.	MINAGRI, NCST, NIRDAFarmer Training Centers.	N/A	2 Goat Breeds Included in Genetic Improvement Programs	4	6	8	10	3000
	Percentage increase in genetic diversity within goat populations.		N/A	5% increase in genetic diversity within goat populations	8%	12%	15%	20%	2500
I.2.3.Establishgoat breeding centers.	Number of breeding centers established.	MINAGRI, RAB, Livestock Development Agencies, PSF.	N/A	2 breeding centers established	3	4	5	6	2000
	Number of high quality breeding goats (milk producing)	MINAGRI, RAB, Livestock Development Agencies, PSF.	N/A						2500

	-Number of farmers trained in goat breeding practices.	MINAGRI, RAB, Livestock Development NGOs, Farmer Training Centers.	N/A	500 farmers trained in goat breeding practices	600	700	800	1000	5000
I.2.4.Develop and implement education and training programs.	Percentage increase in the adoption of improved breeding practices.		N/A	33% increase in the adoption of improved breeding practices	25%	20%	16%	14%	350
	Number of farmers participated in field visits	MINAGRI, RAB, Development Partners		200	200	200	200	200	2000
Sub-Total									**17350**
I.2 Output: Modern livestock infrastructure established									
I.2.1.Establishgoat breeding centers.	Number of breeding centers established.	MINAGRI, RAB, Livestock Development Agencies, PSF.	N/A	2 breeding centers established	3	4	5	6	2000
	Number of high quality breeding goats (milk producing)	MINAGRI, RAB, Livestock Development Agencies, PSF.	N/A						2500

1.2.2. Establish Quality Infrastructure Development	Number of quality testing laboratories established	MINAGRI, Quality Standards and Certification Agencies, Development Partners in Quality Assurance.		2	1	3	2	1	2000
	Percentage increase in farms obtaining quality assurance certification.	Poultry Farming Associations.		10.00%	15%	20%	15%	10%	200
	Percentage reduction in goat mortality and morbidity rates.			20.00%	15%	12%	10%	10%	300
Sub-Total									7000
I.3 Animal husbandry and production systems improved									
1.3.1. Conduct workshops on value-added processing techniques.	Percentage increase in private investment in value-added processing.	MINAGRI, Goat Farmers' Cooperative Associations.	N/A	10% Increase in Private Investment in Value-Added Processing Target	15%	20%	25%	30%	2,000
	Number of workshops conducted.	MINAGRI, Goat Farmers' Cooperative Associations.	N/A	5 Workshops on Value-Added Processing	8	10	12	15	570

1.2.2. Develop and strengthen training and technology transfer programs to key actors (Including youth and women) to enable the development of appropriate packages/entrepreneurship skills	Nnumber of key actors, women and youth trained	MINAGRI, RAB, Developmental partners	0	100	100	100	100	100	1000
	Training materials developed		0	1	1	1	1	1	150
	Percentage of business-oriented Goat farmers trained		N/A	20%	30%	40%	50%	60%	1000
I.2.3. Establish goat genetic improvement programs.	Number of goat breeds included in genetic improvement programs.	MINAGRI, NCST, NIRDAFarmer Training Centers.	N/A	2 Goat Breeds Included in Genetic Improvement Programs	4	6	8	10	3000
	Percentage increase in genetic diversity within goat populations.		N/A	5% increase in genetic diversity within goat populations	8%	12%	15%	20%	2500
I.2.4.Develop and implement education and training programs.	-Number of farmers trained in goat breeding practices.	MINAGRI, RAB, Livestock Development NGOs, Farmer Training Centers.	N/A	500 farmers trained in goat breeding practices	600	700	800	1000	5000

	Percentage increase in the adoption of improved breeding practices.		N/A	33% increase in the adoption of improved breeding practices	25%	20%	16%	14%	350
	Number of farmers participated in field visits	MINAGRI, RAB, Development Partners		200	200	200	200	200	2000
1.2.5. To conduct research to identify and develop climate-resilient farming practices suitable for small land sizes.	Percentage of small landowners adopting and implementing the climate-resilient practices identified through research	MINAGRI, RAB, REMA, NLA, and RFA, FONERWA	N/A	20%	20%	20%	20%	20%	400
1.2.6.To implement educational programs on small livestock feeding practices	Number of workshops about goat feeding.	RAB, HLI, RCVD	N/A	2	3	4	4	2	1,000
1.2.7.To Provide digital training programs on small livestock feeding	% increase in knowledge and understanding of small livestock feeding practices before and after the training	MINAGRI, RAB, and MINICT	N/A	20%	40%	30%	50%	30%	300
Sub-Total									**19,270**

I.4 Output: Goat nutrition enhanced (Animal feeds and feeding practices)									
1.4.1. Develop Sustainable Feeding Guidelines	Number of sustainable feeding guidelines	MINAGRI,RAB,NCST,Livestock Development NGOs, Poultry farmer cooperatives and associations.	N/A	20% Percentage of goat farmers trained on sustainable feeding practices.	35%	50%	65%	80%	500
	Percentage increase in the adoption of sustainable feeding guidelines.		N/A	10% Increase in Adoption of Sustainable Feeding Guidelines	20%	30%	40%	50%	1600
1.4.2. Promote of climate-resilient forage crops.	Percentage increase in the cultivation of climate-resilient forage crops.	MINAGRI, RAB,NCST,Farmer Cooperatives and Associations.	N/A	15% Increase in Cultivation of Climate-Resilient Forage Crops	25%	35%	45%	55%	3000
1.4.3. Increased availability of climate-resilient feed resources.	Quantitative improvement in the availability of climate-resilient feed resources.		N/A	500 metric tons	1,000 metric tons	1,500 metric tons	2,000 metric tons	2,500 metric tons	2000

1.4.4 Development and promotion of precision feeding techniques.	Number of goat farmers trained on precision feeding techniques	MINAGRI, RAB, NCST, RAB, NIRDA, Farmer Cooperatives and Associations.	N/A	200 goat farmers trained on precision feeding techniques	400	600	800	1000	1000
	Percentage increase in the adoption of precision feeding practices		N/A	20% Increase in Adoption of Precision Feeding Practices	40%	60%	80%	100%	1500
Sub-Total									**9600**
I.3 Output: Goat Health Services improved (Veterinary Services)									
I.3.1. Strengthening Veterinary Capacity	Number of veterinary professionals trained.	MINAGRI, University-animal science departments, DAROs, Development Partners in Livestock Health.		120 trained veterinary service providers	150	180	200	220	3000
	Number of improved veterinary infrastructures.			5	5	5	5	5	1300

I.3.2.Enhance disease control programs.	Number of disease control programs implemented.	MINAGRI, Veterinary Departments at province, district and Local Levels, Livestock Health NGOs		5 disease control programs	7 disease control programs	10 disease control programs	12	15	300
	Percentage reduction in goat mortality and morbidity rates.			20% Disease Outbreaks Reduction Target	15%	12%	10%	8%	350
	Number of campaign conducted			2	2	2	2	2	400
1.3.3.Research and promote breeds suitable for improved milk production.	Adoption rate of recommended breeds for milk production	RAB, HLI, RCVD	N/A	7% increase	15%	24%	15% increase	25%	550
1.3.4.To Expand the Coverage of Artificial Insemination Services to Reach More Farmers	Percentage increase in the overall coverage	RAB, HLI, RCVD	N/A	10% Increase AI service coverage goat farming communities.	15%	20%	25%	30%	1,200

1.3.5.To promote proximity of veterinary services for remote areas	The total number of on-site visits conducted by mobile veterinary units in remote areas, Percentage of remote farmers utilizing telemedicine services for veterinary consultations.	RCVD, MINAGRI, RAB	N/A	1,200 visits	1,440 visits	1,728 visits	2,073 visits	2,488 visits	2000
1.3.6.To Strengthen Advocacy and Monitoring for the Regulation of Veterinary Drug Prices	Reduction in instances of price irregularities within the veterinary drug market.	RAB, HLI, RCVD	N/A	5% increase in market share of generic veterinary drugs compared to branded drugs	4% increase	3% increase	3% increase	2% increase	800
I.3.7.Improve the adoption of biosecurity measures on goat farms.	Percentage of goat farms implementing biosecurity measures.	MINAGRI, RAB, Goat Farming Associations.		30% of goat farms implementing biosecurity measures	40	50	60	70	2000
Sub-Total									***11,900***
II. Outcome: Developing inclusive livestock market system for increased incomes									
II.1 Post-harvest handling practices and practices enhanced									

2.1.1 Establish the goats processing plants with cold chain and other new technologies	Number of processing plants of goats products	MINAGRI, RAB, RRFA, Private sector, Development partners		1	1	1			1,000
2.1.2 Establish goats slaughter houses/abattoirs and goats processing factories (with new technologies) and enhance GHPs, GMPs, implementation.	Number of quality goat meat and products established	MINAGRI, RAB, Private sector, Developmental partners	0	1	1	1	1		2,000
Sub-Total									***3,000***
II.1 Output: Safety and Quality of Goat Products promoted									
2.1.1.To Improving Efficiency in Digital Vet Service Registration	percentage of vet service registrations completed through the mobile app	MINAGRI, RAB, Veterinary Regulatory Agencies	N/A	25% of registrations through the mobile app	40% of registrations	55% of registrations	70% of registrations	80% of registrations	1000
2.1.2.To Improving Efficiency in Digital Vet Service Registration	percentage of vet service registrations completed through the mobile app	MINAGRI, RAB, Veterinary Regulatory Agencies	N/A	25% of registrations through the mobile app	40% of registrations	55% of registrations	70% of registrations	80% of registrations	1000

2.1.3. Promote Financial Support for Quality Improvement	Number of financial support programs implemented.	MINAGRI, Financial Institutions, Livestock Farming Associations, Development Partners in Livestock Quality Improvement.		2	2	3	3	4	3000
Sub-Total									5000
II.3 Output: Marketing inclusiveness for goats products promoted									
2.3.1. Establishment of a market linkage platform.	Number of market linkage platforms established.	MINAGRI, RAB, Goat Farmers' Cooperative Associations,Development Partners in Market Access.		establishment of around 10 new platforms	approximately 20 new platforms	around 25 new platform	30 new platforms	30 Platforms Established	1000
	Percentage increase in goat farmers accessing new markets.			10%, increase in goat farms accessing new markets	15%	20%	25%	30%	1500
2.3.2.Upgrade the existing livestock Market	Number of upgraded market	MINAGRI, RAB, MINICOM, Development Partners							3000

2.3.3.Implement consumer education programs.	Number of consumer education programs implemented.	MINAGRI, RAB and her partners, Higher learning institutions, Consumer Awareness NGOs.		15, consumer education programs implemented.	20	25	30	35	1000
	Percentage increase in consumer awareness of goat product benefits.			10% Increase in Consumer Awareness of Goat Product Benefits Target	15%	20%	25%	30%	150
2.3.4.To conduct awareness campaigns and educational programs to address cultural taboos related to goat milk consumption	% of individuals consuming goat milk.	RAB, HLI, RCVD	N/A	5%	10%	15%	20%	25%	450
2.3.5.Introduce the new value-added goat products.	Number of new value-added products introduced. (goat milk)	MINAGRI, Goat Farmers' Cooperative Associations, Agro-Processing Companies.		5 New value-added goat products introduced	8	10	12	15	2000
2.3.6.Promote market demand for value-added goat products.	Percentage increase in market demand for value-added products.	Development Partners in Product Development.		10% increase in market demand for value-added goat products	15%	20%	25%	30%	1000
Sub-Total									9650

II.4. Output: Marketing Infrastructure and Information Systems strengthened									
2.4.1. Implement targeted marketing strategies.	Number of marketing strategies implemented.	MINAGRI, Goat Farmers' Cooperative Associations, Marketing and Business Development Agencies.		5 Marketing Strategies Implemented Target	7	8	10	12	500
	Percentage increase in market share for goat products.	Development Partners in Marketing.		5% increase in market share for goat products	8%	10%	12%	15%	200
2.4.2. Strength and expand goat product value chain.	Number of value chain development initiatives implemented.	MINAGRI, Goat Farmers' Cooperative Associations, Agro-Processing Companies.		3 value chain development initiatives implemented	4	5	6	7	1000
	Percentage increase in value chain actors' integration.	Development Partners in Value Chain Development.		5% increase in value chain actors' integration:	7%	10%	12%	15%	150
2.4.3. Establish the effective information dissemination channels.	Number of information dissemination channels established	MINAGRI, RAB, Development Partners in Information Dissemination.		3 information dissemination channels established	5	7	8	10	500

	Percentage improvement in goat farmers' access to market information			15%	20%	25%	30%	35%	190
2.4.4. To promote domestic consumption of nutritious animal source foods	Number of awareness events conducted about the nutritional benefits of goat-sourced foods	MINAGRI, RAB, Development Partners in Information Dissemination.							
Sub-Total									**2,540**
III. Outcome: Strengthening the systemic enablers									
III.1 Output: Enabling investment environment along goats value chain created									
3.1.1.To disseminate information on tax reduction policies through digital platforms/websites	Farmers understanding of tax policies.	RAB, HLI, RCVD	N/A	10% Increase average knowledge score	15%	20%	25%	30%	1,000
3.1.2.To conduct an extensive campaign to raise awareness about available insurance schemes for goat farming.	Number of goat farmers officially enrolled in insurance schemes following the awareness campaign	MINAGRI,	N/A	12500%	1000%	750	500	250	3000

