



Ministry of Agriculture, Livestock,
Fisheries and Cooperatives

KNBS
KENYA NATIONAL
BUREAU OF STATISTICS
keeping you informed

Kenya National Bureau
of Statistics



March 2022

**Census of Commercial &
Institutional Farms and
Specialty Crops**

**KENYA
VISION 2030**

**CENSUS OF COMMERCIAL &
INSTITUTIONAL FARMS AND SPECIALTY
CROPS**

Kenya National Bureau of Statistics
Real Towers, Upper Hill
P.O. Box 30266 - 00100 Nairobi, Kenya
Tel: +254-20-3317583 / +254-20-3317612 / +254-20-3317586
Email: info@knbs.or.ke / directorgeneral@knbs.or.ke
Facebook: @Kenya National Bureau of Statistics (KNBStats)
Twitter: @KNBStats
Website: www.knbs.or.ke

© 2022 Kenya National Bureau of Statistics

ISBN: 978-9914-748-01-7.

Published 2022

All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording or other electronic or mechanical methods, without the prior written permission of the Bureau except in the brief quotations embodied in reviews and certain other non-commercial uses permitted by the copyright laws

Table of Contents

| | |
|--|-------------|
| Table of Contents | iii |
| List of Tables | vii |
| List of Figures..... | xi |
| Annexes | xiii |
| Abbreviations and Acronyms..... | xv |
| Acknowledgement | xvi |
| Foreword..... | xvii |
| Executive Summary | xix |
| Chapter 1..... | 1 |
| 1.1 Introduction | 1 |
| 1.2 Objectives of the CCIFSC 2020..... | 2 |
| 1.3 Concepts and Definitions | 2 |
| 1.3.1 Agricultural Holding..... | 2 |
| 1.3.2 Establishment..... | 2 |
| 1.3.3 Economic Activities..... | 3 |
| 1.3.4 Main Activity (Principal activity)..... | 3 |
| 1.3.5 Total number of persons employed..... | 3 |
| 1.3.6 Total number of persons employed excludes | 3 |
| 1.3.7 Expenditure items..... | 4 |
| 1.3.8 Fixed assets on agricultural holding in 2019..... | 4 |
| 1.3.9 Land improvements..... | 5 |
| 1.3.10 Residential buildings..... | 5 |
| 1.3.11 Non-residential buildings..... | 5 |
| 1.3.12 Construction works | 5 |
| 1.3.13 Transport equipment | 5 |
| 1.3.14 Machinery and other equipment | 5 |
| 1.3.15 IT equipment..... | 5 |
| 1.3.16 Cost of materials for own-account fixed assets formation or major repair | 6 |
| Chapter 2..... | 7 |
| Census Methodology and Census Organization..... | 7 |
| 2.0 Introduction | 7 |
| 2.1 Census Frame | 7 |
| 2.2 Census Instruments | 7 |

| | |
|---|-----------|
| 2.3 Management of the Census..... | 8 |
| 2.3.1 Pilot Census..... | 8 |
| 2.3.2 Recruitment and training..... | 8 |
| 2.3.3 Field logistics and implementation..... | 9 |
| 2.3.4 Data processing..... | 9 |
| 2.4 Challenges..... | 10 |
| Chapter 3..... | 11 |
| Crop Farming in open fields | 11 |
| 3.1 Area of Agricultural Holding..... | 11 |
| 3.2 Proportion of the Total production sold for field crops by Category..... | 21 |
| 3.2.1 Food crops..... | 21 |
| 3.2.2 Fruits..... | 22 |
| 3.2.3 Vegetables..... | 22 |
| 3.2.4 Roots and Tubers..... | 23 |
| 3.2.5 Pasture and Fodder..... | 23 |
| 3.3 Proportion of the Total Production of Field Crops Used as Seed..... | 23 |
| 3.4 Post-Harvest Losses versus Total Production by Category..... | 24 |
| 3.4.1 Food Crops..... | 24 |
| 3.4.2 Fruits..... | 25 |
| 3.4.3 Industrial Crops..... | 25 |
| 3.4.4 Pasture and Fodder..... | 26 |
| 3.4.5 Vegetables..... | 26 |
| 3.4.6 Nuts and Oil Crops..... | 26 |
| 3.5 Proportion of Total Production in Stock by End of December 2019 | 27 |
| 3.5.1 Food Crops..... | 27 |
| 3.5.2 Fruits..... | 27 |
| 3.5.3 Industrial Crops..... | 28 |
| 3.5.4 Pasture and Fodder..... | 28 |
| 3.5.5 Root and Tubers Crops..... | 29 |
| 3.5.6 Vegetables..... | 29 |
| 3.5.7 Nuts and Oils Crops..... | 29 |
| 3.6 Value of Total Production and Other Utilization Categories by Crop and by Category | 30 |
| 3.6.1 Crops | 30 |
| 3.7 Material Inputs..... | 31 |
| 3.7.1 Fertilizer Use..... | 31 |
| 3.7.2 Frequency of Fertilizer Use on Food Crops..... | 32 |

| | | |
|-------------------------------------|--|-----------|
| 3.7.3 | Use of Fertilizer on Industrial Crops | 33 |
| 3.8 | Use of Foliar Feed on Field Crops during the Year 2019 | 34 |
| 3.8.1 | Frequency of Foliar Feed Use during the Year 2019 on Top 16 Crops | 35 |
| 3.9 | Distribution Frequency of Use of Manure on Field Crops in 2019 | 36 |
| 3.10 | Water Used during the year 2019 per crop | 39 |
| 3.11 | Frequency of Seeds Use during the Year 2019 per Crop..... | 39 |
| 3.12 | Frequency of Herbicides Used | 40 |
| 3.13 | Frequency of Fungicides Used During the Year 2019 per Crop..... | 40 |
| 3.14 | Frequency of Pesticides Used During the Year 2019 per Crop | 41 |
| 3.15 | Frequency of Plant Hormones Used During the Year 2019 per Crop..... | 42 |
| 3.16 | Frequency of Fuel Used During the Year 2019 per Crop..... | 43 |
| 3.17 | Frequency of Lubricants Used During the Year 2019 per Crop | 43 |
| 3.18 | Frequency of Grease Used During the Year 2019 per Crop..... | 44 |
| 3.19 | Frequency of Electricity Used During the Year 2019 per Crop | 45 |
| 3.20 | Packaging Material..... | 45 |
| 3.21 | Distribution of Frequency of Bags Used During the Year 2019 per Crop..... | 46 |
| 3.22 | Frequency of Mulching Material Used During the Year 2019 per Crop | 47 |
| 3.23 | Frequency of Protective Clothing Purchased for Farm Employees Used During the Year 2019 | 47 |
| 3.24 | Frequency of Office Expenses Used During the Year 2019 per Crop..... | 48 |
| 3.25 | Frequency of Purchase of Spares and Maintenance of Machinery Used During the Year 2019 per Crop | 49 |
| Chapter 4..... | | 50 |
| Cattle Production | | 50 |
| 4.1 Dairy Cattle | | 50 |
| 4.1.1 | Distribution of Dairy Breeds | 51 |
| 4.1.2 | Dairy Revenue | 52 |
| 4.2 Beef Cattle | | 55 |
| 4.2.1 | Beef Production Systems | 55 |
| 4.3 Dual Purpose Cattle..... | | 56 |
| 4.3.1 | Production Systems..... | 56 |
| 4.4 Meat Goats..... | | 58 |
| 4.4.1 | Production systems | 58 |
| 4.5 Wool Sheep..... | | 59 |
| 4.5.1 | Wool Sheep Production Systems | 59 |
| 4.5.2 | Wool Sheep Distribution | 60 |

| | |
|---|-----------|
| 4.6 Meat Sheep | 61 |
| 4.7.1 Meat Sheep Production Systems..... | 62 |
| 4.8 Material Inputs in the Livestock | 63 |
| 4.9 Labour and service inputs Value..... | 66 |
| Chapter 5..... | 70 |
| Fisheries and Aquaculture..... | 70 |
| 5.1 Aquaculture Holdings 2019 | 70 |
| 5.2 Aquaculture Species..... | 71 |
| 5.3 Aquaculture Holdings Stocks..... | 71 |
| 5.4 Aquaculture Holdings Production..... | 74 |
| 5.5 Farm Gate Prices for Output..... | 75 |
| 5.6 Aquaculture Holdings Products Utilization..... | 75 |
| 5.7 Preservation Methods..... | 77 |
| 5.8 Material Inputs..... | 78 |
| 5.9 Service Inputs..... | 79 |
| 5.10 Labour | 80 |
| Annexes | 82 |

List of Tables

| | |
|--|----|
| Table 3.1: Distribution of agricultural holdings by size, 2019..... | 11 |
| Table 3.2: Proportion of total area by Type of Agricultural holding Per cent..... | 14 |
| Table 3.3: Percentage distribution of the system of irrigation by crop | 19 |
| Per cent..... | 19 |
| Table 3.4: Number and proportion of agricultural holdings by crop | 20 |
| Table 3.5: Proportion of the total area planted for Field Crops (top 8)..... | 20 |
| Table 3.6: Distribution of the total area Harvested and proportion sold | 21 |
| Table 3.7: Production of selected permanent crops..... | 21 |
| Table 3.8: Total production of food crops and proportion sold by type of food crop | 22 |
| Table 3.9: Total production of fruits and proportion sold by type of fruit..... | 22 |
| Table 3.10: Total production of vegetables and proportion sold by type of vegetable..... | 23 |
| Table 3.11: Total production of Roots and Tubers and quantity sold by type of Roots and Tubers | 23 |
| Table 3.12: Proportion of the Total Production of Field Crops Used as Seed | 24 |
| Table 3.13: Proportion of the Total Production Food Crops and Post-Harvest losses by Type of Food Crop | 24 |
| Table 3.14: Proportion of the Total Production Fruits and post-harvest losses by type of Fruit | 25 |
| Table 3.15: Proportion of the Total Production of Industrial Crops and post-harvest losses by type of crop..... | 25 |
| Table 3.16: Total Production of Pasture and Fodder Crops and percentage of Post-Harvest Loses | 26 |
| Table 3.17: Proportion of the Total Production of Vegetables and proportion of Post-harvest losses by Type of Vegetable..... | 26 |
| Table 3.18: Proportion of the Total Production of Nuts and Oil Crops and share of Post-Harvest Loses | 27 |
| Table 3.19: Proportion of Total Production of food crops held as Stock by End of December 2019 | 27 |
| Table 3.20: Proportion of Total Production of fruits held as Stock by End of December 2019.. | 28 |
| Table 3.21: Proportion of Total Production of Industrial Crops held as Stock by End of December 2019..... | 28 |
| Table 3.22: Proportion of Total Production of Pasture and Fodder held as Stock by End of December 2019..... | 28 |
| Table 3.23: Proportion of Total Production of Root and Tubers Crops held as Stock by End of December 2019..... | 29 |

| | |
|---|----|
| Table 3.24: Proportion of Total Production of Vegetables held as Stock by End of December 2019 | 29 |
| Table 3.25: Proportion of Total Production of Nuts and Oils crops held as Stock by End of December 2019 | 30 |
| Table 3.26 Value of Total Production and Other Utilization stages by crop Category | 30 |
| Table 3.27: Value of Total Production and Proportion of Other Utilization Stages by Crop Category | 31 |
| Table 3.28: Other income associated with farming under field crops | 31 |
| Table 3.29: Distribution of frequency of Fertilizer Use during the Year 2019 on All Field Crops | 32 |
| Table 3.30: Frequency of Fertilizer Use on Food Crops | 32 |
| Table 3.31: Use of Fertilizer on Industrial Crops | 34 |
| Table 3.32: Frequency of Foliar Feed Use During the Year 2019 on Top 16 Crops | 34 |
| Table 3.33: Distribution Frequency of Use Manure on Field Crops in 2019 | 38 |
| Table 3.34a: Distribution of Frequency of Water Use by Month | 39 |
| Table 3.34b: Distribution of Frequency of Water Use by Crop | 39 |
| Table 3.35a Distribution of Frequency of Seeds Use by Month | 39 |
| Table 3.35b: Distribution of Frequency of Seeds Use by Crop | 40 |
| Table 3.36a: Distribution of Frequency of Herbicides Use by Month | 40 |
| Table 3.36b: Distribution of Frequency of Herbicides Use by crop | 40 |
| Table 3.37a: Distribution of Frequency of Fungicides Use by Month | 41 |
| Table 3.37b: Distribution of Frequency of Fungicides Use by Crop | 41 |
| Table 3.38a: Distribution of Frequency of Pesticides Use by Month | 41 |
| Table 3.38b: Distribution of Frequency of Pesticides Use by Crop | 42 |
| Table 3.39a: Distribution of Frequency of Plant Hormones Use by Month | 42 |
| Table 3.39b: Distribution of Frequency of Plant Hormones Use by Crop | 43 |
| Table 3.40: Distribution of Frequency of Fuel Use by Month | 43 |
| Table 3.41a: Distribution of Frequency of lubricants use by month | 44 |
| Table 3.41b: Distribution of Frequency of Lubricants Use by Crop | 44 |
| Table 3.42a: Distribution of Frequency of Grease Use by Month | 44 |
| Table 3.42b: Distribution Frequency of Grease Use by Crop | 44 |
| Table 3.43a: Distribution Frequency of Electricity Use by Month | 45 |
| Table 3.43b: Distribution Frequency of Electricity Use by Crop | 45 |

| | |
|---|----|
| Table 3.44a: Distribution Frequency of Cartons Use by Month | 45 |
| Table 3.44b: Distribution Frequency of Cartons Use by Crop | 46 |
| Table 3.45a: Distribution Frequency of Bags Use by Month..... | 46 |
| Table 3.45b: Distribution Frequency of Bags Use by Crop..... | 46 |
| Table 3.46a: Distribution Frequency of Mulching Use by Month | 47 |
| Table 3.46b: Distribution Frequency of Mulching Use by Crop | 47 |
| Table 3.47: Frequency of Protective Clothing Purchased for Farm Employees Used During the Year 2019..... | 48 |
| Table 3.48a: Distribution Frequency of Office Expenses Use by Month..... | 48 |
| Table 3.48b: Distribution Frequency of Office Expenses Use by Crop..... | 48 |
| Table 3.49a: Distribution Frequency of Purchase of Spares and Maintenance of Machinery by Month..... | 49 |
| Table 3.49b: Distribution Frequency of Purchase of Spares and Maintenance of Machinery Use by Month | 49 |
| Table 4.1: Distribution of Dairy Agricultural Holdings by Breed by County | 52 |
| Table 4.2: Dairy Cattle Production and Revenue, 2019..... | 53 |
| Table 4.3: Distribution of Dual Purpose Cattle Agricultural Holdings by Breed..... | 57 |
| Table 4.4: Agricultural Holdings Rearing Dual Purpose Cattle by Breed by County | 58 |
| Table 4.5: Meat Goat Production Systems by Agricultural Holdings by County..... | 59 |
| Table 4.6: Distribution of Agricultural Holdings with Wool Sheep Population by Breed and by County..... | 60 |
| Table 4.7: Distribution of Meat Sheep Agricultural Holdings by Breed by County..... | 61 |
| Table 4.8: Distribution of Sheep Production Systems by Sheep Type by County | 63 |
| Table 4.8: Material Inputs in Livestock Production..... | 64 |
| Table 4.8: Material Inputs in Livestock Production Contd' | 65 |
| Table 4.8: Material Inputs in Livestock Production Contd' | 66 |
| Table 4.9: Labour and Service Inputs Value | 67 |
| Table 4.9: Labour and Service Inputs Value Contd' | 68 |
| Table 4.9: Labour and Service Inputs Value Contd' | 69 |
| Table 5.1: Distribution of type of production units by mode of aquaculture..... | 70 |
| Table 5.2: Distribution of holdings by aquaculture production system and size (area/volume) 71 | 71 |
| Table 5.3: Initial quantities of fish stock in commercial aquaculture holdings unit..... | 73 |
| Table 5.4: Quantities and value of fish purchased for production in 2019 | 74 |

Table 5.5: Quantities of fish available in commercial holdings at January 2020..... 77

Table 5.6: Quantities and values of material inputs in aquaculture holdings 2019..... 78

List of Figures

| | |
|--|----|
| Figure 3.1: Proportion of agriculture holdings by size | 11 |
| Figure 3.2: Percentage distribution of agricultural holdings by type of establishment | 12 |
| Figure 3.3: Distribution of Agricultural Holdings by County | 13 |
| Figure 3.4: Percentage distribution of total Acreage by Tpe of Agricultural Holdings..... | 14 |
| Figure 3.5: Distribution of Total Area of Agriculture Holdings by County..... | 15 |
| Figure 3.6: Percentage Distribution of total acreage of Household Agricultural Holdings by County..... | 17 |
| Figure 3.7: Distribution of total acreage of Enterprise/Company Holdings by County..... | 18 |
| Figure 3.8: Distribution of System of Crop Production in Commercial Farms..... | 19 |
| Figure 3.9: Frequency of Fertilizer Use During the Year 2019..... | 32 |
| Figure 3.10: Frequency of Fertilizer Use on Maize and Wheat, 2019 | 33 |
| Figure 3.11: Frequency of Fertilizer Use on Selected Industrial Crops, 2019 | 33 |
| Figure 3.12: Use of Foliar Feed on Field Crops during the Year 2019..... | 35 |
| Figure 3.13: Frequency of Foliar Feed Use for Selected Crops, 2019..... | 36 |
| Figure 3.14: Distribution Frequency of Use Manure on Field Crops, 2019..... | 36 |
| Figure 3.15: Frequency of Manure Use on Maize, Sugar Cane and Coffee, 2019 | 37 |
| Figure 4.1: Distribution of Dairy Production Systems, 2019 | 50 |
| Figure 4.2: Distribution of Dairy Agricultural Holdings by Breed Reared, 2019 | 51 |
| Figure 4.3: Revenue (KSh) from Sales of Dairy, Beef and Dual Cattle 2019 | 54 |
| Figure 4.4: Distribution of Agricultural Holdings by Beef Production Systems, 2019 | 55 |
| Figure 4.5: Percentage Agricultural Holdings by Type of Beef Breed..... | 56 |
| Figure 4.6: Dual Purpose Agricultural Holdings Production Systems..... | 56 |
| Figure 4.7: Agricultural Holdings by Dual Purpose Breed..... | 57 |
| Figure 4.8: Wool Sheep Production Systems, 2019 | 60 |
| Figure 4.9: Percentage Agricultural Holdings by Meat Sheep Breeds | 61 |
| Figure 4.10: Percentage distribution of Mutton Sheep Production Systems in Kenya..... | 62 |
| Figure 5.1: Proportions of Reared Species by Aquaculture Holdings..... | 71 |
| Figure 5.2: Aquaculture Holdings Stocks | 72 |
| Figure 5.3: Broodstock Holdings Stocks..... | 72 |
| Figure 5.4: Quantity of Table size fish | 73 |
| Figure 5.5: Quantities of fingerlings produced in year 2019 | 75 |

| | |
|---|----|
| Figure 5.6: Utilization of fish and fish products by commercial holdings | 76 |
| Figure 5.7: Preservation methods by holdings..... | 78 |
| Figure 5.8: Proportion of values of material inputs utilized in commercial Holdings 2019, (KSh) | 79 |
| Figure 5.9: Value of service inputs utilized in aquaculture holdings..... | 80 |
| Figure 5.10: Casual labourers engaged period..... | 81 |
| Figure 5.11: Regular laborer's engaged by gender | 81 |

Annexes

| | |
|--|-----|
| Annex 1: Distribution of the Total production and utilization of Field Crops by Crop | 82 |
| Annex 2: Distribution of the number of establishments by type and by county..... | 84 |
| Annex 3: Distribution of establishments by county..... | 85 |
| Annex 4: Value of Total Production and Other Utilization Categories by type of crop..... | 86 |
| Annex 5: Value of Total Production and Other Utilization Categories by type of fruit | 86 |
| Annex 6: Value of Total Production and Other Utilization Categories by type of industrial crop | 87 |
| Annex 7: Value of Total Production and Other Utilization Categories by type of nut..... | 87 |
| Annex 8: Value of Total Production and Other Utilization Categories by type of fodder..... | 87 |
| Annex 9: Value of Total Production and Other Utilization Categories by type of vegetable..... | 88 |
| Annex 10: Total Production Utilization by County and type of field crop..... | 89 |
| Annex 11: Total Production Utilization by County and type of fruit | 90 |
| Annex 12: Total Production Utilization by County and type of Industrial crops | 91 |
| Annex 13: Total Production Utilization by County and type of nut..... | 92 |
| Annex 14: Total Production Utilization by County and type of pasture and fodder | 92 |
| Annex 15: Total Production Utilization by County and type of root and tuber..... | 93 |
| Annex 16: Total Production Utilization by County and type of vegetable..... | 94 |
| Annex 17: Total Production Utilization of maize by County | 95 |
| Annex 18: Total Production Utilization of Bananas by County..... | 96 |
| Annex 19: Total Production Utilization of dry beans by County | 97 |
| Annex 20: Total Production Utilization of dry beans by County | 97 |
| Annex 21: Total Production Utilization of Irish Potatoes by County..... | 98 |
| Annex 22: Total Production Utilization of Cabbages by County..... | 98 |
| Annex 23: Total Production Utilization of Coffee by County..... | 99 |
| Annex 24: Total Production Utilization of Mangoes by County..... | 99 |
| Annex 25: Total Production Utilization of Rhodes Grass by County..... | 100 |
| Annex 26: Total Production Utilization of Rice (Paddy) by County | 100 |
| Annex 27: Total Production Utilization of Sugar Cane by County..... | 101 |
| Annex 28: Total Production Utilization of Tea by County | 101 |
| Annex 29: Total Production Utilization of Sisal by County..... | 102 |
| Annex 30: Total Production Utilization of Wheat by County..... | 102 |

| | |
|---|-----|
| Annex 31: Total Production Utilization of fodder Maize..... | 103 |
| Annex 32: Total Production Utilization of Macadamia Nuts by County | 103 |
| Annex 33: Total Production Utilization of Avocadoes by County..... | 103 |
| Annex 34: Total Production Utilization of Coconut by County..... | 104 |
| Annex 35: Total Production Utilization of Sorghum by County..... | 104 |
| Annex 36: Total Production Utilization of Pyrethrum by County | 104 |
| Annex 37: Total Production Utilization of Simsim by County | 105 |
| Annex 38: Total Production Utilization of Pea by County | 105 |
| Annex 39: Total Production Utilization of Cotton by County..... | 105 |
| Annex 40: Total Production Utilization of Cassava by County | 105 |
| Annex 41: Total Production Utilization of Sweet Potatoes by County..... | 106 |
| Annex 42: Distribution of Total Area Cropped by type of crop and county | 107 |
| Annex 43: Total Area Harvested..... | 108 |
| Annex 44: Production in Kilograms of Selected Crops by County | 109 |
| Annex 45: Distribution of bonus dividends by county | 110 |
| Annex 46: Changes in Fish stock, 2019..... | 111 |

Abbreviations and Acronyms

| | |
|----------|--|
| AFA | Agriculture and Food Authority |
| ASTGS | Agriculture Sector Transformation and Growth Strategy |
| CAADP | Comprehensive Africa Agriculture Development Programme |
| CAPI | Computer Assisted Personal Interviews |
| CCIFSC | Census of Commercial & Institutional Farms and Specialty Crops |
| COVID-19 | Coronavirus Disease |
| GDP | Gross Domestic Product |
| GoK | Government of Kenya |
| ISIC | International Standard of Industrial Classification |
| KCSAP | Kenya Climate Smart Agriculture Project |
| KNBS | Kenya National Bureau of Statistics |
| KPHC | Kenya Population and Housing Census |
| MOALF&C | Ministry of Agriculture, Livestock, Fisheries and Cooperatives |
| MTPs | Medium Term Plans |
| SDGs | Sustainable Development Goals |
| SPSS | Statistical Package for Social Statistics |

Acknowledgement

This report has been prepared following the collaborative efforts of the Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MoALF&C) and the Kenya National Bureau of Statistics (KNBS). The success of Census of Commercial & Institutional Farms and Specialty Crops (CCIFSC), 2020 was accomplished through concerted efforts of various institutions and personnel, with KNBS taking the lead role. Key to this success is the Government of Kenya (GoK) which availed funds to conduct the census and World Bank for providing technical and financial support through the Kenya Climate Smart Project (KCSAP) during the agriculture data analysis and report writing phase. Further, gratitude is extended to all other Government Officers, Research Assistants and other personnel who devoted themselves to this exercise to see the successful implementation of the CCIFSC.

I'm grateful to Mr. Robert K. Nderitu, the Director of Production Statistics, for the successful overall co-ordination of the project. I would like to thank the following other members of the Project management team for their commendable work including Patrick Mwaniki, Isaac Ndegwa, John G. Mburu, Rogers Mumo, Alphonse Orango, Sylvester M. Maingi, Benson N. Karugu and John Bore from the Bureau. Similarly, I appreciate the team from MOALF&C which played a key role including Tom Dienya, Jane Kioko, Benjamin Kibor, Juvinalis Orente and Stephen Ndegwa, among others.

Last but not least, all respondents deserve special appreciation for their willingness to participate in this exercise by providing the requisite information.



Macdonald G. Obudho, MBS

Director General, KNBS

Foreword

The Agriculture sector is a major contributor to national food security and economic development in the country. The performance of the sector therefore directly impacts on Gross Domestic Product (GDP) performance and general food and nutrition security of Kenyans. The Government has developed various plans such as the Vision 2030, Medium Term Plans, Big 4 agenda, Agriculture Sector Transformation and Growth Strategy (ASTGS) and is signatory to the Sustainable Development Goals (SDGs) and National Food and Nutrition Security policy framework 2017-2022 which require timely monitoring and evaluation.

The 2010 Global strategy for the improvement of agriculture and rural statistics recommended the development of a Strategic Plan for Agriculture and Rural Statistics (SPARS) to guide in the improvement of the sector statistics. Consequently, a SPARS was developed covering the period (2015-2022) in line with the recommendations of the 2010 Global Strategy. One of the key recommendations in the strategy is the development of master sampling frames for agriculture in a bid to improve the quality of agriculture statistics. As part of the development of the master sampling frame, it was deemed necessary to conduct a Census of Commercial & Institutional Farms and Specialty Crops. Further, the census served to close the statistical gap left when undertaking the 2019 Kenya Population and Housing Census (KPHC). The population census had a module on agriculture that targeted only conventional farming households.

The Commercial Farms, Institutional Farms and Specialty Crops (CCIFSC) was conducted by the Bureau in conjunction with the Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MOALF&C) in 2020. The overall objective of the CCIFSC was to collect data to be used in improving the quantity and quality of Agriculture statistics in line with the Global Strategy for the improvement of Agriculture and Rural Statistics. Specifically, the census was aimed at providing data that would be useful in addressing the data gaps of the agriculture sector such as number and area of all commercial farms, institutional and specialty crops in the country and by counties; Types of agricultural and livestock production by county; and Inputs and output quantities for individual farms by county.

The scope of CCIFSC was all large establishments (Household & Institutional) engaged in crop/livestock farming, aquaculture, apiculture and agroforestry. Special focus was also given to specialty crops due to their huge turnover. The CCIFSC was conducted countrywide over a period of 60 days. However, the exercise was interrupted by the Covid-19 pandemic. This was due to cessation of movement to contain the

spread of coronavirus. Covid-19 also affected the availability of respondents as many employees were required to work from home during the containment period.

The main focus of the report is on production, inputs (both material and service) and labour. The census also covered investment expenditure in the agriculture sector and assets.

It is hoped that the results of the CCIFSC will complement data collected during the Kenya Housing and Population Census of 2019. The data will also provide the establishment component of the agriculture master sampling frame. Other uses include addressing data gaps, updating the national accounts statistics, and responding to data user requests.



Mr. Saitoti Torome, CBS
Principal Secretary
The National Treasury and Planning
State Department for Planning
Treasury Building
Nairobi



Mr. Harry Kimtai, CBS
Principal Secretary
Ministry of Agriculture, Livestock, Fisheries
and Cooperatives
State Department for Livestock
Kilimo House

Executive Summary

The 2020 Census of Commercial & Institutional Farms and Specialty Crops (CCIFSC) was aimed at collecting data for use in improving the quantity and quality of agriculture statistics in line with the 2010 Global Strategy for the improvement of Agriculture and Rural Statistics. The census mainly targeted large scale commercial farms, institutional, and specialty crops in the agricultural sector. Specifically, the census targeted all agricultural households and registered enterprises/companies/firms that engaged in agricultural production and have an area of at least 25 acres (10 ha) as well as specialty crops whose threshold was below 25 acres. The reference period for the data collected was the 2019 calendar year.

Distribution of Agricultural Holdings

According to the CCFISC, the proportion of agricultural holdings with size between 25-125 acres was 75.8 per cent, while 9.6 per cent of the holdings reported sizes within the 126 to 750 acres range. Agricultural holdings of sizes less than 25 acres accounted for 12.8 per cent of the total. The share of agricultural holdings with size 750 acres and above was 7.2 per cent of the total.

The CCFISC further established the distribution of the total area of holdings by county. This established that Uasin Gishu, Kakamega and Trans Nzoia have the highest aggregate area of holdings, respectively regardless of the type while Isiolo had the least. The results also indicate that over 82 per cent of the production system is rain-fed. This explains the vulnerability experienced by farmers. A total of 14 per cent of the farms surveyed used pure irrigation while a paltry 3.7 per cent depended on both systems.

The census categorized farms based on the type of establishment, i.e. whether it was owned by a household, or by a company or enterprise and whether the farm was owned by an institution. On this basis, 85 per cent of the agricultural holdings were owned by households. Agricultural holdings managed by companies or enterprises accounted for 12 per cent of the total while 3 per cent were owned by institutions.

Crop Production

The results indicated that 41.3 per cent of the agricultural holdings relied on rainfall for crop production with maize, wheat, sugarcane tea and dry beans topping the list in that order. Of the agricultural holdings irrigating crops, tomatoes, maize, mangoes, bananas and watermelons were the leading crops in that order at 13.3, 12.4, 11.0 and 10.3 per cent, respectively. For, agricultural holdings undertaking partial irrigation. coffee, maize and Irish potatoes were the main crops with proportions of 14.8, 12.3 and 6.6 per cent, respectively.

Food crops

Irish potatoes and pearl millet had the highest levels of post-harvest losses are 5.6 per cent and 4.2 per cent of total production respectively. Paddy rice and dry beans recorded losses at 3.4 and 2.3 per cent of total production respectively. Sorghum post-harvest losses were at 2.1 per cent while

maize was 1.2 per cent of total production, respectively. Post-harvest losses for “Other crops” was less than 1 percent of total production.

Livestock

Dairy farming: under Zero grazing system was popular in areas with high land pressure e.g. Kiambu, Nakuru, Uasin Gishu, Kakamega and Nyeri counties. On the other hand, animals are left to graze in the open field and are enclosed in a cowshed at night. This was evidenced in Uasin Gishu, Bomet and Nakuru Counties. In the ranching production system, the animals are left to graze in the open fields common in areas with large chunks of grazing fields such as in Kajiado, Machakos and Uasin Gishu Counties. The friesian and ayrshire were found to be the preferred breeds across the country, with Kiambu, Uasin Gishu and Nakuru counties being host to majority of the Friesian herds.

Beef Cattle: The Boran breed is popular among the ranchers in Kenya whereas the zebus are popular among the pastoralists and agro-pastoralists. Zebu and Boran are indigenous Kenyan breeds hence their popularity. Charolais, Galloway and Hereford are exotic beef breeds which require intensive production systems which could explain their low populations (agricultural holdings).

Meat goat and sheep: Goat production is undertaken under all systems. However, ranching is the most common followed by rotational; and zero grazing. For meat sheep, dorper sheep was the most popular amongst farmers, followed by the Red Maasai breed. The romney marsh was reported in Nakuru County by two holdings. Samburu County had the highest number of meat sheep followed by Nakuru and Kiambu counties.

Wool sheep: Wool sheep production is practiced in cool regions of the country due to the climatic conditions that favour their rearing. The most common breeds of wool sheep are Merino, Corriedale and Hampshire down. Merino sheep was the most popular breed in the Country. West Pokot, Bomet and Meru counties reported the highest number of Merino breed of wool sheep. Corriedale wool sheep was found in Meru and Nakuru while hampshire down was in Nakuru, Nyeri and Nyandarua Counties.

Aquaculture: Commercial aquaculture holdings are dominantly at 91 per cent established in warm water while sparingly 9 per cent in the cold-water areas. In both cases, traditional earthen ponds was dominant with 75 per cent and 52.4 per cent of total aquaculture holdings in warm and cold areas, respectively. Overall, 73.0, 11.4, 6.5 and 3.3 per cent of holdings practiced fish rearing in earthen ponds, lined pond and cage system respectively. Overall, 56.9 per cent of the commercial aquaculture holdings practiced semi-intensive culture, with extensive and intensive system taking proportion of 31.7 and 11.4 per cent, respectively.

Aquaculture

Commercial aquaculture holdings are mostly established in warm water (91 per cent) while sparingly in the cold-water areas (9 per cent). In both cases, traditional earthen ponds were dominant with 73 per cent of total aquaculture holdings in warm and cold areas. Overall, 56.9 per cent of the commercial aquaculture holdings practiced semi-intensive culture, with extensive and intensive system taking proportion of 31.7 per cent and 11.4 per cent, respectively.

Chapter 1

1.1 Introduction

The agriculture sector is the backbone of Kenya's economy. It contributes nearly a quarter of the Gross Domestic Product (GDP). The sector is the source of livelihood for most of the rural population and contributes highly to the agro-processing sector. It is therefore inevitably the key to food security, wellbeing and reduction of poverty. Further, the sector is not only key to economic growth Kenya but also the determinant of equity in development, besides being fundamental to reducing poverty and hunger. It is therefore, of importance to have agriculture sector statistics that will guide the necessary monitoring, evaluation and policy interventions.

The quality and quantity of agricultural statistics in Kenya has deteriorated with time. This has been due to failure to undertake the requisite surveys and censuses. To address this challenge, a module was included in the 2019 Kenya Population and Housing Census (KPHC) which captured the basic agricultural statistics from all the conventional farming households in Kenya. However, the KPHC did not cover agricultural holdings within the establishments and institutions. To address this data gap, the Census of Commercial & Institutional Farms and Specialty Crops (CCIFSC) was conducted in the year 2020. Data collected in the CCIFSC referred to agricultural activities undertaken in the year 2019. CCIFSC is a reincarnation and further improvement of the former annual census of large farms which was discontinued in the early 1990's due to funding challenges. The large farms census used to be conducted in the former white highlands.

The information collected will inform policy formulation, monitoring and evaluation; compilation of reliable national accounts; monitor sector performance; and contribute to the decision-making process. Specifically, the statistics will inform the performance of the Agriculture Sector Transformation and Growth Strategy (ASTGS), Big Four Agenda, Medium Term Plans (MTPs), Sustainable Development Goals (SDGs) and Comprehensive Africa Agriculture Development Programme (CAADP).

The CCIFSC had the following broad components field crops, livestock and livestock products, apiculture, fishing and aquaculture, agro-forestry and fixed assets. The reference period of the census was year 2019.

1.2 Objectives of the CCIFSC 2020

The overall objective of the CCIFSC was to collect data to be used in improving the quantity and quality of Agriculture statistics in line with the Global Strategy for the improvement of Agriculture and Rural Statistics. Specifically, the census was to provide data that would be useful in informing the data needs of the agriculture sector such as:

- Number and area of all commercial farms, institutional as well as specialty farming in the country and by counties;
- Types of agricultural and livestock production by county; and
- Inputs and output quantities for by county and nationally, among others.

The data was collected under the Authority of the Statistics Act 2006 of the Laws of Kenya which empowers the Director General, Kenya National Bureau of Statistics to conduct censuses and surveys to inform planning and policy formulation.

1.3 Concepts and Definitions

1.3.1 Agricultural Holding

This consists of one or more land parcels, located in one or more separate areas or in one or more territorial or administrative units, provided the parcels are part of the same economic production unit and share the same production means, such as labour, farm buildings, machinery and draught animals.

1.3.2 Establishment

This is the smallest unit that can report the following items;

- Value of sales
- Cost of materials and supplies purchased
- Cost of energy and water utility purchased
- Opening and closing inventories
- Number of employees and their salaries and wages

An establishment can correspond to a unit such as a supermarket, a petrol station, a school, hospital etc. If the firm has more than one establishment, a separate questionnaire should be completed for each establishment. Each questionnaire should cover all the activities of the relevant establishment.

Agricultural Income: includes income in cash and/or in kind obtained from growing crops and raising livestock; it excludes income from a paid agricultural job.

1.3.3 Economic Activities

An economic activity is defined as the type of production in which a unit is engaged. The activity characteristic is the principal variable which determines whether or not a given statistical unit is included in the Agricultural sector. The kind of activity of the statistical unit is determined in terms of International Standards of Industrial Classifications of all economic activities Revision 4 (ISIC rev 4).

1.3.4 Main Activity (Principal activity)

The main activity of a producer unit is the activity whose value added exceeds that of any other activity carried out within the same unit. The main activity of the unit in general can be determined from the goods that the unit produces or the services that it renders to other units or consumers. An activity, undertaken by the unit, that contributes most to the value added of the unit, is called its main activity.

1.3.5 Total number of persons employed

The number of persons employed is defined as the total number of persons who work in or for the statistical unit, whether full-time or part time, including: working proprietors; unpaid family workers; Employees of which should include; persons working outside the unit who belong to it (e.g. sales representatives, delivery personnel, repair and maintenance teams) provided that they receive a regular salary from that unit; salaried managers and salaried directors of incorporated enterprises; persons on short-term leave (sick leave, annual leave or vacation); persons on special paid leave (educational or training leave, maternity or parental leave); persons on strike; part-time workers on the payroll; seasonal workers on the payroll; apprentices on the payroll; Outworkers on the payroll, paid for the work done.

1.3.6 Total number of persons employed excludes

Directors of incorporated enterprises and members of shareholders' committees who are paid solely for their attendance at meetings; labour made available to the unit by other units and charged for (contract workers, paid through contractor, persons carrying out repair and maintenance work in the unit on behalf of other units); persons on indefinite leave; persons on military leave; persons on pension; Outworkers paid by subcontractors (amount paid to subcontractors in respect of outworkers are treated as cost on Agricultural purchased).

No compensation of employees is payable in respect of unpaid work undertaken voluntarily, including the work done by the non-paid family workers. Payments to working proprietors not in receipt of a regular salary should be excluded.

1.3.7 Expenditure items

This section intends to measure the value of goods and services that are consumed as inputs by a process of production during the accounting period. It does not cover the expenditures on the acquisition of fixed assets.

Wages and salaries including related labour costs (Compensation of employees); is defined as the total remuneration, in cash or in kind, payable by the establishment to an employee in return for work done by the latter during the reference period. It should be recorded on an accrual basis; i.e., it is measured by the value of the remuneration in cash or in kind which an employee becomes entitled to receive from an employer in respect of work done during the relevant period, whether paid in advance, simultaneously or in arrears of the work itself. Compensation of employees does not include any taxes payable by the employer on the wage and salary bill i.e. payroll tax. Compensation of employees has two main components: (a) wages and salaries payable in cash or in kind and (b) social insurance contributions payable by employers.

Interest paid; interest is a form of property income that is receivable by the owners of certain kinds of financial assets, namely: deposits, securities other than shares, loans and other accounts receivable.

Transport of goods (freight by rail, road, sea, air), warehousing and storage; includes expenditure on services procured for passenger or freight transport, by rail, pipeline, road, water or air and associated activities such as terminal and parking facilities, cargo handling, storage etc. Included also is the renting of transport equipment with driver or operator.

Water and electricity includes expenditure on electricity and water consumed by the establishment in their processes of production (including office lighting and other office operation).

1.3.8 Fixed assets on agricultural holding in 2019

Fixed Assets

This refers to the value of additional fixed assets (whether procured new or old), and additions and improvements to existing fixed assets, including those made by the company's own labour force for its own use. This includes installation costs, professional fees, overheads, major repairs and alterations to existing assets if capitalized, own produced tangible goods valued at production costs (include labour cost and cost of materials used during the year, capital value of assets acquired during the year through direct purchase, finance leasing or hire purchase agreement (but exclude finance charges), items bought but leased under operational leasing agreements to other establishments.

If no break-down of fixed assets is available, the total value of fixed assets at the beginning and of the last fiscal year should be recorded.

1.3.9 Land improvements

Land improvements are the result of actions that lead to major improvements in the quantity, quality or productivity of land, or prevent its deterioration, are also treated as fixed capital formation. Activities such as land clearance, land contouring, creation of wells and watering holes which are integral to the land in question are to be treated as resulting in land improvements. The value of natural land before improvement is not included. However, the costs of ownership transfer on land improvements are included.

1.3.10 Residential buildings

These are buildings that are used entirely or primarily as residences, including any associated structures, such as garages, and all permanent fixtures customarily installed in residences. Houseboats, barges, mobile homes and caravans used as principal residences of households are also included.

1.3.11 Non-residential buildings

They consist of buildings other than dwellings, including fixtures, facilities and equipment that are integral parts of the structures. For new buildings, costs of site clearance and preparation are included. Examples of non-residential buildings are warehouses and industrial buildings, and commercial buildings and structures other than buildings, including the cost of roads, sewer, etc.

1.3.12 Construction works

These include structures other than buildings, including the cost of the streets, sewer, etc. The costs of site clearance and preparation are also included. Examples are shafts, tunnels and other structures associated with mining mineral and energy reserves, and the construction of sea walls, dykes flood barriers etc. intended to improve the quality and quantity of land adjacent to them.

1.3.13 Transport equipment

They consist of equipment for moving people and objects. This includes transport equipment, such as motor vehicles, trailers and semi-trailers; ships; railway and tramway locomotives and rolling stock; aircraft and spacecraft; and motorcycles, bicycles, etc.

1.3.14 Machinery and other equipment

They consist of machinery and equipment not elsewhere classified. Examples include general purpose machinery; special purpose machinery; office, accounting and computing equipment, electrical machinery and apparatus, radio, television and communication equipment and apparatus; and medical appliances, precision and optical instruments, watches and clocks etc.

1.3.15 IT equipment

These are devices using electronic controls and also the electronic components forming part of these devices. They include computer hardware and telecommunications equipment.

1.3.16 Cost of materials for own-account fixed assets formation or major repair

This item includes the cost of raw materials and other materials purchased or received by the establishment for the production by the unit itself of capital goods for its own use (or for rental or lease) and materials and parts used for own-account major repair on its own buildings, structures, machinery and other fixed assets. Included are materials and the like for the construction of employee-occupied dwellings and other staff facilities and for the major repair of all establishment-owned or rented buildings, except housing accommodation.

Chapter 2

Census Methodology and Census Organization

2.0 Introduction

The 2020 Census of Commercial & Institutional Farms and Specialty Crops (CCIFSC) aimed at collecting data for use in improving the quantity and quality of Agriculture statistics in line with the growing data needs, both nationally and internationally. To fulfil this, the census followed well guided criteria. Specifically, the census targeted all agricultural households and registered enterprises/ companies/ cooperatives/firms that engage in agricultural production and have an area of at least 25 acres (10 ha) as well as specialty crops whose largescale threshold is less than 25 acres. The reference period for the data collected was for the 2019 calendar year. Production therefore related to the long and short rains of the year 2019. However, in the case of irrigated agriculture, respondents provided aggregated information for as many production cycles as had taken place during the reference year. For perennial crops, production data referred to crop that was in the ground for more than one year. This is the case with crops such as sisal, coffee and tea among others.

2.1 Census Frame

The purpose of a census is to enumerate all units with a defined characteristic. However, for this particular census, the goal was to cover the holdings that met the above criteria. As a basis for the census, a list of all agricultural holdings (both households and firms) developed and maintained by the Ministry of Agriculture, Livestock, Fisheries and Cooperatives and the Agencies therein. This was in line with recommendations by Food and Agriculture Organization (2020) which indicate that an ideal frame for census of agriculture should be a list of all agricultural holdings, based on the operational definition of the agricultural holding adopted by the country, identifying each unit without omission or duplication and without including any units other than agricultural holdings. In addition, establishments that were not in the list but were found during enumeration were included.

The list had a total of 3,392 farmers/proprietors and it captured details such as the names and physical location of the operators of the holdings making it possible to track, identify and administer a questionnaire. The census also facilitated updating the list of commercial farms and green-houses by allowing the enumerators to interview other farm owners that met the set criteria but were not part of the frame.

2.2 Census Instruments

The census instruments included a questionnaire and interviewers' manual. The questionnaire was organized into six modules which were as follows:

- i. Crops production and inputs
- ii. Livestock production and inputs
- iii. Aquaculture production and inputs
- iv. Agroforestry production and inputs
- v. Apiculture production and inputs

An interviewers' manual was developed to ensure uniformity during training of enumerators and during data collection by standardizing concepts and definition.

2.3 Management of the Census

The census was implemented by the KNBS in collaboration with the MoALF&C; Agriculture and Food Authority (AFA) among other stakeholders. The Bureau oversaw the implementation of the census and was responsible for coordination of all aspects of the census including design, data collection, processing and analysis. At the apex were the KNBS Director General and Director Production Statistics who were responsible for policy direction and overseeing of the overall implementation of the census. The KNBS Senior Manager, Agriculture and Livestock and the Head of Statistics Unit, Ministry of Agriculture were responsible for the day-to-day administrative, logistical and technical operations of the census. Below the technical coordinators was a team of coordinators, supervisors and enumerators who played various roles.

2.3.1 Pilot Census

A pilot was undertaken to test various aspects of the census including the data collection instruments, methodology and field logistical arrangements put in place to implement the census. Specifically, the pilot tested the flow of questions in the questionnaire and the clarity of questions. This was essential as it allowed for the finalization of the questionnaire and recasting of questions to make them clearer or where necessary to update the manual to further explain unclear questions. The pilot activity was undertaken in 2016 and it covered 3 counties including Nakuru, Kajiado and Kiambu.

2.3.2 Recruitment and training

The data collection team, interviewers and supervisors, comprised of officers drawn from KNBS establishment and others recruited on a temporary basis. All supervisors were drawn from KNBS staff while all enumerators were recruited externally. A total of 48 supervisors and 144 enumerators were involved in the census.

Two levels of training were undertaken which included training of trainers and training of data collection personnel. This was done prior to the teams embarking on field data collection. The enumerators were exposed to interviewing skills which was followed by detailed explanation of the questions in the questionnaire to enable them collect high quality data.

2.3.3 Field logistics and implementation

Field data collection for the census took place for a period of 60 days. The data collection started in March 2020 but was halted midway due to outbreak of Coronavirus Disease (COVID-19) in the country. The teams resumed data collection in June 2020 and concluded field work in July 2020. There were 48 field teams, each comprising of three interviewers, one supervisor and a driver. The supervisors were responsible for field logistics and allocation of work to the interviewers while the interviewers were responsible for locating the holdings/farm operators and administering the questionnaire. On the ground to assist the teams locate the holdings of interest or that meet the threshold also were County Agriculture Extension staff.

Efforts were made to locate all the holdings/farms in the list and the questionnaire was administered to only those that met the set criteria. The method of data collection was majorly through face-to-face interviews using Computer Assisted Personal Interviews (CAPI). However, there were instances where hard copies of the questionnaires were left with respondents to fill and return to the interviewers.

2.3.4 Data processing

The questionnaire was programmed using ODK while the data collection was majorly done using CAPI. The collected data was transmitted to the KNBS central server and was also backed up in a cloud server and in the interviewers' tablets. Data security was achieved through several methods including data encryption, secure file transfer and passwords.

The collected data was analyzed using STATA and statistical Package for Social Statistics (SPSS), to produce descriptive statistics and cross-tabulations. The analysis employed International Standard of Industrial Classification (ISIC) revision 4.0. A broad categorization of the agricultural activities is as shown below:

- Growing of non-perennial crops (011)
- Growing of perennial crops (012)
- Plant propagation (013)
- Animal production (014)
- Mixed farming (015)
- Support activities to agriculture and post-harvest crop activities (016) and
- Hunting, trapping and related service activities (017)

2.4 Challenges

One of the major challenges experienced during implementation of the census was that a number of farms which were provided to the data collection teams were not covered. Reasons for under-coverage included:

- Failure of farmers to register their holding with the Ministry of Agriculture. However, the interviewers were instructed to enumerate any holding that met the set criteria for the census even if they were not part of the provided list;
- Unavailable/Incorrect physical address and telephone numbers thus making it difficult to locate the farms; and
- Refusal by some operators to respond.

The second challenge was the Covid-19 containment measures which were put in place to curb the spread that led to a temporary stoppage of data collection.

Chapter 3

Crop Farming in open fields

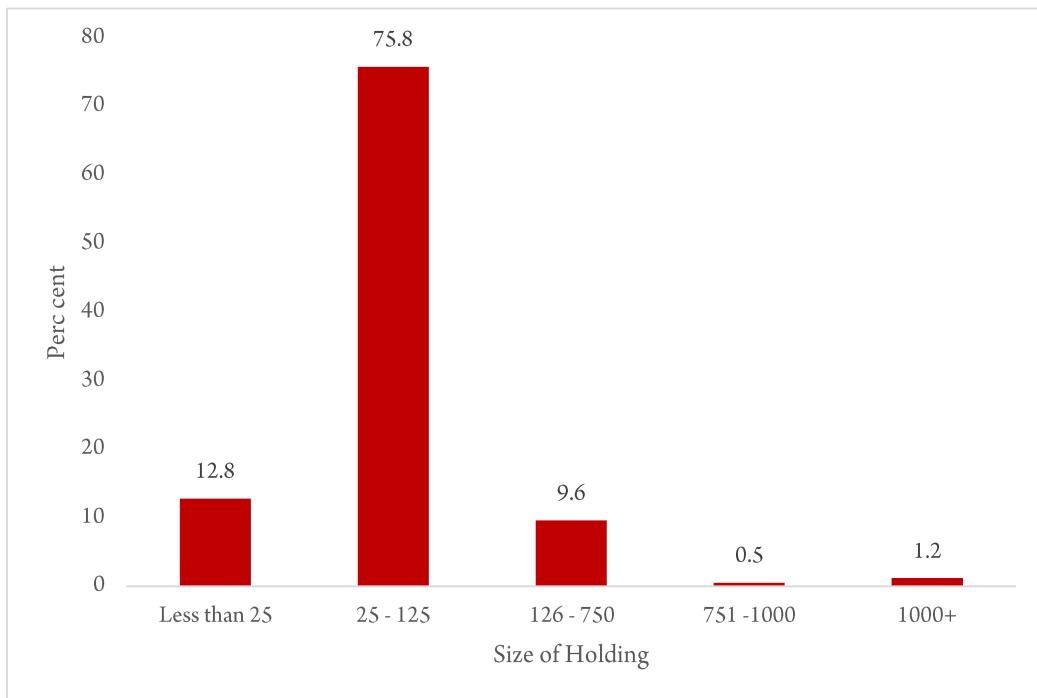
3.1 Area of Agricultural Holding

Table 3.1 and Figure 3.1 show the distribution of agricultural holdings by size. The proportion of the respondents with farms between 25-125 acres was 75.8 per cent, while 9.6 per cent owned farms with 126 to 750 acres. Thirteen per cent of the holdings had sizes less than 25 acres. The share of respondents with farm sizes greater than 750 acres was 1.7 per cent.

Table 3.1: Distribution of agricultural holdings by size, 2019

| Area of agriculture holding | Number | Per cent |
|-----------------------------|--------------|-------------|
| Total | 2,218 | 100 |
| Less than 25 | 285 | 12.8 |
| 25 - 125 | 1,681 | 75.8 |
| 126 - 750 | 214 | 9.6 |
| 751 -1000 | 11 | 0.5 |
| 1000+ | 27 | 1.2 |

Figure 3.1: Proportion of agriculture holdings by size



The census categorized farms based on the type of establishment, i.e. whether it was operated by a household, or a company or enterprise and/or an institution. On this basis, out of the total count of respondents, 85 per cent of the farms were operated by households. Farms managed by company or enterprises represent 12 per cent while 3 per cent are operated by institutions.

Figure 3.2: Percentage distribution of agricultural holdings by type of establishment

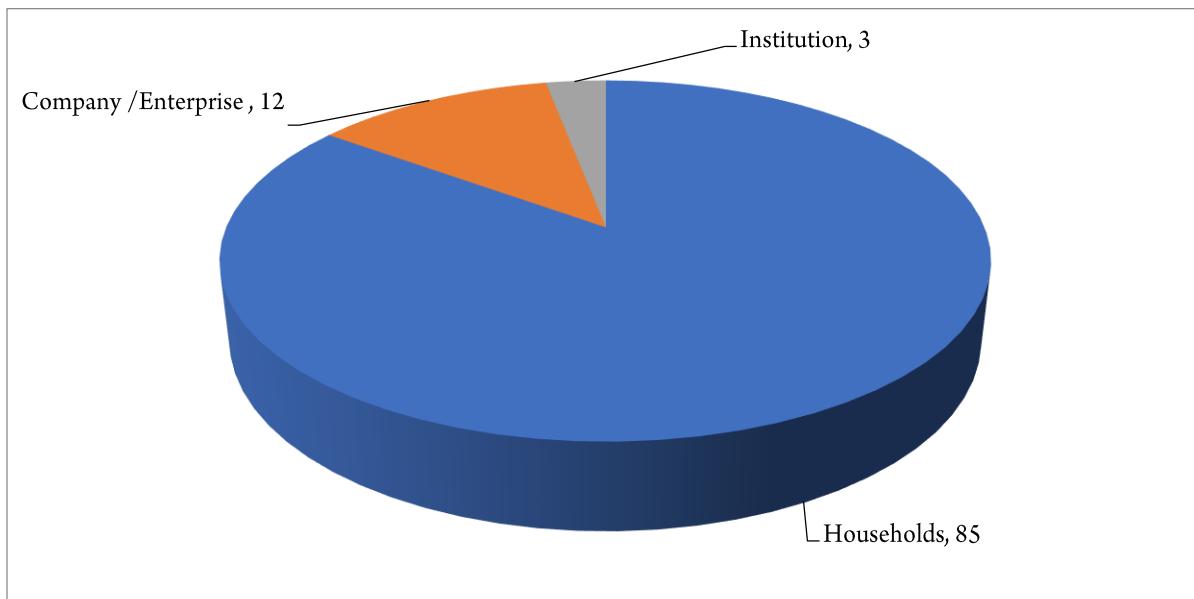


Figure 3.3 shows the distribution of agricultural holdings by county. Uasin Gishu had the highest number of agricultural holdings while Isiolo had the lowest.

Figure 3.3: Distribution of Agricultural Holdings by County

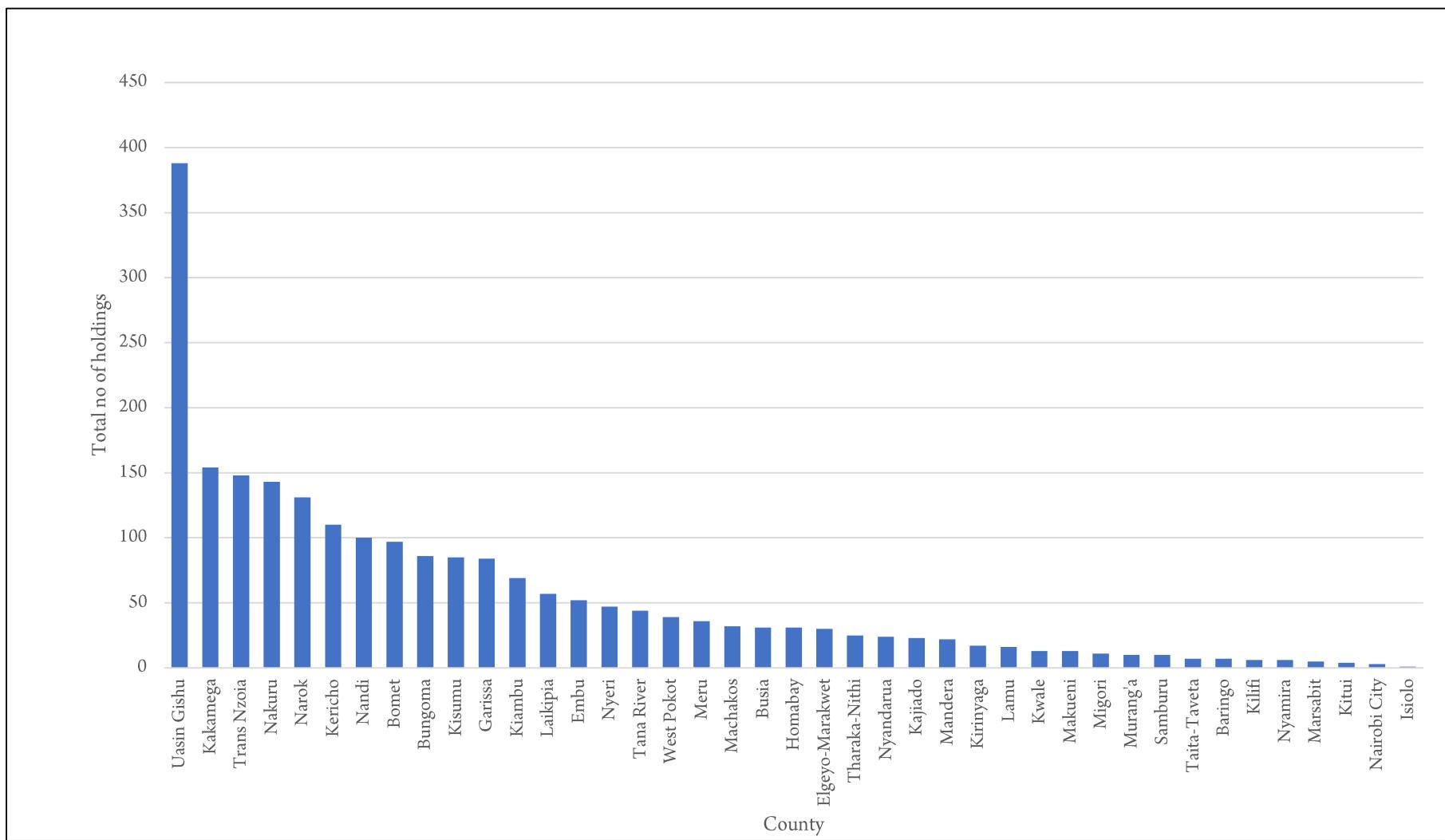


Figure 3.4 shows the distribution of total acreage by type of agricultural holdings. Households had the highest proportion of 46 per cent while the acreage of agricultural holdings operated by institutions accounted for 14 per cent. The share of area under enterprises/company was 40 per cent.

Figure 3.4: Percentage distribution of total Acreage by Tpe of Agricultural Holdings

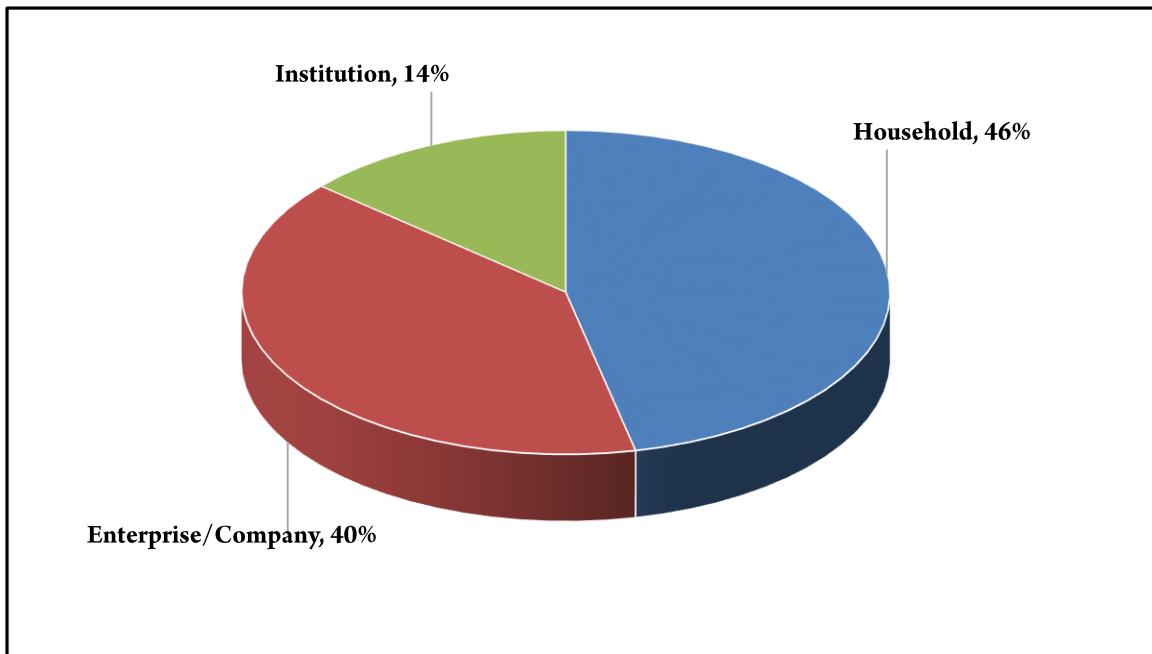


Table 3.2 shows the proportion of total area by type agricultural holdings. Household holdings with an area of between 25 -125 acres accounted for 51.5 per cent of the area under the household sector. Enterprise/company and Institutional holdings with farm sizes greater than 1000 acres accounted for 69.6 and 85.4 per cent, respectively, of the total acreage.

Table 3.2: Proportion of total area by Type of Agricultural holding Per cent

| Holding Size | Total Acreage | Type of Agricultural Holding | | |
|---------------|---------------|------------------------------|--------------------|-------------|
| | | Household | Enterprise/company | Institution |
| Total (Acres) | 265,422 | 123,557 | 105,688 | 36,177 |
| Less than 25 | 0.9 | 1.7 | 0.2 | 0.2 |
| 25 - 125 | 26.7 | 51.5 | 5.0 | 5.1 |
| 126 - 750 | 22.9 | 30.6 | 18.4 | 9.3 |
| 751 -1000 | 3.7 | 2.2 | 6.7 | 0.0 |
| 1000+ | 45.9 | 14.0 | 69.6 | 85.4 |

Figure 3.5 shows the distribution of total area of agricultural holdings by county. Taita Taveta had the highest total size of 33,155 acres. Most counties had a total acreage of less than 10,000 acres.

Figure 3.5: Distribution of Total Area of Agriculture Holdings by County

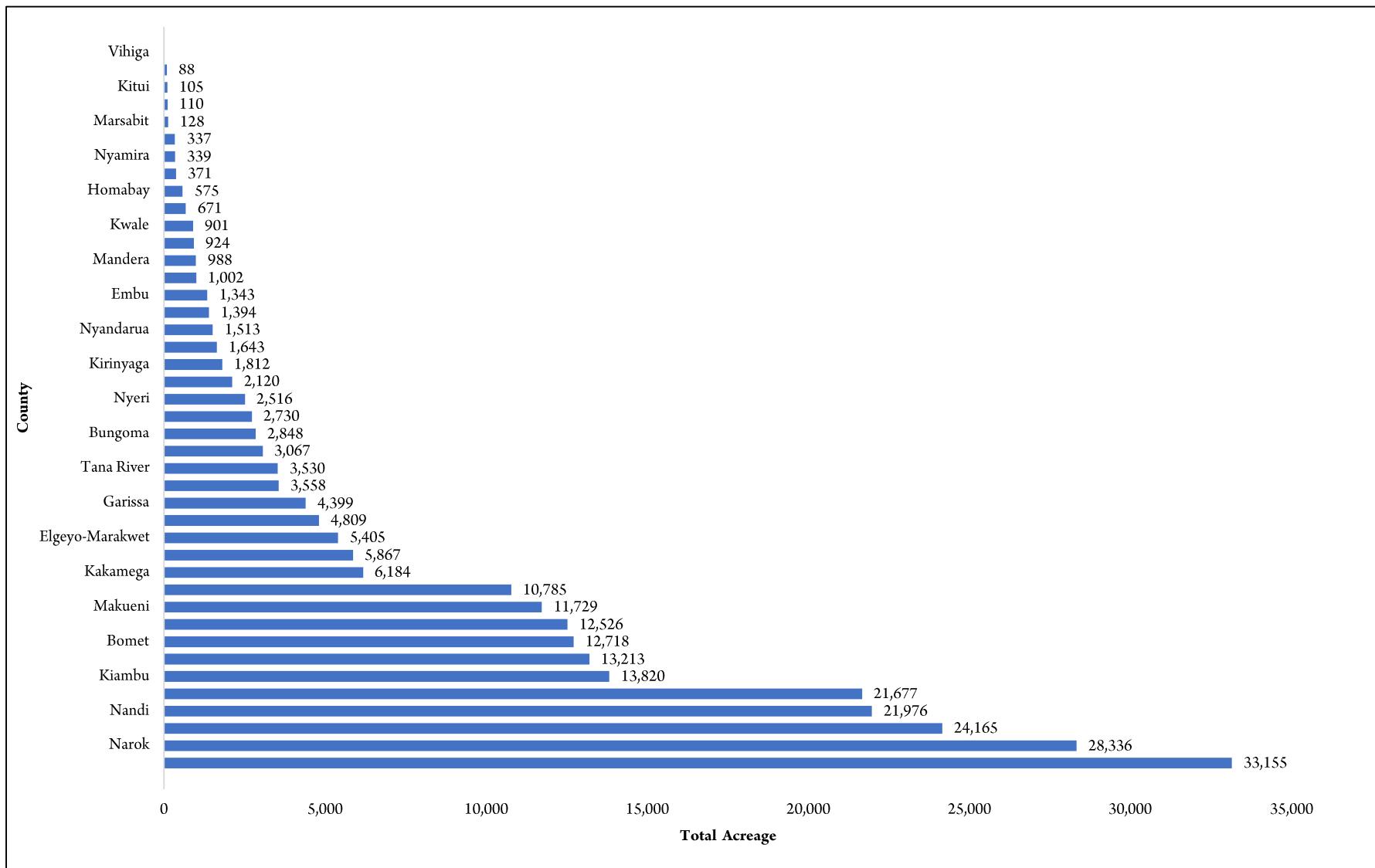


Figure 3.6 shows the proportion of total area of household agricultural holdings by county. Narok county had the highest proportion of the area of household agricultural holdings at 20.5 per cent. Uasin Gishu closely followed with a share of 16.8 per cent. Baringo county had the lowest proportion of the area of household agricultural holdings at 0.1 per cent.

Figure 3.6: Percentage Distribution of total acreage of Household Agricultural Holdings by County

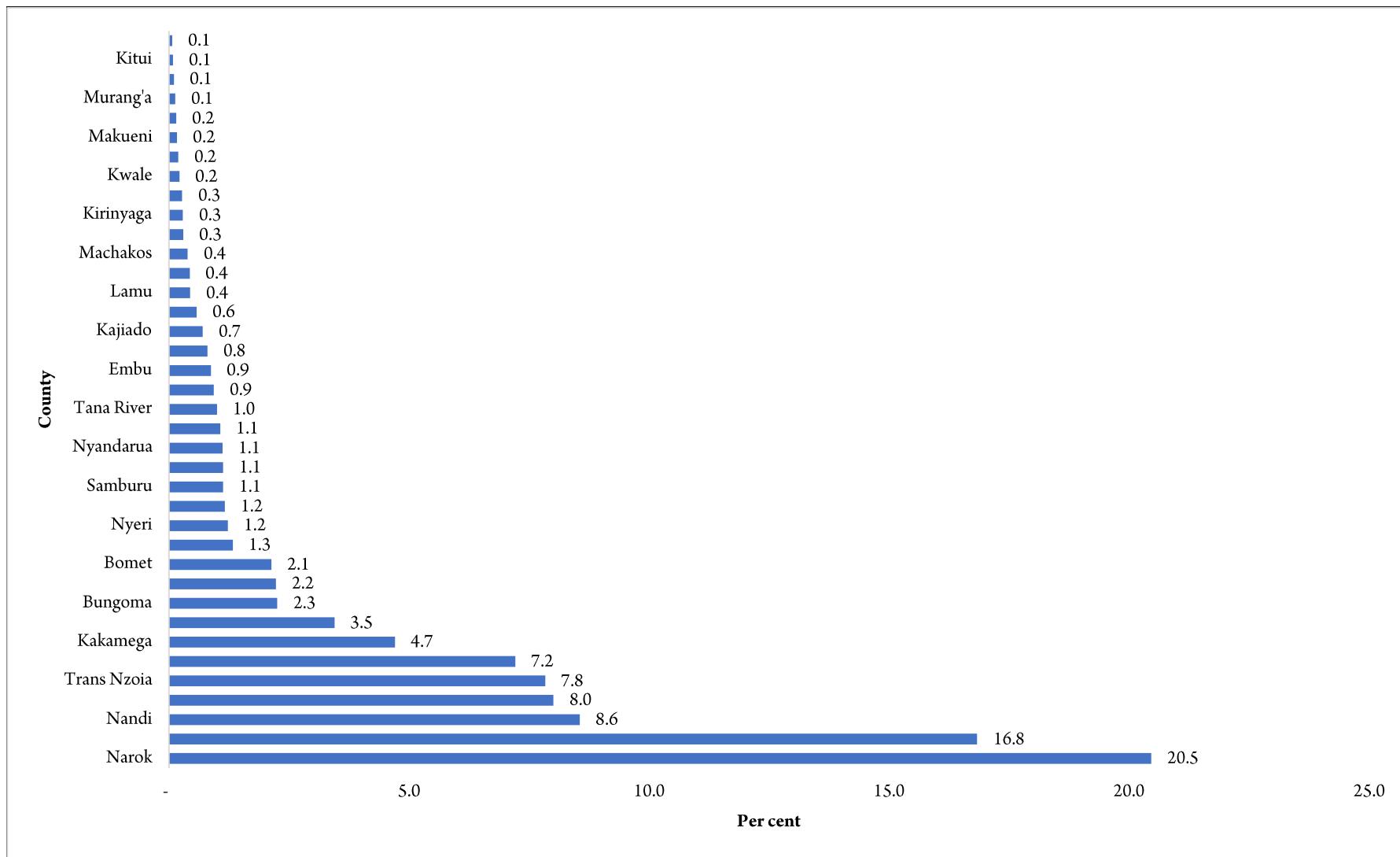


Figure 3.7 shows the proportion of total area of enterprise/company agricultural holdings by county. Kiambu county had the highest proportion of acreage of enterprise/company agricultural holdings at 12.3 per cent. Nakuru closely followed with a share of 11.7 per cent. Most counties had a share of less than five per cent.

Figure 3.7: Distribution of total acreage of Enterprise/Company Holdings by County

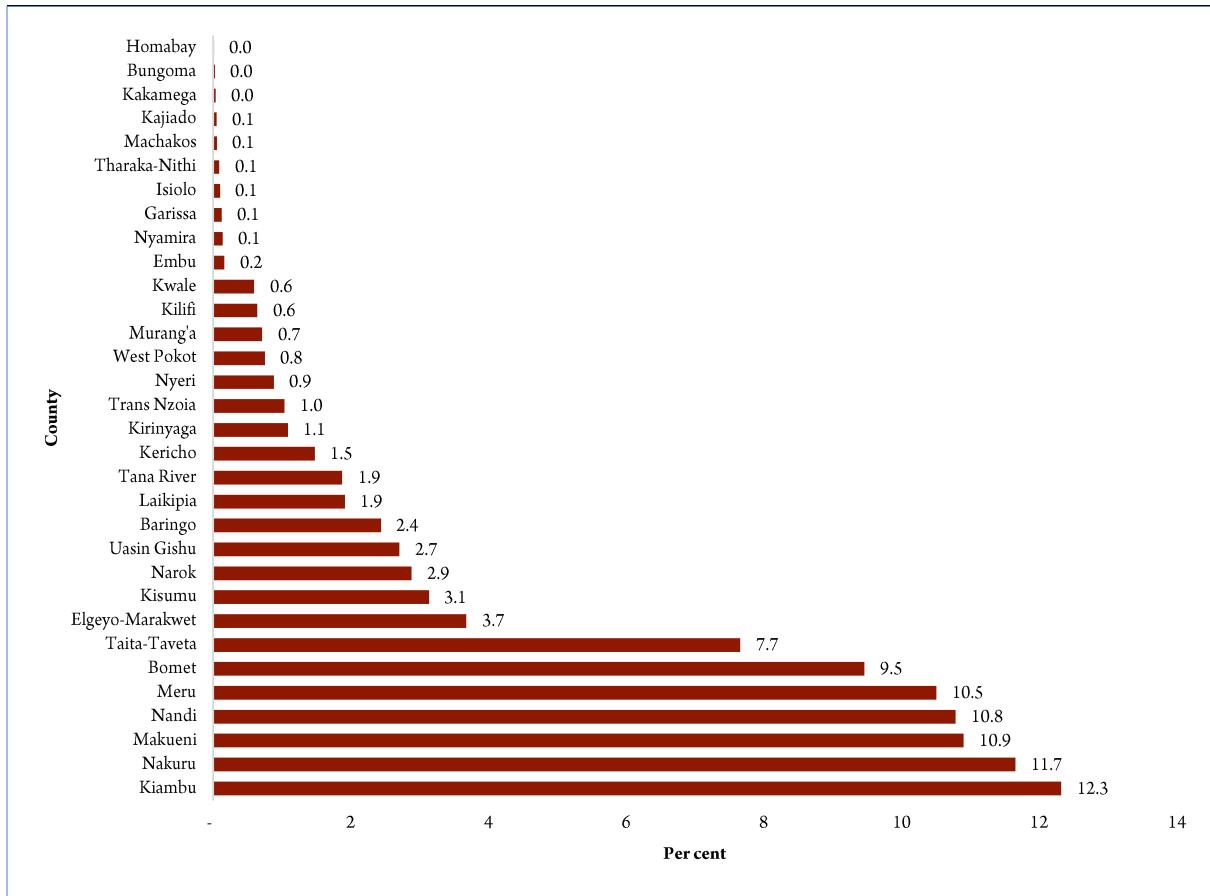


Figure 3.8 shows the the sources of water for crop production. The results indicate that over 82 per cent of the holdings depended on rain for crop production. Irrigation was practiced by 14.0 per cent of the agricultural holdings covered during the census while 3.7 per cent depended on both systems.