3.1.3.To collaborate with existing online platforms such as ESOKO to expand features related to fair pricing information for goat products	Number of goat farmers and industry stakeholders using the fair pricing features on ESOKO or similar platforms	MINAGRI,MINICOM, MINICT	N/A	25%	25%	22%	20%	8%	350
Sub-Total									**4,350**
III. 2. Output: Implementation of existing policy created and reinforced									
3. 2.1. Support and advocate for goats value chain actors, association and cooperatives inclusion in the national development strategies and priorities	Goat sub-sector development strategies and priorities in place	MINAGRI, RAB, RGFBO, Developmental partners	0	1	1	1	1	1	500
3. 2.2. Create and reinforce the partnership of the Goat farmers and other stakeholders and organization	A strong partnership of RGFBO with other stakeholders in place	MINAGRI, RAB, RGFBO, Developmental partners	0	1	1	1	1	1	500
	Number of events, study tours attended		0	1	2	3	4	5	350
Sub-Total									1350
III.3. Output: Culture of accountability and responsive institution promoted									
3.3.1. Facilitate and support the capacity/governance and activities	Number of RGFBO activities implemented	MINAGRI, RAB, RGFBO, Developmental partners	0	5	5	5	5	5	500

implementation of Rwanda breeders and goat farmers' organization	RGFBO governance structure in place		1/2	1	1	1	1	1	870
3.3.2. Strengthen the inter-sectoral coordination for goat subsector development activities	Goat subsector coordination team in place and functional	MINAGRI, RAB, RGFBO, Developmental partners	N/A	1	1	1	1	1	300
Sub-Total									1,670
III. 4 Output: Research and extension services improved									
3. 4.1. Support the development and delivery of extension services/ materials to farmers through farmers group, cooperatives, LFFS	-number of extension materials in place	MINAGRI, RAB, Developmental partners	N/A	1	1	1	1	1	1000
3. 4.2. Develop Goat demonstration and breeding centers in the RAB livestock centers	A production and breeding demo center for Goat at RAB in place	MINAGRI, RAB, Developmental partners	N/A	0	1	0	0	0	500
3.4.3. To conduct research on cost-effective animal drugs and veterinary services.	% of identified research supporting the cost-effectiveness of the listed veterinary solutions	RAB, HLI, RCVD	N/A	10% number of identified research	15%	20%	25%	30%	500

3. 4.4. Support research on assessing the nutritive value of Goat meat, innovative ideas on use and value addition of Goat milk	Number of innovative products from goat products and by-products in place	MINAGRI, RAB, HLIs, Developmental partners	N/A	0	1	1	1	1	500
Sub-total									**2,500**
IV.V Output: National Determined Contributions promoted (NDCs)									
4.5.1. To Promote Better Livestock Feed (i.e., Legume Fodder Species)	% of farmers adopting legume fodder in goats' diets	MINAGRI, RAB, REMA, NLA, and RFA, FONERWA	N/A	20%	25%	40%	50%	60%	1362
4.5.2.To establish an Integrated Early Warning System and Disaster Response Plans	Number of early warnings to goat farmers.	The National Pl atform for Disaster Management (N PDM)	N/A	15%	18%	20%	15%	10%	1167
4.5.3.To increased the use of On-Farm Anaerobic Digestion of Manure for Bioenergy (Bio-digestors)	percentage of bio-digestors installed on farms.	MINAGRI, RAB, REMA, NLA, and RFA, FONERWA	N/A	10%	15%	20%	20%	20%	1,350
4.5.4.To develop commercial-Scale Aerobic Composting Systems for Manure	Number of commercial composting facilities established.	MINAGRI, RAB, REMA, NLA, and RFA, FONERWA	N/A	4	5	6	7	4	5834
Sub-total									**9,713**
Grand Total									**104,893**

I.6 Sheep Value Chain

I. Outcome: Modernizing sustainable animal resources production and promoting nutrition and food security									
I.1 Output: Animal nutrition improved (feeds and feeding practices)									
Activities	**Performance Indicators**	**Responsibility**	**Baseline**	**Targets-Outputs**					**Budgets (000,000 RWF)**
				24-25	**25-26**	**26-27**	**27-28**	**28-29**	
1.1.1.Develop and provide capacity building for sheep farmers sheep management, housing, feeding, breeds selection and breeding practices, herd health management and impact of record keeping	Number of trained sheep farmers	MINAGRI, RAB, RSFBO, Development partners	88% of sheep are kept in traditional farming system	Training need assessment conducted, training materials developed and 200 Sheep farmers trained	250 farmers trained	300 sheep farmers trained	301 sheep farmers trained	302 sheep farmers trained	500
	Training materials developed	MINAGRI, RAB, RSFBO, Development partners	18% of farmers have no formal education (need training)	40% sheep farmers trained	50% sheep farmers trained	60% sheep farmers trained	70% sheep farmers trained	80% sheep farmers trained	
1.1.2.Support investment in storage and marketing of concentrates and	Quality feeds and supplements available	MINAGRI, RAB, RSFBO, Development partners	LMP	2	3	3			400

feed supplements (hay, silage, crop and industrial residues, cereals and grains									
	-number of investments supported	MINAGRI, RAB, RSFBO, Development partners							
1.1.3.Support sheep farming engaged in meat, wool and fleece production through training, and market linkage for their produce	-number of sheep farmers supported	MINAGRI, RAB, RSFBO, Development partners	LMP	20	50	60	70	100	2500
	-quantity of mouton and wool/fleece produced	MINAGRI, RAB, RSFBO, Development partners	N/A	3,500 tons	4,000 tons	4,500 tons	4,500 tons	4,500 tons	
	-niche market for sheep products	MINAGRI, RAB, RSFBO, Development partners	N/A	1	2	3	2	1	

I.2 Output: Sheep genetics and breeding practices improved									
1.2.1.Initiate inventory, characterization, evaluation and selection of best locally adaptive and high performing sheep breeds, potential sheep breeders and provide capacity building for sheep breeders (identification, registration, recording and use of data in sheep farm management and genetic improvement)	best adaptive and high performing sheep breeds profiled, availed and accessed & sheep breeders trained	MINAGRI, RAB, HLIs, RSFBO Development partners	Available few meat and wool sheep breeds, & 29% reducation in sheep population	15% increase of sheep population,	20% increase of sheep population,	25% increase of sheep population,	35% increase of sheep population,	40% increase of sheep population,	1,000
1.2.2.Develop the appropriate breeding goals and program for sheep genetic improvement and train farmers on breeding practices	Breeding goals identified	MINAGRI, RAB, HLIs, RSFBO Development partners	Available animal genetic improvement strategy	shee breeding goals developed and approved	implementation	implementation	implementation	implementation	1200

	Breeding programs developed	MINAGRI, RAB, HLIs, RSFBO Development partners	N/A	2	3	4	1		
	Breeding stock available	MINAGRI, RAB, HLIs, RSFBO Development partners	N/A	30	100	150	200		
	Number of farmers trained	MINAGRI, RAB, HLIs, RSFBO Development partners	N/A	400	500	600	650	650	
1.2.3.Design and promote use of controlled crossbreeding programs of local sheep with exotics breeds	-number of improved sheep breeds	MINAGRI, RAB, HLIs, RSFBO Development partners	According to RSFBO report (5% of sheep farmers interviewed keep crossbreeds, 35% use local breeds while 17% have merino breed, and remaining 14% do not know the type of breed they have)	15% of improved sheep breeds (crosses)	20% of improved sheep breeds (crosses)	25% of improved sheep breeds (crosses)	25% of improved sheep breeds (crosses)	25% of improved sheep breeds (crosses)	4,500

	-number of farmers adopted the crossbreeding programs	MINAGRI, RAB, HLIs, RSFBO Development partners	N/A						
1.2.4.Develop and establish the breeding centers for sheep breeds	Number of New breeding centers established	MINAGRI, RAB, HLIs, RSFBO Development partners	One in Gishwati	2	2	2			3,000
	Gishwati breeding center reinforced	MINAGRI, RAB, HLIs, RSFBO Development partners	1	1					
1.2.5.Increase the dissemination of proven rams (ram to ewe ratio) to limit increase of inbreeding through establishment of community sheep breeding groups	-number of proven breeding stock (rams and ewe) available	MINAGRI, RAB, HLIs, RSFBO Development partners	Only 7% of HH involved in sheep rearing &7153sheep distributed in 2021-2022FY	8,000	10,000	12,000	9,000	6,500	2,500
	rate on inbreeding reduced	MINAGRI, RAB, HLIs, RSFBO Development partners	N/A						

1.2.6.Develop and strengthen animal identification and performance recording system (software, equipment and training) and performance testing system for purebred sheep.	number of better peforming purebreed identified and distributed	MINAGRI, RAB, HLIs, RSFBO Development partners	On-station goat and sheep performance recording is ongoing.	10% (identification and recording system) adopted and used	20% (identification and recording system) adopted and used	30% (identification and recording system) adopted and used	40% (identification and recording system) adopted and used	50% (identification and recording system) adopted and used	3500
	-identification and recording system in place	MINAGRI, RAB, HLIs, RSFBO Development partners	N/A						
1.2.7.Engage government and partners to establish and support local sheep breeds conservation capacities (for in situ and ex situ conservation);	-number of sheep genetic materials conserved	MINAGRI, RAB, HLIs, RSFBO Development partners	Existing sheep conservation (RAB-Karama)						2,000
	-in situ and ex situ conservation system in place	MINAGRI, RAB, HLIs, RSFBO Development partners	1		1	1	1		

I.3 Output: Animal health services improved (veterinary services)									
1.3.1.Provide capacity building on animal health and welfare, biosecurity measures, prevention and control of diseases among sheep farmers	-number of training materials	MINAGRI, RAB, HLIs, RSFBO Development partners	N/A	3	5	5	5	5	500
	-number of farmers trained	MINAGRI, RAB, HLIs, RSFBO Development partners							
1.3.2.Support and strengthen vaccination and prevention practices in sheep industry (vaccination for PPR, FMD, RVF, BQ/Anthrax, and other diseases)	-number of sheep diseases profiled	MINAGRI, RAB, HLIs, RSFBO Development partners	284,509 sheep were vaccinated against RVF.	80% sheep population vaccinated	85% of sheep population vaccinated	90 % of sheep vaccinated			2,000
	-Disease control interventions	MINAGRI, RAB, HLIs, RSFBO Development partners	N/A						

1.3.3.Empower the veterinary service providers especially in sheep (small ruminant) sub-sector to provide appropriate vet services	-number of vets empowered	MINAGRI, RAB, RCVD, Developmental partners	Over 4,000 registered veterinarians	200 specialised in sheep disease treatment	300specialised in sheep disease treatment	350 specialised in sheep disease treatment	400specialised in sheep disease treatment	350 specialised in sheep disease treatment	200
	-Veterinary services available								
Sub-Total									***23,800***
II. Outcome: Developing inclusive livestock market system for increased incomes									
II.1 Output: Safety and quality of sheep products promoted									
Activities	**Performance Indicators**	**Responsibility**	**Baseline**	**Budget (in RWf 000,000)**					**Budget (000,000 RWF)**
				24-25	**25-26**	**26-27**	**27-28**	**28-29**	
3.1.1.Provide strategic capacity building for sheep value chain actors (wool harvesting and processing, mouton primal cutting and grading)	-number of training materials developed,	MINAGRI, RAB, Developmental partners	N/A	45	50	60	70	100	185
	-Number of SVC actors trained		N/A	300	450	500	550	600	350

3.1.2.Develop and rehabilitate the marketing infrastructure with modern slaughtering and marketing facilities	-number of modern sheep markets established	MINAGRI,	15 new Districk Livestock Markets constructed in 2022 FY	8	10	15	7	7	10,000
3.1.3.Support investors in sheep wool/fleece processing and transformation	-Quantity of wool processed and export	MINAGRI, MINICOM, RDB, Partners	N/A		1				3,500
3.1.4.Establish the marketing and promotion platforms and link (E-commerce/digital platforms) the producers with national, regional and international markets	-A digital marketing platforms in place	MINAGRI, MINICOM, RAB, Ministry of ICT, RICA, Development partners	N/A	10	15	20	25	30	200
II.2 Strategy: Marketing infrastructure and information systems strengthened									
3.2.1.Promote investment in processing, value addition and marketing of sheep products	Number of processing plants in place	MINAGRI, RAB, MINICOM, Development partners	N/A	2	3	2			1000

3.2.2.Establish a digital platform for dissemination of information on available sheep markets, research outputs, innovations, export/import market requirements	A digital platform for sharing information in place	MINAGRI, RAB, MINICOM, Development partners	N/A	Feasability study conducted and provided	100% digital platform operating	100% digital platform operating	100% digital platform operating	100% digital platform operating	200
Sub-Total									15,435
III. Outcome: Strengthening the systemic enablers									
III.1 Output: Enabling investment environment along sheep value chain created									
Activities	**Performance Indicators**	**Responsibility**	**Baseline**	**Projected targets**					**Budget (000,000 RWF)**
				24-25	**25-26**	**26-27**	**27-28**	**28-29**	
3.1.1.Support sheep breeders to acquire high quality breeds and formalize the distribution channels of breed stock to small scale sheep farmers	-number of breeders registered	MINAGRI, RAB, Development partners	Only 7% of HH involved in sheep rearing &7153sheep distributed in 2021-2022FY	30	40	50	60	70	3,500
	-number of small scale farmers received high performing breed stocks.	MINAGRI, RAB, Development partners	N/A	1,500	2,000	3,000	3,500	4,000	

3.1.2.Establish and strengthen the organizational structure and governance of the Rwanda sheep breeders and farmers organization	RSFBO structure and governance in place	MINAGRI, RAB, Development partners	RSFBO strategic plan developed and approved	RSFBO activities implemented	RSFBO activities implemented	RSFBO activities implemented	RSFBO activities implemented	RSFBO activities implemented	400
III. 2 Output: Implementation of existing policy created and reinforced									
3.2.1.Establish and operationalize a sheep breeding strategy and regulation of breeding practices (breeding programs/policy)	Sheep breeding strategy and regulations in place	MINAGRI, RAB, RSBO, Developmental partners	RWANDA Animal Genetic Resources Improvement Strategy and Implementation Plan (2022-2035)	Implementation	Implementation	Implementation	Implementation	Implementation	3,000
3.2.2.Develop the grading and pricing (including marketing, transportation, processing requirements) policy/regulations for sheep products and by-products (wool, hide/skin)	Sheep products and by-products grading and pricing policy in place	MINAGRI, MINICOM, RAB, Developmental partners	N/A	Grading and pricing policy developed and approved	Implementation	Implementation	Implementation	Implementation	200