Figure 3.8: Distribution of System of Crop Production in Commercial Farms

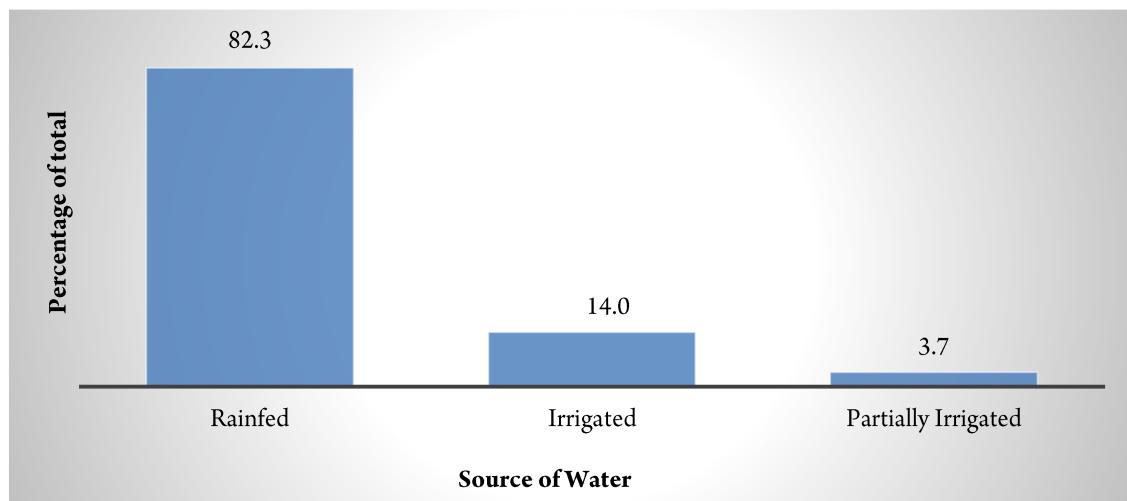


Table 3.3. presents the distribution of different crops and the corresponding source of water for crop production. Under the rain-fed production system, maize was dominant with 41.3 per cent of the agricultural holdings. Other crops that were majorly under rain-fed system of production were wheat, sugarcane, tea and dry beans at 13.4, 9.9, 5.5, and 4.0 per cent, respectively. Crops that were grown purely under irrigation system of production with a proportion of greater than 10 per cent included tomatoes, maize, mangoes and bananas at 13.3, 12.4, 11.0 and 10.3 per cent. Under the partially irrigated category, coffee and maize recorded the highest proportion of 14.8 per cent and 12.3 per cent, respectively, in 2019.

Table 3.3: Percentage distribution of the system of irrigation by crop

| | | | Per cent | | |
|----------------|------|--------------|----------|---------------------|------|
| Rain-fed | | Irrigated | | Partially Irrigated | |
| Maize | 41.3 | Tomatoes | 13.3 | Coffee | 14.8 |
| Wheat | 13.4 | Maize | 12.4 | Maize | 12.3 |
| Sugar cane | 9.9 | Mangoes | 11 | Irish Potatoes | 6.6 |
| Tea | 5.5 | Bananas | 10.3 | Bananas | 5.7 |
| Beans, dry | 4 | Water Melons | 6.6 | Cabbages | 5.7 |
| Rhodes Grass | 2.8 | Onions | 5.2 | Tomatoes | 5.7 |
| Irish Potatoes | 2.8 | Lemon | 4.4 | Avocados | 4.1 |
| Coffee | 2.7 | Cabbages | 3.3 | Khat/Miraa | 4.1 |
| Bananas | 1.6 | Kales | 2.7 | Tea | 4.1 |
| Barley | 1.5 | Rice(paddy) | 2.3 | French beans | 3.3 |
| Grass | 1 | French beans | 1.5 | Mangoes | 3.3 |
| Green grams | 0.9 | Oranges | 1.5 | Onions | 3.3 |
| Cabbages | 0.6 | Coffee | 1.2 | Oranges | 3.3 |
| Fodder maize | 0.5 | Spinach | 1.2 | Kales | 2.5 |
| Macadamia nuts | 0.5 | Cabbage | 1 | Wheat | 2.5 |
| Mangoes | 0.5 | Green grams | 1 | Beans, dry | 1.6 |
| Avocados | 0.5 | Pawpaw | 1 | Cabbage | 1.6 |
| Kales | 0.4 | Beans, dry | 0.8 | Canteloupeu | 1.6 |
| Others | 5.2 | Others | 11.1 | Others | 13.2 |

Table 3.4 presents the number and proportion of agricultural holdings by crop. Maize had the highest number of agricultural holdings with a proportion of 38.0 per cent followed by wheat at 11.7 per cent. The proportion of commercial and institutional agricultural holdings that grew tea and coffee were 5.0 per cent and 3.1 per cent, respectively. .

Table 3.4: Number and proportion of agricultural holdings by crop

| | Count | Per cent |
|---------------------|--------------|------------|
| Total | 3,340 | 100 |
| Maize | 1,270 | 38.0 |
| Wheat | 390 | 11.7 |
| Sugar cane | 286 | 8.6 |
| Tea | 166 | 5.0 |
| Coffee | 103 | 3.1 |
| Rhodes Grass | 82 | 2.5 |
| Barley | 44 | 1.3 |
| Sisal | 6 | 0.2 |

Table 3.5 presents the distribution of the total area planted for field crops by crop. Maize accounted for 27.7 per cent of the total acreage planted with field crops followed by wheat at 20.8 per cent. Rhodes grass was the least, among the top eight field crops accounting for 1.5 per cent.

Table 3.5: Proportion of the total area planted for Field Crops (top 8)

| Crop | Per cent |
|---------------------|----------|
| Maize | 27.7 |
| Wheat | 20.8 |
| Sugar cane | 12.5 |
| Sisal | 10.5 |
| Tea | 8.3 |
| Barley | 5.3 |
| Coffee | 4.5 |
| Rhodes Grass | 1.5 |

Table 3.6 below shows the distribution of the area harvested by crop. The census established that 22.6, 20.7, 18.0 and 13.3 per cent of the total harvested area was under maize, wheat, sisal and tea, respectively. The other crops had less than 10 per cent of the total area harvested.

Table 3.6: Distribution of the total area Harvested and proportion sold

| Crop | Total area harvested (acres) | Per cent of total |
|----------------|------------------------------|-------------------|
| Maize | 51,230 | 22.6 |
| Wheat | 46,851 | 20.7 |
| Sisal | 40,760 | 18 |
| Tea | 30,156 | 13.3 |
| Barley | 18,388 | 8.1 |
| Sugar cane | 11,733 | 5.2 |
| Coffee | 8,272 | 3.7 |
| Rhodes Grass | 3,558 | 1.6 |
| Tomatoes | 2,153 | 1 |
| Irish Potatoes | 1,653 | 0.7 |
| Macadamia nuts | 1,366 | 0.6 |
| Grass | 1,005 | 0.4 |
| Beans, dry | 938 | 0.4 |

Table 3.7 below shows the distribution of total production of selected permanent crops. Tea was the leading at 60.8 per cent of the total production with 189.9 million kilograms. Tomatoes production stood at 20.7 per cent of the total production with 64.6 million kilograms, Mangoes was third at 7.3 per cent with a total of 22.7 million kilograms. The production of the remaining crops was below 7 per cent of the total production.

Table 3.7: Production of selected permanent crops

| Crop | Total production (Kgs) | Per cent |
|----------------|------------------------|----------|
| Tea | 189,897,265 | 60.8 |
| Tomatoes | 64,598,250 | 20.7 |
| Mangoes | 22,662,500 | 7.3 |
| Sisal | 17,677,750 | 5.7 |
| Macadamia nuts | 9,558,990 | 3.1 |
| Coffee | 7,856,095 | 2.5 |

3.2 Proportion of the Total production sold for field crops by Category

3.2.1 Food crops

Table 3.8 shows the total production of food crops and proportion of quantity sold by type of food crop for the year 2019. The share of sales to production for sugar cane was 48.6 per cent while that of maize was 22.5 per cent.

Table 3.8: Total production of food crops and proportion sold by type of food crop

| Crop | Total Production (Kgs) | Per cent |
|----------------|------------------------|----------|
| Sugar cane | 322,949,770 | 48.6 |
| Maize | 149,637,288 | 22.5 |
| Wheat | 49,878,359 | 7.5 |
| Barley | 15,704,284 | 2.4 |
| Barley | 15,704,284 | 2.4 |
| Irish Potatoes | 15,361,968 | 2.3 |
| Rhodes Grass | 10,456,495 | 1.6 |
| Beans, dry | 8,860,047 | 1.3 |
| Cabbages | 8,327,601 | 1.3 |

3.2.2 Fruits

Table 3.9 shows the total distribution of quantity of fruits produced and equivalent quantity sold to the market. The census indicated that over 90 per cent of the total production of fruits grown was sold except for mangoes, oranges, pawpaw and tree tomato.

Table 3.9: Total production of fruits and proportion sold by type of fruit

| Crop | Total Production (Kgs) | Percent of Quantity sold (Kgs) |
|--------------------------------------|------------------------|--------------------------------|
| Bananas | 4,616,108 | 93 |
| Canteloupe/Musk Melon | 625,000 | 90 |
| Water Melons (Hybrid) | 600,920 | 91 |
| Avocados | 373,700 | 97 |
| Mangoes | 263,227 | 76 |
| Oranges | 126,090 | 84 |
| Watermelons (Open Pollinated) | 109,000 | 99 |
| Pawpaw | 93,400 | 45 |
| Purple passion | 60,200 | 98 |
| Sweet Melons | 52,950 | 98 |
| Lemon | 51,140 | 97 |
| Straw berry | 49,344 | 91 |
| Tangerines | 48,883 | 95 |
| Loquats | 43,400 | 100 |
| Pineapples | 27,960 | 96 |
| Tree Tomato | 1,450 | 79 |

3.2.3 Vegetables

Table 3.10 shows the distribution of vegetables produced and percentage sold to the market. Vegetable production and sale followed the same trend as fruits and food crops as shown in table below. The results show that for most vegetables, over 78 per cent of the vegetables produced in commercial farms were sold with exception of a few.

Table 3.10: Total production of vegetables and proportion sold by type of vegetable

| Crop | Total Production (Kgs) | Per cent |
|---------------------------|------------------------|----------|
| Tomatoes | 12,968,381 | 78 |
| Cauliflowers/broccoli | 4,344,844 | 49 |
| French beans | 3,038,576 | 85 |
| Garden Peas | 3,013,500 | 70 |
| Onions | 1,353,599 | 92 |
| Kales | 1,255,052 | 94 |
| Cabbages | 9,295,023 | 98 |
| Carrots | 130,695 | 87 |
| Pea | 107,800 | 78 |
| Pepper | 93,000 | 58 |
| Khat/Miraa | 87,571 | 83 |
| Culinary Herbs and Spices | 69,500 | 100 |
| Egg Plant | 64,000 | 84 |
| Common pea | 6,380 | 12 |
| African Nightshade | 4,000 | 88 |
| Vegetables | 2,100 | 76 |
| Butter nut | 1,400 | 93 |
| Jute mallow/Murenda | 582 | 49 |

3.2.4 Roots and Tubers

Table 3.11 presents the total production of roots and tubers and their corresponding quantity sold by type of roots and tubers. Irish potatoes produced were 85 per cent sold while 64 per cent of sweet potatoes were marketed.

Table 3.11: Total production of Roots and Tubers and quantity sold by type of Roots and Tubers

| Crop | Total production (Kgs) | Percent of Quantity sold |
|----------------|------------------------|--------------------------|
| Irish Potatoes | 15,361,968 | 85 |
| Sweet Potatoes | 286,091 | 64 |
| Cassava | 7,800 | 84 |

3.2.5 Pasture and Fodder

Pasture grasses and fodder crops category experienced sales of 57 per cent and 48 per cent for the Rhodes grass and common grass, respectively, while 99% of the Sudan grass was sold. Approximately 32 per cent of the total quantity of oats produced was sold while only one per cent of the Lucerne was marketed. There were no sales recorded for the fodder maize grown.

3.3 Proportion of the Total Production of Field Crops Used as Seed

Table 3.12 shows the crops whose produce was set aside to be used as seed. From the census, the results show that pea, cotton and Irish potatoes had the highest proportion used as seed. Rhodes grass and groundnuts were at 4.2 per cent and 2.7 cent per cent, respectively. Total production of maize used as seed is below one per cent, which indicates high use of certified seed. The rest of the crops in the table were at less than 3 per cent.

Table 3.12: Proportion of the Total Production of Field Crops Used as Seed

| Crop | Total production (Kgs) | Percent of Crop Output Used as Seed (Kgs) |
|---------------------|------------------------|---|
| Pea | 107,800 | 18.6 |
| Cotton | 83,285 | 10.8 |
| Irish Potatoes | 15,361,968 | 4.6 |
| Rhodes Grass | 10,129,894 | 4.2 |
| Groundnuts | 4,950 | 2.7 |
| Sugar cane | 308,255,870 | 2.4 |
| Sunflower | 11,400 | 1.9 |
| Wheat | 49,878,359 | 1.4 |
| Mangoes | 263,227 | 1.2 |
| Cabbages | 9,270,823 | 1 |
| Dolichos bean | 4,500 | 1.1 |
| Green grams | 177,525 | 0.6 |
| Sorghum/Sudan grass | 263,703 | 0.6 |
| Beans, dry | 8,860,047 | 0.5 |
| Finger Millet | 6,410 | 0.4 |
| Barley | 15,704,284 | 0.3 |
| Rice (paddy) | 688,837 | 0.3 |
| Oats | 578,670 | 0.2 |
| Onions | 1,353,599 | 0.2 |
| Maize | 149,637,288 | 0.2 |
| Grass | 2,310,524 | 0.1 |
| Purple passion | 60,200 | 0.1 |
| Others | 142,112,155 | 0 |

3.4 Post-Harvest Losses versus Total Production by Category

3.4.1 Food Crops

Post-harvest losses usually start from the farm to the final destination of consumption. For food crops, the highest post-harvest losses are 5.6 per cent and 4.2 per cent for Irish potatoes and pearl millet, respectively. Paddy rice and dry beans reported losses of 3.4 and 2.3 per cent, respectively. Sorghum post-harvest losses were 2.1 per cent and maize at 1.2 per cent. The other crops were at less than one per cent. Overall post-harvest losses for food crops captured in the census were at 1.4 per cent. These details are presented in table 3.13.

Table 3.13: Proportion of the Total Production Food Crops and Post-Harvest losses by Type of Food Crop

| Crop | Total production (Kgs) | Percent of Post-harvest losses |
|----------------|------------------------|--------------------------------|
| Irish Potatoes | 15,361,968 | 5.6 |
| Pearl Millet | 44,550 | 4.2 |
| Rice (paddy) | 688,837 | 3.4 |
| Beans, dry | 8,860,047 | 2.3 |
| Sorghum | 232,165 | 2.1 |
| Maize | 149,637,288 | 1.2 |
| Barley | 15,704,284 | 1 |
| Finger Millet | 6,410 | 0.7 |
| Sweet Potatoes | 286,091 | 0.7 |
| Wheat | 49,878,359 | 0.5 |
| Green grams | 177,525 | 0.4 |
| Spinach | 744,223 | 0 |
| Cassava | 7,800 | 0 |
| Cow pea | 1,260 | 0 |
| Dolichos bean | 4,500 | 0 |

3.4.2 Fruits

Fruits usually experience higher rate of post-harvest losses compared to other crops. Table 3.14 presents the proportion of the total production of fruits and their post-harvest losses by type of fruit. The highest post-harvest losses for fruits were recorded in strawberry at 8.8 per cent, cantaloupe at 6.7 per cent, mangoes at 5.7 per cent and hybrid watermelons at 4.9 per cent. Losses for avocados were at 2.8 per cent.

Table 3.14: Proportion of the Total Production Fruits and post-harvest losses by type of Fruit

| Crop | Total Production (Kgs) | Percent of Sum of Post-Harvest Losses |
|-------------------------------|------------------------|---------------------------------------|
| Strawberry | 49,344 | 8.8 |
| Canteloupe/Musk Melon | 625,000 | 6.7 |
| Mangoes | 263,227 | 5.7 |
| Water Melons (Hybrid) | 600,920 | 4.9 |
| Tree Tomato | 1,450 | 4.1 |
| Tangerines | 48,883 | 4.1 |
| Avocados | 373,700 | 2.8 |
| Oranges | 126,090 | 2.3 |
| Lemon | 51,140 | 1.3 |
| Bananas | 4,616,108 | 0.9 |
| Sweet Melons | 52,950 | 0.8 |
| Pineapples | 27,960 | 0.7 |
| Loquats | 43,400 | 0.5 |
| Purple passion | 60,200 | 0.3 |
| Pawpaw | 93,400 | 0.1 |
| Watermelons (Open Pollinated) | 109,000 | 0 |

3.4.3 Industrial Crops

Table 3.15 shows the proportion of the total production of industrial crops and their respective post-harvest losses. The most post-harvest losses were in sugarcane at 1.3 per cent in this category. Other crops had losses of less than one per cent. No losses were reported for Sisal, Bixa and Pyrethrum.

Table 3.15: Proportion of the Total Production of Industrial Crops and post-harvest losses by type of crop

| Crop | Total Production (Kgs) | Percent of Post-Harvest Losses |
|------------|------------------------|--------------------------------|
| Sugar cane | 308,255,870 | 1.3 |
| Tea | 71,832,351 | 0.6 |
| Cotton | 83,285 | 0.1 |
| Coffee | 7,856,095 | 0.1 |
| Bixa | 25 | 0 |
| Pyrethrum | 3,080 | 0 |
| Sisal | 17,677,750 | 0 |

3.4.4 Pasture and Fodder

Table 3.16 shows the proportion of the total production of pasture and fodder and the corresponding post-harvest losses. Rhodes grass and normal grass reported post-harvest losses of 1.8 per cent and 2.0 per cent, respectively. No other crop in this category reported losses.

Table 3.16: Total Production of Pasture and Fodder Crops and percentage of Post-Harvest Losses

| Crop | Total production (Kgs) | Percent |
|---------------------|------------------------|---------|
| Grass | 2,310,524 | 2 |
| Rhodes Grass | 10,129,894 | 1.8 |
| Fodder maize | 3,700,080 | 0 |
| Lucern | 328,545 | 0 |
| Oats | 578,670 | 0 |
| Sorghum/Sudan grass | 263,703 | 0 |

3.4.5 Vegetables

The highest losses were reported for garden peas at 29.9 per cent, French beans at 14.7 per cent, Moringa 9.1 per cent, African Nightshade at 6.6 per cent, while the rest were below 5.0 per cent, as presented in Table 3.17.

Table 3.17: Proportion of the Total Production of Vegetables and proportion of Post-harvest losses by Type of Vegetable

| Crop | Total Production (Kgs) | Percent of Post-harvest losses |
|---------------------------|------------------------|--------------------------------|
| Garden Peas | 3,013,500 | 29.9 |
| French beans | 3,038,576 | 14.7 |
| Moringa | 5,500 | 9.1 |
| Tomatoes | 12,968,381 | 4.8 |
| Cauliflowers/broccoli | 4,344,844 | 4.4 |
| Onions | 1,353,599 | 2.3 |
| Pea | 107,800 | 1.6 |
| Cabbages | 9,295,023 | 2 |
| Pepper | 93,000 | 0.2 |
| Khat/Miraa | 87,571 | 0.1 |
| Kales | 1,255,052 | 0 |
| Carrots | 130,695 | 0 |
| African Nightshade | 6,100 | 6.6 |
| Butter nut | 1,400 | 0 |
| Common pea | 6,380 | 0 |
| Culinary Herbs and Spices | 69,500 | 0 |
| Egg Plant | 64,000 | 0 |
| Jute mallow/Murenda | 582 | 0 |

3.4.6 Nuts and Oil Crops

The proportion post-harvest losses to the total production of nuts and oil crops is shown in Table 3.18. The highest losses were reported in Canola at 3.5 per cent and Macadamia nuts at 3.4 per cent. No losses were reported for Simsims, Coconuts, Cashew-nuts and Groundnuts.

Table 3.18: Proportion of the Total Production of Nuts and Oil Crops and share of Post-Harvest Losses

| Crop | Total production (Kgs) | Percent of Post -harvest losses |
|--------------------------|------------------------|---------------------------------|
| Oil seed (Canola) | 142,400 | 3.5 |
| Macadamia nuts | 2,234,022 | 3.4 |
| Sunflower | 11,400 | 1.1 |
| Cashew nuts | 6,080 | 0 |
| Coconuts | 268,600 | 0 |
| Groundnuts | 4,950 | 0 |
| Simsim | 15,650 | 0 |

3.5 Proportion of Total Production in Stock by End of December 2019

3.5.1 Food Crops

The highest stocks were reported for finger millet at 43.5 per cent while dry beans stocks were at 25.5 per cent; and maize at 3.3 per cent. Paddy rice stocks were reported at 1.6 per cent, Green grams at 1.5 per cent whereas Dolichos at 1.1 per cent.

Table 3.19: Proportion of Total Production of food crops held as Stock by End of December 2019

| Crop | Total production (Kgs) | Percent of Crop output in Stock |
|-----------------------|------------------------|---------------------------------|
| Finger Millet | 6,410 | 43.5 |
| Beans, dry | 8,860,047 | 25.5 |
| Maize | 149,637,288 | 3.3 |
| Cow pea | 1,260 | 3.2 |
| Wheat | 49,878,359 | 2.5 |
| Rice(paddy) | 688,837 | 1.6 |
| Green grams | 177,525 | 1.5 |
| Dolichos bean | 4,500 | 1.1 |
| Barley | 15,704,284 | 0.3 |
| Irish Potatoes | 15,361,968 | 0.2 |
| Cassava | 7,800 | 0 |
| Pearl Millet | 44,550 | 0 |
| Sorghum | 232,165 | 0 |
| Spinach | 744,223 | 0 |
| Sweet Potatoes | 286,091 | 0 |

3.5.2 Fruits

The proportion of fruits held as stock by the end of December 2019 is shown in Table 3.20. The proportion of mangoes and pawpaws held as stock was 1.8 per cent and 1.1 per cent, respectively, in 2019. The other fruits recorded stock of less than one per cent of the quantity produced.

Table 3.20: Proportion of Total Production of fruits held as Stock by End of December 2019

| Crop | Total production (Kgs) | Percent of Crop output in Stock by December 2019 |
|-------------------------------|------------------------|--|
| Mangoes | 263,227 | 1.8 |
| Pawpaw | 93,400 | 1.1 |
| Pineapples | 27,960 | 0.4 |
| Bananas | 4,616,108 | 0.1 |
| Avocados | 373,700 | 0 |
| Canteloupe/Musk Melon | 625,000 | 0 |
| Lemon | 51,140 | 0 |
| Loquats | 43,400 | 0 |
| Oranges | 126,090 | 0 |
| Purple passion | 60,200 | 0 |
| Straw berry | 49,344 | 0 |
| Sweet Melons | 52,950 | 0 |
| Tangerines | 48,883 | 0 |
| Tree Tomato | 1,450 | 0 |
| Water Melons (Hybrid) | 600,920 | 0 |
| Watermelons (Open Pollinated) | 109,000 | 0 |

3.5.3 Industrial Crops

The highest stocks for this category were reported for Sugarcane at 46.6 per cent and Tea at 4.6 per cent, as represented in Table 3.21. Coffee and sisal had stocks of 1.4 per cent and 1.0 per cent, respectively. Cotton stocks were at 0.4 per cent

Table 3.21: Proportion of Total Production of Industrial Crops held as Stock by End of December 2019

| Crop | Total production (Kgs) | Percent of Crop output in Stock by December 2019 |
|------------|------------------------|--|
| Sugar cane | 308,255,870 | 46.62 |
| Tea | 71,832,351 | 4.62 |
| Sisal | 17,677,750 | 1.39 |
| Coffee | 7,856,095 | 1.03 |
| Cotton | 83,285 | 0.37 |
| Bixa | 25 | 0 |
| Pyrethrum | 3,080 | 0 |

3.5.4 Pasture and Fodder

The major pasture crops with stocks were the grasses at 19.7 per cent, Rhodes grass at 5.4 per cent whereas fodder maize was at 5.0 per cent. No stocks reported for Lucerne. These details are presented in Table 3.22.

Table 3.22: Proportion of Total Production of Pasture and Fodder held as Stock by End of December 2019

| Crop | Total Production (Kgs) | Percent of Crop output in Stock by December 2019 |
|---------------------|------------------------|--|
| Grass | 2,310,524 | 19.7 |
| Rhodes Grass | 10,129,894 | 5.4 |
| Fodder maize | 3,700,080 | 5 |
| Oats | 578,670 | 1.7 |
| Sorghum/Sudan grass | 263,703 | 0.3 |
| Lucerne | 328,545 | 0 |

3.5.5 Root and Tubers Crops

As seen in Table 3.23, stocks were reported for sweet potatoes at 2.8 per cent while Irish potatoes were at 0.2 per cent. No stocks reported for cassava.

Table 3.23: Proportion of Total Production of Root and Tubers Crops held as Stock by End of December 2019

| Category/Crop | Total production (Kgs) | Percent in stock |
|------------------|------------------------|------------------|
| Roots and Tubers | 15,655,859 | 3 |
| Sweet Potatoes | 286,091 | 2.8 |
| Irish Potatoes | 15,361,968 | 0.2 |
| Cassava | 7,800 | 0 |

3.5.6 Vegetables

In this category the highest stocks were reported for common pea at 86.5 per cent, while cowpea, tomatoes and onions were at 3.2 per cent or below. All other crops in this category did not have stocks as seen in table 3.24.

Table 3.24: Proportion of Total Production of Vegetables held as Stock by End of December 2019

| Category/Crop | Total production (Kgs) | Percent in stock |
|---------------------------|------------------------|------------------|
| Tomatoes | 12,968,381 | 2.2 |
| Cauliflowers/Broccoli | 4,344,844 | 0 |
| French beans | 3,038,576 | 0 |
| Garden Peas | 3,013,500 | 0 |
| Onions | 1,765,099 | 0.2 |
| Kales | 1,255,052 | 0 |
| Cabbages | 9,295,023 | 0 |
| Spinach | 744,223 | 0 |
| Carrots | 130,695 | 0 |
| Pea | 107,800 | 0 |
| Pepper | 93,000 | 0 |
| Khat/Miraa | 87,571 | 0 |
| Culinary Herbs and Spices | 69,500 | 0 |
| Egg Plant | 64,000 | 0 |
| Common pea | 6,380 | 86.5 |
| Moringa | 5,500 | 0 |
| African Nightshade | 4,000 | 0 |
| Vegetables | 2,100 | 0 |
| Butter nut | 1,400 | 0 |
| Cow pea | 1,260 | 3.2 |
| Jute mallow/ Murenda | 582 | 0 |

3.5.7 Nuts and Oils Crops

Table 3.25 depicts the proportion of total production of nuts and oils crop held as stocks by the end of December 2019. In this category, stocks were reported for groundnuts at 8.4 per cent, macadamia nuts at 1.1 per cent and sunflower at 0.4 per cent.

Table 3.25: Proportion of Total Production of Nuts and Oils crops held as Stock by End of December 2019

| Crop | Total production (Kgs) | Percent of Crop output in Stock by December 2019 |
|--------------------------|------------------------|--|
| Groundnuts | 4,950 | 8.4 |
| Macadamia nuts | 2,234,022 | 1.1 |
| Sunflower | 11,400 | 0.4 |
| Cashew nuts | 6,080 | 0 |
| Coconuts | 268,600 | 0 |
| Oil seed (Canola) | 142,400 | 0 |
| Simsim | 15,650 | 0 |

3.6 Value of Total Production and Other Utilization Categories by Crop and by Category

3.6.1 Crops

Table 3.26 and Table 3.27 show the value of the production across the various utilization stages. The highest value is for the quantities sold at KSh 25.96 billion. Produce that was fed to livestock had a value of 196.3 Million, with what was consumed valued at KSh 503 million. The output used as seed was valued at KSh 93.7 million. Industrial crops had the highest value of total production at KSh 17.3 billion, with food crops at KSh 5.4 billion and flowers at KSh 2.5 billion. This was followed by vegetables at KSh 940.5 Million. Fruits had

the lowest total value at KSh 130 million.

Table 3.26 Value of Total Production and Other Utilization stages by crop Category

| COUNTY | Sum Total production (Kgs) | Value of Total Production (KSh) | Value of Own Consumption (KSh) | Value of Quantity sold (KSh) | Value of Crop output fed to livestock (KSh) | Value of Crop output used as seed (KSh) |
|---------------------------|----------------------------|---------------------------------|--------------------------------|------------------------------|---|---|
| Industrial crops | 405,708,456 | 17,364,500,249 | 749,760 | 17,331,522,239 | 21,000 | 32,207,250 |
| Food crops | 241,635,307 | 5,378,140,355 | 465,746,475 | 4,743,164,184 | 111,888,426 | 57,341,269 |
| Vegetables | 35,841,502 | 940,460,235 | 19,966,219 | 906,564,531 | 10,253,885 | 3,675,600 |
| Pasture and fodder | 17,311,416 | 179,386,681 | 12,946,500 | 92,316,043 | 73,726,938 | 397,200 |
| Fruits | 8,133,832 | 130,039,204 | 3,654,535 | 126,274,069 | 7,000 | 103,600 |
| Flowers | 5,088,854 | 2,528,463,779 | 124,200 | 2,528,339,579 | 0 | 0 |
| Nuts and oils | 2,683,102 | 231,553,960 | 71,040 | 231,049,670 | 400,000 | 33,250 |
| Grand Total | 716,402,469 | 26,752,544,462 | 503,258,729 | 25,959,230,315 | 196,297,249 | 93,758,169 |

As shown in Table 3.27, the value from the quantities sold was highest for industrial crops at KSh 17.4 billion, second is food crops at KSh 5.4 billion and flowers and vegetables are at KSh 2.5 billion and 940 million respectively.

Table 3.27: Value of Total Production and Proportion of Other Utilization Stages by Crop Category

| County | Value of Total Production (KSh) | Proportion of Value of Own Consumption | Proportion of Value of Quantity sold | Proportion of Value of Crop Output Fed to Livestock | Proportion of Value of Crop Output Used as Seed |
|---------------------------|---------------------------------|--|--------------------------------------|---|---|
| Industrial Crops | 17,364,500,249 | 0.00 | 99.81 | 0.00 | 0.19 |
| Food Crops | 5,378,140,355 | 8.66 | 88.19 | 2.08 | 1.07 |
| Vegetables | 940,460,235 | 2.12 | 96.40 | 1.09 | 0.39 |
| Pasture and Fodder | 179,386,681 | 7.22 | 51.46 | 41.10 | 0.22 |
| Fruits | 130,039,204 | 2.81 | 97.10 | 0.01 | 0.08 |
| Flowers | 2,528,463,779 | 0.00 | 100.00 | - | - |
| Nuts and Oils | 231,553,960 | 0.03 | 99.78 | 0.17 | 0.01 |

Table 3.28 presents other income associated with farming under field crops. The commercial farms interviewed also generated other incomes from the other crop farming activities. The total income generated from the respective activities shows that lease of machinery and equipment earned the farms KSh 82.6 million. Income from dividends/bonus was KSh 2.3 billion in 2019.

Table 3.28: Other income associated with farming under field crops

| Source | Amount (KSh) |
|---|---------------|
| Lease of machinery and equipment | 82,563,041 |
| Interest received | 42,789,308 |
| crop insurance compensation | 13,248,188 |
| Other (specify) | 9,514,616 |
| Dividends/bonus (KSh) | 2,259,914,327 |

3.7 Material Inputs

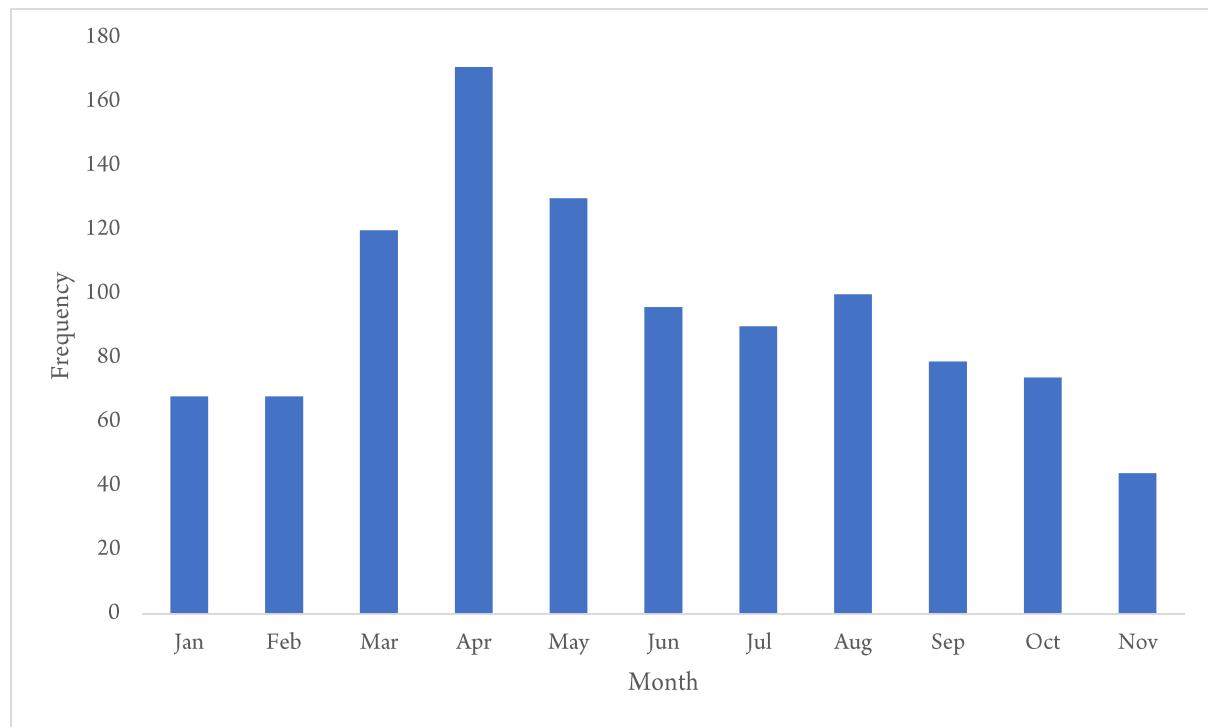
3.7.1 Fertilizer Use

Table 3.29 shows the distribution of frequency of fertilizer use during the year 2019 on all field crops. In the use of fertilizer for field crops production, fertilizer was used mainly in the months of March, April, May and June and the use declined with time with December being the month with the least use as illustrated.

Table 3.29: Distribution of frequency of Fertilizer Use during the Year 2019 on All Field Crops

| Month | Jan | Feb | Mar | Apr | May | June | July | Aug | Sep | Oct | Nov | Dec |
|-----------|-----|-----|-------|-------|-------|-------|------|-----|-----|-----|-----|-----|
| Frequency | 464 | 522 | 1,321 | 1,264 | 1,191 | 1,025 | 613 | 517 | 435 | 472 | 376 | 286 |

Figure 3.9: Frequency of Fertilizer Use During the Year 2019



3.7.2 Frequency of Fertilizer Use on Food Crops

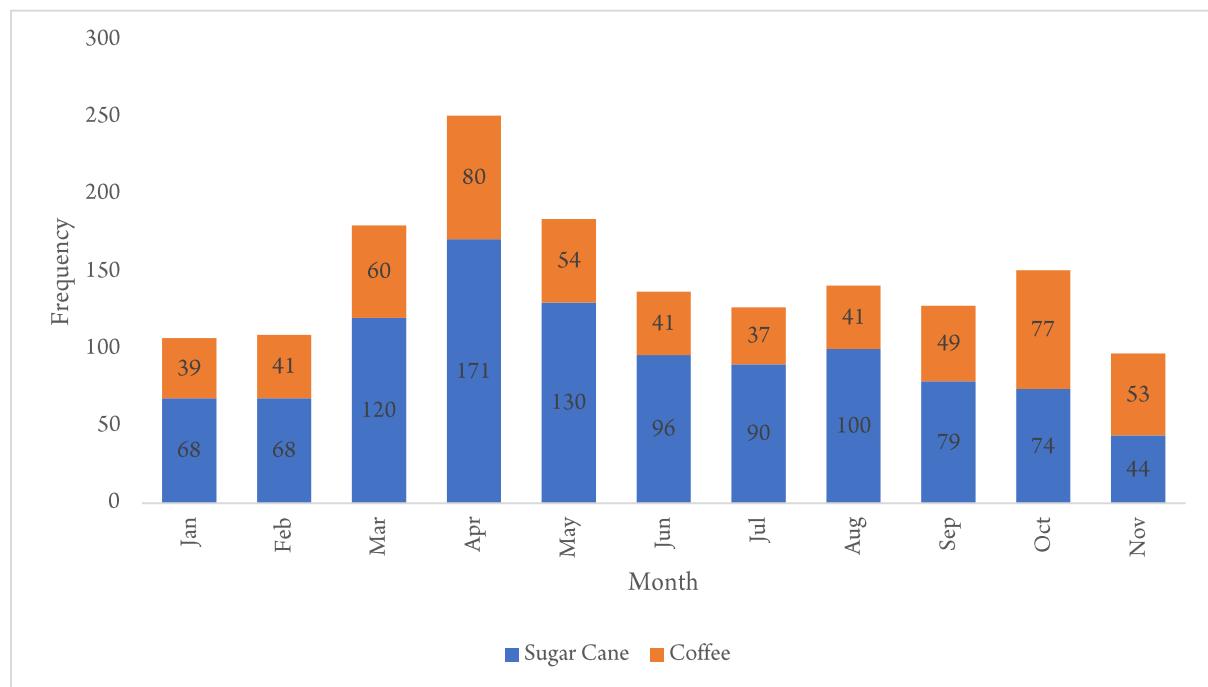
Table 3.30 presents the frequency of fertilizer use on food crops for 2019. Fertilizer used on food crops was highly used on maize, wheat and Irish potatoe crops between March and June and declined thereafter. Use of fertilizer on wheat was highest in the month of May which coincides with the main planting period.