3.2.3.Strengthen the uptake of livestock insurance scheme in sheep production sub-sector	Livestock insurance scheme in sheep production in place	MINAGRI, RAB, Insurance Companies, Developmental partners	Livestock Insurance Scheme available (Not	10% of sheeps insured	15% of sheeps insured	20% of sheeps insured	25% of sheeps insured	30% of sheeps insured	7,500
IV. Outcome: Promoting Digitalization, Climate change mitigation, and adaptation in livestock sub-sector									
IV. 1 Output: Research and extension services improved									
4.1.1.Develop, publish and disseminate the sheep management training manuals	Number of training materials developed	MINAGRI, RAB, HLIs, RSFBO, Development partners	Only 29.6% of farmers benefit of extension services (AHS 2017)	1,000 farmers (on-farm coaching)	2,000 farmers (on-farm coaching)	2,500 farmers (on-farm coaching)	3,000 farmers (on-farm coaching)	3,000 farmers (on-farm coaching)	2,500
	-number of VC actors trained	MINAGRI, RAB, HLIs, RSFBO, Development partners	N/A	300	400	450	500	500	650
4.1.2.Build the capacity of extension agents (including women and youth) (organize study tours/hands-on practical)in relation to smart farming practices	-number of extension agents (youth and women) trained	MINAGRI, RAB, HLIs, RSFBO, Development partners	N/A	300	500	500	500	500	800

	-number of extension materials developed	MINAGRI, RAB, HLIs, RSFBO, Development partners	N/A	3	5	5	3		350
4.1.3.Encourage, promote and support investment in livestock research activities related to sheep production (research, farmers and extensionists linkages strengthening)	-number of innovations	MINAGRI, RAB, HLIs, RSFBO, Development partners	N/A	30 Research projects	40 Research Projects	50 Research Projects	55 Research Projects	100 Research Projects	3,000
	-number of farmers reached and adopted innovations	MINAGRI, RAB, HLIs, RSFBO, Development partners	N/A	300	500	600	800	1000	
IV.2 Output: Policies and regulations on digital platforms and technologies developed and reinforced									
4.2.1.Create digital platforms for regular market linkage, information on price, market structures, and digital selling points	Number of digital and physical selling platforms created	MINAGRI, RAB, RSFBO, Development partners	N/A	0	1	1	1	0	125

4.2.2.Establish and reinforce the policies and regulations to regulated digital plateforms	Number of regulations in place	MINAGRI, RAB, Development partners	N/A	1	0		0	0	75
IV.3 Output: Adoption of new technologies and innovation reinforced									
4.3.1.Develop new techonologies in the breeding centers	Number of breeding center/farms with new techonlogies available	MINAGRI, RAB, Development partners	1	0	3	2	2	0	750
4.3.2.Reinforce the fleece/wool products processing factories with new technologies	Number of wool processing plants equipped with new technologies	MINAGRI, RAB, RSFBO, Development partners	N/A	1	1				785
4.3.3.Train sheep farmers, processors, traders on new technologies	Number of actors dairy value chain trained and adopted new technologies	MINAGRI, RAB, RSFBO, Development partners	N/A	300	400	500	450	500	357
IV.4 Output: Interventions related to Climate change enhanced									
4.4.1.Establish water smart practices such as water harversting,watering , irrigation, mulching, etc.	Number of farms with water smart facilities (rainwater harvesting facilities supplied)	MINAGRI, RAB,HLIs, Development partners	71,825 Ha under irrigation, Only 8.2% of farmers practiced irrigation, where 7%of small-scale	35% of dairy farms with water systems	45% of dairy farms with water systems	55% of dairy farms with water systems	65% of dairy farms with water systems	70% of dairy farms with water systems	1,000

			farmers and 59.8% of large-scale farmers (SAS,2022)						
4.4.2.Establish Weather and knowledge - smart practices	Number of digital agro-climate advisory tools, radio, smart phone, TV	MINAGRI, RAB,HLIs, Development partners	1 mobile App with weather forecasts developed	2	2	2	2	2	500
4.4.3.Develop improved sheep breeds resistant and adapting to climate changes	Number of Improved climate-resilient sheep breeds	MINAGRI, RAB, HLIs, Development partners	N/A	2	2	2	2	2	120
4.4.4.Develop innovations on reducing greenhouse gas emission in sheep farming	Number of greenhouse gas emission technologies developed (feeding, manure management, renewable energy technologies)	MINAGRI, RAB, HLIs Development partners	N/A	1	2	2			85
IV.5 Output: NDCs mitigation promoted									
4.5.1.Improve use of solar pumping system in irrigation for fodder and forages production	Number of dairy farmers using irrigation schemes	MINAGRI, RAB, Development partners	Only 8.2% of farmers practiced irrigation, where 7%of small-scale farmers and	15%	30%	35%	40%	45%	350

			59.8% of large-scale farmers (SAS,2022)						
4.5.3. Develop and distribute smart climate resilient forages seeds	Number of farmers growing climate resilient forages	MINAGRI, RAB, Development partners	33,750 Kakamega seedlings, 23,080 calliandra trees and 10,670 leuceuna trees distributed to farmers (2022/23FY).	50tons of improved forages seeds	55tons of improved forages seeds	60tons of improved forages seeds	65tons of improved forages seeds	70tons of improved forages seeds	355
	Percentage of the reduction in methane emissions from enteric fermentation	MINAGRI, RAB, HLIs, Development partners	N/A	20%	30%	50%	40%	30%	
4.5.4.Promote the adoption of more efficient manure management systems	Percentage of farmers with improved manure management	MINAGRI, RAB, HLIs, Development partners	N/A	20%	40%	50%	60%	70%	350
	Percentage of reduction in GHG emissions from manure management	MINAGRI, RAB, Development partners	N/A	80%	60%	50%	40%	30%	

4.5.5.Develop climate resilient postharvest and value addition facilities and technologies of livestock products	Number facilities established	MINAGRI, RAB, Development partners	N/A	2	3	4	2		500
SUB-Total									**18,000**
SHEEP VC TOTAL BUDGET 2024-2029									***57,235***

I. 7 Rabbit Value Chain

I. Outcome: Modernizing sustainable animal resources production and promoting nutrition and food security									
I.1Output: Rabbit breeds performance and breeding practices improved									
Activities	**Performance Indicators**	**Responsible institutions**	**Baseline**	**Output/Target**					**Budget (000,000 Rwf)**
				24-25	**25-26**	**26-27**	**27-28**	**28-29**	
I.1.1 Establish the breeding plan with goals/objectives/strategy and breeding practices of rabbit production in Rwanda	Increased population and production of rabbit	MINAGRI, RAB, Developmental partners	817,519	100,000	200,000	300,000	400,000	400,000	15,000
I.1.2 Develop and operationalize crossbreeding program through use of males of exotic breeds (such as the Flemish Giant, New Zealand, Crème argent, Cinnamon, the Californian White, etc.) to improve the meat quality and growth performance of the local strains	improved rabbits breed for meat production available and A crossbreeding program in place in all district centers	MINAGRI, RAB, RRFA, Developmental partners	4,663	1	1	1	1		1,000
I.1.3 Establish and develop ex situ in vivo national farms (e.g., in RAB) where adapted rabbits breeds and their crosses, will be kept and selected before giving them to farmers	-number of farmers accessing improved breeds	MINAGRI, RAB, RRFA, Developmental partners	-	-	400	800	1,600	3,200	2,000

Sub Total									***18,000***
I.2 Output: Modern livestock infrastructure established									
I.2.1 Establish and support the breeding centers/model farms (rabbitries) with superior genetics, AI services (introduction for exotic rabbits' bucks and Doe, with a recording system) where other farmers can purchase the superior genetic breeds	Number of breeding center/farms available	MINAGRI, RAB, Developmental partners	-	-	10	10	10	-	2,000
	Number of New improved breeds of rabbits introduced			2	2	2			
I.2.2 Establish the rabbits farm machinery plants (farm equipment and tools for rabbit)	Number of machinery plant	MINAGRI, RAB, Private Sector, Developmental partners		1	0	0	0	0	1,000
Sub Total									***3,000***
I.3 Animal husbandry and production systems improved									
I.3.1 Develop rabbit demonstration and breeding centers in the RAB livestock centers, where genetic material can be kept, multiplied and sold/distributed to farmers and other interested parties	A production and breeding demo center for rabbit at RAB in place	MINAGRI, RAB, Developmental partners	0	0	1	0	0	0	200

I.3.2 Capacity building of rabbit farmers on general management (breeding, feeding and diseases prevention and control) through farmer field school approach	-number of training materials developed	MINAGRI, RAB, RRFA, Developmental partners	-	-	2	2	2	-	1,000
	-number of farmers trained				200	400	800	1,600	
I.3.3 Enforce the live animal and rabbit products traceability policy	Percentage increase of safe and quality rabbit products marketed	MINAGRI, RAB, MINICOM, Developmental partners		0	1	1	1	-	200
Sub Total									***1,400***
I.4 Output: Animal nutrition enhanced (Animal feeds and feeding practices)									
I.4.1 Provide capacity building of rabbit producers to selecting appropriate breed rabbit, compound quality feed/home ration from local and industrial feed materials and enhance feeding practices	-number of training materials developed	MINAGRI, RAB, Developmental partners, RRFA	-	-	2	2	2	-	1,200
	-number of rabbit farmers trained	MINAGRI, RAB, Developmental partners	-	-	200	400	800	1,600	
I.4.2 Support investment on commercial feeds production (produced, agro-industrial by-products and processed	-quality and affordable conventional rabbit feeds	MINAGRI, RAB, Developmental partners		1	1	1	1		500

rabbit feeds)									
I.4.3 Establish rabbits feed production factories	Number Rabbit chilled products, animal feeds factories in place	MINAGRI, RAB, PSF, Developmental partners	0	1	1	1	1	1	1,000
Sub Total									***2,700***
I.5 output: Animal health services improved (veterinary services)									
I.5.1 Train the veterinary technicians (to acquire practical skills in rabbit diseases treatment) and increase the quality, accessibility, and affordability of the veterinary services	-number of training materials developed	MINAGRI, RAB, RRFA, Developmental partners	-	-	1	1	1	-	5,000
	number of vet technicians trained (4 per sector=1664)	MINAGRI, RAB, RCVD, Development Partners	-	330	330	330	330	344	6,500
I.5.2 Introduce and reinforce the subsidies on insurance schemes for rabbit farming	livestock insurance scheme for rabbit farming in place (40% of total cost)	MINAGRI, RAB, Insurance Companies, RRFA, Developmental partners		100,000	100,000	100,000	100,000	100,000	10,000
Sub-total									**21,500**

II. Outcome: Developing inclusive livestock market system for increased incomes									
Activities	**Performance Indicators**	**Responsible institutions**	**Baseline**	**Output/Target**					**Budget (000,000 Rwf)**
				24-25	**25-26**	**26-27**	**27-28**	**28-29**	
II.1 Post-harvest handling practices and practices enhanced									
II.1.1 Establish the rabbits processing plants with cold chain and other new technologies	Number of processing plants of rabbits products	MINAGRI, RAB, RRFA, Private sector, Development partners		1	1	1			1,000
II.1.2 Provide the capacity building of processors on rabbit primal cuts, packaging, labelling and waste management/treatment	Number of processors trained	MINAGRI, RAB, Developmental partners	0	50	50	50	50	0	1,000
	Quantity of primal cuts, packaged, labelled and frozen available	MINAGRI, RAB, RRFA	0	0	5	5	5	0	
II.1.3 Establish rabbits slaughter houses/abattoirs and rabbit processing factories (with new technologies) and enhance GHPs, GMPs, implementation.	Number of quality rabbit meat and products established	MINAGRI, RAB, Private sector, Developmental partners	0	1	1	1	1		2,000
	Number of slaughterhouse/abattoirs and processing plants in place with new technologies		0	0	5	5	5	0	

Sub Total									***4,000***
II.2 Output: Safety and quality of rabbit and rabbit products promoted									
II.2.1 Elaborate and improve standards and regulations to guide the rabbit business value chain actors	Number of standards and regulations developed	MINAGRI, RAB, RSB, RICA, Rwanda-FDA, Private sector, Developmental partners			2	2			200
II.2.2 Strengthen public/private rabbit meat inspection	Number of rabbit meat and products inspectors trained	MINAGRI, RAB, MINICOM, RICA, FDA, PSF, Development Partners	-	416	416	416	-	-	300
II.2.3 Build strong coordination mechanisms of the rabbits value chain through introduction of digitalized platforms	Number of Platforms	MINAGRI, RAB, MINICOM, RICA, Rwanda-FDA, PSF, Development Partners	-	1	1	1	-	-	100
II.2.4 Establish partnership with private sector actors to establish rabbit feedlots for purposes of meeting demand for quantity and quality of rabbit meat and products for the local and export markets	Increased rabbit productivity	MINAGRI, RAB, Developmental partners	0	1	1	1	1	1	100
Sub Total									***700***
II.3 Output: Marketing inclusiveness for rabbit products promoted									

II.3.1 Develop and create awareness on benefits of eating and preparation of rabbit meat (white meat) among Rwandan population	-increased number of people consuming rabbit meat	MINAGRI, RAB, RRFA, Developmental partners	0	1	1	1	1	1	500
II.3.2 Sensitize and facilitate youth and women (young entrepreneurs) to invest in rabbit production, processing and marketing	-number of jobs created for youth and women	MINAGRI, RAB, RRFA, Developmental partners	0	100	100	100	100	100	500
Sub Total									***1,000***
II.4 Output: Marketing infrastructure and information systems strengthened									
II.4.1 Create and provide regular market linkage and information on price, market structures, and physical selling points	Number of farmers accessing markets	MINAGRI, RAB, RRFA, Developmental partners	0	100	100	200	300	400	800
II.4.2 Create digital platforms for regular market linkage, information on price, market structures, and digital selling points	Number of digital and physical selling platforms created	MINAGRI, RAB, RRFA, Developmental partners	0	0	1	1	1	0	800
Sub Total									***1,600***
II.5 Domestic consumption of nutritious animal source foods promoted									

II.5.1 Establishing rabbit meat collection business hubs	Number of pork meat collection business hub established	MINAGRI, MINICOM, RAB, RPFA, Developmental partners					30		1,000
II.5.2 Create market linkage, information on price, market structures, and proxy selling points	Number physical selling points increased	MINAGRI, RAB, RRFA, Developmental partners		-	1	1	1	-	1,000
II.5.3 Conduct community campaign to increase the awareness for rabbit meat preparation and consumption based on factual benefits	number of awareness campaigns conducted	MINAGRI, RAB, Local government, RPFA, Developmental partners	-	30		30		30	500
	Percentage increase in rabbits products supply and consumption	MINAGRI, RAB		0	0	1	2	3	200
Sub-total									***2,700***
III. Outcome: Strengthening the systemic enablers									
III.1 Output: Enabling investment environment along rabbit value chain created									
Activities	**Performance Indicators**	**Responsibility**	**Baseline**	**Output/Target**					**Budget (000,000 Rwf)**
				24-25	**25-26**	**26-27**	**27-28**	**28-29**	
III.1.1 Establish and strengthen the capacity of existing commercial animal feed factories to produce quality and affordable rabbit	-Commercial quality and affordable rabbit feeds available	MINAGRI, RAB, PSF, Developmental partners	0	1	2	3	4	5	1,000

feeds									
III.1.2 Attract and support local and international investors in establishment of rabbit processing, cold chain, feed production and farm machinery (farm equipment and tools for rabbit)	Number of investors supported	MINAGRI, RAB, PSF, Developmental partners	0	1	1	1	1	1	1000
III.1.3 Encourage and increase the subsidies and taxes exemptions for new investors in rabbit sub-sector	Increased percentage of rabbits investors	MINAGRI, RAB, MINICOM, RRA, Developmental partners		0	0	1	1	1	1,000
	Subsidies and taxes exemptions policy in place			1	-	-	-	-	
Sub Total									***3,000***
III. 2 Output: Implementation of existing policy created and reinforced									
III.2 1 Support and advocate for rabbit value chain actors, association and cooperatives inclusion in the national development strategies and priorities	Rabbit sector development strategies and priorities in place	MINAGRI, RAB, RRFA, Developmental partners	0	1	1	1	1	1	500

III.2.2 Create and reinforce the partnership of the rabbit farmers and other stakeholders and organization, forging partnerships between regional rabbits' farmers (e.g. Kenya and South Africa)	A strong partnership of RRFA with other stakeholders in place	MINAGRI, RAB, RRFA, Developmental partners	0	1	1	1	1	1	500
	Number of events, study tours attended		0	1	2	3	4	5	
III.2.3 Create rabbit breeding center based on digital performance monitoring and evaluation system	number of rabbit center with digital monitoring and evaluation system	MINAGRI,RAB, Development Partners		-	1	1			1,000
III.2.4 Sensitize and empower youth and women to enter in rabbit industry businesses	number of youth and women mobilized and supported	MINAGRI, RAB, RYAF, Developmental partners	-	500	500	500	500	500	2,000
III.2.5 Establish and enforce regulations for animal feeds manufacturing, standards and formulation of commercial feeds and crop residues	Number of reviewed and new regulations on animal feeds	MINAGRI, RAB, RICA, RSB, Rwanda-FDA, Developmental partners				1	1		500
	Percentage of feed factories following set standards			0	1	1	1	-	
III.2.6 Enforce the regulations (policy) for veterinary profession, drugs and pharmaceutical supply and distribution/usage along rabbit production chain	Number veterinary profession and drugs use regulations in place	MINAGRI, RAB, RCVD, Developmental partners		1	-	-	-	-	200

III.2.7 Introduce the uptake of livestock insurance scheme in rabbits production sub-sector	Incrreased percentage of farmers with livestock insurance	MINAGRI, RAB, Insurance companies, Developmental partners		1	1	1	1		4,000
	Number of rabbits insured			1	1	1	1		
Sub Total									***8700***
III.3 Output: Culture of accountability and responsive institution promoted									
III.3.1 Facilitate and support the capacity/governance and activities implementation of Rwanda breeders and rabbit farmers' association	-Number of RRFA activities implemented	MINAGRI, RAB, RRFA, Developmental partners	0	5	5	5	5	5	500
	-RRFA governance structure in place		1/2	1	1	1	1	1	
III.3.2 Strengthen the inter-sectoral coordination for rabbit subsector development activities	Rabbit subsector coordination team in place and functional	MINAGRI, RAB, RRFA, Developmental partners	0	1	1	1	1	1	500
Sub-total									***1,000***
III.4 Output: Research, innovation and extension services improved									
III.4.1 Support the development and delivery of extension services/ materials to farmers through farmers group, cooperatives, LFFS	-number of extension materials in place	MINAGRI, RAB, Developmental partners	0	1	1	1	1	1	1000

III.4.2 Develop and strengthen training and technology transfer programs to key actors (technicians, professional organizations, farmer organizations, youth and women) to enable the development of appropriate packages/entrepreneurship skills that will help them have viable businesses.	-number of key actors, women and youth trained	MINAGRI, RAB, Developmental partners	0	100	100	100	100	100	2,000
	-training materials developed		0	1	1	1	1	1	
	-% of business-oriented rabbit farmers		0	20%	30%	40%	50%	60%	
III.4.3 Support research on assessing the nutritive value of rabbit meat, innovative ideas on use and value addition of rabbit feces, urine, offal and fleece	Number of innovative products from rabbit by-products in place	MINAGRI, RAB, HLIs, Developmental partners	0	0	1	1	1	1	500
III.4.4 Establish and reinforce the policies and regulations to regulated digital plateforms	Number of regulations in place	MINAGRI, RAB, Developmental partners	0	1	1	1	0	0	
III.4.5 Develop new techonologies in the breeding centers	Number of breeding center/farms with new techonlogies available	MINAGRI, RAB, Developmental partners	-	-	10	10	10	-	1,500
III.4.6 Train rabbit associations members, farmers, processors on new technologies	Number of actors in rabbit value chain thrained and adopted new technologies	MINAGRI, RAB, RRFA, Developmental partners		100	200	200	200	200	1,000

Sub Total									***6,000***
III.5 NDCs and climate change related interventions promoted									
III.5.1 Establish water smart practices such as water harversting, irrigation, mulching,..	Number of farms with water smart facilities	MINAGRI, RAB, Developmental partners	*N/A*	*1000*	1000	1000	1000	1000	1,000
III.5.2 Establish Weather and knowledge - smart practices	Number of digital agro-climate advisory tools, radio, smart phone, TV	MINAGRI, RAB, Developmental partners	*N/A*	2	2	2	2	2	500
III.5.3 Establish Breed -smart in rabbit farming	Number of Improved livestock breeds	MINAGRI, RAB, Developmental partners	*N/A*	2	2	2	2	2	500
III.5.4 Enhance the knolwedge of farmers on Carbon-smart/Nutrient-smart	Number of farmers trained on organic manual, tillage smart practices	MINAGRI, RAB, Developmental partners	*N/A*	1000	1000	1000	1000	1000	800
III.5.5 Use of solar pumping systm in irrigation	Number of irrigation schemes that use the solar pump	MINAGRI, RAB, Developmental partners	*N/A*	2	2	2	2	2	1,000
III.5.6 Increased use of on-farm anaerobic digestion of manure for bioenergy (bio-digestors)	Number of farmers adopted bio-digestors	MINAGRI, RAB, Developmental partners	*N/A*	100	100	100	100	100	1,000
III.5.7 Promote of better livestock feed (i.e. legume fodder species) and training in better livestock management	Percentage of increase of farmers with improved husbandary	MINAGRI, RAB, Developmental partners	*N/A*	20%	30%	40%	50%	70%	800

	Percentage of the reduction in CH4 emissions from enteric fermentation	MINAGRI, RAB, Developmental partners	*N/A*	80%	60%	50%	40%	30%	
III.5.8 Promote the adoption of more efficient manure management systems, including promotion of collective farms and training	Percentage of farmers with improved manure management	MINAGRI, RAB, Developmental partners	*N/A*	20%	40%	50%	60%	70%	500
	Percentage of reduction in GHG emissions from manure management	MINAGRI, RAB, Developmental partners	*N/A*	80%	60%	50%	40%	30%	500
III.5.9 Promote climate resilient livestock	Percentage of crossbreed livestock at national herd species	MINAGRI, RAB, Developmental partners	*N/A*	20%	30%	40%	50%	60%	1,000
III.5.10 Develop climate resilient postharvest and value addition facilities and technologies of livestock products	Capacity of storage constructed in MT	MINAGRI, RAB, Developmental partners	*N/A*	2000MT	20000MT	2000MT	2000MT	1000MT	1,000
III.5.11 Expand livestock insurance	Number of livestock species under insurance	MINAGRI, RAB, Developmental partners	*N/A*	300,000	400,000	500,000	500,000	500,000	7,000
Sub Total									***15,600***
Grand Total (Rabbits VC in 5 Years: 2024-2029)									***90,900***

II. Socio Economic characteristics, lists of interviewed farmers/actors

II. (a) Socio Economic characteristics of interviewed farmers

Table 1: Age for the respondents

Age	**Species**					
	Cattle	Goat	Sheep	Pig	Rabbits	Poultry
>65	9.92	2.63	4.34	1.29	2.89	2.89
18-35	18.32	36.84	34.78	36.36	11.59	11.59
36-65	71.75	60.52	60.86	58.44	85.50	85.50

Table 2: Gender distribution among the livestock farmers in the study area

Gender	**Species**					
	Cattle	Goat	Sheep	Pig	Rabbits	Poultry
Female (%)	19.08	39.47	21.73	32.46	17.39	17.39
Male (%)	80.91	60.52	78.26	67.53	82.60	8260

Table 3: Education Level of the livestock farmers in the study area

Education Level	**Cattle**	**Goat**	**Sheep**	**Pig**	**Rabbits**	**Poultry**
No Formal Educ	11.45	7.89	26.08	15.58	15.94	0
Primary	49.61	50	52.17	45.45	13.04	13.04
Secondary	22.9	15.78	4.34	20.77	43.47	43.47
A-level	13.74	23.68	17.39	7.79	15.94	15.94
University	0.76	0	0	6.49	15.94	15.94
Post- Grad	1.52	2.63	0	1.29	11.59	11.59

Table 4: Received training about their respective value chains

Parameter	**Species**					
	Cattle	Goat	Sheep	Pig	Rabbits	Poultry
Received training						
Yes	37.40	18.42	4.34	0	0	0
No	62.59	81.57	95.65	100	100	100

II. (b) List of interviewed farmers

A. Cows Value chain

NO	NAME	GENDER	PROVINCE	DISTRICT	SECTOR
1	BIKORIMANA Marc	M	EAST	NYAGATARE	NYAGATARE
2	BIZIMANA Vedaste	M	EAST	NYAGATARE	NYAGATARE
3	BUDARA Jamus	M	EAST	NYAGATARE	NYAGATARE
4	GAHIGI Frodouard	M	EAST	NYAGATARE	NYAGATARE
5	GAKWANDI Stefano	M	EAST	NYAGATARE	NYAGATARE
6	IRIBAGIZA Rose	F	EAST	NYAGATARE	NYAGATARE
7	JUVENAL	M	EAST	NYAGATARE	NYAGATARE
8	KAMANDA venant	M	EAST	NYAGATARE	NYAGATARE
9	Muhozi Seleiman	M	EAST	NYAGATARE	NYAGATARE
10	NDAYAMBAJE Vital	M	EAST	NYAGATARE	NYAGATARE
11	NIBAGWIRE Vanessa	F	EAST	NYAGATARE	NYAGATARE
12	NSENGIYUMVA Sammuel	M	EAST	NYAGATARE	NYAGATARE
13	NYAGATARE Vincent	M	EAST	NYAGATARE	NYAGATARE
14	UWIMBABAZI Mary	F	EAST	NYAGATARE	NYAGATARE
15	BUCYANA	M	EAST	NYAGATARE	RWEMPASHA
16	MUCYO Julius	M	EAST	NYAGATARE	RWEMPASHA
17	MUVUNYI Jean Claude	M	EAST	NYAGATARE	RWEMPASHA
18	NEMEYE Protais	M	EAST	NYAGATARE	RWEMPASHA
19	ODAR	M	EAST	NYAGATARE	RWEMPASHA
20	GAKURU Goefre	M	EAST	NYAGATARE	RWIMIYIGA
21	GASANA	M	EAST	NYAGATARE	RWIMIYIGA
22	GISAGARA Fred	M	EAST	NYAGATARE	RWIMIYIGA
23	KIGWINI Moses	M	EAST	NYAGATARE	RWIMIYIGA
24	KONGO J. Bosco	M	EAST	NYAGATARE	RWIMIYIGA
25	MWINE Joseph	M	EAST	NYAGATARE	RWIMIYIGA
26	NIYOMUGORE Ellina	F	EAST	NYAGATARE	RWIMIYIGA
27	RUTAGENGWA Paul	M	EAST	NYAGATARE	RWIMIYIGA
28	RWAMUNONO stiven	M	EAST	NYAGATARE	RWIMIYIGA
29	KABUJIJA Steven	M	EAST	NYAGATARE	TABAGWE
30	KANTARAMA Joy	F	EAST	NYAGATARE	TABAGWE
31	KANTENGWA Betty	F	EAST	NYAGATARE	TABAGWE
32	MUBIRIGI Emmanuel	M	EAST	NYAGATARE	TABAGWE
33	MUYOMBANO Paul	M	EAST	NYAGATARE	TABAGWE
34	MWESIGYE Elias	M	EAST	NYAGATARE	TABAGWE
35	NKUBITO Emmanuel	M	EAST	NYAGATARE	TABAGWE
36	NSENGIYUMVA JONAS	M	EAST	NYAGATARE	TABAGWE
37	BIMENYIMANA Jean	M	EAST	BUGESERA	JURU