Table 3.30: Frequency of Fertilizer Use on Food Crops

| Crop | January | February | March | April | May | June | July | August | September | October | November | December |
|----------------|---------|----------|-------|-------|-----|------|------|--------|-----------|---------|----------|----------|
| Maize | 93 | 146 | 726 | 620 | 515 | 452 | 125 | 89 | 59 | 79 | 66 | 43 |
| Wheat | 6 | 29 | 84 | 60 | 209 | 158 | 80 | 17 | 10 | 9 | 4 | 2 |
| Irish Potatoes | 23 | 15 | 33 | 19 | 23 | 21 | 14 | 15 | 19 | 9 | 6 | 1 |
| Beans, dry | 10 | 5 | 18 | 21 | 16 | 16 | 12 | 12 | 6 | 4 | 2 | 1 |
| Rice(paddy) | 5 | 10 | 5 | 8 | 3 | 3 | 6 | 7 | 7 | 7 | 4 | 3 |
| Others | 4 | 6 | 12 | 12 | 24 | 16 | 18 | 8 | 7 | 6 | 6 | 4 |

Figure 3.10 shows the frequency of fertiliser use on food crops during the period January to December, 2019. Maize uses a lot of fertiliser the first quarter of the year compared to other food crops. This is also in line with the area it occupies on the ground. This is followed by wheat albeit at far low amount.

Figure 3.10: Frequency of Fertilizer Use on Maize and Wheat, 2019



3.7.3 Use of Fertilizer on Industrial Crops

As shown on Table 3.31 and Figure 3.11, the use of fertilizer is major in sugarcane, coffee and tea in that order. Higher fertilizer use was reported in all three crops in March and April as portrayed on Figure 3.11. There was insignificant use of fertilizer in the other crops.

Figure 3.11: Frequency of Fertilizer Use on Selected Industrial Crops, 2019

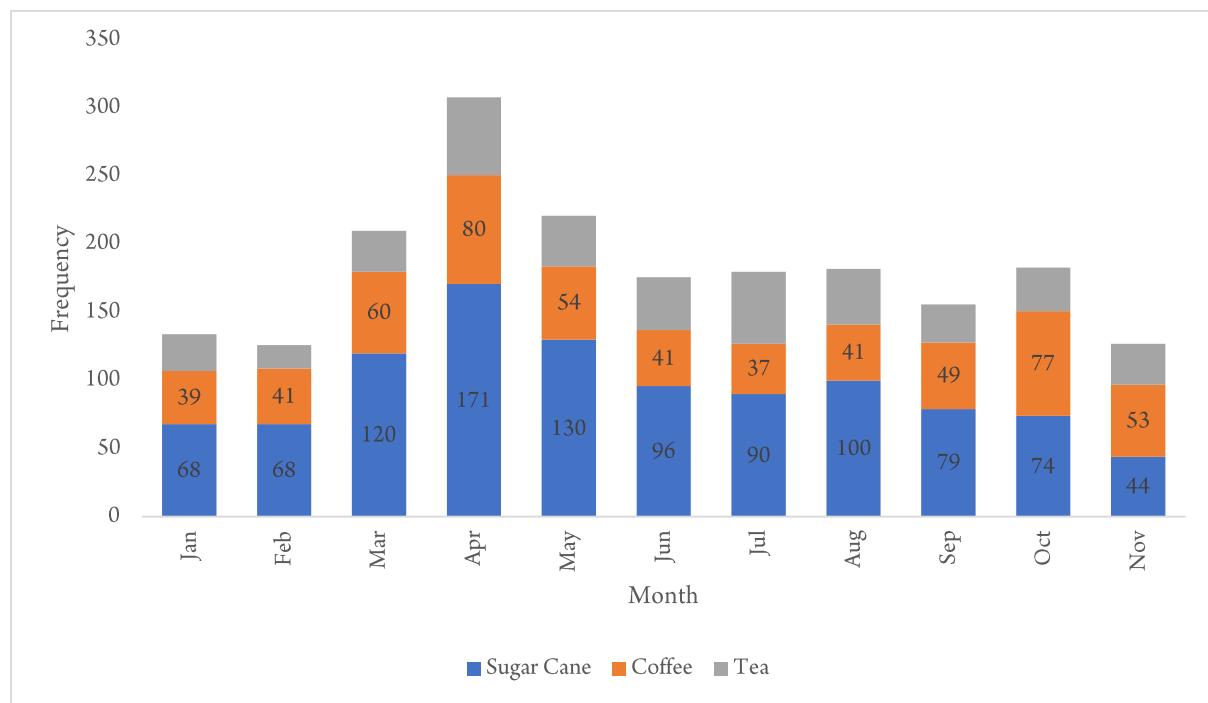


Table 3.31: Use of Fertilizer on Industrial Crops

| Crop | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Sugar Cane | 68 | 68 | 120 | 171 | 130 | 96 | 90 | 100 | 79 | 74 | 44 | 48 |
| Coffee | 39 | 41 | 60 | 80 | 54 | 41 | 37 | 41 | 49 | 77 | 53 | 35 |
| Tea | 27 | 17 | 30 | 57 | 37 | 39 | 53 | 41 | 28 | 32 | 30 | 23 |
| Khat/Miraa | 0 | 1 | 7 | 1 | 0 | 1 | 0 | 4 | 3 | 1 | 0 | 0 |
| Cotton | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Macadamia nuts | 1 | 0 | 0 | 3 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| Others | 0 | 1 | 1 | 4 | 2 | 2 | 1 | 1 | 0 | 0 | 0 | 0 |

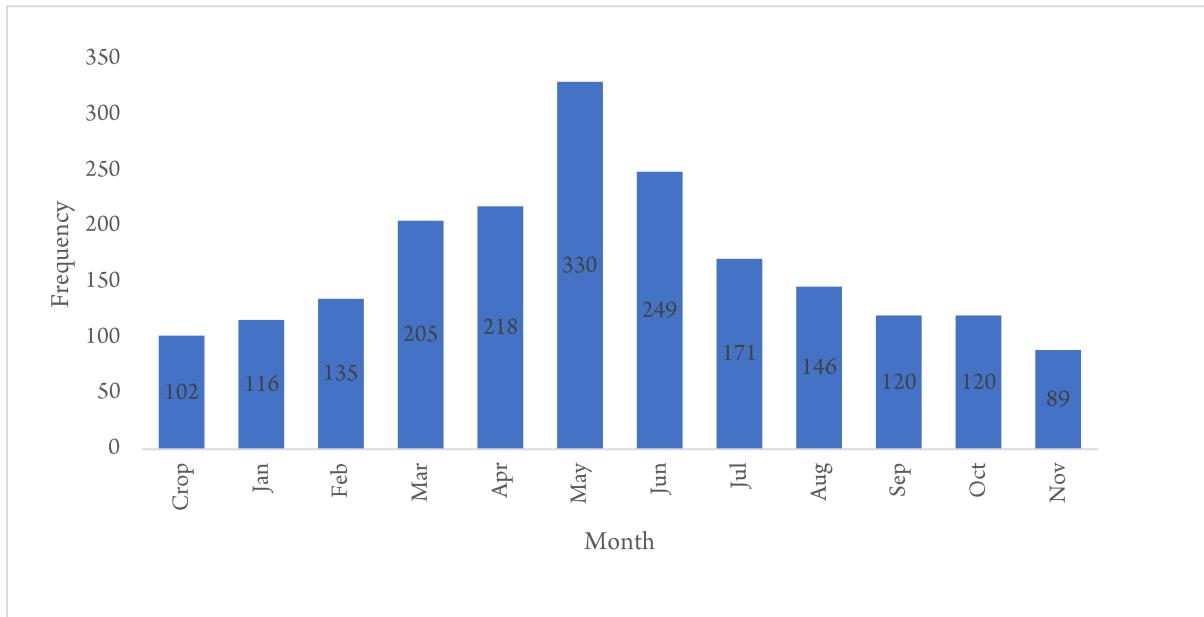
3.8 Use of Foliar Feed on Field Crops during the Year 2019

Foliar feed use in field crops is highest between the months of March and June, with June being the main peak period and thereafter July starts to decline to minimal levels as show on Table 3.32 and Figure 3.12.

Table 3.32: Frequency of Foliar Feed Use During the Year 2019 on Top 16 Crops

| Crop | January | February | March | April | May | June | July | August | September | October | November | December |
|-----------------------|---------|----------|-------|-------|-----|------|------|--------|-----------|---------|----------|----------|
| Wheat | 2 | | 4 | 11 | 41 | 54 | 160 | 10 | 73 | 71 | 77 | 5 |
| Maize | 9 | | 9 | 20 | 55 | 61 | 37 | 24 | 20 | 15 | 14 | 17 |
| Coffee | 17 | | 23 | 22 | 23 | 19 | 26 | 23 | 21 | 23 | 22 | 25 |
| Tomatoes | 19 | | 19 | 19 | 15 | 10 | 14 | 12 | 14 | 13 | 10 | 11 |
| Irish Potatoes | 4 | | 14 | 11 | 7 | 10 | 16 | 8 | 5 | 7 | 11 | 10 |
| Cabbages | 7 | | 6 | 8 | 7 | 6 | 7 | 6 | 7 | 8 | 6 | 5 |
| Beans, dry | 6 | | 4 | 3 | 10 | 10 | 9 | 5 | 9 | 5 | 8 | 5 |
| French beans | 5 | | 5 | 6 | 6 | 6 | 6 | 5 | 6 | 5 | 6 | 5 |
| Barley | | | | | 5 | 3 | 16 | 18 | 10 | 8 | 1 | 2 |
| Avocados | 5 | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Sugar cane | 5 | | 4 | 4 | 3 | 4 | 4 | 3 | 3 | 4 | 3 | 4 |
| Kales | 4 | | 2 | 2 | 4 | 2 | 3 | 4 | 4 | 3 | 6 | 3 |
| Tea | 3 | | 2 | 4 | 2 | 3 | 2 | 3 | 2 | 3 | 2 | 3 |
| Rice(paddy) | 2 | | 1 | 3 | 2 | 3 | 1 | 2 | 3 | 3 | 2 | 3 |
| Onions | 2 | | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 1 | 1 |
| Khat/Miraa | 1 | | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 2 |

Figure 3.12: Use of Foliar Feed on Field Crops during the Year 2019



3.8.1 Frequency of Foliar Feed Use during the Year 2019 on Top 16 Crops

The use of foliar feed on specific crops shows that it is mainly used on wheat, maize, coffee, tomatoes and Irish potatoes. The peak period for use by wheat is around June and July, immediately after the crop is established depending on the region. In maize the main periods are April and May after the crop is a month old to boost vegetative growth. Use of foliar feed on coffee and tea is almost uniform throughout the year. These details reflected on Figures 3.13 and Table 3.32.

Figure 3.13: Frequency of Foliar Feed Use for Selected Crops, 2019



3.9 Distribution Frequency of Use of Manure on Field Crops in 2019

Table 3.33 and Figure 3.14 and 3.15 show manure use by various characteristics in 2019. Manure is mainly applied between the months of January and April after which the use starts to decline and picks up again in from July to September in line with the long and short rains season. The use is mainly on maize, sugarcane, coffee, bananas, tomatoes and kales.

Figure 3.14: Distribution Frequency of Use Manure on Field Crops, 2019

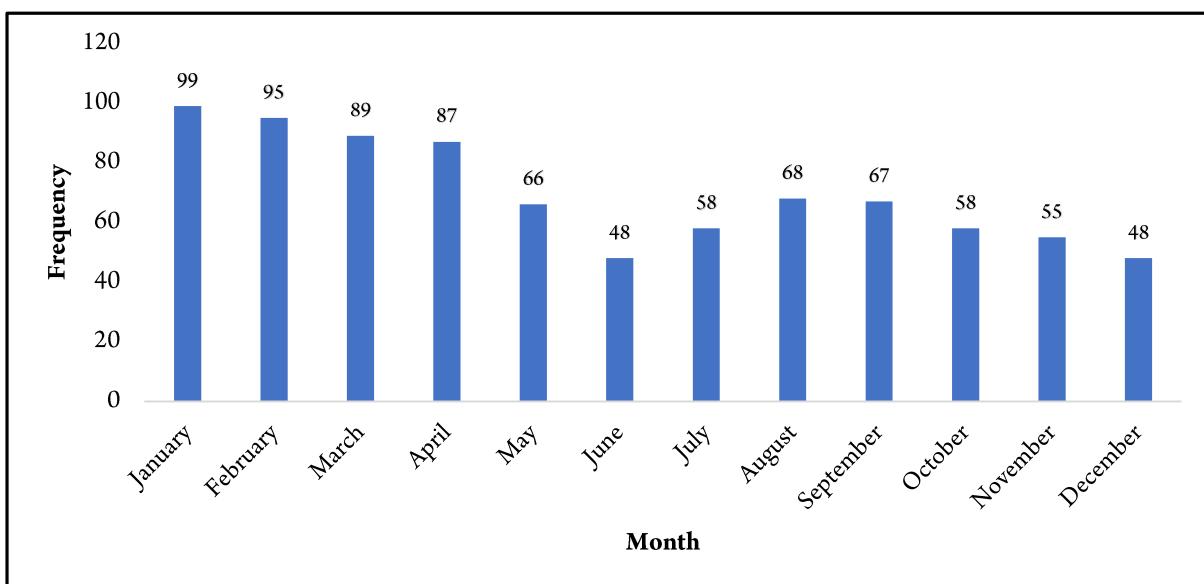


Figure 3.15: Frequency of Manure Use on Maize, Sugar Cane and Coffee, 2019

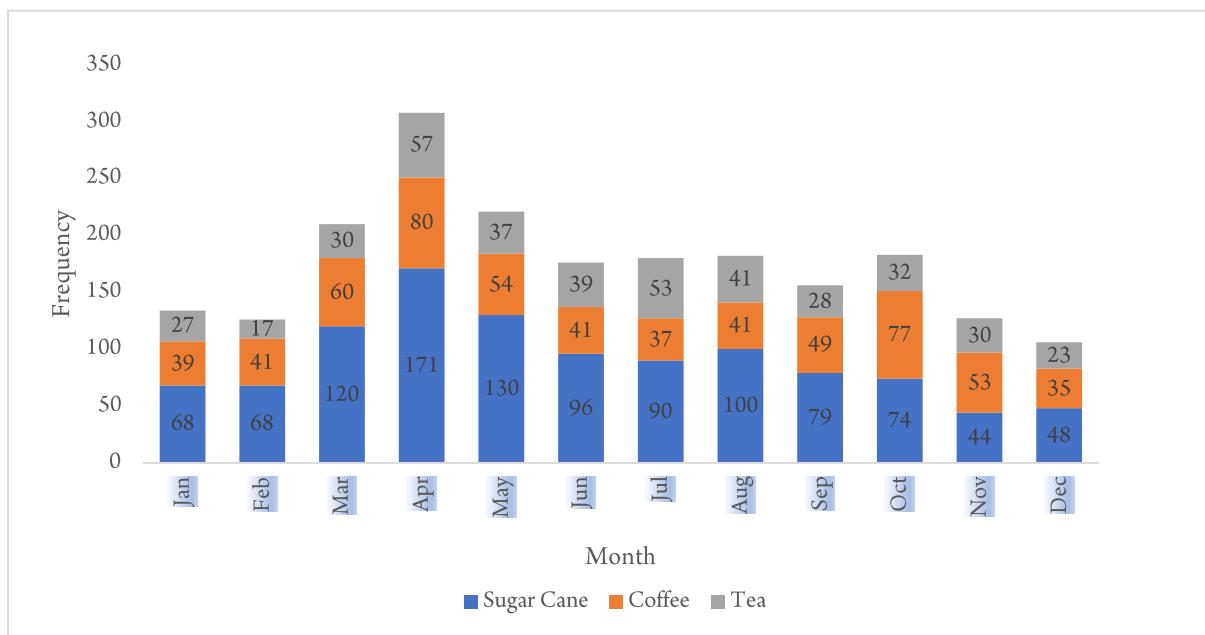


Table 3.33: Distribution Frequency of Use Manure on Field Crops in 2019

| Crop | January | February | March | April | May | June | July | August | September | October | November | December |
|---------------------|---------|----------|-------|-------|-----|------|------|--------|-----------|---------|----------|----------|
| Maize | 15 | 23 | 18 | 14 | 10 | 4 | 7 | 6 | 8 | 6 | 7 | 5 |
| Sugar cane | 10 | 10 | 10 | 10 | 7 | 6 | 6 | 5 | 6 | 4 | 6 | 4 |
| Coffee | 9 | 8 | 9 | 9 | 7 | 4 | 4 | 8 | 8 | 6 | 5 | 4 |
| Bananas | 9 | 4 | 7 | 8 | 5 | 3 | 5 | 5 | 4 | 8 | 4 | 5 |
| Tomatoes | 10 | 5 | 6 | 4 | 5 | 4 | 6 | 5 | 6 | 4 | 3 | 3 |
| Kales | 5 | 4 | 2 | 7 | 4 | 3 | 3 | 4 | 3 | 2 | 6 | 3 |
| French beans | 3 | 4 | 3 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 4 |
| Beans, dry | 4 | 4 | 4 | 2 | 2 | 2 | 2 | 2 | 4 | 3 | 2 | 2 |
| Cabbage | 3 | 5 | 4 | 6 | 2 | 3 | 3 | 3 | 4 | 3 | 4 | 2 |
| Mangoes | 2 | 4 | 2 | 3 | 3 | 1 | 1 | 3 | 3 | 1 | 1 | 0 |
| Rhodes Grass | 1 | 4 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 |
| Avocados | 2 | 2 | 4 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Tea | 1 | 1 | 1 | 3 | 1 | 2 | 2 | 2 | 1 | 1 | 1 | 2 |
| Onions | 1 | 2 | 3 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 |

3.10 Water Used during the year 2019 per crop

Water used in crop farming of field crops was mainly between the months of May and August. Maize, tomatoes, wheat and coffee were the main crops where water was used at 34 per cent, 10 per cent, 8 per cent and 5 per cent respectively. Other crops were ranging between 2 per cent to 4 per cent but with majority of the crops with less than 3 per cent. The distribution of water use is shown in Tables 3.34a and 3.34b.

Table 3.34a: Distribution of Frequency of Water Use by Month

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 89 | 91 | 100 | 95 | 102 | 105 | 105 | 108 | 98 | 91 | 83 | 82 |

Table 3.34b: Distribution of Frequency of Water Use by Crop

| Crop | Frequency | Per cent |
|-----------------------|-----------|----------|
| Maize | 387 | 34 |
| Tomatoes | 119 | 10 |
| Wheat | 93 | 8 |
| Coffee | 59 | 5 |
| Bananas | 51 | 4 |
| Khat/Miraa | 42 | 4 |
| Cabbages | 36 | 3 |
| Rice(paddy) | 34 | 3 |
| Beans, dry | 32 | 3 |
| Irish Potatoes | 29 | 3 |
| French beans | 28 | 2 |
| Barley | 24 | 2 |
| Cauliflowers/broccoli | 24 | 2 |
| Pepper | 21 | 2 |
| Cantaloupe/Musk Melon | 18 | 2 |
| Others | 152 | 13 |

3.11 Frequency of Seeds Use during the Year 2019 per Crop

Seeds used in crop farming of field crops were mainly between the months of January and October; and declined in November and December. Maize, wheat, tomatoes, and Sugarcane were the main crops at 49, 10, 6 and 5 per cent, respectively, while while others were ranging below 4 per cent. Tables 3.35a and 3.35b show these distributions.

Table 3.35a Distribution of Frequency of Seeds Use by Month

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 285 | 247 | 805 | 403 | 236 | 152 | 108 | 117 | 108 | 107 | 67 | 60 |

Table 3.35b: Distribution of Frequency of Seeds Use by Crop

| Crop | Frequency | Per cent |
|-----------------------|-----------|----------|
| Maize | 1324 | 49 |
| Wheat | 258 | 10 |
| Tomatoes | 160 | 6 |
| Sugar cane | 132 | 5 |
| Beans, dry | 119 | 4 |
| Cabbages | 131 | 5 |
| Water Melons (Hybrid) | 49 | 2 |
| French beans | 48 | 2 |
| Irish Potatoes | 48 | 2 |
| Kales | 45 | 2 |
| Barley | 39 | 1 |
| Onions | 37 | 1 |
| Rice(paddy) | 25 | 1 |
| Others | 280 | 10 |

3.12 Frequency of Herbicides Used

Tables 3.36a and 3.36b illustrate use of herbicides and crops by month. Herbicides used in the crop farming for control of weeds for field crops was mainly between the months of March and June and the frequency of use starts to decline from July to December. Maize, wheat, sugarcane, tea and coffee were the main crops users at 38, 15, 13 and 10 per cent, respectively.

Table 3.36a: Distribution of Frequency of Herbicides Use by Month

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 123 | 141 | 386 | 756 | 452 | 468 | 354 | 209 | 165 | 150 | 140 | 110 |

Table 3.36b: Distribution of Frequency of Herbicides Use by crop

| Crop | Frequency | Percentage |
|----------------|-----------|------------|
| Maize | 1296 | 38 |
| Wheat | 504 | 15 |
| Sugar cane | 437 | 13 |
| Tea | 339 | 10 |
| Coffee | 247 | 7 |
| Tomatoes | 79 | 2 |
| Irish Potatoes | 77 | 2 |
| Barley | 71 | 2 |
| Beans, dry | 59 | 2 |
| Others | 345 | 10 |

3.13 Frequency of Fungicides Used During the Year 2019 per Crop

Tables 3.37a and 3.37b show the distribution of frequency of fungicide use by month; crop and percentage share. Fungicides are used in the crop farming of field crops to control diseases.

Fungicide use was mainly between the months of April and September whereas declines were registered in October and November. Wheat, Coffee, tomatoes, and Irish potatoes were the main crops users at 34.6, 12.8, 9.7 and 8.7 per cent, respectively. Other main crops had contributions below 5.2 per cent.

Table 3.37a: Distribution of Frequency of Fungicides Use by Month

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 85 | 102 | 116 | 157 | 196 | 339 | 324 | 231 | 151 | 107 | 102 | 74 |

Table 3.37b: Distribution of Frequency of Fungicides Use by Crop

| Crop | Frequency | Percentage |
|----------------|-----------|------------|
| Wheat | 687 | 34.6 |
| Coffee | 254 | 12.8 |
| Tomatoes | 193 | 9.7 |
| Irish Potatoes | 173 | 8.7 |
| Maize | 103 | 5.2 |
| Barley | 80 | 4.0 |
| Cabbages | 102 | 5.1 |
| Beans, dry | 47 | 2.4 |
| French beans | 47 | 2.4 |
| Purple passion | 30 | 1.5 |
| Rice(paddy) | 30 | 1.5 |
| Avocados | 28 | 1.4 |
| Mangoes | 26 | 1.3 |
| Onions | 21 | 1.1 |
| Others | 163 | 8.2 |

3.14 Frequency of Pesticides Used During the Year 2019 per Crop

Pesticides are used in crop farming of field crops to control pests. Pesticide use was mainly between the months of April and September and declined in October, November and was lowest in December. The frequency of pesticide use was highest for maize, wheat, coffee, and tomatoes, respectively, at 31, 15, 8 and 8 per cent, respectively. Tables 3.38a and 3.38b present the monthly frequency of use and proportioned share by crop.

Table 3.38a: Distribution of Frequency of Pesticides Use by Month

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 145 | 197 | 234 | 405 | 481 | 623 | 375 | 259 | 205 | 183 | 185 | 127 |

Table 3.38b: Distribution of Frequency of Pesticides Use by Crop

| Crop | Frequency | Percentage |
|-----------------------------|-----------|------------|
| Maize | 1043 | 31 |
| Wheat | 509 | 15 |
| Coffee | 287 | 8 |
| Tomatoes | 261 | 8 |
| Mangoes | 118 | 3 |
| Khat/Miraa | 112 | 3 |
| Cabbages | 109 | 3 |
| Beans, dry | 92 | 3 |
| Kales | 84 | 2 |
| Barley | 76 | 2 |
| Irish Potatoes | 76 | 2 |
| Onions | 53 | 2 |
| Bananas | 52 | 2 |
| Water Melons(Hybrid) | 47 | 1 |
| Green grams | 45 | 1 |
| French beans | 44 | 1 |
| Lemon | 39 | 1 |
| Rice(paddy) | 37 | 1 |
| Others | 225 | 7 |

3.15 Frequency of Plant Hormones Used During the Year 2019 per Crop

Table 3.39a and 3.39b presents the distribution of frequency of plant hormones use by month, and by proportioned share of the different crops. Plant hormones are used in crop farming of field crops to stimulate fast vegetative growth or, flowering. Plant hormones were used on a few crops during the year. The use was almost similar throughout the year. The frequency of plant hormones use was highest in Tomatoes, French beans, Irish potatoes, cabbages and coffee respectively.

Table 3.39a: Distribution of Frequency of Plant Hormones Use by Month

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 17 | 19 | 18 | 19 | 22 | 17 | 20 | 19 | 15 | 20 | 15 | 13 |

Table 3.39b: Distribution of Frequency of Plant Hormones Use by Crop

| Crop | Frequency | Per cent |
|--|-----------|----------|
| Tomatoes | 62 | 29 |
| French beans | 36 | 17 |
| Irish Potatoes | 16 | 7 |
| Cabbages | 17 | 8 |
| Cauliflowers/broccoli | 12 | 6 |
| Coffee | 12 | 6 |
| Gypsophilla/Baby Breath Species | 12 | 6 |
| Straw berry | 12 | 6 |
| Maize | 10 | 5 |
| Wheat | 9 | 4 |
| Onions | 8 | 4 |
| Canteloupe/Musk Melon | 4 | 2 |
| Macadamia nuts | 2 | 1 |
| Barley | 1 | 0 |
| Rice(paddy) | 1 | 0 |

3.16 Frequency of Fuel Used During the Year 2019 per Crop

Fuel is used in land preparation and running of other farm machinery used in crop farming of field crops. Fuel used was highest in the months of February and March; with a declining use from May. This is the start of the long rains and tractors are used mainly in land preparation for planting. The use was almost similar throughout the other months of the year as shown on Table 3.40.

Table 3.40: Distribution of Frequency of Fuel Use by Month

| Month | Frequency |
|------------------|-----------|
| January | 968 |
| February | 1,188 |
| March | 1,180 |
| April | 910 |
| May | 888 |
| June | 812 |
| July | 770 |
| August | 722 |
| September | 668 |
| October | 731 |
| November | 652 |
| December | 562 |

3.17 Frequency of Lubricants Used During the Year 2019 per Crop

Table 3.41a and 3.41b presents use of lubricants monthly and by crop. Lubricants are used on machinery and other farm equipment mainly during land preparation for crop farming of field crops. The lubricants use was highest in the months of January and April but usage starts declining from May. It is notable that usage frequency stabilizes after May for the remaining months of the year. This is the start of the long rains and tractors are prepared for land preparation in the coming months. The highest use was in maize and wheat at 46 and 21 per cent, respectively.

Table 3.41a: Distribution of Frequency of lubricants use by month

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 450 | 489 | 472 | 345 | 333 | 313 | 278 | 268 | 246 | 247 | 263 | 214 |

Table 3.41b: Distribution of Frequency of Lubricants Use by Crop

| Crop | Frequency | Per cent |
|--------------|-----------|----------|
| Maize | 1788 | 46 |
| Wheat | 836 | 21 |
| Coffee | 244 | 6 |
| Sugar cane | 223 | 6 |
| Tea | 136 | 3 |
| Barley | 120 | 3 |
| Tomatoes | 79 | 2 |
| Rhodes Grass | 76 | 2 |
| Others | 416 | 11 |

3.18 Frequency of Grease Used During the Year 2019 per Crop

Distribution of Frequency of grease use by month and crop is shown on Tables 3.42a and 3.42b. Grease is used alongside the lubricants on the machinery used on farm operations and other farm implements used in the crop farming of field crops. The grease use followed the same trend as lubricants. It was highest in the months of January and April. This is the start of the long rains and tractors are serviced for land preparation in the coming months. The use was almost similar throughout the other months of the year. Similarly, the use was highest on maize and wheat.

Table 3.42a: Distribution of Frequency of Grease Use by Month

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 450 | 489 | 472 | 345 | 333 | 313 | 278 | 268 | 246 | 247 | 263 | 214 |

Table 3.42b: Distribution Frequency of Grease Use by Crop

| Crop | Frequency | Per cent |
|--------------|-----------|----------|
| Maize | 1528 | 44 |
| Wheat | 765 | 22 |
| Coffee | 222 | 6 |
| Sugar cane | 201 | 6 |
| Tea | 125 | 4 |
| Barley | 114 | 3 |
| Tomatoes | 70 | 2 |
| Rhodes Grass | 69 | 2 |
| Bananas | 56 | 2 |
| Others | 318 | 9 |

3.19 Frequency of Electricity Used During the Year 2019 per Crop

Tables 3.43a and 3.43b show the distribution of electricity utilization by month and crop. Electricity is used in running some farm machinery in the farming of field crops. Utilization of electricity use was stable throughout the year. However, the use was highest for coffee, maize and tea.

Table 3.43a: Distribution Frequency of Electricity Use by Month

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 152 | 148 | 149 | 147 | 143 | 144 | 149 | 147 | 150 | 148 | 148 | 146 |

Table 3.43b: Distribution Frequency of Electricity Use by Crop

| Crop | Frequency | Per cent |
|-----------------------|-----------|----------|
| Coffee | 425 | 24 |
| Maize | 397 | 22 |
| Tea | 336 | 19 |
| Wheat | 84 | 5 |
| Sugar cane | 50 | 3 |
| Bananas | 48 | 3 |
| Avocados | 42 | 2 |
| Beans, dry | 36 | 2 |
| Cabbages | 60 | 3 |
| Sisal | 36 | 2 |
| Tomatoes | 29 | 2 |
| Cauliflowers/broccoli | 24 | 1 |
| Grass | 24 | 1 |
| Macadamia nuts | 24 | 1 |
| Onions | 24 | 1 |
| Barley | 23 | 1 |
| Others | 109 | 6 |

3.20 Packaging Material

Frequency of Cartons used during the year 2019 per crop

Cartons are some of the packing materials that are used for field crops. The cartons use was stable throughout the year. This could be a result of the production cycles of the commodities that have to be packaged. Use of cartons was highest for tomatoes and tea. Tables 3.44a and 3.44b illustrate these distributions.

Table 3.44a: Distribution Frequency of Cartons Use by Month

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

| | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|
| 31 | 21 | 22 | 23 | 24 | 26 | 29 | 30 | 28 | 27 | 31 | 27 |
|----|----|----|----|----|----|----|----|----|----|----|----|

Table 3.44b: Distribution Frequency of Cartons Use by Crop

| Crop | Frequency | Per cent |
|--|-----------|----------|
| Tomatoes | 59 | 18 |
| Tea | 57 | 18 |
| Bananas | 16 | 5 |
| Coffee | 16 | 5 |
| Beans, dry | 12 | 4 |
| Carthamus /Safflower/Safon | 12 | 4 |
| Cauliflowers/broccoli | 12 | 4 |
| Gypsophilla/Baby Breath Species | 12 | 4 |
| Rhodes Grass | 12 | 4 |
| Roses | 12 | 4 |
| Straw berry | 12 | 4 |
| Lucern | 11 | 3 |
| Wheat | 10 | 3 |
| Khat/Miraa | 8 | 3 |
| Others | 32 | 10 |

3.21 Distribution of Frequency of Bags Used During the Year 2019 per Crop

Tables 3.45a and 3.45b illustrate the frequency of bags use and their respective crops. Bags are some of the packing materials that are used for grains and some industrial crops. The bags use followed a similar trend with cartons, by being stable throughout the year. Use of bags was highest for avocados, kales and coffee.

Table 3.45a: Distribution Frequency of Bags Use by Month

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 6 | 8 | 6 | 6 | 5 | 5 | 3 | 5 | 4 | 6 | 4 | 3 |

Table 3.45b: Distribution Frequency of Bags Use by Crop

| Crop | Frequency | Per cent |
|-----------------------|-----------|----------|
| Avocados | 15 | 28 |
| Kales | 11 | 20 |
| Coffee | 7 | 13 |
| Bananas | 4 | 7 |
| Irish Potatoes | 2 | 4 |
| Oranges | 2 | 4 |
| Maize | 1 | 2 |
| Mangoes | 1 | 2 |

3.22 Frequency of Mulching Material Used During the Year 2019 per Crop

Mulching is used in conservation of moisture in some field crops especially where irrigation is used. The mulch can also be used as a conservation measure to improve the soil fertility especially where mechanization is highly used as in commercial farms. The mulch use was highest from August to December and lowest between the months of January to July. Mulching use was highest for maize at 58 per cent as seen in Tables 3.46a and 3.46b.

Table 3.46a: Distribution Frequency of Mulching Use by Month

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 158 | 142 | 129 | 125 | 120 | 145 | 185 | 255 | 237 | 594 | 652 | 319 |

Table 3.46b: Distribution Frequency of Mulching Use by Crop

| Crop | Frequency | Per cent |
|-----------------------|-----------|----------|
| Maize | 1769 | 58 |
| Wheat | 378 | 12 |
| Tea | 249 | 8 |
| Coffee | 129 | 4 |
| Beans, dry | 106 | 3 |
| Irish Potatoes | 65 | 2 |
| Lemon | 43 | 1 |
| Tomatoes | 32 | 1 |
| Rice(paddy) | 31 | 1 |
| Bananas | 30 | 1 |
| Others | 229 | 7 |

3.23 Frequency of Protective Clothing Purchased for Farm Employees Used During the Year 2019

Protective clothing is used by farm workers while performing different activities in the farm especially when handling chemicals and carrying out maintenance activities. The purchase was highest in January and lowest in December but stable throughout the year. The protective clothing use is not attached to any particular crop. Table 3.47 illustrates the frequency of purchase of protective clothing.

Table 3.47: Frequency of Protective Clothing Purchased for Farm Employees Used During the Year 2019

| Month | Frequency |
|-----------|-----------|
| January | 832 |
| February | 613 |
| March | 578 |
| April | 559 |
| May | 499 |
| June | 484 |
| July | 468 |
| August | 482 |
| September | 455 |
| October | 437 |
| November | 412 |
| December | 394 |

3.24 Frequency of Office Expenses Used During the Year 2019 per Crop

Office expenses used in running the office in the farming of field crops is presented in Tables 3.48a and 3.48b. The office expenses were stable throughout the year with a slight increase in January. However, the use was highest for tea, maize, coffee and sugarcane.

Table 3.48a: Distribution Frequency of Office Expenses Use by Month

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 208 | 191 | 186 | 192 | 176 | 170 | 174 | 171 | 171 | 181 | 184 | 171 |

Table 3.48b: Distribution Frequency of Office Expenses Use by Crop

| Crop | Frequency | Per Cent |
|----------------|-----------|----------|
| Tea | 487 | 22.4 |
| Maize | 436 | 20.0 |
| Coffee | 395 | 18.2 |
| Sugar cane | 182 | 8.4 |
| Wheat | 133 | 6.1 |
| Rhodes Grass | 85 | 3.9 |
| Irish Potatoes | 60 | 2.8 |
| Barley | 48 | 2.2 |
| Tomatoes | 47 | 2.2 |
| Beans, dry | 39 | 1.8 |
| Bananas | 38 | 1.7 |
| Fodder maize | 37 | 1.7 |
| Kales | 24 | 1.1 |
| Macadamia nuts | 24 | 1.1 |
| Others | 140 | 6.4 |

3.25 Frequency of Purchase of Spares and Maintenance of Machinery Used During the Year 2019 per Crop

Purchase of Spares and machinery maintenance is an activity that ensures that the machinery on the farm are kept in good working condition for the farming of field crops. The purchase of spares and machine maintenance was stable throughout the year with the frequency being highest in January and declining steadily throughout the year as presented in Table 3.49a. However, the use was highest for maize while wheat followed but with a lower percentage as shown in Table 3.49b.