	Bosco				
38	NDIKUMWENAYO Jean Paul	M	EAST	BUGESERA	JURU
39	NIYITEGEKA Silas	M	EAST	BUGESERA	JURU
40	NYAGASAZA Francois	M	EAST	BUGESERA	JURU
41	BAYINGANA Michel	M	EAST	BUGESERA	KAMABUYE
42	NIKUZE Agatha	F	EAST	BUGESERA	KAMABUYE
43	Dr NSHIMIYUMUKIZA Ossiniel	M	EAST	BUGESERA	MAYANGE
44	GAKOKO francois	M	EAST	BUGESERA	MAYANGE
45	MUREGANSHURO Phenias	M	EAST	BUGESERA	MWOGO
46	RUTIHUNZA Jean	M	EAST	BUGESERA	RILIMA
47	NSABIMANA Alon	M	NORTH	GICUMBI	BYUMBA
48	NZIMURINDAFelicien	M	NORTH	GICUMBI	BYUMBA
49	RWAGATERA Alphonse	M	NORTH	GICUMBI	BYUMBA
50	MUKANTWARI Patricie	F	NORTH	GICUMBI	CYUMBA
51	SEMVUMBA JMV	M	NORTH	GICUMBI	CYUMBA
52	HAVUGIMANA Vincent	M	NORTH	GICUMBI	KAGEYO
53	MUKAHIRWA Savera	F	NORTH	GICUMBI	KAGEYO
54	NGANIZI Jean Bosco	M	NORTH	GICUMBI	KAGEYO
55	NIYIBIZI Onesphore	M	NORTH	GICUMBI	KANIGA
56	RUHUMURIZA Sylvere	M	NORTH	GICUMBI	KANIGA
57	KALISA Jean Claude	M	NORTH	GICUMBI	MANYAGIRO
58	NSABIMANA Samuel	M	NORTH	GICUMBI	MANYAGIRO
59	MUGABO Emmanuel	M	NORTH	GICUMBI	MIYOVE
60	MUKANYANGEZI Beatrice	F	NORTH	GICUMBI	MIYOVE
61	MUKARUBUGA Esperence	F	NORTH	GICUMBI	MIYOVE
62	NIYIBIZI Jean Paul	M	NORTH	GICUMBI	MUKARANGE
63	UMUGWANEZA Clementine	F	NORTH	GICUMBI	MUKARANGE
64	BARIBESHYA Jean Claude	M	NORTH	GICUMBI	MUTETE
65	MUHAWENIMANA Dominic	M	NORTH	GICUMBI	MUTETE
66	HAKIZUWERA Stanislas	M	NORTH	GICUMBI	NYANKENKE
67	NYABUHINJA Gaspard	M	NORTH	GICUMBI	NYANKENKE
68	NZARAMBA	M	NORTH	GICUMBI	NYANKENKE
69	MUKAGASANA Belancile	F	NORTH	GICUMBI	RUKOMO
70	RUKUNDO Jean Damascene	M	NORTH	GICUMBI	RUKOMO
71	TWAHIRWA Fabien	M	NORTH	GICUMBI	RUKOMO
72	BIMENYINAMA	M	SOUTH	NYANZA	BUSASAMANA

	Celestial				
73	KAJEJE Medarid	M	SOUTH	NYANZA	BUSASAMANA
74	MAGEZA Uzziel	M	SOUTH	NYANZA	BUSASAMANA
75	MUKANTABANA Bazilissa	F	SOUTH	NYANZA	BUSASAMANA
76	HABINEZA Didace	M	SOUTH	NYANZA	CYABAKAMYI
77	MUKANGARAMBE Christine	F	SOUTH	NYANZA	CYABAKAMYI
78	MUNYANKUMBURWA Fransais	M	SOUTH	NYANZA	CYABAKAMYI
79	MURENGEZI Frederic	M	SOUTH	NYANZA	CYABAKAMYI
80	NSHIMYUMUKIZA Theoneste	M	SOUTH	NYANZA	CYABAKAMYI
81	MBONIZANA Daniel	M	SOUTH	NYANZA	KIGOMA
82	MUSONI Valens	M	SOUTH	NYANZA	KIGOMA
83	VUGAMAKE Daniel	M	SOUTH	NYANZA	KIGOMA
84	KANYANGE Jeannette	F	SOUTH	NYANZA	MUGANZA
85	KAYIGUMIRE Pascal	M	SOUTH	NYANZA	MUYIRA
86	MIGABO Vincent	M	SOUTH	NYANZA	MUYIRA
87	MPAGAZEHE Marc	M	SOUTH	NYANZA	MUYIRA
88	RUYOMBYANA Alex	M	SOUTH	NYANZA	MUYIRA
89	HAGENIMANA Methode	M	SOUTH	NYANZA	NYABICUMA
90	KAYUMBA Usiya	M	SOUTH	NYANZA	NYABICUMA
91	MUKARURINDA jeannette	F	SOUTH	NYANZA	NYABICUMA
92	NIYIGENA Celestin	M	SOUTH	NYANZA	NYABICUMA
93	AHISHAKIYE Damas	M	SOUTH	NYANZA	NYAGISOZI
94	BYIRINGIRO Thadee	M	SOUTH	NYANZA	NYAGISOZI
95	MATABARO Emmanueli	M	SOUTH	NYANZA	NYAGISOZI
96	MUKIZA Jean Rukema	M	SOUTH	NYANZA	NYAGISOZI
97	NIYIGENA Jean Baptiste	M	WEST	NYABIHU	BIGOGWE
98	TUYIZERE Justin	M	WEST	NYABIHU	BIGOGWE
99	UWINEZA Sandrine	F	WEST	NYABIHU	BIGOGWE
100	UWITUZE Prince	M	WEST	NYABIHU	BIGOGWE
101	HARERIMANA Gaspard	M	WEST	NYABIHU	JENDA
102	TURATSINZE emmanuel	M	WEST	NYABIHU	JENDA
103	UWIRAGIYE Gratis	M	WEST	NYABIHU	JENDA
104	HABAREMA Yvan	M	WEST	NYABIHU	KABATWA
105	NGOMANZIZA Ephrem	M	WEST	NYABIHU	KABATWA
106	NSHIMIYIMANA Martin	M	WEST	NYABIHU	KABATWA
107	UWIDUHAYE Aphrodis	M	WEST	NYABIHU	KABATWA
108	BAZAMANZA Jean de la Paix	M	WEST	NYABIHU	GARAGO
109	BIGERINYANGE Jean	M	WEST	NYABIHU	GARAGO

	Damascene				
110	RIHINDA Michel Jean Berchmas	M	WEST	NYABIHU	GARAGO
111	MFITUMUKIZA Benjamin	M	WEST	NYABIHU	MUKAMIRA
112	MUNYENTWARI protogene	M	WEST	NYABIHU	MUKAMIRA
113	NIYONZIMA Samuel	M	WEST	NYABIHU	MUKAMIRA
114	NYIRANSABIMANA Marie Claire	F	WEST	NYABIHU	MUKAMIRA
115	DUKUZUMUREMYI Emmanuel	M	WEST	NYABIHU	RAMBURA
116	NYIRANSABIMANA Immaculee	F	WEST	NYABIHU	RAMBURA
117	NTAMAKIRIRO Celestin	M	WEST	NYABIHU	RUGERA
118	NZAMUYE Eric	M	WEST	NYABIHU	RUGERA
119	MUKABURAMBA Dorcel	F	WEST	NYABIHU	SHYIRA
120	NYIRANGIRIYIMANA Marcelline	F	WEST	NYABIHU	SHYIRA
121	SINDIKUBWABO Ezechiel	M	WEST	NYAMASHEKE	BUSHEKERI
122	BAKAREKE Augustin	M	WEST	NYAMASHEKE	BUSHENGE
123	MUKANDUTIYE Charlotte	F	WEST	NYAMASHEKE	BUSHENGE
124	NGENDAHIMANA Patrick	M	WEST	NYAMASHEKE	BUSHENGE
125	SINUMVAMABWIRE Gerard	M	WEST	NYAMASHEKE	KARENGERA
126	MUKANDIRI Judith	F	WEST	NYAMASHEKE	RUHARAMBUGA
127	NGIZWENAYO Berchmas	M	WEST	NYAMASHEKE	RUHARAMBUGA
128	NIYONZIMA Boniface	M	WEST	NYAMASHEKE	RUHARAMBUGA
129	MUKANDINDA Clotilde	F	WEST	NYAMASHEKE	SHANGI
130	NDAMUZEYE Emanuel	M	WEST	NYAMASHEKE	SHANGI

B. Pigs Value Chain

NO	NAMES	GENDER	PROVINCE	DISTRICT	SECTOR
1	NTEZIRYIMANA Boniface	M	SOUTH	NYAMAGABE	BURUHUKIRO
2	NYIRANZEYIMANA Consolee	F	SOUTH	NYAMAGABE	BURUHUKIRO
3	RWAKARENGWA Juvenal	M	SOUTH	NYAMAGABE	BURUHUKIRO
4	GATOYA Gerard	M	SOUTH	NYAMAGABE	BURUHUKIRO
5	NTIVUGURUZWA Innocent	M	SOUTH	NYAMAGABE	BURUHUKIRO

6	BIHOYIKI Jean Pierre	M	SOUTH	NYAMAGABE	BURUHUKIRO
7	UKURIKIYESU Ferdinand	M	SOUTH	NYAMAGABE	BURUHUKIRO
8	MUKABAKINA Philomene	F	SOUTH	NYAMAGABE	BURUHUKIRO
9	NIKUZE Judith	F	SOUTH	NYAMAGABE	BURUHUKIRO
10	MUKUNDIMANA Some Marie	F	SOUTH	NYAMAGABE	CYANIKA
11	HABIMANA Jean	M	SOUTH	NYAMAGABE	GASAKA
12	MGR HAKIZIMANA Celestin	M	SOUTH	NYAMAGABE	GASAKA
13	RUREMESHA Alfred	M	SOUTH	NYAMAGABE	GASAKA
14	HAGENIYAREMYE Marie Chantal	F	SOUTH	NYAMAGABE	GASAKA
15	RUTAHISIRE Jean Damascene	M	SOUTH	NYAMAGABE	GASAKA
16	BAKUNDUKIZE Vianney	M	SOUTH	NYAMAGABE	GASAKA
17	NDAGIJIMANA Faustin	M	SOUTH	NYAMAGABE	GATARE
18	ABIHAYIMANA (abamasera)	F	SOUTH	NYAMAGABE	GATARE
19	MUKESHIMANA Jeannette	F	SOUTH	NYAMAGABE	GATARE
20	MUNYANZIZA Felicien	M	SOUTH	NYAMAGABE	GATARE
21	HABIMANA Damien	M	SOUTH	NYAMAGABE	GATARE
22	NSENGUMUREMYI Jean Claude	M	SOUTH	NYAMAGABE	GATARE
23	MUSHIMIYIMANA Cyprien	M	SOUTH	NYAMAGABE	TARE
24	GATOYA Claver	M	SOUTH	NYAMAGABE	TARE
25	DUSABIMANA Speciose	F	SOUTH	NYAMAGABE	TARE
26	NYIRAMAHIRWE Laethitia	F	SOUTH	NYAMAGABE	TARE
27	BAVUGAYABO	M	SOUTH	NYAMAGABE	UWINKINGI
28	TABARO Thacien	M	WEST	NYAMASHEKE	BUSHEKERI
29	NYIRANDARWEMEYE Antoinette	F	WEST	NYAMASHEKE	BUSHEKERI
30	KARUMUGAGABO Valens	M	WEST	NYAMASHEKE	BUSHENGE
31	NZIREKERA Salomon	M	WEST	NYAMASHEKE	BUSHENGE
32	NIRINGIYIMANA Elie	M	WEST	NYAMASHEKE	BUSHENGE
33	NGIZWENAYO Antoine	M	WEST	NYAMASHEKE	BUSHENGE
34	UTAMURIZA Rachel	F	WEST	NYAMASHEKE	BUSHENGE
35	KAMANZI Theogene	M	WEST	NYAMASHEKE	BUSHENGE
36	BAZIMAZIKI Daniel	M	WEST	NYAMASHEKE	BUSHENGE
37	HAKIZIMANA Pierre	M	WEST	NYAMASHEKE	BUSHENGE
38	COMPASSION RW167	M	WEST	NYAMASHEKE	BUSHENGE
39	COMPASSION RW 731	M	WEST	NYAMASHEKE	BUSHENGE
40	HISHAMUNDA Anaclet	M	WEST	NYAMASHEKE	BUSHENGE

41	KABANDO Alphonse	M	WEST	NYAMASHEKE	BUSHENGE
42	TABARO Mathieu	M	WEST	NYAMASHEKE	KAGANO
43	NTWARI Sylvain	M	WEST	NYAMASHEKE	KAGANO
44	BIHOYIKI Jean Bosco	M	WEST	NYAMASHEKE	KARENGERA
45	NSENGUMUREMYI Egide	M	WEST	NYAMASHEKE	KARENGERA
46	UWIZEYE Magret	F	WEST	NYAMASHEKE	RUHARAMBUGA
47	SIBONAMA Rugatien	M	WEST	NYAMASHEKE	RUHARAMBUGA
48	NTAMUNOZA Jean Marie	M	WEST	NYAMASHEKE	RUHARAMBUGA
49	TWAGIRAYEZU Anicet	M	WEST	NYAMASHEKE	RUHARAMBUGA
50	MUKANDAYISENGA Olive	F	WEST	NYAMASHEKE	RUHARAMBUGA
51	NDAYISHIMIYE Jeanine	F	WEST	NYAMASHEKE	SHANGI
52	TWAGIRUMUKIZA Emmanuel	M	WEST	NYAMASHEKE	SHANGI
53	SINDIHEBA J.M.V.	M	NORTH	GAKENKE	CYABINGO
54	MUDAHERANWA Mathieu	M	NORTH	GAKENKE	CYABINGO
55	NIYIBIZI	M	NORTH	GAKENKE	CYABINGO
56	TURABUMUKIZA Emmanuel	M	NORTH	GAKENKE	CYABINGO
57	HAKUZIMANA Odette	F	NORTH	GAKENKE	GAKENKE
58	MUKABERA Madam Leoncie	F	NORTH	GAKENKE	GAKENKE
59	IMANIZABAYO Marie Clarise	F	NORTH	GAKENKE	GAKENKE
60	IMANIZABAYO Jean Damascen	M	NORTH	GAKENKE	GAKENKE
61	YANKURIJE Marie Chantal	F	NORTH	GAKENKE	GAKENKE
62	MAHIRWE Florence	F	NORTH	GAKENKE	GAKENKE
63	KABANO Vincent	M	NORTH	GAKENKE	GAKENKE
64	NYIRAHABINEZA Leonie	F	NORTH	GAKENKE	GAKENKE
65	NIYOTWAGIRA Alon	M	NORTH	GAKENKE	GAKENKE
66	MANIRAFASHA Vedaste	M	NORTH	GAKENKE	KARAMBO
67	MUKASINE Clothiride	F	NORTH	GAKENKE	KARAMBO
68	NYIRASENGIMANA Mediatrice	F	NORTH	GAKENKE	KARAMBO
69	HABINEZA Tharcise	M	NORTH	GAKENKE	KARAMBO
70	NTAWURWIYAHURIRA Candida	F	NORTH	GAKENKE	KARAMBO
71	NYIRAGAHINDA Vestine	F	NORTH	GAKENKE	KARAMBO
72	MIKURIZEHE Theoneste	M	NORTH	GAKENKE	KARAMBO
73	MANISHIMWE Bonavature	M	NORTH	GAKENKE	MATABA
74	NIYONAGIZE Josiane	F	NORTH	GAKENKE	MATABA
75	NIYONSABA Tharcisse	M	NORTH	GAKENKE	MATABA

76	PFAGUTUNGA Viateur	M	NORTH	GAKENKE	NEMBA
77	MANIRABARUTA Emmanuel	M	NORTH	GAKENKE	NEMBA

C. Chicken Value Chain

NO	NAMES	GENDER	PROVINCE	DISTRICT	SECTOR
1	MUKAKARAGWA petronile	F	SOUTH	KAMONYI	GACURABWENGE
2	SHUMBUSHO Hassan	F	SOUTH	KAMONYI	GACURABWENGE
3	MUTAKO jeannette	F	SOUTH	KAMONYI	GACURABWENGE
4	NTABARESHYA lazare	M	SOUTH	KAMONYI	GACURABWENGE
5	NIYOMUKIZA Felix	M	SOUTH	KAMONYI	KARAMA
6	BUREGEYA Antoine	M	SOUTH	KAMONYI	KARAMA
7	NAMIREMBE Chantal	F	SOUTH	KAMONYI	KAYENZI
8	TWAGIRAYEZU Timothee.	M	SOUTH	KAMONYI	KAYENZI
9	NDAYAMBAJE J. Baptiste	M	SOUTH	KAMONYI	KAYENZI
10	MUNYAZERA Dan	M	SOUTH	KAMONYI	KAYUMBU
11	TWIZEYIMANA Aimable	M	SOUTH	KAMONYI	KAYUMBU
12	MUNYESHURI Faustin	M	SOUTH	KAMONYI	MUSAMBIRA
13	HABYARIMANA Jean Marie Vianney	M	SOUTH	KAMONYI	NGAMBA
14	HARERIMANA Nathanael	M	SOUTH	KAMONYI	NGAMBA
15	MURENZI Emmanuel	M	SOUTH	KAMONYI	NGAMBA
16	TUYISHIMIRE Pascale	M	SOUTH	KAMONYI	NYAMIYAGA
17	NSANZINTWARI Francois	M	SOUTH	KAMONYI	NYAMIYAGA
18	NSHIMIYIMANA placide	M	SOUTH	KAMONYI	RUGARIKA
19	NYIRAMBARUBUKEYE Donatha	F	SOUTH	KAMONYI	RUKOMA
20	NIBIKORA Adrien	M	SOUTH	KAMONYI	RUNDA
21	SENKUNGA Arsene	M	SOUTH	KAMONYI	RUNDA
22	MARIE LOUISE	F	SOUTH	KAMONYI	RUNDA
23	NYIRABIZEYIMANA donatha	F	SOUTH	KAMONYI	RUNDA
24	HAFASHIMANA Joseph	M	NORTH	RULINDO	BASE
25	HABONIMANA Florien	M	NORTH	RULINDO	BASE
26	MBONYUMWAMI Florien	M	NORTH	RULINDO	BASE
27	TURATSINZE Jean Paul	M	NORTH	RULINDO	BASE
28	TURATSINZE Jean Paul	M	NORTH	RULINDO	BUSHOKI
29	RUZIBIZA Jean Claude	M	NORTH	RULINDO	BUSHOKI
30	MBONYUMWAMI Florien	M	NORTH	RULINDO	BUSHOKI
31	GATERA	M	NORTH	RULINDO	BUSHOKI
32	THACIEN	M	NORTH	RULINDO	BUSHOKI
33	MATIAS	M	NORTH	RULINDO	CYUNGO
34	ABIRAGIYE Dominique	M	NORTH	RULINDO	KINIHIRA
35	MUNYEMBABAZI Leonidas	M	NORTH	RULINDO	MBOGO

36	CASSIEN	M	NORTH	RULINDO	RUKOZO
37	CELESTIN	M	NORTH	RULINDO	RUKOZO
38	RUSINGIZA	M	NORTH	RULINDO	RUKOZO
39	KAYIRANGA Jean de Dieu	M	NORTH	RULINDO	RUSIGA
40	HABIYAREMYE Emmanuel	M	NORTH	RULINDO	RUSIGA
41	MUKANKUSI	F	NORTH	RULINDO	RUSIGA
42	MUNYANEZA	M	NORTH	RULINDO	RUSIGA
43	CASSIEN	M	NORTH	RULINDO	SHYORONGI
44	JEANNE	F	NORTH	RULINDO	SHYORONGI
45	MUKANKUSI Verena	F	NORTH	RULINDO	SHYORONGI
46	KUBWIMANA	M	NORTH	RULINDO	SHYORONGI
47	MUHIRWA Jerome	M	EAST	BUGESERA	GASHORA
48	NSABUMUREMYI Theoneste	M	EAST	BUGESERA	JURU
49	HAKIZIMANA Slyvere	M	EAST	BUGESERA	JURU
50	HAGENIMANA Patrick	M	EAST	BUGESERA	MAREBA
51	MUNYAKAZI Edith	F	EAST	BUGESERA	MAYANGE
52	NDIKUMANA Jean D'Amour	M	EAST	BUGESERA	MAYANGE
53	UWIZEYE Vicky	M	EAST	BUGESERA	MAYANGE
54	NIZEYIMANA Froduard	M	EAST	BUGESERA	MAYANGE
55	UWINEZA	M	EAST	BUGESERA	MAYANGE
56	MUHAYIMANA Hamza	M	EAST	BUGESERA	MAYANGE
57	NZABAMWITA Marcel	M	EAST	BUGESERA	MAYANGE
58	HATUNGIMANA Jean chrisostome	M	EAST	BUGESERA	MAYANGE
59	MUSABYIMANA J. Baptiste	M	EAST	BUGESERA	MAYANGE
60	MANZI Christian	M	EAST	BUGESERA	MWOGO
61	IYAKAREMYE Japhet	M	EAST	BUGESERA	NYAMATA
62	ALEX VILLAGE CHICKEN	M	EAST	BUGESERA	NYAMATA
63	KAYITESI Marie Chantal	F	EAST	BUGESERA	NYAMATA
64	NDARU FARM BUGESERA	M	EAST	BUGESERA	NYAMATA
65	MARARA Aimable	M	EAST	BUGESERA	NYAMATA
66	MUHAYIMANA Faustin	M	EAST	BUGESERA	RILIMA
67	MUNEZERO Aphrodis	M	EAST	BUGESERA	RILIMA
68	MUNGANYINKA Simon	M	EAST	BUGESERA	RUHUHA
69	RUCIBIGANGO Viateur	M	EAST	BUGESERA	RUHUHA

D. Goats Value Chain

NO	NAMES	GENDER	PROVINCE	DISTRICT	SECTOR
1	NYIRAHITIMANA Leontine	F	WEST	NGORORERO	BWIRA
2	MUMUGIRANEZA Antoinette	F	WEST	NGORORERO	BWIRA
3	NIYONKURU Martine	F	WEST	NGORORERO	GATUMBA
4	MUREKATETE Philomene	F	WEST	NGORORERO	HINDIRO

5	KWIZERA Bonavanture	M	WEST	NGORORERO	HINDIRO
6	MUKARUGWIZA Beatrice	F	WEST	NGORORERO	KAGEYO
7	NTIBIHEZWA Venuste	M	WEST	NGORORERO	MUHORORO
8	NKURIKIYIMUKIZA Francois	M	WEST	NGORORERO	MUHORORO
9	MUNYANZIZA Francois	M	WEST	NGORORERO	MUHORORO
10	MIZERO Prudence	M	WEST	NGORORERO	MUHORORO
11	UWAYEZU Joseline	F	WEST	NGORORERO	NGORORERO
12	BIMENYIMANA Philipe	M	WEST	NGORORERO	NGORORERO
13	KAGONYERA Timothee	M	EAST	KAYONZA	GIHINI
14	MUKANKUNDINEZA Chantal	F	EAST	KAYONZA	GIHINI
15	MUKANDAYISENGA Joy	F	EAST	KAYONZA	GIHINI
16	MUGIRANEZA Samuel	M	EAST	KAYONZA	GIHINI
17	BEGUMISA Theoneste	M	EAST	KAYONZA	MURUNDI
18	MUKANOHERI Alice	F	EAST	KAYONZA	MURUNDI
19	NKOMEZA Alex	M	EAST	KAYONZA	MURUNDI
20	IYAKAREMYE Jerome	M	EAST	KAYONZA	MWIRI
21	NTAGANZWA Cyprien	M	EAST	KAYONZA	MWIRI
22	HABINEZA Regis	M	EAST	KAYONZA	MWIRI
23	NSABIMANA Jean de Dieu	M	EAST	KAYONZA	RUKARA
24	YANKURIJE Berthilde	F	EAST	KAYONZA	RUKARA
25	KANYANKORE Augustin	M	EAST	KAYONZA	RUKARA
26	MUKAMANA	F	EAST	BUGESERA	GASHORA
27	NSHOGOZABAHIZI Naphtal	M	EAST	BUGESERA	JURU
28	MUMARARUNGU Alice	F	EAST	BUGESERA	JURU
29	NDAYISHIMIYE Damien	M	EAST	BUGESERA	MUSENYI
30	RWASANA Bonaventure	M	EAST	BUGESERA	MUSENYI
31	NSHIMIYIMANA Jean de Dieu	M	EAST	BUGESERA	MWOGO
32	IRADUKUNDA Chantal	F	EAST	BUGESERA	NTARAMA
33	HABIMANA Aimable	M	EAST	BUGESERA	NTARAMA
34	MPANYA Eugene	M	EAST	BUGESERA	NTARAMA
35	NGARAMBE Vincent	M	EAST	BUGESERA	NTARAMA
36	MUHAWENIMANA Jacqueline	F	EAST	BUGESERA	NTARAMA
37	MUKAMUSONI	F	EAST	BUGESERA	RILIMA
38	RUTARINDWA	M	EAST	BUGESERA	RILIMA

E. Sheep Value Chain

NO	NAMES	GENDER	PROVINCE	DISTRICT	SECTOR
1	MURYAKERA Theogene	M	WEST	NGORORERO	BWIRA
2	MUKARUKUNDO Vestine	F	WEST	NGORORERO	GATUMBA
3	UWIRAGIYE Josiane	F	WEST	NGORORERO	GATUMBA
4	MUKAMANA Yvonne	F	WEST	NGORORERO	HINDIRO

5	NIYOYITA Boniface	M	WEST	NGORORERO	HINDIRO
6	UWAMBAJIMANA Theogene	M	WEST	NGORORERO	KAGEYO
7	MUGABONAKE Seleman	M	WEST	NGORORERO	MUHORORO
8	MUHINDO Aphrodis	M	WEST	NGORORERO	MUHORORO
9	HABIMANA Samuel	M	WEST	NGORORERO	NGORORERO
10	KAGONYERA Timothée	M	EAST	KAYONZA	GIHINI
11	SEMANA Bosco	M	EAST	KAYONZA	MURUNDI
12	NSENGIYAREMYE Bosco	M	EAST	KAYONZA	MURUNDI
13	NDIKUBWIMANA Emmanuel	M	EAST	KAYONZA	MURUNDI
14	MANZI Frank	M	EAST	KAYONZA	MURUNDI
15	KAWERA Julienne	F	EAST	KAYONZA	RUKARA
16	HATEGEKIMANA Siliac	M	EAST	KAYONZA	RUKARA
17	KABANYANA	F	EAST	BUGESERA	GASHORA
18	GICACA Bonaventure	M	EAST	BUGESERA	MUSENYI
19	NTIGURIRWA Casmir	M	EAST	BUGESERA	NTARAMA
20	NYIRABARAGWA Gratien	M	EAST	BUGESERA	NTARAMA
21	MBUZUKONGIRA	M	EAST	BUGESERA	NTARAMA
22	MUHAWENIMANA	M	EAST	BUGESERA	NYAMATA
23	BIZIMANA	M	EAST	BUGESERA	RILIMA