Table 3.49a: Distribution Frequency of Purchase of Spares and Maintenance of Machinery by Month

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 401 | 374 | 386 | 316 | 289 | 281 | 264 | 250 | 257 | 252 | 239 | 232 |

Table 3.49b: Distribution Frequency of Purchase of Spares and Maintenance of Machinery Use by Month

| Crop | Frequency | Percentage |
|-----------------------|-----------|------------|
| Maize | 1,793 | 51 |
| Wheat | 605 | 17 |
| Sugar cane | 232 | 7 |
| Coffee | 222 | 6 |
| Tea | 201 | 6 |
| Rhodes Grass | 112 | 3 |
| Barley | 66 | 2 |
| Irish Potatoes | 42 | 1 |
| Tomatoes | 37 | 1 |
| Others | 231 | 7 |

Chapter 4

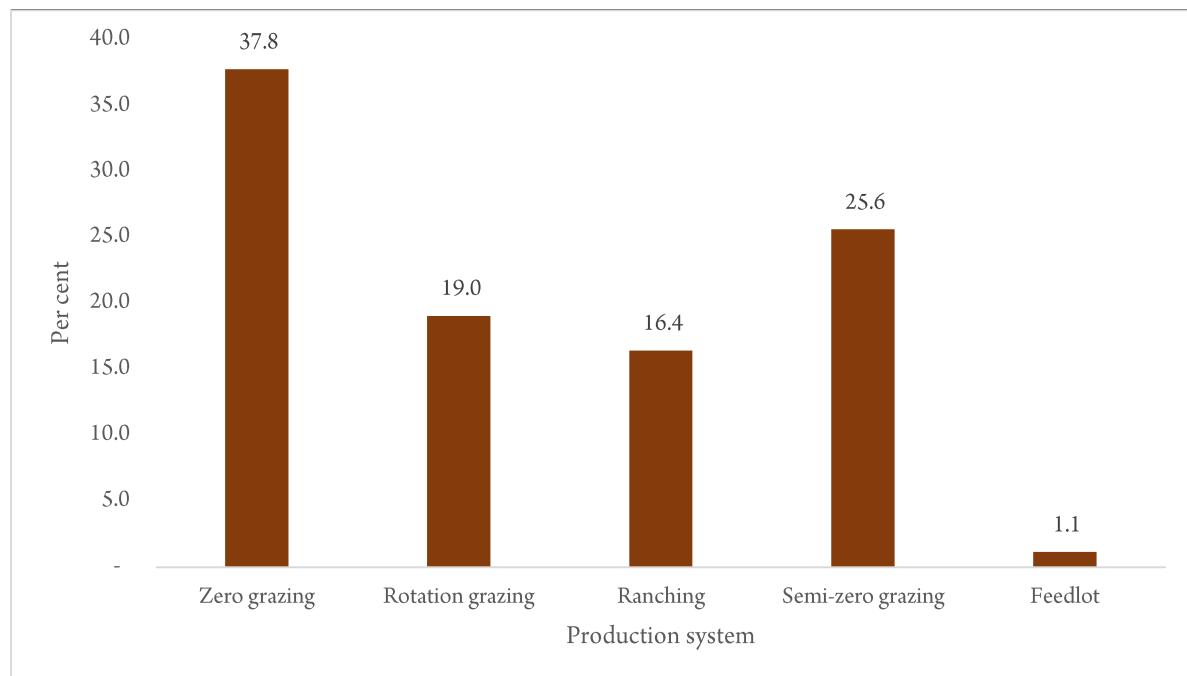
Cattle Production

4.1 Dairy Cattle

Dairy farming in Kenya is practiced under various production systems. In Zero grazing, the animals are confined and fed in stalls and is more popular in areas with high population densities e.g. Kiambu, Nakuru, Uasin Gishu, Kakamega and Nyeri. On the other hand, we have the rotational grazing where animals are left to graze in the open field and are enclosed in a cowshed at night. This was evidenced in Uasin Gishu, Bomet and Nakuru Counties. In the ranching production system, the animals are left to graze in the open fields common in areas with large chunks of grazing fields such as in Kajiado, Machakos and Uasin Gishu Counties.

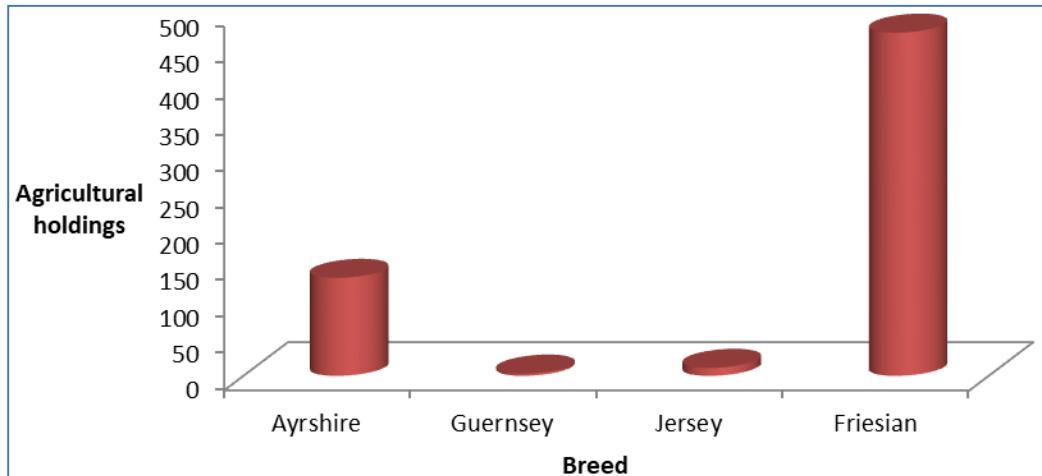
Figure 4.1 shows that commercial dairying was mostly under zero grazing which accounted for 37.8 per cent and semi zero grazing (25.6 per cent). This is probably due to the fact that dairy farmers are cognizant of the need to confine cows to reduce unnecessary energy losses occasioned by movement of animals and diseases; in addition to reduced land parcel holdings due to land fragmentation.

Figure 4.1: Distribution of Dairy Production Systems, 2019



Figures 4.2 shows the distribution of breed among the agricultural holdings. As evidenced from the figures, the friesian and ayrshire are the prefered breeds in Kenya.

Figure 4.2: Distribution of Dairy Agricultural Holdings by Breed Reared, 2019



4.1.1 Distribution of Dairy Breeds

The Ayrshire and Friesian breeds are fairly distributed across the Country as presented in Table 4.1. Kiambu, Uasin Gishu and Nakuru counties host majority of the Friesian herds representing 12.6, 8.9 and 7.4 per cent, respectively. The Friesian was reported to be the most popular dairy breed, followed by Ayrshires.

Table 4.1: Distribution of Dairy Agricultural Holdings by Breed by County

| County | Breed | | | |
|----------------------|----------|----------|--------|----------|
| | Ayrshire | Guernsey | Jersey | Friesian |
| Baringo | 3.7 | - | 9.1 | 3.0 |
| Bomet | 3.0 | - | 9.1 | 3.6 |
| Bungoma | 2.2 | - | - | 1.3 |
| Busia | 2.2 | - | - | 1.7 |
| Embu | 2.2 | - | 9.1 | 2.1 |
| Garissa | 2.2 | - | - | 3.2 |
| Homa Bay | 3.0 | - | - | 3.0 |
| Isiolo | - | - | - | 1.1 |
| Kajiado | 0.7 | - | - | 1.3 |
| Kakamega | 5.9 | 66.7 | 18.2 | 5.9 |
| Kericho | 2.2 | - | - | 1.9 |
| Kiambu | 12.6 | - | 9.1 | 9.9 |
| Kilifi | - | - | - | 3.2 |
| Kirinyaga | 1.5 | - | - | 2.5 |
| Kisumu | 1.5 | - | - | 0.8 |
| Kitui | 0.7 | - | - | 0.4 |
| Kwale | 3.0 | - | - | 2.7 |
| Laikipia | 0.7 | - | - | 4.7 |
| Machakos | 0.7 | - | - | 1.3 |
| Makueni | 2.2 | - | - | 2.3 |
| Meru | 2.2 | - | - | 1.9 |
| Murang'a | - | - | - | 0.8 |
| Nairobi | 1.5 | - | - | 1.3 |
| Nakuru | 7.4 | - | - | 6.6 |
| Nandi | 3.0 | - | - | 2.1 |
| Narok | 2.2 | - | - | 3.0 |
| Nyamira | 1.5 | - | - | 1.7 |
| Nyandarua | 1.5 | - | 9.1 | 2.5 |
| Nyeri | 4.4 | - | - | 4.4 |
| Tana River | 3.0 | - | - | 1.3 |
| Tharaka Nithi | 3.0 | - | 9.1 | 2.7 |
| Trans Nzoia | 2.2 | - | - | 4.2 |
| Uasin Gishu | 8.9 | 33.3 | 18.2 | 7.4 |
| Vihiga | 2.2 | - | - | 1.3 |
| West Pokot | 6.7 | - | 9.1 | 3.0 |

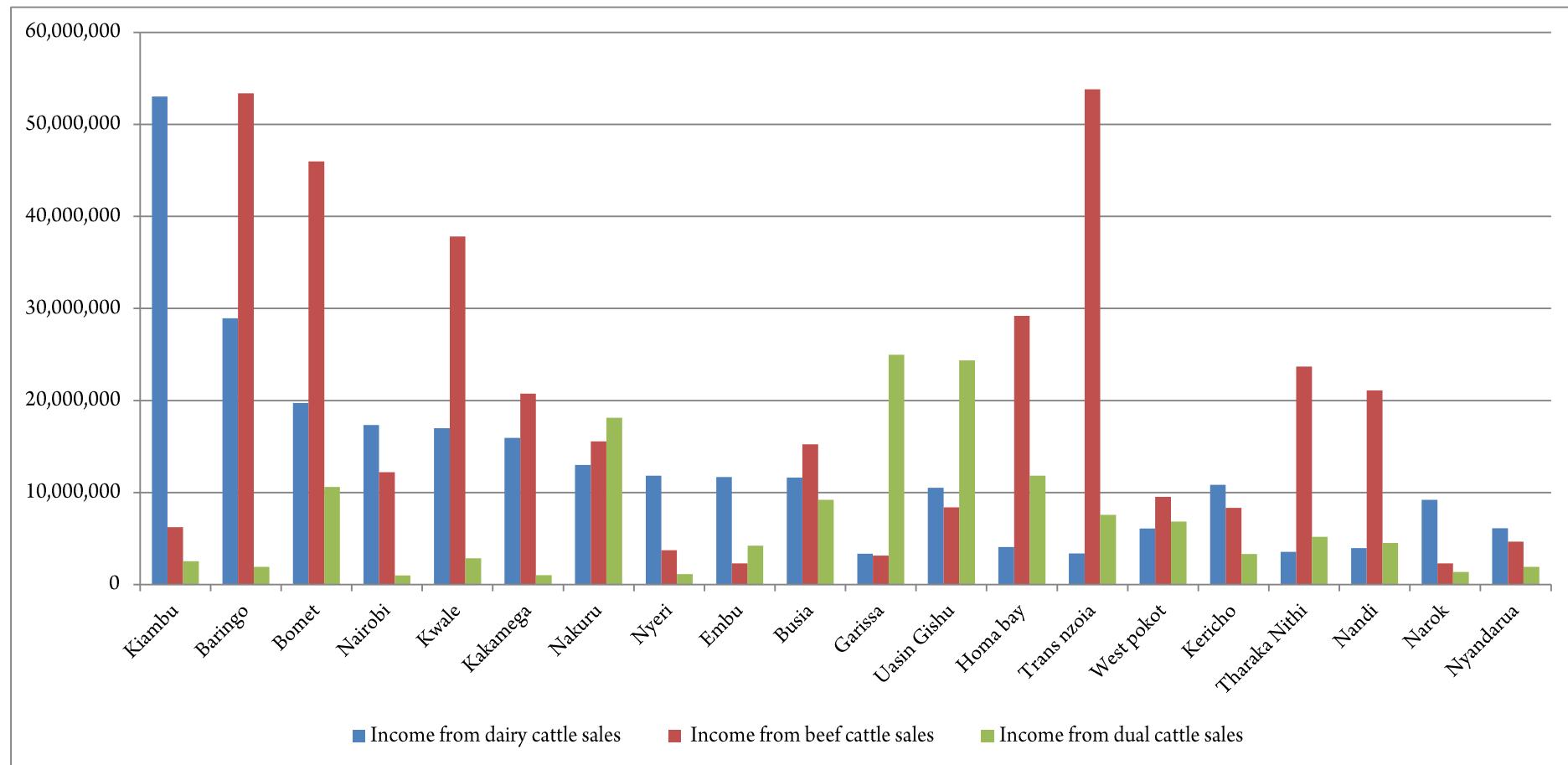
4.1.2 Dairy Revenue

Dairy cattle prices ranged from KSh 15,000 to 40,000 and KSh 80,000 to KSh 250,000 for the bulls and females, respectively as shown in Table 4.2 and Figure 4.3. A total of KSh 298 million was earned from the sales of dairy cattle with the highest sales revenue recorded in Kiambu county, which equally reported the highest mortality. High cattle losses through theft and death were reported in Kirinyaga, Laikipia, Nakuru and Uasin Gishu counties. This notwithstanding, theft of dairy cattle was not rampant in the country. This could be attributed to the fact that dairy cattle are mostly kept under intensive and semi-intensive production systems.

Table 4.2: Dairy Cattle Production and Revenue, 2019

| County | Animals at beginning of 2019 | Animals sold | Average price (male) | Average price (female) | Revenue (KSh) from sale of dairy cattle | Number Consumed | Deaths | Lost | Given-out | Purchased | Payment for cattle purchased | Birth |
|---------------|------------------------------|--------------|----------------------|------------------------|---|-----------------|--------------|-----------|------------|------------|------------------------------|--------------|
| Baringo | 1,905 | 319 | 20,000 | 100,000 | 28,940,000 | 36 | 153 | - | 26 | 7 | 378,000 | 556 |
| Bomet | 1,005 | 182 | 30,000 | 150,000 | 19,740,000 | 5 | 58 | 2 | 2 | 22 | 580,000 | 189 |
| Bungoma | 299 | 21 | 20,000 | 100,000 | 1,460,000 | 3 | 29 | - | 3 | 9 | 835,000 | 34 |
| Busia | 684 | 134 | 20,000 | 100,000 | 11,640,000 | 1 | 53 | - | 2 | 2 | 108,000 | 112 |
| Embu | 783 | 105 | 40,000 | 150,000 | 11,680,000 | 2 | 47 | 1 | 49 | 13 | 3,015,000 | 188 |
| Garissa | 545 | 60 | 20,000 | 100,000 | 3,360,000 | 2 | 85 | - | 10 | 1 | 6,000 | 109 |
| Homa Bay | 997 | 47 | 40,000 | 100,000 | 4,100,000 | - | 146 | - | 8 | 32 | 1,322,000 | 176 |
| Isiolo | 180 | 20 | 20,000 | 100,000 | 1,120,000 | 1 | 8 | - | 3 | 7 | 140,000 | 32 |
| Kajiado | 170 | 6 | 30,000 | 150,000 | 660,000 | - | 20 | - | 3 | 4 | 280,000 | 27 |
| Kakamega | 1,207 | 273 | 20,000 | 100,000 | 15,940,000 | 7 | 79 | - | 21 | 41 | 2,988,002 | 278 |
| Kericho | 994 | 74 | 30,000 | 150,000 | 10,860,000 | 4 | 97 | - | 15 | 14 | 1,780,000 | 327 |
| Kiambu | 2,726 | 339 | 15,000 | 250,000 | 53,025,000 | 5 | 316 | 2 | 36 | 130 | 10,337,500 | 572 |
| Kilifi | 598 | 23 | 20,000 | 100,000 | 1,980,000 | 4 | 15 | - | 2 | 5 | 75,000 | 91 |
| Kirinyaga | 492 | 31 | 15,000 | 150,000 | 3,030,000 | 2 | 23 | 8 | 8 | 33 | 15,000 | 71 |
| Kisumu | 779 | 13 | 40,000 | 100,000 | 1,300,000 | 10 | 15 | - | - | 11 | 175,000 | 145 |
| Kitui | 93 | 20 | 30,000 | 100,000 | 2,000,000 | - | 10 | - | 2 | - | - | 32 |
| Kwale | 1,095 | 189 | 70,000 | 100,000 | 16,980,000 | 11 | 158 | 5 | 18 | 56 | 6,650,000 | 255 |
| Laikipia | 682 | 70 | 40,000 | 100,000 | 5,260,000 | 6 | 51 | 8 | 4 | 10 | 200,000 | 103 |
| Machakos | 336 | 23 | 30,000 | 100,000 | 690,000 | - | 5 | - | 4 | 1 | 10,000 | 62 |
| Makueni | 284 | 10 | 30,000 | 100,000 | 930,000 | 1 | 30 | - | 1 | 2 | 400,960 | 50 |
| Meru | 317 | 48 | 20,000 | 150,000 | 5,900,000 | 1 | 42 | - | 5 | 2 | 40,000 | 73 |
| Murang'a | 225 | 56 | 25,000 | 200,000 | 6,475,000 | - | 21 | 5 | 9 | 10 | 800,000 | 27 |
| Nairobi | 492 | 142 | 20,000 | 250,000 | 17,330,000 | 2 | 61 | 3 | - | - | - | 109 |
| Nakuru | 1,252 | 146 | 40,000 | 150,000 | 12,990,000 | 1 | 80 | 10 | 29 | 12 | 1,218,000 | 202 |
| Nandi | 434 | 92 | 30,000 | 80,000 | 3,960,000 | 1 | 21 | 1 | - | 5 | 345,000 | 93 |
| Narok | 889 | 140 | 40,000 | 100,000 | 9,200,000 | 16 | 61 | - | - | 3 | 185,000 | 230 |
| Nyamira | 218 | 28 | 20,000 | 100,000 | 560,000 | 3 | 24 | - | 2 | 8 | 460,000 | 47 |
| Nyandarua | 785 | 118 | 25,000 | 80,000 | 6,140,000 | 4 | 35 | - | 9 | 5 | 250,000 | 174 |
| Nyeri | 1,209 | 124 | 20,000 | 150,000 | 11,840,000 | 9 | 62 | 1 | 12 | 33 | 855,000 | 164 |
| Tana River | 449 | 44 | 40,000 | 100,000 | 3,680,000 | - | 20 | - | 6 | 1 | 25,000 | 106 |
| Tharaka Nithi | 418 | 40 | 15,000 | 150,000 | 3,570,000 | 8 | 61 | - | 7 | 15 | 915,000 | 84 |
| Trans Nzoia | 479 | 61 | 20,000 | 100,000 | 3,380,000 | 5 | 36 | 5 | 2 | 7 | 553,000 | 96 |
| Uasin Gishu | 1,606 | 166 | 20,000 | 100,000 | 10,520,000 | 13 | 133 | 8 | 39 | 36 | 1,385,000 | 280 |
| Vihiga | 234 | 15 | 30,000 | 100,000 | 1,360,000 | 3 | 16 | - | 5 | 5 | 180,000 | 59 |
| West Pokot | 863 | 83 | 60,000 | 80,000 | 6,100,000 | - | 60 | - | 8 | 35 | 791,000 | 141 |
| Total | 25,734 | 3,264 | | | 297,730,000 | 166 | 2,135 | 59 | 350 | 577 | 37,297,462 | 5,300 |

Figure 4.3: Revenue (KSh) from Sales of Dairy, Beef and Dual Cattle 2019

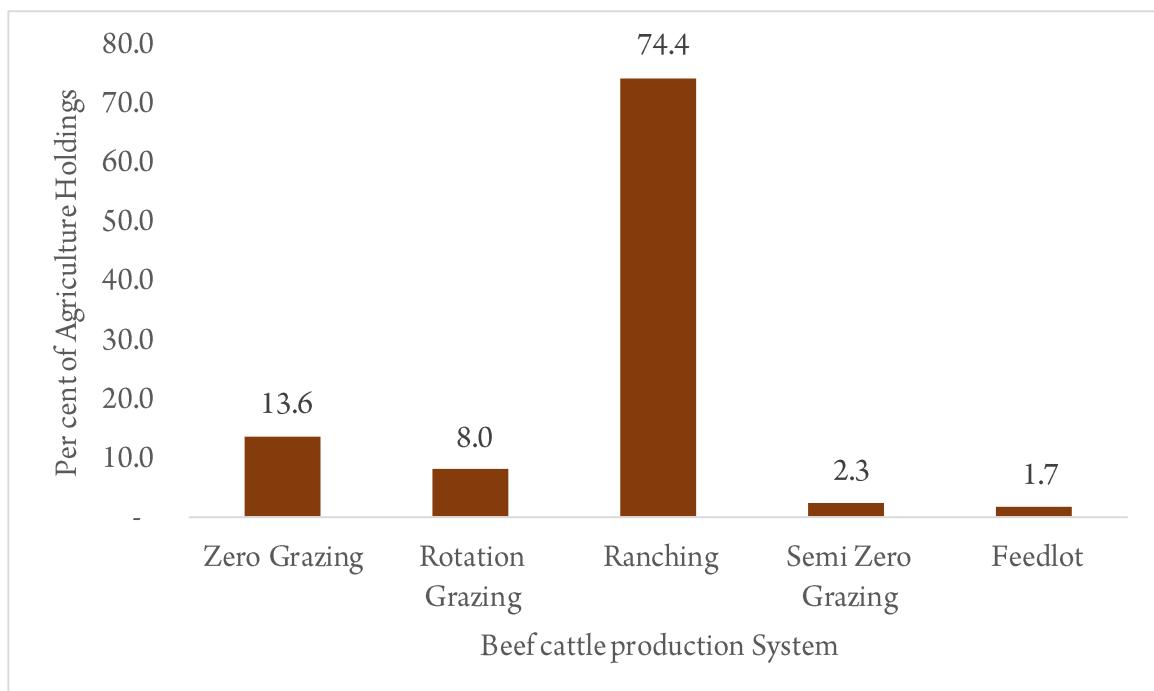


4.2 Beef Cattle

4.2.1 Beef Production Systems

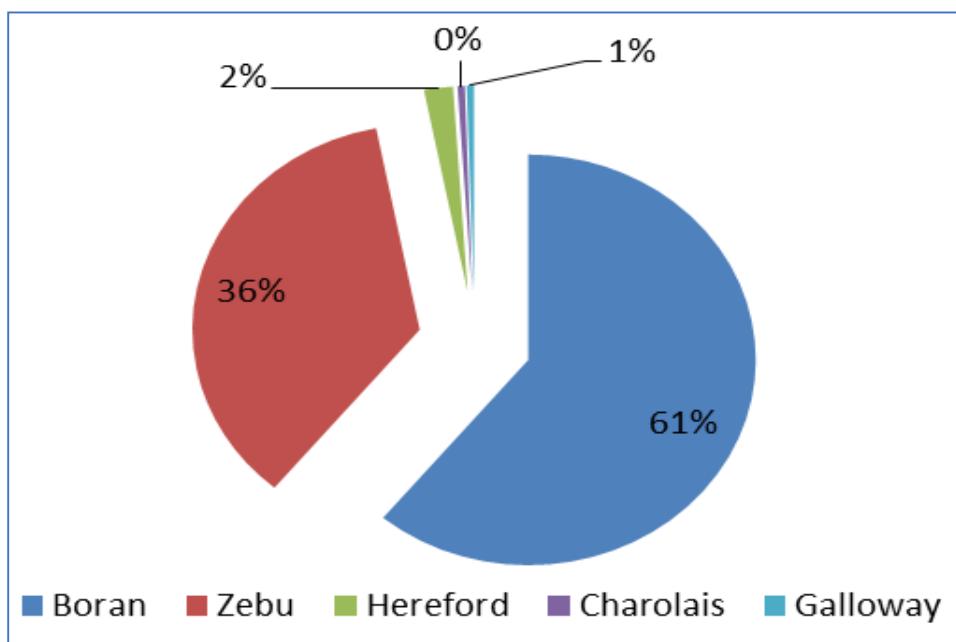
Figure 4.4 presents the proportion of agricultural holdings by type of beef production systems. Most beef cattle production was derived from ranches followed by Zero grazing. Ranches are ideal for commercial beef production in the country. This is because there exist large chunks of land involved which allows paddocking for grazing of animals in order to produce quality meat. Ranches are managed by professional ranch managers for good management because of the number of beef cattle involved. On the other hand, feedlot is used for feeding animals which are meant to gain weight for sale.

Figure 4.4: Distribution of Agricultural Holdings by Beef Production Systems, 2019



In terms of breed preference for beef cattle, the Boran and zebu are the most popular jointly accounting for over 95 per cent of the total production. The exotic beef breeds are found in few populations as shown in Figure 4.5.

Figure 4.5: Percentage Agricultural Holdings by Type of Beef Breed

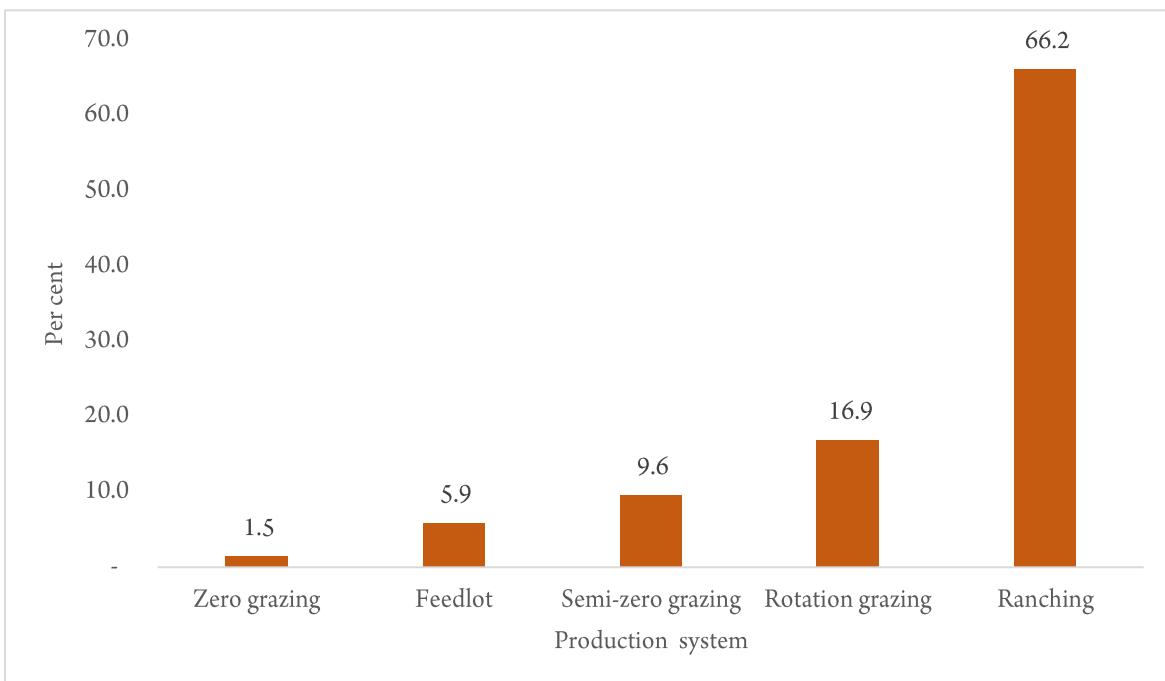


4.3 Dual Purpose Cattle

4.3.1 Production Systems

Dual purpose breeds of cattle produce both beef and milk. These breeds were mainly reared under the ranching system (66.2 per cent) as shown on Figure 4.6. Other production systems were also in place but to a less extent. Ranching for dual cattle is popular in Nakuru, Uasin Gishu and West Pokot Counties.

Figure 4.6: Dual Purpose Agricultural Holdings Production Systems

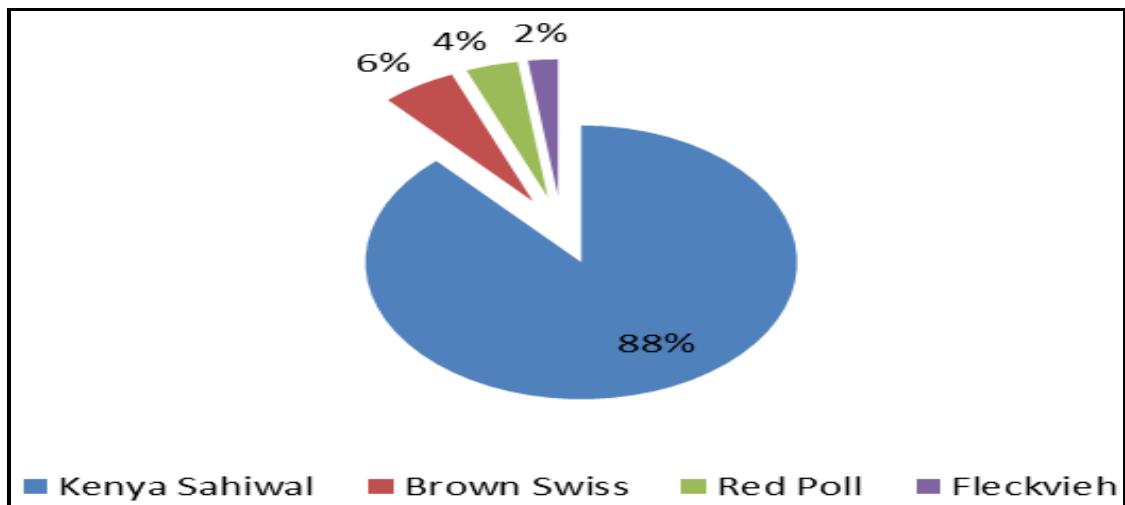


Among the dual cattle breeds, the Sahiwal (88.8 per cent) is the most common in most agricultural holdings while the Fleckvieh (1.7 per cent) is least common as shown in Table 4.3 and Figure 4.7

Table 4.3: Distribution of Dual Purpose Cattle Agricultural Holdings by Breed

| Breed | Agricultural holdings | Per cent of holdings |
|---------------|-----------------------|----------------------|
| Kenya Sahiwal | 158 | 88.8 |
| Brown Swiss | 10 | 5.6 |
| Red poll | 7 | 3.9 |
| Fleckvieh | 3 | 1.7 |
| Total | 178 | 100 |

Figure 4.7: Agricultural Holdings by Dual Purpose Breed



The Kenya Sahiwal is most popular breed across the counties as shown on Table 4.4. On the other hand, Fleckvieh and Brown Swiss breeds are thinly reported the counties.

Table 4.4: Agricultural Holdings Rearing Dual Purpose Cattle by Breed by County

| County | Breed | | | |
|----------------------|-------------|---------------|----------|-----------|
| | Brown Swiss | Kenya Sahiwal | Red Poll | Fleckvieh |
| Baringo | 20.0 | 0.6 | | |
| Bomet | | 8.9 | | |
| Bungoma | 10.0 | 1.3 | | |
| Busia | 10.0 | 2.5 | | 33.3 |
| Embu | | 3.2 | | |
| Garissa | | 3.2 | | |
| Homa Bay | 10.0 | 4.4 | | |
| Isiolo | | 0.6 | | |
| Kajiado | | 0.6 | | |
| Kakamega | 10.0 | 8.2 | | 33.3 |
| Kericho | | 2.5 | | |
| Kiambu | | 9.5 | | |
| Kilifi | | 1.9 | | |
| Kirinyaga | | 2.5 | | |
| Kitui | | 1.3 | | |
| Kwale | | 0.6 | | |
| Laikipia | | 2.5 | | |
| Machakos | | 1.9 | 14.3 | |
| Makueni | | 2.5 | | |
| Meru | | 2.5 | | |
| Nairobi | | 0.6 | | |
| Nakuru | 10.0 | 5.1 | | |
| Nandi | | 0.6 | 42.9 | |
| Narok | | 2.5 | | |
| Nyamira | | 2.5 | | |
| Nyandarua | | 0.6 | | |
| Nyeri | | 2.5 | 28.6 | 33.3 |
| Tana River | | 1.9 | | |
| Tharaka Nithi | | 3.2 | | |
| Trans Nzoia | 10.0 | 3.2 | 14.3 | |
| Uasin Gishu | 10.0 | 8.2 | | |
| Vihiga | | 1.3 | | |
| West Pokot | 10.0 | 6.3 | | |

4.4 Meat Goats

4.4.1 Production systems

Although all systems are practiced in Kenya for meat goats, ranching is the common meat goat production system with Kajiado County on the lead as shown in Table 4.5. Zero grazing system of meat goat production is less common and only limited to high potential (Kiambu, Kirinyaga and Meru) Counties. Most meat goats are in the ASAL counties of Kajiado, Baringo, Kilifi and Nakuru.

Table 4.5: Meat Goat Production Systems by Agricultural Holdings by County

| County | Zero grazing | Rotation grazing | Ranching | Semi-Zero grazing | Feedlot |
|-----------------|--------------|------------------|----------|-------------------|---------|
| Baringo | - | - | 9.3 | - | 45.5 |
| Bomet | - | 14.3 | 1.9 | 33.3 | 9.1 |
| Elgeyo Marakwet | - | - | 3.7 | - | 9.1 |
| Embu | - | - | 13.0 | - | - |
| Kajiado | - | - | 18.5 | - | - |
| Kericho | - | - | - | - | 9.1 |
| Kilifi | 25.0 | 14.3 | - | - | 9.1 |
| Kirinyaga | 25.0 | - | - | - | - |
| Kitui | - | - | 13.0 | - | - |
| Kwale | 25.0 | - | 1.9 | - | - |
| Machakos | - | - | 1.9 | - | - |
| Makueni | - | - | 1.9 | - | - |
| Meru | 25.0 | - | 3.7 | 66.7 | 9.1 |
| Nakuru | - | 28.6 | 1.9 | - | - |
| Samburu | - | - | 7.4 | - | - |
| TaitaTaveta | - | - | 5.6 | - | - |
| Tharaka Nithi | - | - | 11.1 | - | 9.1 |
| Uasin Gishu | - | 28.6 | 3.7 | - | - |
| West Pokot | - | 14.3 | 1.9 | - | - |

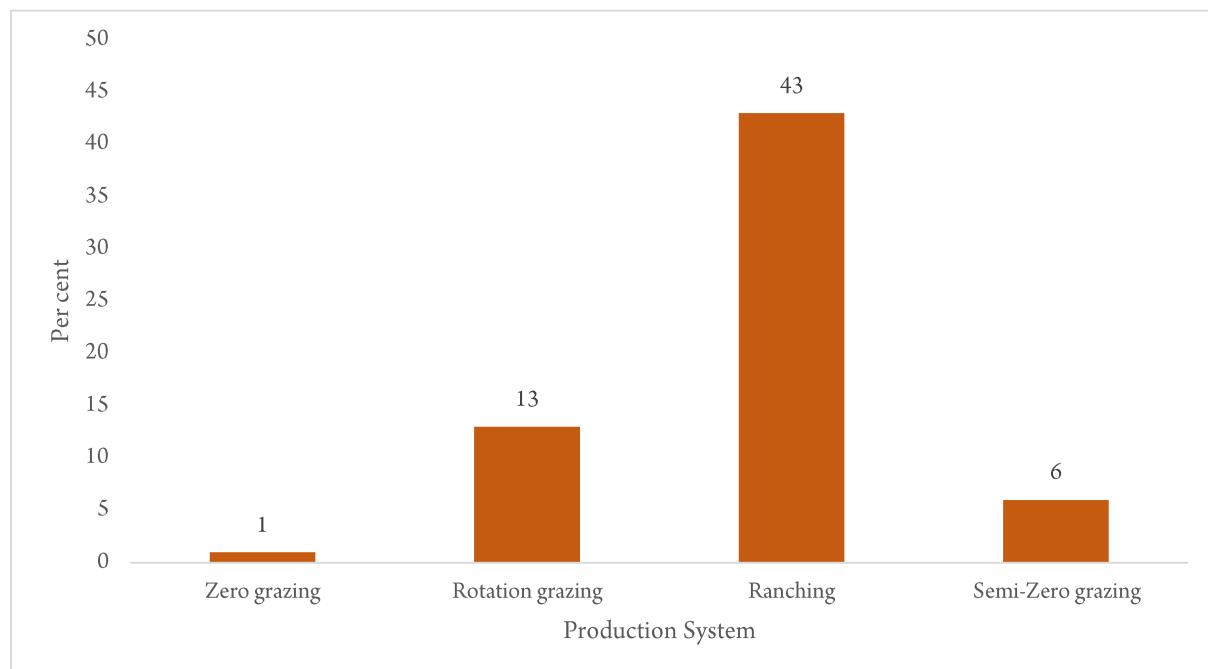
NB. Only those counties meeting the set criteria are enlisted

4.5 Wool Sheep

4.5.1 Wool Sheep Production Systems

As shown on Figure 4.8, rotational grazing and ranching are the common production systems for wool sheep in Kenya accounting for 45.9 per cent followed by ranching which accounted for 35.1 per cent of the wool sheep production system. The least used production system for wool sheep was semi zero grazing(2.7 per cent).