F. Rabbit Value Chain

NO	NAMES	GENDER	PROVINCE	DISTRICT	SECTOR
1	CENTRE INSHUTI ZACU/ Sr MUKAMANA Josephine	F	KIGALI CITY	KICUKIRO	GAHANGA
2	UWAMARIYA Vestine	F	KIGALI CITY	KICUKIRO	GAHANGA
3	CENTRE DES JEUNES GATENGA/ NIYITEGEKA Jacques	M	KIGALI CITY	KICUKIRO	GATENGA
4	SŒURS DOMINICAINES MISSIONNAIRE D'AFRIQUE/ Sœur NYIRABAGENZI Monique	F	KIGALI CITY	KICUKIRO	GATENGA
5	NDACYAYISENGA Evariste	M	KIGALI CITY	KICUKIRO	GATENGA
6	MUKESHIMANA Alphonsine	F	SOUTH	KAMONYI	KARAMA
7	TWIZEYIMANA Deo	M	SOUTH	KAMONYI	KARAMA
8	MUKANTAGERWA Janne D'Arc	F	SOUTH	KAMONYI	KAYENZI
9	NDAYAMBAJE Alphonse	M	SOUTH	KAMONYI	KAYENZI
10	TWIZEYIMANA Aimable	M	SOUTH	KAMONYI	KAYUMBU
11	BATAMURIZA	F	EAST	BUGESERA	GASHORA
12	NIYONSENGA Daniel	M	EAST	BUGESERA	MUSENYI
13	KABERA Regine	F	EAST	BUGESERA	NYAMATA
14	UWITONZE Betty	F	EAST	BUGESERA	RILIMA

15	IGORORERO RYA BUGESERA	F	EAST	BUGESERA	RILIMA

G. Other Actors-
Livestock

NO	NAMES	GENDER	PROVINCE	DISTRICT	SECTOR	VALUE CHAIN
1	MUKABADEGE Rose	F	KIGALI CITY	GASABO	KIMIHURURA	MEAT
2	UWIMANANA Anonciatha	F	KIGALI CITY	GASABO	KIMIHURURA	MILK
3	MUKANDEKEZI Safina	F	KIGALI CITY	GASABO	KIMIHURURA	MEAT
4	HITIMANA Samuel	M	KIGALI CITY	GASABO	KIMIRONKO	MILK
5	JOYEUSE/ JOYEUSE BUTCHERY	F	KIGALI CITY	GASABO	KIMIRONKO	MEAT
6	KIMIRONKO UNIQUE BUTCHERY	M	KIGALI CITY	GASABO	KIMIRONKO	MEAT
7	HITIMANA Innocent	M	KIGALI CITY	GASABO	KIMIRONKO	LIVE HENS & TURKEYS
8	MUKANDEKEZI Safina	F	KIGALI CITY	GASABO	KIMIHURURA	EGGS
9	UWASE	F	KIGALI CITY	KICUKIRO	GATENGA	EGGS
10	NDINDABAHIZI Elie	M	KIGALI CITY	NYARUGENGE	GITEGA	LIVE HENS
11	HITAYEZU Ignace	M	KIGALI CITY	NYARUGENGE	GITEGA	EGGS
12	NGENDAHIMANA Jean Damascene	M	WEST	RUBAVU	BUGESHI	OTHER
13	MUTESI Jean Luc	M	WEST	RUBAVU	GISENYI	MEAT
14	MUKABASENGA Anithe	F	WEST	RUBAVU	GISENYI	EGGS
15	HAKIZIMANA Hassan	M	WEST	RUBAVU	GISENYI	SKINS
16	BIZIMUNGU Patrice	M	WEST	RUBAVU	KANAMA	MEAT
17	AGIRAGITEREKA RUBAVU	M	WEST	RUBAVU	KANAMA	MILK
18	BARAME Jean de Dieu	M	WEST	RUBAVU	MUDENDE	OTHER
19	NGIRINSHUTI Gervais	M	WEST	RUBAVU	NYAKIRIBA	LIVE ANIMALS
20	CODERU/ UWERA Yvonne	F	WEST	RUBAVU	RUBAVU	MILK
21	NDAYISENGA Jean Pierre	M	WEST	RUBAVU	RUBAVU	EGGS

22	MUKUNDABANTU Viateur	M	WEST	RUSIZI	BUGARAMA	EGGS
23	SEZERANO Kariyopi	M	WEST	RUSIZI	BUGARAMA	MEAT
24	MUKASHEMA Esther	F	WEST	RUSIZI	GIHEKE	LIVE ANIMALS (COWS & GOATS)
25	MUKASHEMA Esther	F	WEST	RUSIZI	GIHEKE	MILK
26	BIHOYIKI Emmanuel	M	WEST	RUSIZI	GIHUDWE	MEAT
27	MUKASHEMA Esther	F	WEST	RUSIZI	GIHUDWE	MILK
28	IMANISHIMWE Beatrice	F	WEST	RUSIZI	KAMEMBE	EGGS
29	NIYONGABO Jean Pierre	M	WEST	RUSIZI	KAMEMBE	SKINS
30	MUKASHEMA Esther	F	WEST	RUSIZI	RWIMBOGO	ANIMALS
31	MUKASHEMA Esther	F	WEST	RUSIZI	RWIMBOGO	SKINS

III. List of Key Informants (KI)

S/N	Names	Position	Institution	Contact
01	Florence		RNDP	0788302613
02	Dr Musemakweri		RNDP	
03	Ndorimana Jean Claude	DG Animal resources	MINAGRI	0788455119
04	Alnauld Ishimwe	Analyst – Animal Resources and value chain	MINAGRI	0788441161
05	Museruka Joseph	Program Manager-Insurance Scheme	MINAGRI	0788846904
06	Kayitesi Jane	Agri-Insurance Scheme -Specialist	MINAGRI	
07	Dr. Eugene Niyonzima	Head of Animal resources, processing and biotechnology department	RAB	0785665995
08	Dr. Bernard Twagirumukiza		AGROTEC	0789609812
09	Dr Emmanuel		BK Insurance	0782863161
10	Uwiduhaye Festus		RSB	0788578614
11	Bajeneza Jean Pierre	Acting Division Manager- Certification	RSB	0788742317
12	Uwumukiza Beatrice	DG	RICA	
13	Xavier	Advisor	RICA	
14	Euphrasie		RICA	
15	Dr. Alphonse Nshimiyimana	ES	RCVD	0788506713
16	Uwineza Vedaste	Animal Products Specialist	MINAGRI	0785608142
17	Uzayisenga Marguerite	Accountant	MINAGRI	0788418223
18	Abewe Sabine H	Animal Products Supply Analysit	MINAGRI	0788516145
19	Dr Shumbusho Felicien	Senior Research Fellow	RAB	
20	Dr Claire d'Andre Hirwa	Senior Research Fellow	RAB	0784824250
21	Patrick Rwinkoko	Legal Advisor	MINAGRI	0788469660
22	August Seba……	Private Sector Expert	ENABEL	0788358091

22	Celestin Myambi	Livestock Expert	ENABEL	0788592297
23	Dr Ngarambe Michel	FOS-SPIU-IFAD	RAB	0788508082
24	Dr Uwituze Solange	DDG	RAB	0788309637

IV. List of workshops participants

IV. (a) ATTENDANCE LIST FOR THE WORKSHOP OF DAIRY SUBSECTOR WORKING HELD AT MINAGRI On 5th September 2023

NO	NAME	POSITION	INSTITUTION / DISTRICT	PHONE NUMBER
1	NGARAMBE MICHEL	FOS	RAB SPIU	788508082
2	EUGENE NIYONZIMA	DM-ARPB	RAB	785665995
3	AIMABLE NTUKANYAGWE	C&O	IFAD	788389898
4	NDAHIMANA AUGUSTIN	FARMER	BUGESERA	788875107
5	NKURIKIYIMFURA MICHEL	FINANCIAL ADVISOR	AGRIHEALTH LTD	783272535
6	GLORIA MBASINGA	INSURANCE-CLAIMS	RADIANT YACU LTD	788799671
7	NSHIMIYIMANA ALPHONSE	ES	RCVD	788506713
8	JOSEPH MUGISHA	RELATIONSHIP	BIC	783051808
9	HERVE TUYISHIME	CEO	LIVESTOCK BANK/ PMP	788350288
10	KAREHE BIENFAIE	PRESIDENT	UPROCENYA	788836124
11	GEOFREY MASOZERA	S2	A5	
12	CHARLES GAHIGI	MD	NMI	788670888
13	PRUDANCE NGUTEGURE	QUALITY ASSURANCE	RMP	788837501
14	KONGEUR LEE	PROGRAM ANALYST	IFAO	790139185
15	HABIMANA ERNEST		GORILLA	785184653
16	MUSHIMIYIMANA GERARDINE	VET OFFICER	RABSCO LTD	786191109
17	UWIHAYE FESTUS	SMES TAS	RSB	788578614
18	MUKESHAREMA CHRISTINE	FIELD COORDINATOR	RNDP	788600415
19	DONATIEN MUHAYIMANA	AGRICULTURE UNDERWITTER	OLD MUTUAL INSURANCE	784018974
20	EMMANUEL IRANKUNDA	AGRICULTURE SPECIALIST	OLD MUTUAL INSURANCE	788592170
21	KADOGO AIMABLE	PRESIDENT UNION RUBAVU	RUBAVU	788597523
22	JAMES NDEGEYA	CHAIRPERSON	IMPROBEEF	788302229
23				
24	HAVUGIYAREMYE FELIX	CVC PRADE SPECIALIST	MINICOM	788888512
25	MBANDA ADEODATUS	GMC LTD ACTING CEO	GMC LTD	788619597

26	MURAGWA BENI PAULO	TECHNICIAN	NALEO COMPANY LTD	783987662
27	GAKWAYA EMMANUEL	VICE CHAIRMAN	IMPROBEEF	788300262
28	GAHUTU CYPRIEN	CHAIRPERSON	GILICU	788424631
29	KABANDANA DIOGENE	PRODUCTION MANAGER	KIME LTD	783790913
30	MBABAZI OLIVIER	VETERNARY OFFICER	SABAN LTD	788404653
31	Dr. SPRIDA NIYODUSENGA	MD	VETLINKS	785552629
32	Dr. BERNARD TWAGIRUMUKIZA	MANAGER	AGROTECH	789609812
33	HABANABAKIZE JEAN CHRISOSTOME	M.D	PEACE TET SERVICES LTD	788309823
34	KAYITARE HODFREY	C/MAN	NYAGATARE DAIRY FARMERS UNION	788358822
35	Dr. EMMENUEL GUTESA	L. INSURANCE	BK INSURANCE	782863161
36	ISHIMWE ALNAULD	ANIMAL PRODUCT SUPPLY CHAIN& MARKET ANALYST	MINAGRI	788441161
37	UWITUZE SOLANGE	DDG-ARD	RAB-HQ	788309637
38	FABRICE NDAYISENGA	HoD/ LIVESTOCK	RAB-HQ	785781138
39	JEAN CLAUDE NDORIMANA	DG/ ARD	MINAGRI	788455119
40	VEDASTE UWINEZA	ANIMAL PRODUCT SUPPLY CHAIN& MARKET ANALYST	MINAGRI	785608142

IV. (b) ATTENDANCE LIST FOR THE MEETING OF SMALL LIVESTOCK SUB-SECTOR WORKING GROUP TO BE HELD AT MINAGRI on 6th October 2023

NO	NAME	POSITION	INSTITUTION/DISTRICT	PHONE NUMBER
1	HORTENCE BDO	SR POLICY SPECIALIST	ORORA WIHAZE	788482710
2	NTEZIRYAYO VEDASTE	LIVESTOCK	SPIU /PRISM	788977537

		SPECIALIST		
3	MYAMBI CELESTIN	LIVESTOCK EXPERT	ENABEL	788592297
4	INGABIRE ALICE	RYAF/LIVESTOCK	RYAF	788974593
5	AGNES UWAMAHORO	SECRETARY	RPIA	788755383
6	JEAN BAPTISTE NIYONSENGA	MEMBER	RWANDA RABBIT ASS.	788494948
7	TANE KAYITESI	AGRI-INSURANCE SPECIALIST	MINAGRI	788494599
8	DIDACE RUSHIJIGAJIKI	LIVESTOCK SPECIALIST	MINAGRI	788666098
9	KURADUSENGE SETH	FARMER		786256416
10	VEDASTE UWINEZA	ANIMAL PRODUCTS SUPPLY CHAIN & MARKET SPECIALIST	MINAGRI	785608142
11	MUSANGANIRE DELPHINE BENITHA	PROCUREMENT	PEACE VET	788232250
12	NDAHIMANA AUGUSTIN	FARMER	BUGESERA	788875107
13	CYIZA NAIKE INNOCENT	AGRI&FOOD SEC. SPECIALIST	USAID	788314310
14	SINZABAHEZA JEAN PAUL	RWANDA SHEEP FARMERS BREEDER ORGANIZATION	BFS	788602697
15	ALEX BUTESERE	CEO	ARK PARTNERS	788305425
16	ALPHONSE MAZIMPAKA	CO	ARR IGITEGO	788493882
17	MBARAGA ALEXIS	VICE PRESIDENT	RPFA	788530165
18	MUSONI DIEUDONNE	PRESIDENT	Rwanda Rabbit Assoc	780797881
19	RICHARD NDEKEZI	MANAGING DIRECTOR	ZAMURA	788638225
20	DIOGENE IRABARUTA	TECHNICAL SALE REPR.	PRODEU RWANDA	786146797
21	DONATIEN MUHAYIMANA	UNDERWRITER AT OLD MUTUAL	OLD MUTUAL INSURANCE	784018974
22	Dr. FRED KWIZERA	RPIA/ CORD	RPIA	782715102
23	NDAYAMBAJE ALEXIS	SECRETARY	RPFA	788898621
24	MUSABYIMANA JB	ABUSOL	ABUSOL	782235566
25	NTAGANDA ROBERT	FARMER	KAYONZA	788856762
26	RUGANGAZI EVARISTE		KAYONZA	788400079
27	SHIRIMPUMU JEAN CLAUDE	CHAIRMAN	RPFA	788590116
28	MUKANDOHA BRIGITTE	RFPA/ MEMBER	BUGESERA	788463295
29	KABANDANA DIOGENE	PRODUCTION MANAGER	BIPACH	783790913