Figure 4.8: Wool Sheep Production Systems, 2019



4.5.2 Wool Sheep Distribution

Table 4.6 presents the distribution of agricultural holdings with wool sheep by breed and by county. Wool sheep production is practiced in cool regions of the country due to the climatic conditions that favour their rearing. The most common breeds of wool sheep are Merino, Corriedale and Hampshire down. Merino sheep was the most popular breed in the Country. West Pokot, Bomet and Meru counties reported the highest number of Merino breed of wool sheep. Corriedale wool sheep was found in Meru and Nakuru while hampshire down was in Nakuru, Nyeri and Nyandarua Counties.

Table 4.6: Distribution of Agricultural Holdings with Wool Sheep Population by Breed and by County

| County | Merino | Corriedale | Hampshire Down |
|--------------------|-----------|------------|----------------|
| Bomet | 6 | 0 | 0 |
| Kericho | 1 | 0 | 0 |
| Meru | 4 | 1 | 0 |
| Nakuru | 0 | 1 | 1 |
| Nyandarua | 1 | 0 | 5 |
| Nyeri | 0 | 0 | 2 |
| Uasin Gishu | 2 | 0 | 0 |
| West Pokot | 13 | 0 | 0 |
| Total | 27 | 2 | 8 |

4.6 Meat Sheep

Table 4.7 presents the distribution of meat sheep agricultural holdings by breed and county. The meat sheep breeds are reared in various counties for mutton production. Table 4.7 and Figure 4.9 show that the Dorper sheep was the most popular amongst farmers, followed by the Red Maasai breed. The main reason of the popularity of Dorper sheep is its ability to adapt to many types of climatic conditions and has a higher meat yield compared to the Red Maasai.

Figure 4.9: Percentage Agricultural Holdings by Meat Sheep Breeds

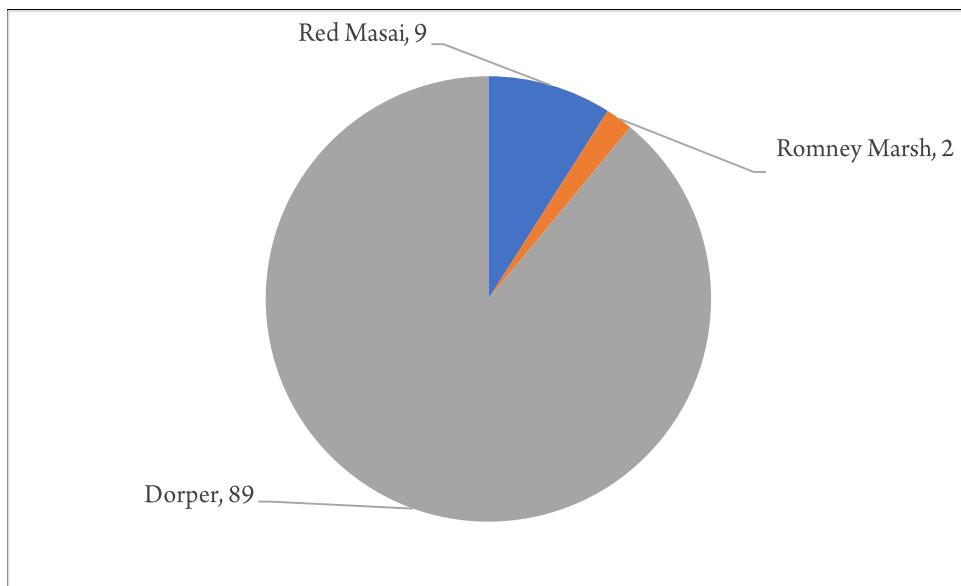


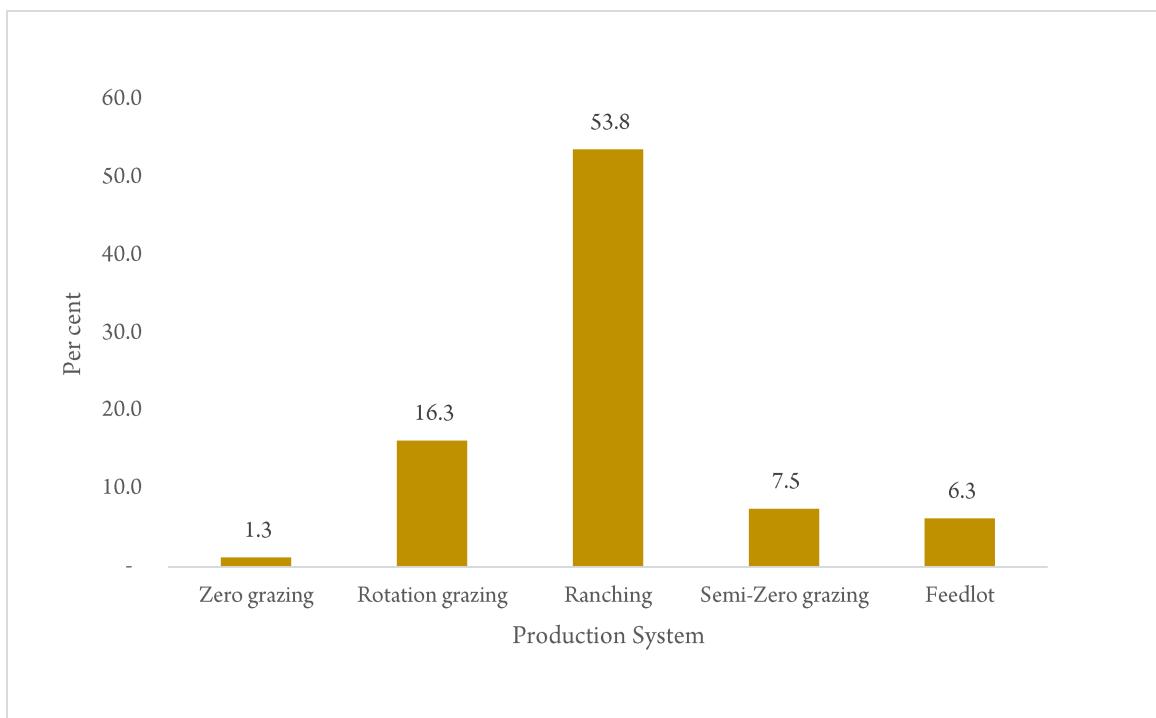
Table 4.7: Distribution of Meat Sheep Agricultural Holdings by Breed by County

| County | Breed | | |
|--------------|------------|--------------|-----------|
| | Red Maasai | Romney Marsh | Dorper |
| Baringo | 1 | 0 | 0 |
| Bomet | 0 | 0 | 1 |
| Embu | 1 | 0 | 0 |
| Kajiado | 0 | 0 | 4 |
| Kakamega | 0 | 0 | 6 |
| Kiambu | 0 | 0 | 7 |
| Kirinyaga | 0 | 0 | 1 |
| Kitui | 2 | 0 | 1 |
| Laikipia | 0 | 0 | 1 |
| Machakos | 1 | 0 | 3 |
| Meru | 2 | 0 | 5 |
| Nakuru | 0 | 2 | 3 |
| Nyandarua | 0 | 0 | 1 |
| Nyeri | 0 | 0 | 4 |
| Samburu | 0 | 0 | 14 |
| TaitaTaveta | 0 | 0 | 1 |
| Uasin Gishu | 0 | 0 | 17 |
| West Pokot | 0 | 0 | 2 |
| Total | 7 | 2 | 71 |

4.7.1 Meat Sheep Production Systems

Sheep are normally reared under extensive to semi-extensive conditions in the Country, as they mostly graze and are housed for the night or confined part of the day and supplemented with feeds. The most reported method of rearing the meat sheep is the ranching system of production (53.8 per cent) which is mostly grazing in well fenced fields as shown on Figure 4.10.

Figure 4.10: Percentage distribution of Mutton Sheep Production Systems in Kenya



The feedlot system of meat sheep was reported in Meru, Kakamega and Nyeri Counties as shown in Table 4.8. Wool sheep are mainly kept under rotational grazing and ranching production systems. Rotational grazing was most popular in Nyandarua, Nakuru and Bomet while ranching was common in Nyandarua, Nyeri and Meru.

Table 4.8: Distribution of Sheep Production Systems by Sheep Type by County

| County Name | Meat sheep | | | | | | Wool sheep | | | |
|--------------------|--------------|------------------|-----------|-------------------|----------|-----------|------------------|-----------|-------------------|----------|
| | Zero grazing | Rotation grazing | Ranching | Semi-Zero grazing | Feedlot | Other | Rotation grazing | Ranching | Semi-Zero grazing | Other |
| Baringo | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bomet | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 0 |
| Embu | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kajiado | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kakamega | 0 | 0 | 1 | 4 | 1 | 0 | 0 | 0 | 0 | 0 |
| Kericho | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Kiambu | 0 | 2 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 |
| Kirinyaga | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kitui | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Laikipia | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Machakos | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Meru | 1 | 0 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 0 |
| Nakuru | 0 | 4 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| Nyandarua | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 2 | 0 | 0 |
| Nyeri | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| Samburu | 0 | 0 | 11 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| TaitaTaveta | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Uasin Gishu | 0 | 5 | 12 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| West Pokot | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 0 | 6 |
| Total | 1 | 13 | 43 | 6 | 5 | 12 | 17 | 13 | 1 | 6 |

4.8 Material Inputs in the Livestock

Table 4.8 presents material inputs in livestock production by county. Hay constitutes the bulky of conserved forage input (2.7 tonnes) to the livestock costing the farmers KSh 157.0 million followed by silage and Napier grass respectively. Nakuru county with a consumption of 2.2 million tonnes is the leading followed by Kiambu county with a consumption of 163.0 thousand tonnes. On the other hand, Green forage/natural pasture constitutes the bulky (1.5 million tonnes) of livestock feeds followed by Napier grass/fodder crops (72,000 tonnes).

Table 4.8: Material Inputs in Livestock Production

| County | Hay (MT) | Hay value (KSh) | Silage (MT) | Silage value (KSh) | Napier grass/fodder (MT) | Napier grass/fodder (KSh) | Green forage (e.g. Natural Pasture, fodder trees,) (MT) | Green forage (e.g. Natural Pasture, fodder trees,) (KSh) | Water purchased (LT) |
|------------------------|-----------|-----------------|-------------|--------------------|--------------------------|---------------------------|---|---|----------------------|
| Baringo | 3,250 | 827,500 | 8 | 96,000 | 15 | 11,000 | 2 | 20,000 | 538,780 |
| Bomet | 1,951 | 139,900 | | | 1,002 | 14,600 | | | 60,000 |
| Bungoma | 1,198 | 269,500 | | | | | | | |
| Busia | 100 | 25,000 | 90 | 87,993 | | | 1,657 | 46,700 | |
| Elgeyo Marakwet | 100 | 30,000 | 203 | 79,400 | | | 30 | 1,500 | 72,600 |
| Embu | 9,300 | 3,045,000 | 2,352 | 728,030 | 510 | 550,000 | 17 | 29,000 | 49,255 |
| Garissa | | | | | | | | | |
| Homa Bay | | | | | | | | | |
| Isiolo | | | | | | | 50 | 50,000 | |
| Kajiado | 3,364 | 1,054,400 | | | | | 255,713 | 6,410,500 | 952,910 |
| Kakamega | 52,181 | 11,435,700 | 30,659 | 2,392,800 | 52,521 | 1,970,750 | 19,113 | 3,794,508 | 354,498 |
| Kericho | 322 | 330,000 | 5 | 25,000 | 480 | 360,000 | 2 | 60,000 | |
| Kiambu | 163,052 | 39,284,168 | 48,703 | 10,017,000 | 5,133 | 50,584,700 | 2,435 | 1,204,950 | 4,356,547 |
| Kilifi | 22,730 | 489,000 | 7,500 | 18,750,000 | | | 150 | 15,000 | 10,777,940 |
| Kirinyaga | 8,258 | 1,588,500 | 59 | 545,000 | 1,040 | 160,000 | | | 13,772 |
| Kisumu | | | 500 | 5,000 | | | | | |
| Kitui | 178 | 83,400 | | | 42 | 42,000 | 102 | 338,000 | 213,348 |
| Kwale | 4,038 | 617,100 | 2,400 | 10,400,000 | 70 | 29,500 | 1,215,000 | 24,000,000 | 24,259,050 |
| Laikipia | 48,500 | 4,068,000 | | | | | | | 3,000 |
| Machakos | 5,049 | 3,136,200 | 794 | 13,162,870 | 110 | 220,000 | | | 486,800 |
| Makueni | 10,150 | 1,800,000 | 650 | 600,000 | 20 | 100,000 | | | 14,375 |
| Marsabit | | | | | | | | | |
| Meru | 4,682 | 1,299,000 | 241 | 950,360 | 222 | 262,500 | 18,194 | 1,793,000 | 3,505,189 |
| Migori | | | | | | | | | |
| Murang'a | 11,980 | 1,941,000 | 3,766 | 1,985,900 | 600 | 360,000 | | | 5,049,812 |
| Nairobi | 864 | 36,225 | 1 | 10,000 | | | | | 345,060 |
| Nakuru | 2,202,690 | 67,494,000 | 4,000 | 2,750,000 | 9,000 | 27,000 | | | 8,872,000 |
| Nandi | | | 45,150 | 525,000 | | | | | |
| Narok | 3,320 | 1,148,000 | | | 40 | 40,000 | 5 | 175,000 | 10,000 |
| Nyamira | 3,600 | 684,000 | 50 | 167,000 | 70 | 410,000 | 40 | 40,000 | 120,000 |
| Nyandarua | 1,115 | 239,725 | | | | | | | 1,440 |
| Nyeri | 42,600 | 10,404,000 | 65 | 344 | | | | | 2,066,001 |
| Samburu | 1,540 | 616,000 | | | | | | | 60,000 |
| TaitaTaveta | 102,930 | 982,500 | 28 | 34,000 | | | 150 | 0 | 5,128,600 |
| Tharaka Nithi | | | | | | | 60 | 9,000 | 192,912 |
| Trans Nzoia | 21,624 | 1,028,200 | 16,160 | 160,750 | 415 | 2,000 | 10,001 | 108,000 | 0 |
| Usini Gishu | 56,951 | 2,026,600 | 390 | 3,546,080 | 219 | 73,750 | 3 | 309,500 | 120 |
| Vihiga | 558 | 135,300 | 30 | 7,500 | | | 1,555 | 213,600 | 32 |
| West Pokot | 3,470 | 841,500 | 1,378 | 166,200 | 35 | 37,000 | 233 | 421,000 | 33,000 |
| Total | 2,791,645 | 157,099,418 | 165,182 | 67,192,227 | 71,544 | 55,254,800 | 1,524,512 | 39,039,258 | 67,537,041 |

Table 4.8: Material Inputs in Livestock Production Contd'

| County | Water purchased (KSh) | pesticides (Kg) | pesticides (KSh) | Dips, spray fluids LT) | 6c Dips, spray fluids (KSh) | Vaccines (LT) | Vaccines (KSh) | Fuel (LT) | Fuel (KSh) |
|------------------------|-----------------------|-----------------|------------------|------------------------|-----------------------------|---------------|----------------|-----------|-------------|
| Baringo | 250,300 | 1,216 | 57,200 | 284 | 411,800 | 209 | 139,760 | 7 | 700 |
| Bomet | 120,000 | 2,288 | 283,332 | 2,667 | 314,900 | 1,191 | 45,500 | 72,000 | 720,000 |
| Bungoma | | 148 | 118,500 | 18 | 45,250 | 5 | 25,000 | | |
| Busia | | 557 | 265,020 | 83 | 110,000 | 175 | 108,200 | 8,295 | 878,490 |
| Elgeyo Marakwet | 138,900 | 170 | 239,200 | 82 | 93,760 | 35 | 64,500 | 250 | 25,500 |
| Embu | 122,450 | 308 | 786,000 | 139 | 191,900 | 255 | 385,450 | 10,313 | 4,328,500 |
| Garissa | | 5 | 15,000 | | | 1 | 5,000 | | |
| Homa Bay | | | | 20 | 2,000 | 2,003 | 35,250 | 120 | 12,000 |
| Isiolo | | | | 3 | 5,400 | 6 | 600 | | |
| Kajiado | 5,783,000 | 1,127 | 421,350 | 1,595 | 814,166 | 71 | 254,900 | 8,420 | 784,000 |
| Kakamega | 855,150 | 6,700 | 3,010,150 | 36,549 | 2,092,040 | 21,173 | 3,485,980 | 40,025 | 1,528,034 |
| Kericho | | 334 | 402,660 | 185 | 313,054 | 306 | 35,400 | 40,930 | 1,403,000 |
| Kiambu | 16,916,394 | 1,284 | 1,452,950 | 483 | 237,750 | 543,367 | 5,794,430 | 192,324 | 10,978,667 |
| Kilifi | 2,024,883 | 649 | 781,520 | 605 | 613,300 | 198 | 668,750 | 12,804 | 1,412,388 |
| Kirinyaga | 26,000 | 67 | 77,302 | 1,182 | 92,630 | 36 | 142,300 | 16,245 | 1,912,550 |
| Kisumu | | | | 1 | 10,000 | 5 | 2,000 | | |
| Kitui | 451,280 | 129 | 239,320 | 83 | 83,150 | 253 | 351,530 | 2,252 | 268,800 |
| Kwale | 1,958,000 | 428 | 393,000 | 217 | 592,414 | 966 | 1,525,400 | 1,350,198 | 19,389,360 |
| Laikipia | 15,000 | 5,791 | 10,672,720 | 1,506 | 1,962,500 | 4,612 | 1,310,250 | 101,137 | 17,595,420 |
| Machakos | 482,400 | 411 | 1,046,710 | 416 | 2,315,340 | 1,529 | 5,050,990 | 203,678 | 18,528,230 |
| Makueni | 784,750 | 240 | 36,000 | 289 | 1,029,250 | 118 | 397,269 | 60,938 | 5,984,600 |
| Marsabit | | 1 | 3,000 | | | 300 | 300 | | |
| Meru | 929,033 | 5,393 | 1,640,865 | 4,182 | 1,092,470 | 35,414 | 1,605,350 | 5,090 | 305,600 |
| Migori | | | | | | | 5,000 | | |
| Murang'a | 4,051,055 | 578 | 284,750 | 5 | 15,000 | 1,402 | 463,350 | 37,998 | 764,200 |
| Nairobi | 9,010 | 32 | 76,100 | 12 | 36,000 | 440 | 446,000 | | |
| Nakuru | 6,011,600 | 1,944 | 38,112,880 | 1,891 | 2,124,950 | 13,847 | 184,817,810 | 245,803 | 18,116,095 |
| Nandi | | 96 | 206,400 | | | 200 | 3,600 | 2,390 | 247,900 |
| Narok | 3,000 | 49 | 233,520 | 257 | 1,081,600 | 16 | 74,050 | 65 | 6,500 |
| Nyamira | 360,000 | 572 | 124,800 | 6 | 38,800 | 1,087 | 70,500 | 3,404 | 260,240 |
| Nyandarua | 168,000 | 2 | 4,000 | 105 | 216,100 | 19 | 27,650 | | |
| Nyeri | 4,377,305 | 165 | 231,665 | 253 | 191,590 | 4,826 | 494,873 | 15,194 | 1,216,600 |
| Samburu | 15,000 | 227 | 421,200 | 488 | 1,453,600 | 35 | 124,100 | | |
| TaitaTaveta | 6,406,000 | 911 | 2,835,960 | 222 | 578,735 | 546 | 3,722,920 | 34,662 | 3,850,600 |
| Tharaka Nithi | 320,984 | 587 | 134,300 | 112 | 12,100 | 2,176 | 355,550 | 600 | 66,000 |
| Trans Nzoia | 0 | 176 | 571,920 | 420 | 1,530,600 | 3,900 | 110,500 | 12,710 | 1,329,720 |
| Uasin Gishu | 36,000 | 617 | 1,502,580 | 1,683 | 3,911,344 | 713 | 488,700 | 10,949 | 639,196 |
| Vihiga | 97,000 | 90 | 32,280 | 2,500 | 35,940 | 7 | 62,740 | 20 | 2,050 |
| West Pokot | 500,000 | 348 | 502,800 | 521 | 783,860 | 634 | 985,480 | 2,250 | 251,200 |
| Total | 53,212,494 | 33,637 | 67,216,954 | 59,063 | 24,433,293 | 642,074 | 213,686,932 | 2,491,070 | 112,806,140 |

Table 4.8: Material Inputs in Livestock Production Contd'

| County | Lubricants purchased (LT) | Lubricants purchased (KSh) | grease purchased (Kg) | grease purchased (KSh) | Electricity (KWH) | Electricity (KSh) | Spares for maintenance of machinery | Spares for maintenance of machinery (KSh) |
|------------------------|---------------------------|----------------------------|-----------------------|------------------------|-------------------|-------------------|-------------------------------------|---|
| Baringo | 6 | 1,250 | | | 14 | 1,062 | 4 | 3,000 |
| Bomet | | | 3 | 1,300 | 43,200 | 444,000 | 8 | 22,360 |
| Bungoma | | | | | 75,000 | 50,100 | | |
| Busia | 1 | 280 | 1 | 250 | 2,680 | 59,480 | 1 | 20,000 |
| Elgeyo Marakwet | | | 20 | 5,000 | 250 | 18,750 | 4 | 32,000 |
| Embu | 130 | 65,000 | 243 | 196,500 | 849,000 | 4,356,000 | 14 | 897,000 |
| Garissa | 2 | 3,000 | | | | | | |
| Homa Bay | | | 2 | 400 | 6,032 | 143,660 | | |
| Isiolo | | | | | | | | |
| Kajiado | 415 | 175,100 | 80 | 70,000 | 172,360 | 4,295,000 | 11 | 2,000,000 |
| Kakamega | 132 | 54,300 | 60 | 70,650 | 80,419 | 1,922,502 | 245 | 392,000 |
| Kericho | 101 | 42,300 | 23 | 1,600 | 1,100 | 133,000 | 8 | 55,000 |
| Kiambu | 7,717 | 4,458,900 | 51 | 68,050 | 560,933 | 9,693,408 | 39,824 | 6,138,100 |
| Kilifi | 105 | 30,200 | 2 | 4,000 | 20,782 | 2,041,900 | 7 | 624,000 |
| Kirinyaga | | | 26 | 4,000 | 18,360 | 1,501,172 | 46 | 73,600 |
| Kisumu | | | | | | | | |
| Kitui | 6 | 1,800 | | | | | 13 | 2,600 |
| Kwale | 152 | 53,200 | 18 | 6,300 | 10,260 | 229,656 | 1 | 166,000 |
| Laikipia | 5,305 | 2,356,955 | 311 | 427,150 | 18,907 | 664,759 | 733 | 29,763,493 |
| Machakos | 223 | 105,850 | 64 | 33,620 | 520,924 | 9,078,240 | 27 | 1,611,000 |
| Makueni | 20 | 100,000 | | | 96,800 | 1,846,085 | 51 | 1,890,000 |
| Marsabit | | | | | | | | |
| Meru | 11 | 3,700 | 13 | 9,400 | 7,651 | 248,000 | 12 | 36,600 |
| Migori | | | | | | | | |
| Murang'a | 17 | 3,250 | | | 38,596 | 2,030,068 | 46 | 188,000 |
| Nairobi | 1 | 1,000 | 6 | 750 | 1,504 | 1,504 | | |
| Nakuru | 14,624 | 674,000 | 250,660 | 244,500 | 10,175,410 | 15,699,262 | 40,014 | 5,159,000 |
| Nandi | 50 | 15,000 | 17 | 5,100 | | | 3 | 450,000 |
| Narok | 2 | 1,200 | | | 6,000 | 240,000 | 1 | 40,000 |
| Nyamira | 103 | 44,400 | 96 | 9,600 | 43,855 | 81,000 | 4 | 16,240 |
| Nyandarua | 5 | 1,250 | | | 3,200 | 63,000 | | |
| Nyeri | 256 | 81,000 | 32 | 15,070 | 16,698 | 785,525 | 10,015 | 599,900 |
| Samburu | | | | | | | | |
| TaitaTaveta | 1,135 | 129,900 | 214 | 33,100 | | | 31 | 793,000 |
| Tharaka Nithi | | | | | 18,080 | 276,500 | 5 | 50,000 |
| Trans Nzoia | 93 | 22,640 | 26 | 10,100 | 565 | 30,570 | 11 | 81,800 |
| Uasin Gishu | 125 | 67,790 | 25 | 11,750 | 14,476 | 289,745 | 19 | 189,000 |
| Vihiga | 2 | 600 | | | 52,255 | 208,100 | 2 | 12,000 |
| West Pokot | 3 | 1,200 | 1 | 500 | | | 2 | 400,000 |
| Total | 30,741 | 8,495,065 | 251,993 | 1,228,690 | 12,855,310 | 56,432,048 | 91,162 | 51,705,693 |

4.9 Labour and service inputs Value

Table 4.9 presents labour and service inputs consumption by county. Livestock spraying constitutes the most common (92 per cent) vector control method over dipping. On the other hand, livestock farmers preferred to engage private veterinary services at 82 per cent, compared to government veterinary services.

Table 4.9: Labour and Service Inputs Value

| County | Livestock spraying | Livestock Dipping | Transportation | Tractor services | Private veterinary services | Government veterinary services | Government veterinary inoculation services | Insurance | Accounting, secretarial and auditing service |
|------------------------|--------------------|-------------------|----------------|------------------|-----------------------------|--------------------------------|--|------------|--|
| Baringo | 104,330 | 65,006 | 23,000 | | 389,100 | 48,800 | 27,720 | | |
| Bomet | 481,100 | 108,350 | 100,700 | | 435,100 | 13,690 | 30,690 | | 2,000,000 |
| Bungoma | 5,000 | | 54,000 | | 5,000 | 3,000 | | | |
| Busia | 22,000 | | 475,900 | | 739,500 | | | | |
| Elgeyo Marakwet | 96,150 | 194,500 | 105,400 | | 383,800 | 13,800 | 22,400 | | |
| Embu | 35,500 | | 27,800 | | 706,100 | 256,000 | 55,800 | | 150,000 |
| Garissa | | | 45,000 | | 10,000 | | | | |
| Homa Bay | | | 40,000 | | | | | | |
| Isiolo | | | | | | 0 | | | |
| Kajiado | 3,200 | | 1,800,000 | 300,000 | 219,600 | 305,600 | 150,000 | | 240,000 |
| Kakamega | 161,050 | 36,900 | 1,508,300 | 220,000 | 741,000 | 84,940 | 15,000 | 48,000 | 12,000 |
| Kericho | 113,500 | 21,500 | 381,000 | 40,000 | 189,300 | 11,940 | 5,000 | 50,000 | |
| Kiambu | 110,150 | 98,300 | 19,093,610 | 62,000 | 6,919,868 | 1,031,260 | 531,930 | 8,493,811 | 510,118 |
| Kilifi | 58,000 | 2,000 | 354,000 | 250,000 | 475,700 | 132,750 | 10,000 | | 160,000 |
| Kirinyaga | 152,280 | | 435,190 | | 659,600 | | 1,800 | 96,000 | 75,000 |
| Kitui | 42,720 | | 71,950 | | 67,200 | 37,210 | | | |
| Kwale | 138,000 | 320,000 | 775,000 | | 77,700 | 359,440 | 11,000 | 120,000 | 120,000 |
| Laikipia | | | 1,320,000 | 50,000 | 330,000 | 100,000 | | 2,246,189 | 1,185,650 |
| Machakos | 10,800 | | 2,017,900 | 30,000 | 1,283,700 | 876,000 | 42,000 | 1,364,000 | |
| Makueni | | | 160,000 | | 60,000 | 60,000 | | 2,030,000 | 405,000 |
| Marsabit | 6,000 | | | | 1,000 | 0 | | | |
| Meru | 120,900 | | 546,000 | 48,000 | 929,438 | 62,500 | 101,380 | 540,800 | 35,000 |
| Migori | | | | | 3,000 | | | | |
| Murang'a | 113,000 | | 1,057,400 | 1,000,000 | 509,300 | 36,000 | 5,000 | 5,529,000 | 155,000 |
| Nairobi | 57,600 | | 107,000 | | 11,800 | 22,500 | | | |
| Nakuru | 30,999,888 | 495,000 | 549,500 | | 1,347,590 | 135,000 | 18,400 | 3,000,000 | 1,146,000 |
| Nandi | 196,500 | | 4,500 | | 605,000 | 7,200 | 5,050 | | |
| Narok | 2,000 | | 235,000 | 80,000 | 183,900 | 13,800 | 36,000 | | |
| Nyamira | 147,000 | | 31,000 | 6,000 | 15,500 | 44,750 | 61,500 | | 1,800 |
| Nyandarua | 38,800 | | 120,000 | | 856,200 | 1,800 | | | |
| Nyeri | 45,000 | 10,000 | 487,400 | | 418,000 | 140,000 | 16,500 | | |
| Samburu | | | 56,600 | | 32,100 | 62,000 | 15,000 | | |
| TaitaTaveta | 730,400 | | 1,697,000 | 150,000 | 615,400 | 367,190 | 97,500 | 471,000 | 1,500,000 |
| Tharaka Nithi | 40,500 | | 499,200 | | 170,500 | 500 | 0 | 100,000 | |
| Trans Nzoia | 7,200 | 3,000 | 1,800 | | 14,000 | 22,000 | 1,750 | | |
| Uasin Gishu | 142,560 | 1,552,320 | 368,580 | 37,500 | 2,163,980 | 597,400 | 424,260 | | 42,000 |
| Vihiga | 15,500 | | 407,850 | | 502,917 | 5,700 | 1,900 | 612,000 | |
| West Pokot | | 196,230 | 77,900 | | 405,250 | 18,000 | 28,000 | | |
| Total | 34,196,628 | 3,103,106 | 35,035,480 | 2,273,500 | 22,477,143 | 4,870,770 | 1,715,580 | 24,700,800 | 7,737,568 |

Table 4.9: Labour and Service Inputs Value Contd'

| County | Farm planning and census services | Artificial insemination | Marketing | Research | Publicity | Bank charges | Consultant fees | Licence fees paid for vehicles, trucks, trailers, tractors, etc. | Property rates paid to municipalities |
|------------------------|-----------------------------------|-------------------------|-----------|-----------|-----------|--------------|-----------------|--|---------------------------------------|
| Baringo | | | | 500 | 3,000 | | 600 | | |
| Bomet | | 464,550 | | | | 500 | | | |
| Bungoma | | | 40,000 | 5,000 | | | | 5,000 | |
| Busia | | 7,000 | 500 | 10,000 | 2,000 | 60,500 | 500 | 13,500 | |
| Elgeyo Marakwet | | | 93,000 | | 17,000 | | 4,000 | | 4,500 |
| Embu | | 2,838,000 | | | | | | 190,000 | |
| Garissa | | | | | | | | | |
| Homa Bay | | | | | | 14,500 | | | |
| Isiolo | | | | | | | | | |
| Kajiado | | 120,000 | | | | | 15,000 | 29,700 | |
| Kakamega | 32,000 | 316,400 | 697,500 | 69,000 | 5,000 | 243,800 | 18,000 | 68,500 | 13,000 |
| Kericho | | 104,000 | 10,000 | 60,000 | | 5,300 | 10,000 | 19,000 | 2,000 |
| Kiambu | 318,900 | 4,310,520 | 41,700 | 1,308,000 | | 3,775,050 | 170,600 | 4,570,000 | 46,750 |
| Kilifi | 21,200 | 163,000 | 50,000 | | 1,000 | 3,200 | | 115,000 | 161,300 |
| Kirinyaga | | 134,000 | | | 2,500 | 55,000 | 5,000 | 20,000 | 15,000 |
| Kitui | | | | | | | 5,000 | | 16,500 |
| Kwale | 45,000 | 200,000 | | | 40,000 | 241,000 | 5,000 | 49,500 | 237,000 |
| Laikipia | | 223,000 | 30,000 | | | 1,202,291 | | 720,133 | 2,437,465 |
| Machakos | 120,000 | 388,000 | 427,500 | 16,000 | 5,000 | 129,500 | 30,000 | 112,000 | 5,000 |
| Makueni | | | | | | 320,000 | 240,000 | 25,500 | 2,000 |
| Marsabit | | | | | | | | | |
| Meru | 12,000 | 125,400 | 20,000 | 1,000 | | 220,000 | 40,000 | 15,000 | 24,000 |
| Migori | | | | | | | | | |
| Murang'a | 500,000 | 156,400 | | | | 1,586,000 | 140,000 | 534,000 | 1,200,000 |
| Nairobi | | 1,500 | | | | | | | 2,300 |
| Nakuru | 110,500 | 1,015,100 | 1,005,000 | | | 165,801 | | 2,630,000 | 24,150 |
| Nandi | | 325,000 | | | | | | | |
| Narok | | 15,500 | | | | 13,500 | | 38,000 | |
| Nyamira | | 84,000 | | | | 2,000 | 500 | | |
| Nyandarua | | 88,200 | | | | | | | |
| Nyeri | 5,000 | 262,400 | | 3,000 | | 16,000 | | 42,000 | |
| Samburu | | | | | | | | | |
| TaitaTaveta | 755,000 | 750,000 | 202,000 | 20,000 | 30,000 | 79,980 | 1,198,000 | 740,000 | 2,243,000 |
| Tharaka Nithi | | 20,000 | 108,000 | 10,000 | | 25,000 | 17,700 | | 17,000 |
| Trans Nzoia | | | | | | 5,000 | | | |
| Uasin Gishu | | 682,600 | | | | 24,200 | | 48,000 | 23,000 |
| Vihiga | | 52,900 | | | | | 105,000 | | |
| West Pokot | | 7,500 | | | | 10,550 | | | |
| Total | 1,919,600 | 12,947,970 | 2,632,200 | 1,519,500 | 88,500 | 8,198,672 | 2,004,900 | 9,984,833 | 6,473,965 |

Table 4.9: Labour and Service Inputs Value Contd'

| County | Payment of tax (e.g. council levies) - exclude VAT and income tax | Operating, leasing and hiring of plant, machinery, equipment and vehicles | Repairs and maintenance on farm property | Security services | Did the establishment spend on any Services rendered by contractors, cooperatives | Telecommunication services (e.g. internet charges, telephone and facsimile | Other service expenditure |
|------------------------|---|---|--|-------------------|---|--|---------------------------|
| Baringo | | 6,950 | 11,400 | | | 102,400 | |
| Bomet | 9,000 | | 276,500 | 15,000 | 35,000 | 14,500 | 90,700 |
| Bungoma | | | 25,000 | 190,000 | | 11,000 | |
| Busia | | | 463,350 | | | 131,150 | |
| Elgeyo Marakwet | 5,000 | | 147,400 | | | 166,100 | |
| Embu | | | 350,000 | | | 18,000 | 1,490,000 |
| Garissa | | | | | | 8,000 | |
| Homa Bay | | | 10,000 | | | 84,000 | |
| Isiolo | | | | | | | |
| Kajiado | | | 800,000 | 1,000,000 | | 68,000 | |
| Kakamega | 23,000 | 20,000 | 710,800 | 689,000 | 3,600 | 557,450 | 27,350 |
| Kericho | | 15,000 | 150,000 | 50,000 | | 19,400 | 25,000 |
| Kiambu | 1,306,995 | 1,702,000 | 5,374,600 | 2,210,447 | 256,200 | 3,578,550 | 815,400 |
| Kilifi | 12,000 | 2,511,000 | 780,420 | 16,500 | | 117,500 | 722,000 |
| Kirinyaga | 24,950 | | 237,500 | 72,000 | | 121,000 | 109,600 |
| Kitui | | | 3,000 | 36,000 | | 60,000 | 11,000 |
| Kwale | 26,000 | 960,000 | | | | 241,500 | 28,000 |
| Laikipia | 1,446,000 | | 3,693,000 | | | 1,216,320 | 2,711,000 |
| Machakos | 52,000 | 140,000 | 955,500 | 126,000 | 320,000 | 1,839,000 | |
| Makueni | 110,000 | | | | | 342,000 | 435,000 |
| Marsabit | | | | 10,000 | | | |
| Meru | 5,000 | 10,000 | 65,000 | 504,000 | | 661,450 | 229,020 |
| Migori | | | | | | 7,300 | |
| Murang'a | 240,000 | | 1,004,000 | 974,000 | | 504,950 | 3,000,000 |
| Nairobi | | | 24,000 | | | | |
| Nakuru | 193,000 | | 6,154,500 | | | 918,500 | 22,288,237 |
| Nandi | | | 200,000 | 82,500 | | 5,000 | |
| Narok | 60,400 | | 107,500 | | | 33,500 | |
| Nyamira | | | 75,000 | 120,000 | | 17,100 | |
| Nyandarua | | | | 7,000 | | | 36,000 |
| Nyeri | | 15,000 | 182,000 | 150,000 | | 177,600 | 14,000 |
| Samburu | 79,200 | | 55,000 | | | 204,000 | 7,500 |
| TaitaTaveta | 4,371,661 | 5,070,000 | 90,000 | 6,744,000 | 2,475,000 | 726,730 | |
| Tharaka Nithi | | 15,000 | 310,000 | 32,000 | | 60,000 | |
| Trans Nzoia | | | 5,000 | 14,400 | | 18,000 | |
| Uasin Gishu | 12,800 | 33,600 | 252,400 | 20,000 | 125,000 | 87,130 | 200 |
| Vihiga | 100,000 | | 291,600 | 96,000 | | 16,000 | |
| West Pokot | | | 394,200 | | | 6,600 | 67,000 |
| Total | 8,077,006 | 10,498,550 | 23,198,670 | 13,158,847 | 3,214,800 | 12,139,730 | 32,107,007 |

Chapter 5

Fisheries and Aquaculture

5.1 Aquaculture Holdings 2019

Commercial aquaculture holdings are dominantly at 91 per cent established in warm water while sparingly 9 per cent in the cold-water areas as reflected in Table 5.1. In both areas, traditional earthen ponds were dominant with 73 per cent. Overall, 73 per cent, 11.4 per cent, 6.5 per cent, 3.3 per cent of holdings practiced fish rearing in earthen ponds, lined pond, Concrete pond and cage system respectively.

Table 5.1: Distribution of type of production units by mode of aquaculture

| Type of Production Unit | | Mode of Aquaculture | | Total | Percent of responses |
|-------------------------|-----------------|---------------------|------------|------------|----------------------|
| | | warm water | cold water | | |
| 1 | Earthen Pond | 168 | 11 | 179 | 73.06 |
| 2 | Lined Pond | 28 | 0 | 28 | 11.43 |
| 3 | Concrete Pond | 5 | 3 | 8 | 3.27 |
| 4 | Raceway | 2 | 0 | 2 | 0.82 |
| 5 | Cage System | 15 | 1 | 16 | 6.53 |
| 7 | Raised | 3 | 0 | 3 | 1.22 |
| 8 | Aquaponics | 1 | 0 | 1 | 0.41 |
| 9 | Other (Specify) | 2 | 6 | 8 | 3.27 |
| Total | | 224 | 21 | 245 | 100 |

Overall, 56.9 per cent of the commercial aquaculture holdings practiced semi-intensive culture, with extensive and intensive system taking proportion of 31.7 per cent and 11.4 per cent respectively as presented in Table 5.2. This was a response from a total of 245 households that were interviewed. Some holdings deployed more than one culture system.

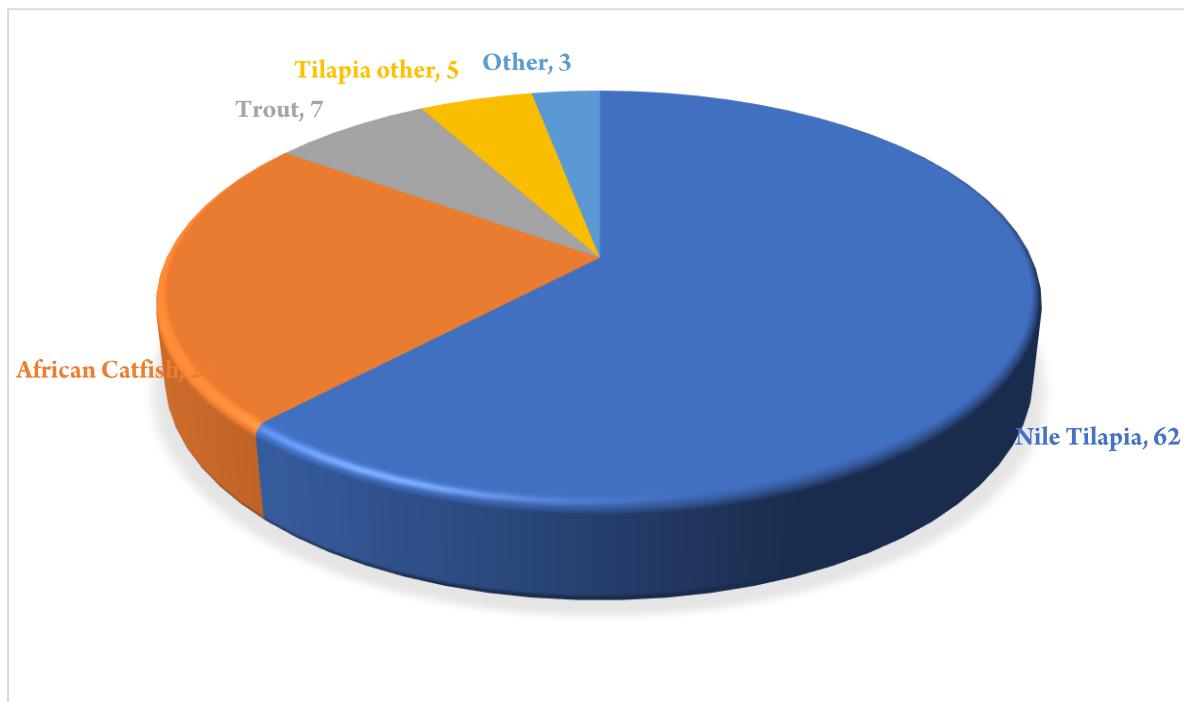
Table 5.2: Distribution of holdings by aquaculture production system and size (area/volume)

| Aquaculture production system | Area(M2) | Volume(M3) | Percentage |
|-------------------------------|------------------|------------------|------------|
| Extensive | 186,402 | - | 32 |
| Semi-intensive | 857,971 | - | 57 |
| Intensive | - | 1,098,974 | 11 |
| Total | 1,044,373 | 1,098,974 | 100 |

5.2 Aquaculture Species

The main species stocked by commercial aquaculture holdings are tilapia and African catfish at 62.2 per cent and 22.7 per cent, respectively. Rainbow trout was third at 6.9 per cent while the ornamental fish species; koi carp, gold fish and sword tail were least cultured as shown in Figure 5.1.

Figure 5.1: Proportions of Reared Species by Aquaculture Holdings

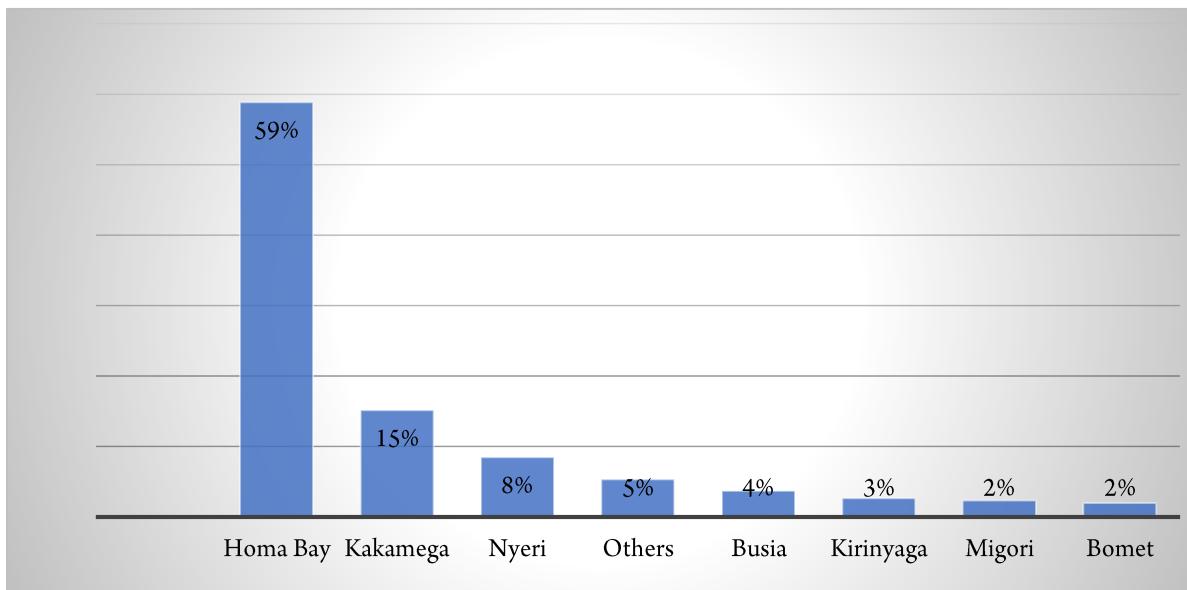


5.3 Aquaculture Holdings Stocks

At the beginning of the culture period a total of about 3 million fingerlings, 355 thousand broodstock and 1.7 million kilograms of table size fish were in stock at various commercial holdings. Homa Bay (59 per cent), Kakamega (15 per cent), Nyeri (8.5 per cent) and Kirinyaga

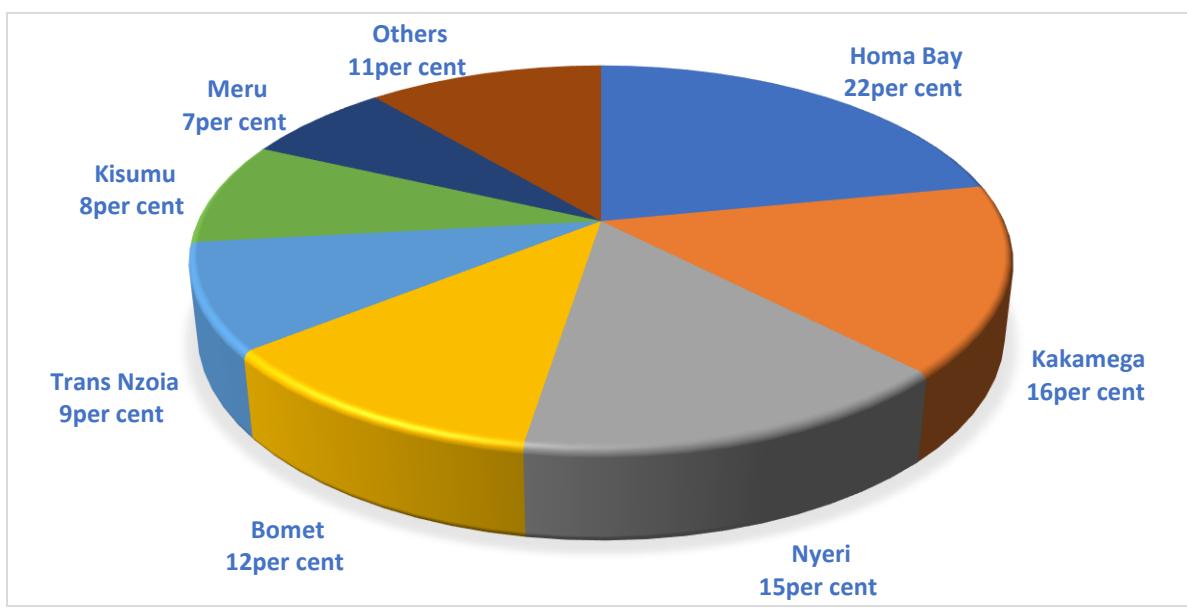
(2.7 per cent) contributed to the total fingerlings stocked by aquaculture holdings while the rest of the counties contributed 14.9 per cent as shown in Figure 5.2.

Figure 5.2: Aquaculture Holdings Stocks



Similarly, Homa Bay with 21.9 per cent was leading with broodstock. Kakamega with 15.8 per cent and Nyeri 14.8 per cent were the second and third respectively, with the remaining counties contributing to 47.5 per cent of broodstock in stock at the beginning of the period.

Figure 5.3: Broodstock Holdings Stocks



The same trend is observed for holdings with table size fish stocks as shown in Figure 5.4. During the year 2019, commercial holdings across the counties purchased an assorted 797 thousand fingerlings valued at KSh 4.5 million, for production. The details of stocking and values are presented in Tables 5.3 and 5.4.

Figure 5.4: Quantity of Table size fish

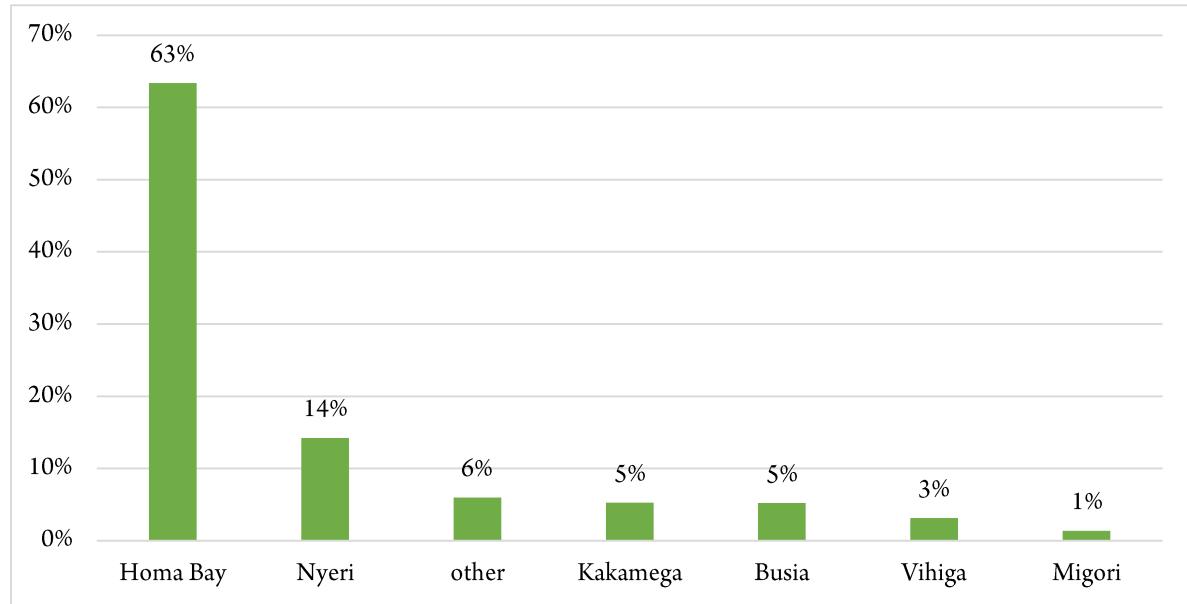


Table 5.3: Initial quantities of fish stock in commercial aquaculture holdings unit

| Counties | Number of holdings with stocked units | Total stock from the fish ponds (fingerling) | Total stock from the fish ponds (table size) | Total stock from the fish ponds (brood stock) |
|----------------------|---------------------------------------|--|---|---|
| Meru | 7 | 18,700 | 2,480 | 12,000 |
| Tharaka Nithi | 2 | 14,500 | 1,500 | 300 |
| Embu | 2 | 3,200 | 555 | 30 |
| Nyeri | 15 | 221,000 | 210,831 | 25,557 |
| Kirinyaga | 6 | 69,500 | 7,374 | 870 |
| Kiambu | 1 | 500 | 500 | 1,000 |
| West Pokot | 1 | | 1,800 | - |
| Trans Nzoia | 2 | 22,000 | 19,100 | 15,500 |
| Nandi | 1 | 10,000 | 5,000 | 1,000 |
| Baringo | 2 | 2,900 | 1,000 | 900 |
| Laikipia | 2 | | 7,200 | 150 |
| Nakuru | 2 | 50 | 50 | 50 |
| Kericho | 8 | 25,750 | 13,575 | 6,200 |
| Bomet | 3 | 51,300 | 20,000 | 20,250 |
| Kakamega | 50 | 394,845 | 78,125 | 27,317 |
| Vihiga | 21 | 38,700 | 46,815 | 3,900 |
| Bungoma | 1 | 26,950 | 13,200 | - |
| Busia | 25 | 96,400 | 77,478 | 1,995 |
| Kisumu | 1 | 15,000 | 15,000 | 15,000 |
| Homa Bay | 58 | 1,534,650 | 937,755 | 37,760 |
| Migori | 8 | 61,700 | 20,508 | 2,800 |
| Total | 218 | 2,607,645 | 1,479,846 | 172,579 |

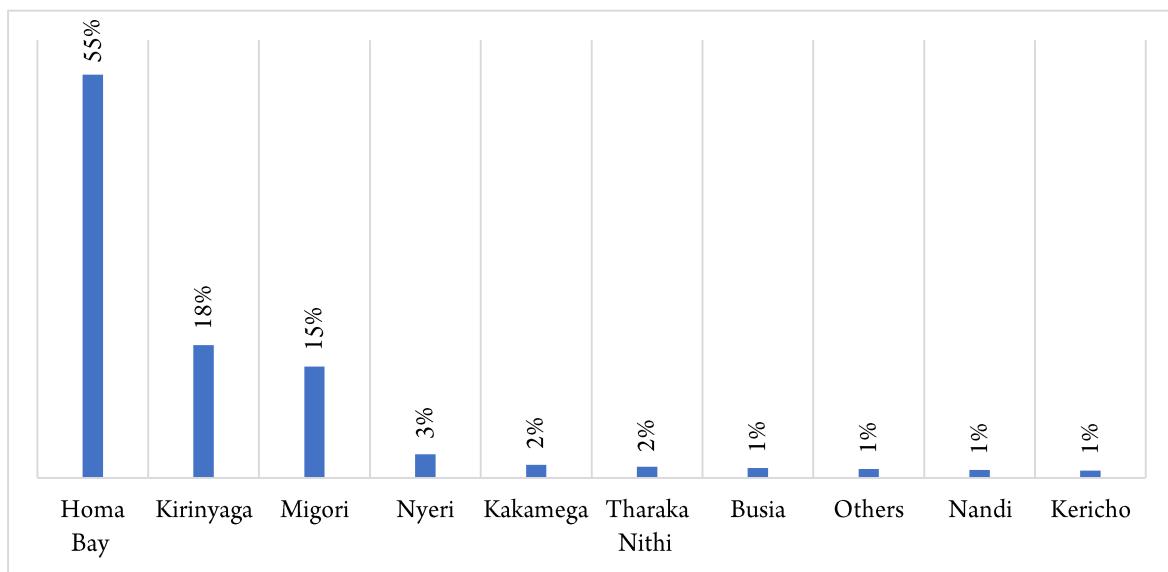
Table 5.4: Quantities and value of fish purchased for production in 2019

| COUNTIES | Number of fish purchased in 2019 | Quantity of fish purchased in 2019 (Kg) | Value of fish purchased in 2019 (KSh) |
|-------------------|----------------------------------|---|---------------------------------------|
| Meru | 5 | 18,480 | 401,700 |
| Embu | 1 | 100 | 1,000 |
| Nyeri | 4 | 10,050 | 251,400 |
| Kirinyaga | 4 | 3,010 | 529,000 |
| Kiambu | 1 | 2,000 | 20,000 |
| West Pokot | 1 | 1,000 | 5,000 |
| Nandi | 1 | 1,000 | 15,000 |
| Nakuru | 1 | 2,000 | 20,000 |
| Kakamega | 15 | 62,190 | 304,700 |
| Vihiga | 9 | 31,400 | 288,200 |
| Busia | 6 | 17,000 | 126,000 |
| Kisumu | 1 | 40,000 | 240,000 |
| Homa Bay | 15 | 609,200 | 2,339,100 |
| Total | 64 | 797,430 | 4,541,100 |

5.4 Aquaculture Holdings Production

During the year 2019, a total of 64 aquaculture holdings produced approximately 11 million fingerlings valued at over KSh 76 million. As shown in Figure 5.5, the leading counties in production were Homa Bay (55 per cent), Kirinyaga (18 per cent), Migori (15 per cent), Nyeri (3 per cent) and Kakamega at 2 per cent. Kakamega (15) and Homa Bay (15) had the highest number of holdings producing fingerling during the year.

Figure 5.5: Quantities of fingerlings produced in year 2019



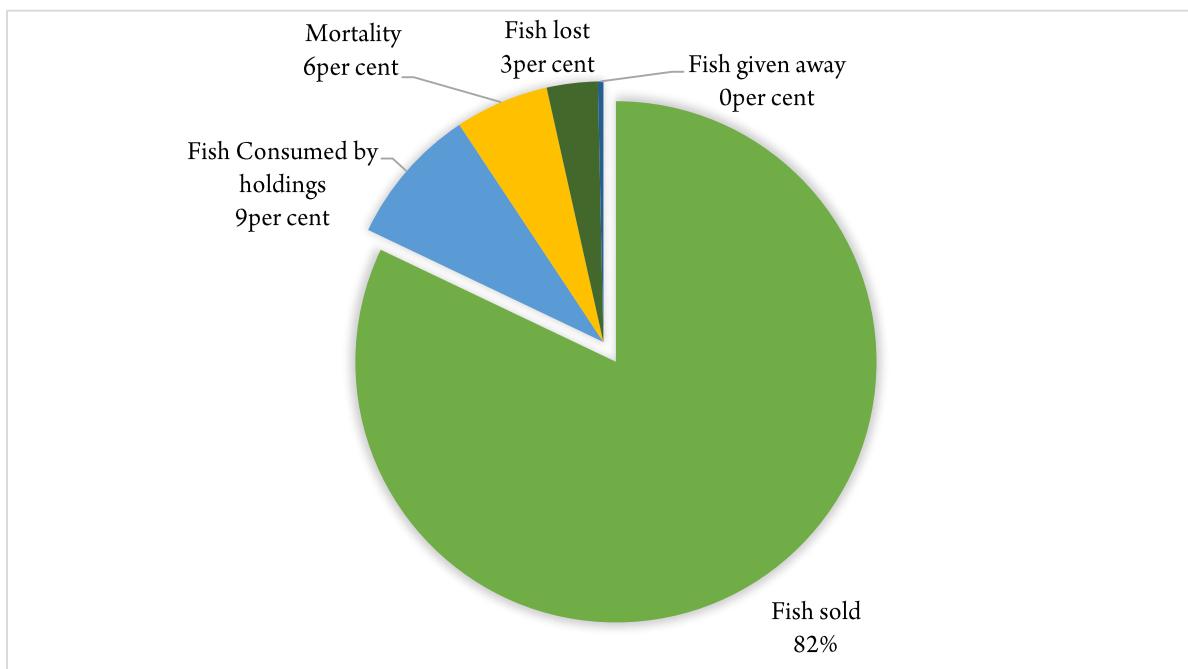
5.5 Farm Gate Prices for Output

The farm gate prices varied from one species to another; with fingerling being purchased at KSh 6.00- 10.00 per piece while the table size tilapia and catfish traded at KSh 130 -200. The ornamental fish, gold fish, koi carp and others sold at KSh 100 per gram. Rainbow trout was the highest valued at KSh 700 per kg.

5.6 Aquaculture Holdings Products Utilization

In 2019, 245 commercial holding utilized fish and fish products in various ways. The total quantity of table size fish utilized by selling in the year 2019 by aquaculture establishment was 5 thousand tonnes valued at KSh 647 million representing 82.1 per cent. A total of 11 million fingerlings were sold at KSh 76 million. The volume consumed by holding family and workers accounted for 8.6 per cent (532 tonnes) valued at KSh 8 million while only 0.3 per cent was given away as gift and donations. Most holdings recorded losses, either through natural mortalities and other losses (floods) at 5.8 per cent (359 tonnes) and 3.2 per cent (195 tonnes) respectively.

Figure 5.6: Utilization of fish and fish products by commercial holdings



At the end of the year, the holdings had 3.5 million fingerlings, 153 thousand broodstock and 1.1 thousand tonnes of table size fish. The census depicted that at the end of the period leading counties in terms available stock of fingerlings were Homa Bay (43 per cent), Kirinyaga (23 per cent), Nyeri (9 per cent), Kakamega (7 per cent) and Tharaka Nithi (6 per cent). The broodstock availability was at Kisumu (29 per cent), Homa Bay (21 per cent), Busia (10 per cent) and Nyeri (7 per cent) as presented in Table 5.5.

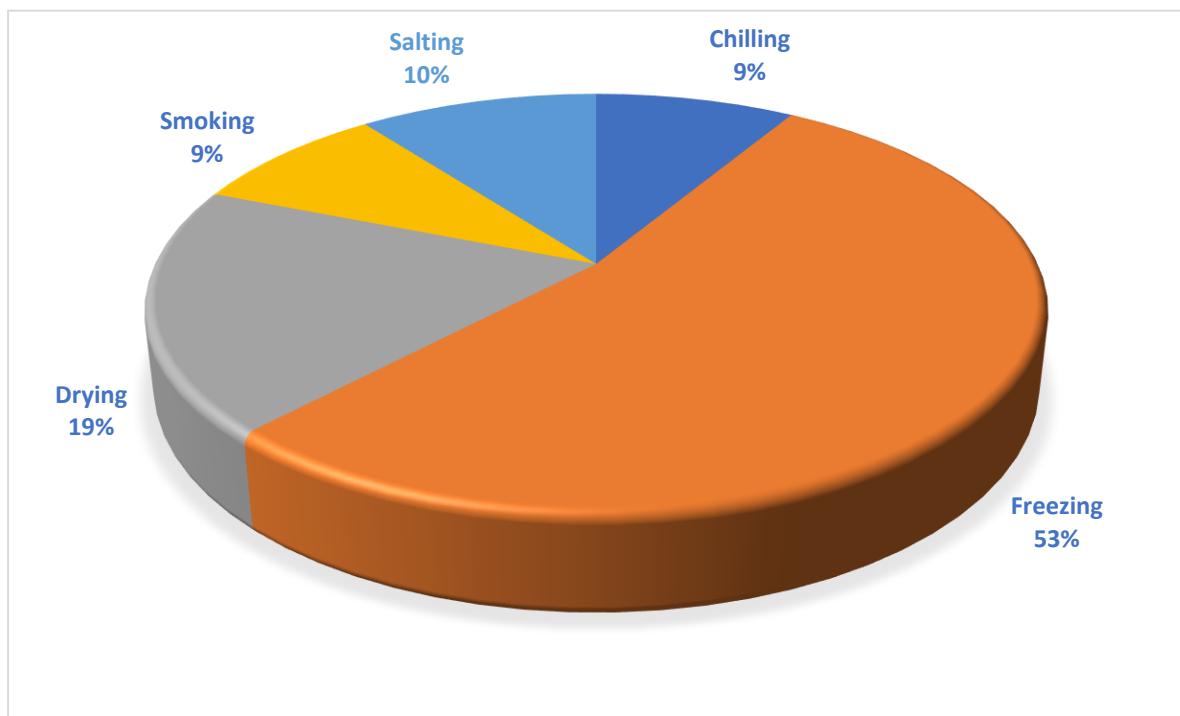
Table 5.5: Quantities of fish available in commercial holdings at January 2020

| Counties | Total stock in the fish ponds (fingerling) | Total stock in the fish ponds (table size) | Total stock in the fish ponds (brood stock) |
|----------------------|--|---|---|
| Meru | 15,900 | 4,080 | 7,000 |
| Tharaka Nithi | 212,000 | 650 | 200 |
| Embu | 2,000 | 1,025 | 20 |
| Nyeri | 331,152 | 293,685 | 10,085 |
| Kirinyaga | 805,750 | 14,620 | 1,005 |
| Kiambu | 1,500 | 700 | 200 |
| West Pokot | - | 600 | - |
| Trans Nzoia | 5,500 | 6,500 | 6,500 |
| Nandi | 18,000 | 700 | 500 |
| Baringo | 995 | - | - |
| Laikipia | 12,500 | 3,800 | 150 |
| Nakuru | 5,050 | 5,050 | 2,046 |
| Kericho | 25,650 | 45,600 | 10,680 |
| Bomet | 51,300 | 2,080 | 2,040 |
| Kakamega | 259,170 | 72,690 | 10,883 |
| Vihiga | 50,900 | 13,100 | 6,600 |
| Bungoma | - | 5,000 | - |
| Busia | 130,350 | 69,350 | 15,500 |
| Kisumu | 15,000 | 40,000 | 45,000 |
| Homa Bay | 1,523,020 | 545,433 | 32,793 |
| Migori | 42,000 | 6,900 | 2,200 |
| Total | 3,507,737 | 1,131,563 | 153,402 |

5.7 Preservation Methods

Figure 5.7 shows the preservation methods by holdings. Various preservation methods were used to add value and prolong the shelf life of fish in the aquaculture holdings. Out of 245 holdings, only 58 holdings (23 per cent) indicated that they preserved fish by chilling, freezing, drying, smoking and salting.. Most holdings deployed freezing (53.4 per cent), drying (18.9 per cent) and salting (10.3 per cent). Over 67 per cent (187) of the aquaculture holdings across the country utilized and sold the yields in fresh form, without subjecting it to any mode of preservation.

Figure 5.7: Preservation methods by holdings



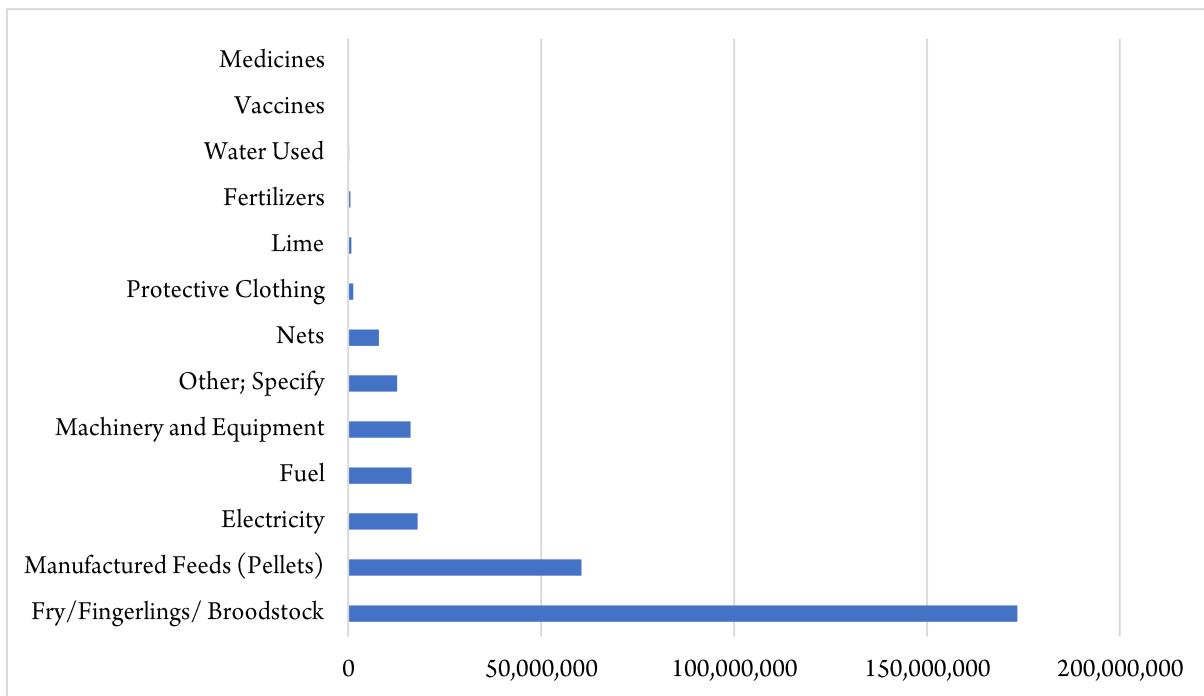
5.8 Material Inputs

Table 5.6 presents the quantities and values of material inputs in aquaculture holdings. In the 2019, the aquaculture establishments spent 56.3 per cent (fingerlings/broodstock), 19.6 per cent (feeds), 5.8 per cent (electricity) as material inputs. Figure 5.8 shows the proportion of values of material inputs utilized in commercial Holdings.

Table 5.6: Quantities and values of material inputs in aquaculture holdings 2019.

| Material inputs | Unit of measures | Quantities | Values (KSh.) |
|--|------------------|------------|--------------------|
| Fry/Fingerlings/ Broodstock | Number | 4,804,017 | 173,446,053 |
| Manufactured Feeds (Pellets) | Kgs | 1365380 | 46,590,514 |
| Electricity | KwH | 34,901 | 17,991,582 |
| Fuel | Litres | 224,254 | 16,310,005 |
| Machinery and Equipment | No. | 199 | 14,503,900 |
| Other Feeds | Kgs | 80130 | 13,868,319 |
| Other; Specify | No. | 80,127 | 12,668,319 |
| Nets | No. | 589 | 7,962,400 |
| Spares for Maintenance of Machinery | No. | 260 | 1,676,800 |
| Protective Clothing | No. | 3,647 | 1,341,791 |
| Lime | Kgs | 17531 | 784,765 |
| Fertilizers | Kgs | 20765 | 519,910 |
| Water Used | Litres | 1092224 | 226,274 |
| Lubricants | Litres | 313 | 50,360 |
| Vaccines | No. | 1 | 30,000 |
| Medicines | Litres | 225 | 29,600 |
| Total | | | 308,000,592 |

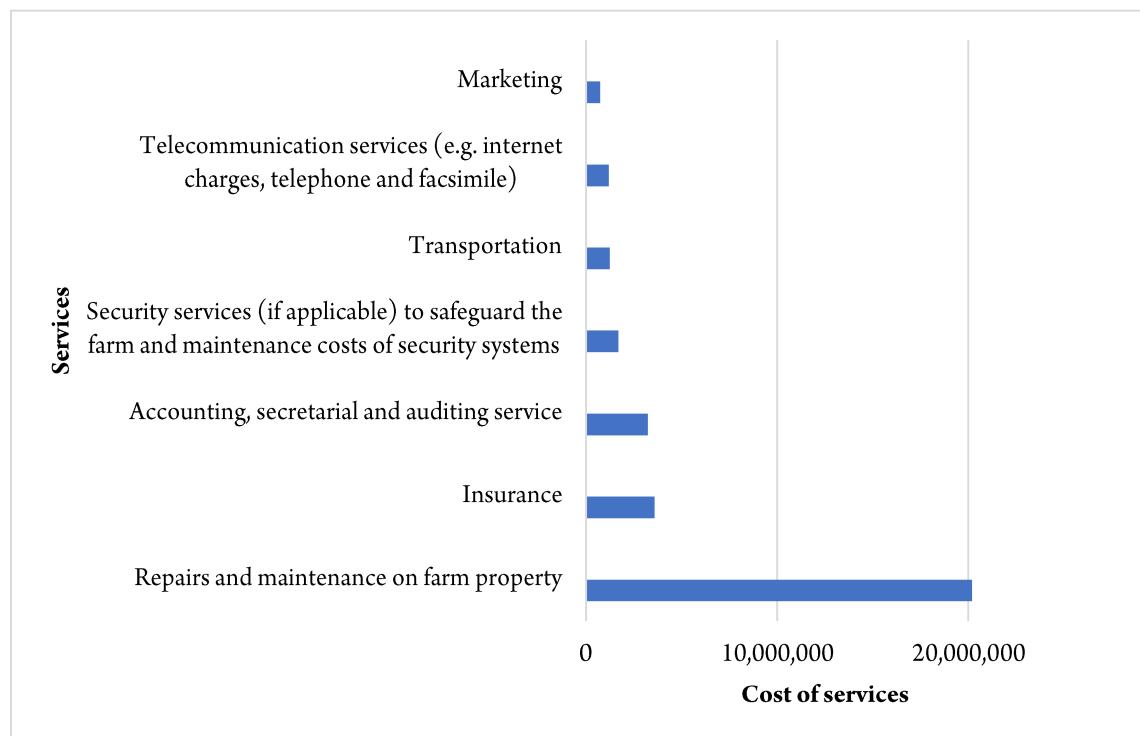
Figure 5.8: Proportion of values of material inputs utilized in commercial Holdings 2019, (KSh)



5.9 Service Inputs

The service inputs provided to the aquaculture holdings amounted to KSh 33 million as shown in Figure 5.9. The service inputs were mainly on repairs and maintenance on farm properties (60.8 per cent), insurance (10.8 per cent) and audit services (9.7 per cent). Generally, aquaculture holdings engaged least; contracted services, leasing and hiring of plant machinery and equipment and research or consultancies.

Figure 5.9: Value of service inputs utilized in aquaculture holdings.



5.10 Labour

Aquaculture holdings engaged the services of casual labourers for provision of security, feeding of fish and hatchery management throughout the year (12 months). As shown in Figure 5.10 and 5.11, the casual labourers were engaged for pond maintenance, harvesting of fish and post harvesting processing for only 2 months (twice). Most holdings engaged only males in provision of security, while female casual laborers were engaged in feeding of fish ponds, pond maintenance, harvesting and post-harvest processing. In most holding the casual labourers wage rates ranged between KSh 250 to 300 depending on the type of work.