30	TWIZERIMANA ROSE	V/P RGSFB	NGORORERO	789047640
31	UMUTAKO JEANNETTE	FARMER	KAMONYI	788401908
32	NIYONSABA THEOGENE	SECRETARY RSFBO	NYARUGURU	785307232
33	TUYISENGE BASILE	MANAGING DIRECTOR	NALEO COMPANY LTD	786717439
34	BUTARE ANDREW	CHAIRMAN	RPIA	788305970
35	KWIZERA FRED	RPIA/BOARD OF DIRECTOR	RPIA	782715102
36	MUSABYIMANA JB	CEO ABUSOL	ABUSOL	782235566
37	SOLANGE UWITUZE	PDG-ARD	RAB HQ	788309637
38	JEAN CLAUDE SHIRIMPUMU	RPFA/CHAIRMAN	RPFA	788455119
39	RUGANGAZI EVARISTE	FARMER		788400079
40	MUHAYIMANA DONATIEN	UNDERWRITER	OLD MUTUAL INSURANCE RWANDA	784018974
41	MUSANGANIRE DELPHINE BENITHA	PROCUREMENT	PEACE VET	788232230
42	MUSHIMIYIMANA GERARDINE	VET OFFICER	RABSCO LTD	786191109
43	HAKIZIMANA ALPHONSE	VET OFFICER	SARURA AGROVET	782485668
44	SHEMA OBED	MARKETING OFFICER	AGROTECH	785550699
45	NDAHIMANA GERARD	FARMER	MUSANZE/ KIMONYI	784084028
46	Dr. KANTENGWA JULIEN(NE)	FARMER	GASABO	782864688
47	OCTAVE NSHIMIYIMANA	DIRECTOR GENERAL	MINAGRI	782803590

V. List of FGDs participants per District and Value chain

Table V (A). FGDs conducted in the selected Districts

Dates	Value chain	Venues	Actual Number of participants	Comments
09/10/2023	Poultry, and rabbits	Bugesera	14	All major actors in Bugesera
10/10/2023	Dairy and Beef cattle	Nyagatare,	13	Major actors in Nyagatatre
11/10/2023	Pigs	Gicumbi	14	All major actors in Gicumbi
12/10/2023	Poultry, rabbits	Kamonyi	19	Major actors in Muhanga, Kamonyi and Huye
13/10/2023	Goats and sheep	Musanze	28	Major actors in Musanze, Ngororero, Nyabihu and Burera
16/10/2023	Animal markets	Rubavu	15	All major actors especially cross border actors
18/10/2023	Dairy, and animal markets	Huye	6	Major actors in Nyanza and Huye

V. (B) ATTENDANCE LIST OF STAKEHOLDERS ATTENDING GROUP DISCUSSION IN LINE OF DRAFTING OF LIVESTOCK DEVELOPMENT STRATEGY On 9th October 2023 / BUGESERA

NO	NAME	POSITION	INSTITUTION/DISTRICT	VALUE CHAIN	PHONE NUMBER
1	MBINIGABA EMMANUEL	FARMER		CHICKEN	78366263
2	NTIRENGANYA DANIEL	FARMER		CHICKEN	788851510
3	YVONNE MUKARURANGWA	OWNER	NYAMATA HILLS FARMER	CHICKEN	784627404
4	IRIBAGIZA THEONESTINE	FARMER NYAMATA		CHICKEN	785073379
5	NSABUMUREMYI THEONESTE	FARMER JURU		CHICKEN	788538003
6	NDUWIMANA EMMANUEL	FARMER MURAMBI		CHICKEN	786459554
7	BATONI FLORENCE		PLATINUM AGRIBUSINES	CHICKEN	783576174
8	UTUZA YVONNE		COTEMBU JUNCTION LTD	CHICKEN	788354830
9	KAGOYIRE ODETTE		GAHANGA INVESTMENT	CHICKEN	788532941
10	UWAMAHORO AGNES	MD	BSCD LTD	CHICKEN	788755383

V. (C) ATTENDANCE LIST OF STAKEHOLDERS ATTENDING GROUP DISCUSSION IN LINE OF DRAFTING OF LIVESTOCK DEVELOPMENT STRATEGY On 10th October 2023/ NYAGATARE

NO	NAME	POSITION	INSTITUTION/DISTRICT	VALUE CHAIN	PHONE NUMBER
1	TWAHIRWA PETER	FARMER&CHAIRMAN	CHAIR MAN RDFC	Dairy VC	789655036
2	KARARA FAUSTIN	FARMER	FARMER	Dairy VC	788425853
3	ASSIMWE JAMES	FARMER&CHAIRMAN	MCC	Dairy VC	788780091
4	MUNYURA BOSCO	FARMER/ COOPERATIVE CHAIRMAN	MCC	Dairy VC	788425230
5	ABIYINGOMA LIVINGSTONE	FARMER		Dairy VC	788355730
6	KAYITARE GODFREY	CHAIRMAN	NYAGATARE DAIRY FARMER UNION	Dairy VC	788358822
7	TUMWINE ALOYS	FARMER & CHAIRMAN	FARMER	Dairy VC	788470167
8	MURENZI FRANK	FARMER & CHAIRMAN	FARMER	Dairy VC	788917702
9	KAYISIRE INNOCENT	MANAGER	NDFU	Dairy VC	782022197
10	KAYUMBA JOHN	RAB STATION MANAGER	RAB/NYAGATARE		788480078
11	MURISA EPIMAQUE	CHAIRMAN MCC	MCC RWEMPASHA		788418066
12	NGIRINSHUTI FABIEN	DISTRICT ANIMAL RESOURCES OFFICER	NYAGATARE DISTRICT		7886592378

V. (D) ATTENDANCE LIST OF STAKEHOLDERS ATTENDING GROUP DISCUSSION IN LINE OF DRAFTING OF LIVESTOCK DEVELOPMENT STRATEGY On 11th, October 2023 / GICUMBI

NO	NAME	POSITION	INSTITUTION/DISTRICT	VALUE CHAIN	PHONE NUMBER
1	NDAYAMBAJE ALEXIS	SECRETARY	RPFA	Pig VC	788898621
2	AKAYEZU ALIANE	Farmer & Facilitator	GICUMBI	Pig VC	788472021
3	UMUHOZA ANGELIQUE	Farmer & Facilitator	GICUMBI	Pig VC	781299555
4	MUKANDANG	Farmer & Facilitator	GICUMBI	Pig VC	788975558

	A ALPHONSINE				
5	BAYALUGE ANASTASE	Farmer & Facilitator	GICUMBI	Pig VC	783129809
6	MUKAMANA GEMMA	Farmer & Facilitator	GICUMBI	Pig VC	788563624
7	NSABOMANA ALEXIS	Farmer & Facilitator	GICUMBI	Pig VC	783033357
8	CYIZA THEOPHILE	Farmer & Facilitator	GICUMBI	Pig VC	781970588
9	LILIANE UWIMPUHWE	VETERINARY/UMWO ROZI	GICUMBI		780080215
10	UWAYO GUILLAUME	DASI	GICUMBI		788505080

V. (E) ATTENDANCE LIST OF STAKEHOLDERS ATTENDING GROUP DISCUSSION IN LINE OF DRAFTING OF LIVESTOCK DEVELOPMENT STRATEGY On 12th October 2023 / KAMONYI

NO	NAME	POSITION	INSTITUTION/ DISTRICT	VALUE CHAIN	PHONE NUMBER
1	KABERA BEATRICE	FARMER		RABBIT	788680626
2	THEONISTE HATEGEKIMANA	FARMER		RABBIT & CHICKEN	782277568
3	UWERA XAVERINE	FARMER		CHICKEN MEET	781615581
4	UWITONZE CLEMENT	FARMER		RABBIT	788676916
7	KAYIRANGA JEAN	MANAGING DIRECTOR	HUYE RABBIT FARM LTD	RABBIT	782496638
8	MWUMVANEZA FERDINANT	DARO	KAMONYI DISTRICT		788512519
9	MWIZERWA EVODE	FARMER		RABBIT	782855960
10	RWAGASANA BIENVENU	FARMER		RABBIT	783748398
11	MANISHIMWE MAGNIFIQUE	FARMER		RABBIT	787709137
12	MUKAMANA EPIPHANIE	FARMER		RABBIT	789225593
13	DUSENGUMUREMYI J.BAPTISTE	FARMER		RABBIT	784013700
14	NGENDAHAYO DIDACE	FARMER		RABBIT	787142285
15	NTAKIRUTIMANA THIERRY	FARMER		RABBIT	783467265
16	MUJAWAYEZU M.SOLANGE	FARMER		RABBIT	788296176

17	NSENGIMANA PROSPER	FARMER		RABBIT	788557814

V. (F) ATTENDANCE LIST OF STAKEHOLDERS ATTENDING GROUP DISCUSSION IN LINE OF DRAFTING OF LIVESTOCK DEVELOPMENT STRATEGY On 13th October 2023 / MUSANZE

NO	NAME	POSITION	INSTITUTION/DISTRICT	VALUE CHAIN	PHONE NUMBER
1	ZIBUKIRA EMMANUEL	FARMER	Musanze	Goats&Sheep	788273037
2	KURADUSENGE SETH	FARMER	Musanze	Goats&Sheep	786256416
3	NSHAKABATENDA JOSEPH	FARMER	Musanze	Goats&Sheep	785128006
4	BIZAGWIRA SYLIVAN	FARMER	Musanze	Goats&Sheep	783408248
5	RUDATINYA ALOYS	FARMER	Musanze	Goats&Sheep	783523407
6	MUSABYIMANA BEATRICE	FARMER	Musanze	Goats&Sheep	785320262
7	HAKUZAMUNGU THEONESTE	FARMER	Musanze	Goats&Sheep	788886986
8	NYIRASAGAMBA CLAUDINE	FARMER	Musanze	Goats&Sheep	783892504
9	HASENGIMANA EMMANUEL	FARMER	Musanze	Goats&Sheep	780666876
10	NYIRANGWIJIMANA CLAUDINA	FARMER	Musanze	Goats&Sheep	789579235
11	NSHIMIYIMANA FABIEN	FARMER	Musanze	Goats&Sheep	788257007
12	MUKANOHELI SORINA	FARMER	Musanze	Goats&Sheep	786291681
13	IMANANIYIBIZI CHRISTIAN	FARMER	Musanze	Goats&Sheep	781475501
14	MARIBANE SIMON	FARMER	Musanze	Goats&Sheep	789374171
15	UWIMANA WELLARS	FARMER	Musanze	Goats&Sheep	7856691196
16	SHIRIMPUHWE RABURENI	FARMER	Musanze	Goats&Sheep	785334965
17	NTAWIHA REWOKADIYA	FARMER	Musanze	Goats&Sheep	789112929
18	NYIRANZAYINO DAMARCE	FARMER	Musanze	Goats&Sheep	783694309
19	HARERIMANA ALPHONSE	DASI	Musanze	Goats&Sheep	788490534
20	NDAMIMANA GERARD	FARMER	Musanze	Goats&Sheep	784084028
21	BENIMANA DAMOUR	FARMER	Musanze	Goats&Sheep	788814958
22	KATAVUGAHO FABIEN	FARMER	Musanze	Goats&Sheep	783189749
23	HABIYAREMYE EMMANUEL	FARMER	Musanze	Goats&Sheep	783725605
24	UWANYIRIGIRA ELIAB	FARMER	Musanze	Goats&Sheep	788374387
25	NZIRABAKUZE J. DE DIEU	FARMER	Musanze	Goats&Sheep	783387140
26	NIYONKURU DANIEL	FARMER	Musanze	Goats&Sheep	782787495

27	NSABIMANA EMMANUEL	FARMER	Musanze	Goats&Sheep	788917439

V. (G) ATTENDANCE LIST OF STAKEHOLDERS ATTENDING GROUP DISCUSSION IN LINE OF DRAFTING OF LIVESTOCK DEVELOPMENT STRATEGY On 16th October 2023 / RUBAVU

NO	NAME	POSITION	INSTITUTION/DISTRICT	VALUE CHAIN	PHONE NUMBER
1	NSINGIRANKABO J. PIERRE	UMUCURUZI	BUSHERI ISUBIRIZA IGIHE		789091963
2	RUGERO SAMUEL	DASI	MINAGRI		788406603
3	NSHIMIYIMANA THEONESTE	UMUCURUZI	SOCOVIRU LTD		785731102
4	BADAGA JEAN	UMUCURUZI	SHIRINYOTA		788560668
5	UWURUKUNDO ANASTASIE	UMUCURUZI	KAIRU		788788151
6	MUTAGA PATRICK	UMUCURUZI	SAMU ENTREPRISE		783182233
7	IRANKUNDA FAUSTIN	UMUCURUZI	KOOAR		784454666
8	KALISA ROBERT	DARO	RUBAVU DISTRICT		788324049
9	UWIMBABAZI EDITH	UMUCURUZI W'AMATA		SHEEP	785733030
10	ZANINKA ACINATHA	VETERNAIRE	GISENYI SECTOR		783610149
11	KAYIRANGA FELECIEN	SECRETARY	TURI-UMWE COPERATIVE		783905343
12	NKUNDALISE EVARISTE	UMUGENZUZI	SOCIETE ABIHUJE		784138373
13	DUSHIMIYIMANA EMMANUEL	UMUCURUZI W'INYAMA		MEAT	788338844
14	IMANIRAKIZA INNOCENT	VETERNAIRE	TREBUCO		785272350
15	MUHOZA YUSUFU				788552319

V. (H) ATTENDANCE LIST OF STAKEHOLDERS ATTENDING GROUP DISCUSSION IN LINE OF DRAFTING OF LIVESTOCK DEVELOPMENT STRATEGY On 10th October 2023 / HUYE

NO	NAME	POSITION	INSTITUTION/DISTRICT	VALUE CHAIN	PHONE NUMBER
1	GATERA LAURENT	MEMBRE	RNDDP	FEED	788421628
2	MUNYURANGAB	PRESIDENT	RNDP	DAIRY	784520589

	O LEOPOLD				
3	MURINDANGABO J.PIERRE	V/ PRESIDENT	RNDP-RUDOCO LTD		788771678
4	BIGIRIMANA J.DAMASCENE	PRESIDENT	KIDACO		788642929
5	AYINKAMIYE REHEMA	MANAGER	INYAMBO FRESH DAIRY	MILK	788627715
6	ATEYIMBABAZI CALLIXTE	MARKETING	ZIRAKAMWA INEZA DAIRY	MILK	785362472