Figure 5.10: Casual labourers engaged period

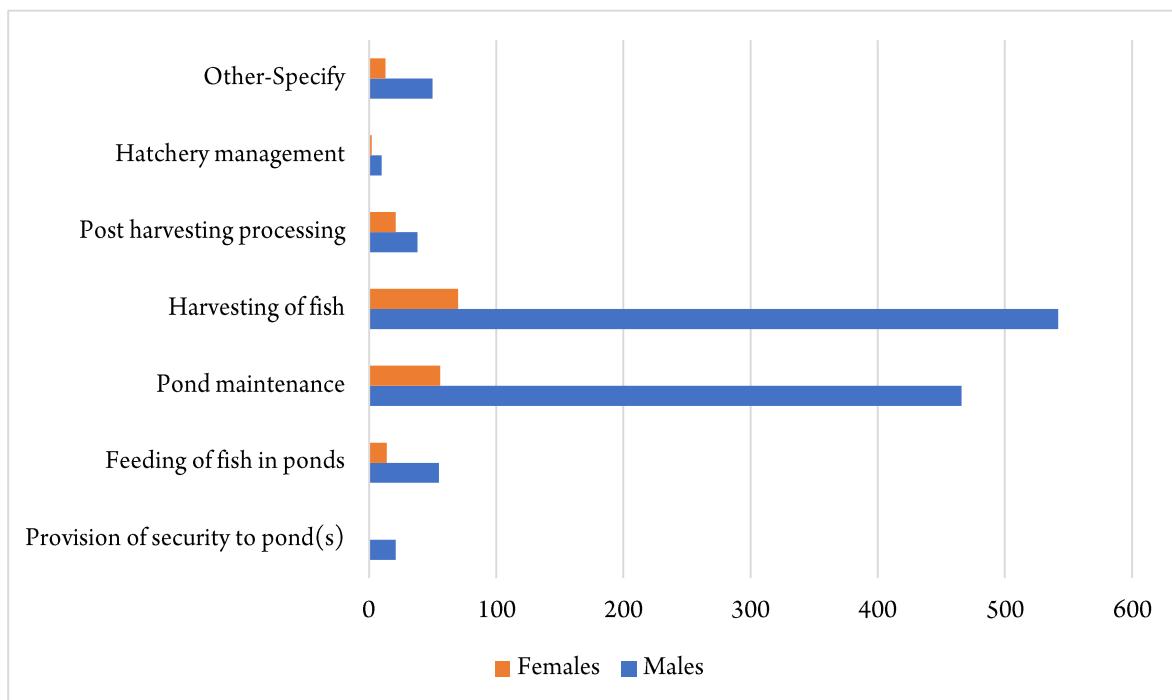
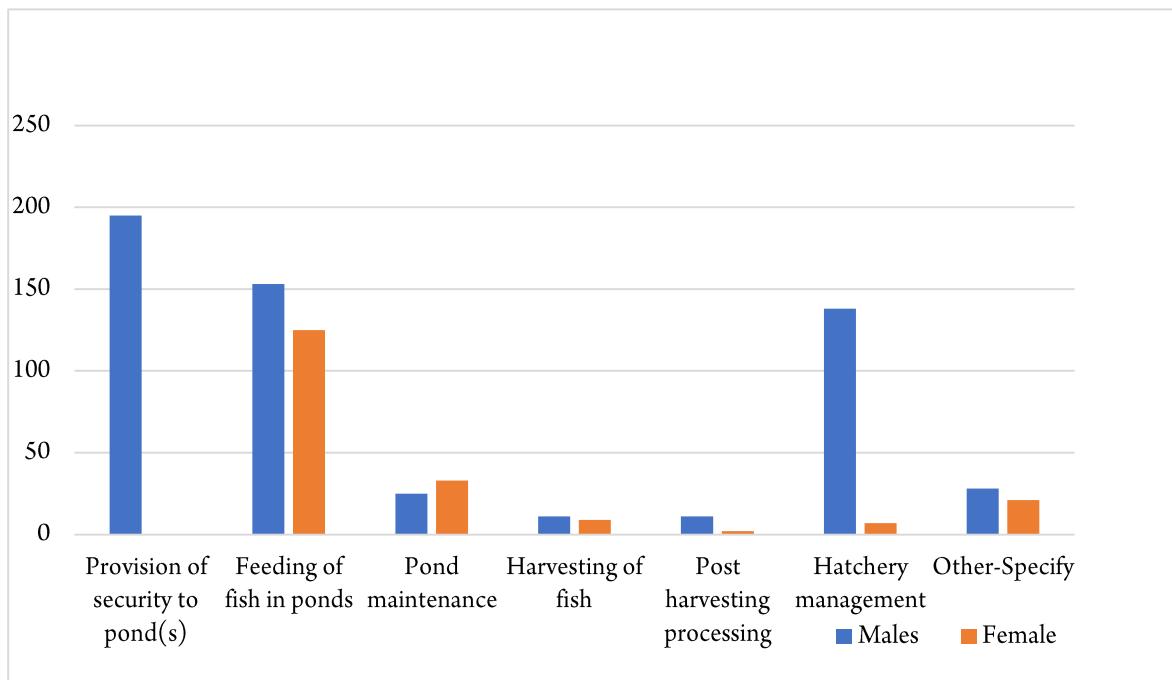


Figure 5.11: Regular laborer's engaged by gender



Annexes

Annex 1: Distribution of the Total production and utilization of Field Crops by Crop

| Crop | Total Production (Kgs) | Own Consumption (Kgs) ² | Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output used as seed (Kgs) | Crop output in Stock (Kgs) by December 2019 | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|----------------------------------|------------------------|------------------------------------|---------------------|------------------------------------|--------------------------------|---|-----------------------------|---------------------------|---------------------------------|
| Sugar cane | 322,949,770 | 4,388,930 | 270,522,322 | 7,207,500 | 7,370,700 | 28,575,203 | 520 | 4,086,765 | 797,830 |
| Maize | 149,097,288 | 2,680,956 | 124,427,752 | 18,670,037 | 101,027 | 2,067,331 | 221,139 | 744,981 | 184,067 |
| Tea | 189,897,265 | 1,193 | 180,426,016 | 0 | 0 | 3,409,573 | 1,200 | 487,284 | 5,572,000 |
| Wheat | 49,878,359 | 437,196 | 45,888,090 | 1,249,374 | 690,755 | 1,264,399 | 75,394 | 270,251 | 2,900 |
| Sisal | 17,677,750 | 4,150 | 10,429,872 | 0 | 0 | 7,243,728 | 0 | 0 | 0 |
| Barley | 15,704,284 | 3,600 | 11,464,127 | 3,986,807 | 49,250 | 39,300 | 2,000 | 159,200 | 0 |
| Irish Potatoes | 15,361,968 | 175,037 | 13,000,915 | 50 | 705,358 | 31,188 | 7,430 | 857,900 | 584,090 |
| Tomatoes | 12,968,381 | 34,574 | 11,966,752 | 4,200 | 0 | 291,530 | 38,610 | 625,415 | 7,300 |
| Rhodes Grass | 10,456,495 | 265,500 | 6,100,196 | 2,865,061 | 420,975 | 581,614 | 43,830 | 177,975 | 1,344 |
| Beans, dry | 8,860,047 | 34,185 | 5,404,706 | 1,710 | 949,128 | 10,357 | 2,252,581 | 206,470 | 910 |
| Cabbages | 8,327,601 | 604,460 | 7,324,801 | 221,700 | 15,000 | 0 | 6,100 | 146,890 | 8,650 |
| Coffee | 7,856,095 | 295 | 7,767,078 | 0 | 0 | 80,622 | 0 | 5,600 | 2,500 |
| Lemon | 6,522,350 | 1,636,010 | 4,832,820 | 0 | 0 | 0 | 2,352 | 34,100 | 17,068 |
| Mangoes | 6,449,312 | 34,087 | 6,332,944 | 80 | 3,050 | 4,668 | 1,720 | 29,433 | 43,330 |
| Rice(paddy) | 5,769,685 | 103,415 | 333,578 | 5,200,000 | 2,152 | 0 | 6,730 | 27,435 | 96,375 |
| Bananas | 5,607,168 | 205,207 | 5,301,741 | 50 | 0 | 3,630 | 11,540 | 40,860 | 44,140 |
| Oranges | 4,576,643 | 17,133 | 4,552,163 | 0 | 0 | 0 | 4,000 | 2,847 | 500 |
| Cauliflowers/brocoli | 4,344,844 | 12,000 | 3,963,960 | 89,295 | 0 | 0 | 89,295 | 190,295 | 0 |
| Fodder maize | 3,700,080 | 691,000 | 0 | 2,824,193 | 80 | 184,800 | 0 | 7 | 0 |
| Gypsophilla/Baby Breath Speacies | 3,446,104 | | 3,432,164 | 0 | 0 | 0 | 0 | 13,940 | 0 |
| French beans | 3,038,576 | 208 | 2,587,368 | 777 | 0 | 0 | 0 | 445,950 | 4,273 |
| Garden Peas | 3,013,500 | 550 | 2,112,650 | 0 | 100 | 0 | 0 | 900,200 | 0 |
| Grass | 2,310,524 | 23,000 | 1,336,165 | 432,660 | 3,000 | 454,125 | 3,374 | 45,200 | 13,000 |
| Macadamia nuts | 2,234,022 | 44 | 2,131,920 | 0 | 0 | 25,000 | 20 | 77,030 | 8 |
| Onions | 1,765,099 | 13,486 | 1,709,773 | 0 | 3,000 | 3,000 | 2,070 | 30,480 | 3,290 |
| Kales | 1,255,052 | 72,938 | 1,180,114 | 500 | 0 | 0 | 1,150 | 350 | 0 |
| Cabbage | 943,222 | 46,886 | 885,486 | 400 | 6,000 | 0 | 250 | 4,200 | 0 |
| Roses | 809,100 | 10 | 646,998 | 0 | 0 | 2,083 | 20 | 159,989 | 0 |
| Spinach | 744,223 | 2,563 | 741,310 | 200 | 0 | 0 | 0 | 100 | 50 |
| Canteloupe/Musk Melon | 625,000 | 5,390 | 563,500 | 0 | 0 | 0 | 14,000 | 42,110 | 0 |
| Water Melons (Hybrid) | 600,920 | 9,270 | 546,633 | 0 | 50 | 0 | 1,947 | 29,700 | 13,320 |
| Eryngium/Sea holly/Alphine | 591,000 | | 591,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Oats | 578,670 | 170 | 240,350 | 323,890 | 1,350 | 10,110 | 2,800 | 0 | 0 |
| Avocados | 373,700 | 1,060 | 361,540 | 0 | 0 | 0 | 700 | 10,300 | 100 |
| Lucern | 328,545 | 100,000 | 61,065 | 167,480 | 0 | 0 | 0 | 0 | 0 |
| Sweet Potatoes | 286,091 | 1,050 | 182,141 | 11,500 | 80,400 | 8,000 | 850 | 1,990 | 160 |
| Coconuts | 268,600 | 1,550 | 267,050 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sorghum/Sudan grass | 263,703 | 45 | 261,408 | 0 | 1,500 | 750 | 0 | 0 | 0 |
| Sorghum | 232,165 | 1,020 | 226,245 | 0 | 100 | 0 | 0 | 4,800 | 0 |
| Green grams | 177,525 | 2,491 | 169,609 | 0 | 1,015 | 2,611 | 1,019 | 780 | 0 |
| Oil seed (Kanola) | 142,400 | | 137,400 | 0 | 0 | 0 | 0 | 5,000 | 0 |
| Carrots | 130,695 | 17,080 | 113,310 | 300 | 0 | 0 | 0 | 5 | 0 |

| Crop | Total Production (Kgs) | Own Consumption (Kgs)2 | Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output used as seed (Kgs) | Crop output in Stock (Kgs) by December 2019 | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|-------------------------------|------------------------|------------------------|---------------------|------------------------------------|--------------------------------|---|-----------------------------|---------------------------|---------------------------------|
| Watermelons (Open Pollinated) | 109,000 | 1,005 | 107,995 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pea | 107,800 | 810 | 84,480 | 0 | 20,000 | 0 | 10 | 1,750 | 750 |
| Pepper | 93,000 | | 92,000 | 0 | 0 | 0 | 0 | 200 | 800 |
| Khat/Miraa | 87,571 | 397 | 86,844 | 0 | 0 | 0 | 140 | 90 | 100 |
| Cotton | 83,285 | 30 | 28,830 | 45,040 | 9,000 | 305 | 0 | 80 | 0 |
| Foliage Plants | 80,000 | 80,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cocks foot | 75,150 | 810 | 23,955 | 0 | 0 | 50,385 | 0 | 0 | 0 |
| Culinary Herbs and Spices | 69,500 | | 69,500 | 0 | 0 | 0 | 0 | 0 | 0 |
| Egg Plant | 64,000 | 10,000 | 54,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Carthamus /Safflower/Safon | 62,000 | | 60,000 | 0 | 0 | 0 | 0 | 2,000 | 0 |
| Purple passion | 60,200 | 556 | 58,964 | 0 | 50 | 0 | 190 | 200 | 240 |
| Sweet Melons | 52,950 | 300 | 52,000 | 0 | 0 | 0 | 200 | 450 | 0 |
| Straw berry | 49,344 | | 45,000 | 0 | 0 | 0 | 24 | 4,320 | 0 |
| Tangerines | 48,883 | | 46,383 | 0 | 0 | 0 | 0 | 2,000 | 500 |
| Pearl Millet | 44,550 | 4,500 | 38,160 | 0 | 0 | 0 | 0 | 1,890 | 0 |
| Loquats | 43,400 | | 43,200 | 0 | 0 | 0 | 0 | 200 | 0 |
| Pineapples | 27,960 | 300 | 27,060 | 0 | 0 | 100 | 200 | 200 | 100 |
| Solidaster/Garden Plant | 25,000 | | 25,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pawpaw | 24,400 | 390 | 22,830 | 0 | 0 | 1,000 | 0 | 130 | 50 |
| Chinese Cabbage | 24,200 | | 24,000 | 200 | 0 | 0 | 0 | 0 | 0 |
| Simsim | 15,650 | 150 | 15,500 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sunflower | 11,400 | 80 | 6,440 | 4,500 | 220 | 40 | 0 | 120 | 0 |
| Cassava | 7,800 | 1,270 | 6,530 | 0 | 0 | 0 | 0 | 0 | 0 |
| Finger Millet | 6,410 | 540 | 3,010 | 0 | 25 | 2,790 | 0 | 45 | 0 |
| Common pea | 6,380 | 65 | 795 | 0 | 0 | 5,520 | 0 | 0 | 0 |
| Cashew nuts | 6,080 | | 6,080 | 0 | 0 | 0 | 0 | 0 | 0 |
| Moringa | 5,500 | 5,000 | 0 | 0 | 0 | 0 | 0 | 500 | 0 |
| Groundnuts | 4,950 | 570 | 3,730 | 0 | 135 | 415 | 100 | 0 | 0 |
| Dolichos bean | 4,500 | 150 | 4,250 | 0 | 50 | 50 | 0 | 0 | 0 |
| African Nightshade | 4,000 | 500 | 3,500 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pyrethrum | 3,080 | | 3,080 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vegetables | 2,100 | | 1,600 | 0 | 0 | 0 | 0 | 400 | 100 |
| Tree Tomato | 1,450 | | 1,390 | 0 | 0 | 0 | 0 | 60 | 0 |
| Butter nut | 1,400 | | 1,300 | 100 | 0 | 0 | 0 | 0 | 0 |
| Cow pea | 1,260 | 80 | 1,140 | 0 | 0 | 40 | 0 | 0 | 0 |
| Jute mallow/Murenda | 582 | 288 | 288 | 0 | 0 | 0 | 6 | 0 | 0 |
| Blue stem grass | 500 | 500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bixa | 25 | 5 | 20 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 548,529,310 | 7,347,104 | 471,051,562 | 36,100,104 | 3,062,770 | 15,779,064 | 2,792,991 | 5,793,701 | 6,602,015 |

Annex 2: Distribution of the number of establishments by type and by county

| | Total | Type of Establishment | | | | | | | | | | | | | |
|-----------------|-------------|--|-------------|------------|------------|----------|--|------------|-----------|------------|-----------|-------------------------------|-----------|-----------|----------|
| | | Household | | | | | Enterprise/Company | | | | | Institution | | | |
| | | Total no of establishments by category | | | | | Total no of establishments by category | | | | | Total no of establishments by | | | |
| | | Less than 25 | 25 - 125 | 126 - 750 | 751 - 1000 | 1000+ | Less than 25 | 25 - 125 | 126 - 750 | 751 - 1000 | 1000+ | Less than 25 | 25 - 125 | 126 - 750 | 1000+ |
| County | 2218 | 193 | 1529 | 141 | 3 | 7 | 78 | 109 | 59 | 8 | 17 | 14 | 43 | 14 | 3 |
| Kwale | 13 | 0 | 5 | 0 | 0 | 0 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kilifi | 6 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| Tana River | 44 | 0 | 7 | 0 | 1 | 0 | 0 | 28 | 3 | 0 | 0 | 0 | 4 | 1 | 0 |
| Lamu | 16 | 2 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| Taita-Taveta | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 1 | 1 | 0 | 1 |
| Garissa | 84 | 3 | 76 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mandera | 22 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Marsabit | 5 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Isiolo | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Meru | 36 | 3 | 20 | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 8 | 0 | 0 |
| Tharaka-Nithi | 25 | 15 | 2 | 0 | 0 | 0 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Embu | 52 | 12 | 30 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| Kitui | 4 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Machakos | 32 | 0 | 16 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 8 | 1 |
| Makueni | 13 | 7 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Nyandarua | 24 | 5 | 16 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Nyeri | 47 | 14 | 19 | 1 | 0 | 0 | 3 | 6 | 2 | 0 | 0 | 1 | 1 | 0 | 0 |
| Kirinyaga | 18 | 0 | 11 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Murang'a | 10 | 1 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 1 | 0 | 0 |
| Kiambu | 69 | 5 | 15 | 0 | 0 | 0 | 3 | 13 | 28 | 2 | 1 | 0 | 2 | 0 | 0 |
| West Pokot | 39 | 22 | 15 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Samburu | 10 | 0 | 6 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Trans Nzoia | 148 | 0 | 133 | 13 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Uasin Gishu | 388 | 9 | 344 | 26 | 1 | 0 | 0 | 5 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |
| Elgeyo-Marakwet | 30 | 1 | 19 | 3 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 3 | 0 | 0 |
| Nandi | 100 | 12 | 80 | 4 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 |
| Baringo | 7 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 0 |
| Laikipia | 57 | 0 | 44 | 3 | 0 | 0 | 0 | 5 | 3 | 1 | 0 | 0 | 1 | 0 | 0 |
| Nakuru | 143 | 16 | 77 | 15 | 0 | 1 | 6 | 13 | 8 | 1 | 2 | 2 | 1 | 1 | 0 |
| Narok | 131 | 5 | 83 | 37 | 0 | 4 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Kajiado | 23 | 0 | 22 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kericho | 110 | 4 | 38 | 1 | 0 | 0 | 55 | 2 | 1 | 1 | 0 | 7 | 1 | 0 | 0 |
| Bomet | 97 | 30 | 63 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| Kakamega | 154 | 8 | 139 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 1 | 0 |
| Bungoma | 86 | 0 | 83 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Busia | 31 | 0 | 29 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kisumu | 85 | 1 | 59 | 19 | 1 | 1 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 |
| Homabay | 31 | 12 | 16 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Migori | 11 | 4 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nyamira | 6 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nairobi City | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 |

Annex 3: Distribution of establishments by county

| County | Total Acreage | Type of establishment | | |
|-----------------|----------------|---|---|--|
| | | Household | Enterprise/Company | Institution |
| | | Total area under crop production(acres) | Total area under crop production(acres) | Total area under crop production (acres) |
| TOTAL | 265,377 | 123,557 | 105,643 | 36,177 |
| Kwale | 901 | 269 | 632 | |
| Kilifi | 3,558 | 338 | 680 | 2,540 |
| Tana River | 3,530 | 1,238 | 1,984 | 308 |
| Lamu | 671 | 545 | | 126 |
| Taita-Taveta | 33,155 | | 8,090 | 25,065 |
| Garissa | 4,399 | 4,264 | 135 | |
| Mandera | 988 | 988 | | |
| Marsabit | 128 | 128 | | |
| Isiolo | 110 | | 110 | |
| Meru | 12,526 | 1,154 | 11,105 | 268 |
| Tharaka-Nithi | 337 | 241 | 96 | |
| Embu | 1,343 | 1,081 | 173 | 90 |
| Kitui | 105 | 105 | | |
| Machakos | 5,867 | 480 | 60 | 5,326 |
| Makueni | 11,729 | 207 | 11,522 | |
| Nyandarua | 1,513 | 1,377 | | 136 |
| Nyeri | 2,516 | 1,517 | 936 | 63 |
| Kirinyaga | 1,812 | 358 | 1,153 | 301 |
| Murang'a | 1,002 | 161 | 755 | 86 |
| Kiambu | 13,820 | 714 | 13,021 | 85 |
| West Pokot | 2,120 | 1,320 | 800 | |
| Samburu | 1,394 | 1,394 | | |
| Trans Nzoia | 10,785 | 9,689 | 1,096 | |
| Uasin Gishu | 24,165 | 20,807 | 2,863 | 495 |
| Elgeyo-Marakwet | 5,405 | 1,390 | 3,888 | 127 |
| Nandi | 21,976 | 10,577 | 11,399 | |
| Baringo | 2,730 | 85 | 2,580 | 65 |
| Laikipia | 4,809 | 2,754 | 2,026 | 30 |
| Nakuru | 21,677 | 8,917 | 12,315 | 445 |
| Narok | 28,336 | 25,286 | 3,050 | |
| Kajiado | 924 | 867 | 57 | |
| Kericho | 3,067 | 1,435 | 1,564 | 68 |
| Bomet | 12,718 | 2,636 | 10,000 | 82 |
| Kakamega | 6,184 | 5,817 | 40 | 327 |
| Vihiga | | | | |
| Bungoma | 2,848 | 2,787 | 30 | 31 |
| Busia | 1,643 | 1,643 | | |
| Kisumu | 13,213 | 9,896 | 3,317 | |
| Homa Bay | 575 | 534 | 16 | 25 |
| Migori | 371 | 371 | | |
| Kisii | | | | |
| Nyamira | 339 | 189 | 150 | |
| Nairobi City | 88 | | | 88 |

Annex 4: Value of Total Production and Other Utilization Categories by type of crop

| Category/Crop | Total Production (Kgs) | Value of Total Production (KSh) | Value of Own Consumption (KSh) | Value of Quantity sold (KSh) | Value of Crop Output fed to Livestock (KSh) | Value of Crop Output used as seed (KSh) |
|-------------------|------------------------|---------------------------------|--------------------------------|------------------------------|---|---|
| Food crops | 241,627,507 | 5,377,631,855 | 465,739,275 | 4,742,662,884 | 111,888,426 | 57,341,269 |
| Barley | 15,704,284 | 270,476,728 | 108,000 | 268,594,295 | 169,500 | 1,604,933 |
| Beans, dry | 8,860,047 | 446,717,469 | 2,344,653 | 441,454,256 | 38,800 | 2,879,760 |
| Cow pea | 1,260 | 73,200 | 4,800 | 68,400 | 0 | 0 |
| Dolichos bean | 4,500 | 660,050 | 15,000 | 645,000 | 0 | 50 |
| Finger Millet | 6,410 | 563,600 | 47,900 | 513,825 | 0 | 1,875 |
| Green grams | 177,525 | 12,995,120 | 158,690 | 12,733,080 | 0 | 103,350 |
| Irish Potatoes | 15,361,968 | 254,340,544 | 1,294,200 | 239,578,060 | 190 | 13,468,094 |
| Maize | 149,637,288 | 2,983,772,572 | 427,428,596 | 2,427,948,593 | 109,743,476 | 18,651,907 |
| Pearl Millet | 44,550 | 2,277,000 | 23,000 | 2,254,000 | 0 | 0 |
| Rice(paddy) | 688,837 | 46,283,680 | 23,975,080 | 22,198,600 | 0 | 110,000 |
| Sorghum | 232,165 | 8,613,711 | 37,251 | 8,576,460 | 0 | 0 |
| Spinach | 744,223 | 51,615,650 | 75,650 | 51,532,000 | 8,000 | 0 |
| Sweet Potatoes | 286,091 | 5,672,203 | 27,700 | 5,131,503 | 345,000 | 168,000 |
| Wheat | 49,878,359 | 1,293,570,328 | 10,198,755 | 1,261,434,813 | 1,583,460 | 20,353,300 |
| Cassava | 7,800 | 508,500 | 7,200 | 501,300 | 0 | 0 |

Annex 5: Value of Total Production and Other Utilization Categories by type of fruit

| Category/Crop | Total Production (Kgs) | Value of Total Production (KSh) | Value of Own Consumption (KSh) | Value of Quantity Sold (KSh) | Value of Crop Output Fed to Livestock (KSh) | Value of Crop Output Used as Seed (KSh) |
|-------------------------------|------------------------|---------------------------------|--------------------------------|------------------------------|---|---|
| Fruits | 8,133,832 | 130,039,204 | 3,654,535 | 126,274,069 | 7,000 | 103,600 |
| Avocados | 373,700 | 35,803,500 | 27,500 | 35,776,000 | 0 | 0 |
| Bananas | 5,607,168 | 35,478,202 | 2,697,890 | 32,773,312 | 7,000 | 0 |
| Canteloupe/ Musk Melon | 625,000 | 8,820,300 | 67,800 | 8,752,500 | 0 | 0 |
| Lemon | 51,140 | 2,519,500 | 29,550 | 2,489,950 | 0 | 0 |
| Loquats | 43,400 | 648,000 | 0 | 648,000 | 0 | 0 |
| Mangoes | 263,227 | 7,160,655 | 208,755 | 6,851,800 | 0 | 100,100 |
| Oranges | 126,090 | 4,008,580 | 273,800 | 3,734,780 | 0 | 0 |
| Pawpaw | 93,400 | 1,136,500 | 20,500 | 1,116,000 | 0 | 0 |
| Pineapples | 27,960 | 834,000 | 9,000 | 825,000 | 0 | 0 |
| Purple passion | 60,200 | 5,030,700 | 45,080 | 4,982,120 | 0 | 3,500 |
| Straw berry | 49,344 | 5,400,000 | 0 | 5,400,000 | 0 | 0 |
| Sweet Melons | 52,950 | 2,202,400 | 7,400 | 2,195,000 | 0 | 0 |
| Tangerines | 48,883 | 1,391,490 | 0 | 1,391,490 | 0 | 0 |
| Tree Tomato | 1,450 | 119,700 | 0 | 119,700 | 0 | 0 |
| Water Melons (Hybrid) | 600,920 | 16,380,677 | 242,160 | 16,138,517 | 0 | 0 |
| Watermelons (Open Pollinated) | 109,000 | 3,105,000 | 25,100 | 3,079,900 | 0 | 0 |

Annex 6: Value of Total Production and Other Utilization Categories by type of industrial crop

| Category/ Crop | Total Production (Kgs) | Value of Total Production (KSh) | Value of Own Consumption (KSh) | Value of Quantity Sold (KSh) | Value of Crop Output Fed to Livestock (KSh) | Value of Crop Output Used as Seed (KSh) |
|-------------------------|------------------------|---------------------------------|--------------------------------|------------------------------|---|---|
| Industrial crops | 405,708,456 | 17,364,500,249 | 749,760 | 17,331,522,239 | 21,000 | 32,207,250 |
| Bixa | 25 | 4,000 | 2,000 | 2,000 | 0 | 0 |
| Coffee | 7,856,095 | 728,684,882 | 13,800 | 728,671,082 | 0 | 0 |
| Cotton | 83,285 | 2,067,800 | 50,000 | 1,746,800 | 1,000 | 270,000 |
| Pyrethrum | 3,080 | 587,200 | 0 | 587,200 | 0 | 0 |
| Sisal | 17,677,750 | 13,634,166,030 | 399,500 | 13,633,766,530 | 0 | 0 |
| Sugar cane | 308,255,870 | 1,097,318,048 | 5,720 | 1,065,355,078 | 20,000 | 31,937,250 |
| Tea | 71,832,351 | 1,901,672,290 | 278,740 | 1,901,393,550 | 0 | 0 |

Annex 7: Value of Total Production and Other Utilization Categories by type of nut

| Category/ Crop | Total Production (Kgs) | Value of Total Production (KSh) | Value of Own Consumption (KSh) | Value of Quantity Sold (KSh) | Value of Crop Output Fed to Livestock (KSh) | Value of Crop Output Used as Seed (KSh) |
|----------------------|------------------------|---------------------------------|--------------------------------|------------------------------|---|---|
| Nuts and oils | 2,683,102 | 231,553,960 | 71,040 | 231,049,670 | 400,000 | 33,250 |
| Cashew nuts | 6,080 | 364,800 | 0 | 364,800 | 0 | 0 |
| Coconuts | 268,600 | 5,169,000 | 31,000 | 5,138,000 | 0 | 0 |
| Groundnuts | 4,950 | 404,000 | 14,000 | 378,750 | 0 | 11,250 |
| Macadamia nuts | 2,234,022 | 216,346,660 | 4,040 | 216,342,620 | 0 | 0 |
| Oil seed (Kanola) | 142,400 | 6,031,000 | 0 | 6,031,000 | 0 | 0 |
| Simsim | 15,650 | 1,532,500 | 10,000 | 1,522,500 | 0 | 0 |
| Sunflower | 11,400 | 1,706,000 | 12,000 | 1,272,000 | 400,000 | 22,000 |

Annex 8: Value of Total Production and Other Utilization Categories by type of fodder

| Category/ Crop | Total Production (Kgs) | Value of Total Production (KSh) | Value of Own Consumption (KSh) | Value of Quantity sold (KSh) | Value of Crop Output Fed to Livestock (KSh) | Value of Crop Output Used as Seed (KSh) |
|---------------------------|------------------------|---------------------------------|--------------------------------|------------------------------|---|---|
| Pasture and Fodder | 17,311,416 | 179,386,681 | 12,946,500 | 92,316,043 | 73,726,938 | 397,200 |
| Fodder maize | 3,700,080 | 16,772,400 | 6,299,000 | 0 | 10,459,000 | 14,400 |
| Grass | 2,310,524 | 14,838,981 | 225,000 | 13,816,143 | 791,838 | 6,000 |
| Lucern | 328,545 | 11,552,250 | 300,000 | 3,053,250 | 8,199,000 | 0 |
| Oats | 578,670 | 12,115,900 | 202,500 | 4,276,000 | 7,595,400 | 42,000 |
| Rhodes Grass | 10,129,894 | 121,357,700 | 5,911,000 | 68,430,200 | 46,681,700 | 334,800 |
| Sorghum/ Sudan grass | 263,703 | 2,749,450 | 9,000 | 2,740,450 | 0 | 0 |

Annex 9: Value of Total Production and Other Utilization Categories by type of vegetable

| Category/ Crop | Total Production (Kgs) | Value of Total Production (KSh) | Value of Own Consumption (KSh) | Value of Quantity Sold (KSh) | Value of Crop Output Fed to Livestock (KSh) | Value of Crop Output Used as Seed (KSh) |
|---------------------------|------------------------|---------------------------------|--------------------------------|------------------------------|---|---|
| Vegetables | 35,841,502 | 940,460,235 | 19,966,219 | 906,564,531 | 10,253,885 | 3,675,600 |
| African Nightshade | 6,100 | 76,000 | 10,000 | 66,000 | 0 | 0 |
| Butter nut | 1,400 | 56,000 | 0 | 52,000 | 4,000 | 0 |
| Cabbage | 943,222 | 14,911,839 | 616,554 | 13,933,285 | 2,000 | 360,000 |
| Cabbages | 8,327,601 | 58,714,635 | 4,348,043 | 53,055,592 | 1,296,000 | 15,000 |
| Carrots | 130,695 | 3,524,800 | 420,000 | 3,102,700 | 2,100 | 0 |
| Cauliflowers/ broccoli | 4,344,844 | 62,382,613 | 4,800,000 | 49,635,376 | 7,947,237 | 0 |
| Chinese Cabbage | 24,200 | 242,000 | 0 | 240,000 | 2,000 | 0 |
| Common pea | 6,380 | 93,165 | 15,000 | 78,165 | 0 | 0 |
| Culinary Herbs and Spices | 69,500 | 1,215,000 | 0 | 1,215,000 | 0 | 0 |
| Egg Plant | 64,000 | 3,200,000 | 500,000 | 2,700,000 | 0 | 0 |
| French beans | 3,038,576 | 70,244,120 | 2,360 | 70,219,760 | 22,000 | 0 |
| Garden Peas | 3,013,500 | 126,243,600 | 13,500 | 126,229,500 | 0 | 600 |
| Jute mallow/ Murenda | 582 | 76,800 | 38,400 | 38,400 | 0 | 0 |
| Kales | 1,255,052 | 51,597,740 | 3,400,880 | 48,158,360 | 38,500 | 0 |
| Khat/Miraa | 87571.0 | 22,748,750 | 79,700 | 22,669,050 | 0 | 0 |
| Moringa | 5500.0 | 3,570,000 | 3,570,000 | 0 | 0 | 0 |
| Onions | 1,353,599.0 | 73,308,675 | 855,065 | 71,553,610 | 0 | 900,000 |
| Pea | 107,800.0 | 8,677,100 | 33,350 | 6,243,750 | 0 | 2,400,000 |
| Pepper | 93,000 | 3,825,000 | 0 | 3,825,000 | 0 | 0 |
| Tomatoes | 12,968,380.5 | 435,752,398 | 1,263,367 | 433,548,983 | 940,048 | 0 |

Annex 10: Total Production Utilization by County and type of field crop

| County | Total Production (Kgs) | Total Own Consumption (Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | in Stock (Kgs) by December 2019 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|------------------------|-----------------------------|---------------------------|------------------------------------|---------------------------------|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Baringo | 3,218,650 | 25,710 | 3,031,520 | 0 | 15,250 | 26,420 | 1,900 | 30,250 | 51600 |
| Bomet | 1,295,350 | 72,888 | 557,590 | 168,080 | 3,670 | 1,800 | 23,670 | 218,793 | 1820 |
| Bungoma | 3,580,318 | 121,797 | 2,724,285 | 60,870 | 433,600 | 90 | 40,188 | 70,245 | 17420 |
| Busia | 5,569,533 | 12,250 | 318,627 | 5,200,000 | 189,180 | 1,700 | 7,070 | 22,415 | 270 |
| Elgeyo-Marakwet | 32,374,350 | 2,139,080 | 6,953,920 | 22,937,270 | 70,210 | 28,900 | 7,980 | 38,250 | 3240 |
| Embu | 462,355 | 36,516 | 215,503 | 14,900 | 5,766 | 1,005 | 129 | 0 | 0 |
| Garissa | 93,600 | 7,000 | 78,900 | 0 | 0 | 203 | 3,850 | 2,740 | 907 |
| Homa Bay | 236,456 | 28,244 | 178,126 | 0 | 2,402 | 0 | 58 | 1,308 | 0 |
| Isiolo | 71,100 | 3,630 | 37,050 | 0 | 2,470 | 495 | 3,640 | 370 | 0 |
| Kajiado | 8,354,110 | 12,663 | 373,507 | 2,070 | 2,690 | 5,400,570 | 2,252,973 | 184,400 | 365 |
| Kakamega | 8,201,324 | 221,929 | 3,640,967 | 3,137,306 | 505,746 | 731 | 71,400 | 326,386 | 195970 |
| Kericho | 344,800 | 12,120 | 150,810 | 31,680 | 93,500 | 0 | 7,020 | 3,410 | 370 |
| Kiambu | 1,315,000 | 0 | 1,015,000 | 300,000 | 0 | 0 | 0 | 0 | 0 |
| Kilifi | 3,014,130 | 6,648 | 2,751,370 | 0 | 200,110 | 192 | 90 | 50,000 | 0 |
| Kirinyaga | 315,943 | 104,625 | 169,565 | 2,150 | 5,500 | 0 | 2,290 | 31,753 | 220 |
| Kisumu | 56,610 | 4,160 | 20,000 | 0 | 5,750 | 500 | 1,550 | 20,250 | 250 |
| Kitui | 11,970 | 260 | 10,100 | 0 | 0 | 140 | 10 | 100 | 0 |
| Kwale | 9,900 | 400 | 9,500 | 0 | 0 | 0 | 0 | 0 | 0 |
| Laikipia | 5,731,793 | 116,227 | 4,965,825 | 146,526 | 1,290,108 | 168,630 | 49,440 | 142,500 | 11900 |
| Lamu | 39,543 | 5,420 | 34,060 | 8 | 0 | 5 | 0 | 0 | 0 |
| Machakos | 557,540 | 125,740 | 339,551 | 900 | 49,230 | 320 | 1,980 | 9,840 | 450 |
| Makueni | 37,900 | 2,180 | 35,720 | 0 | 200 | 0 | 0 | 0 | 0 |
| Mandera | 33,300 | 950 | 31,500 | 0 | 0 | 0 | 150 | 600 | 100 |
| Marsabit | 99,300 | 1,930 | 86,044 | 0 | 706 | 826 | 1,700 | 8,800 | 0 |
| Meru | 7,999,843 | 26,224 | 7,535,605 | 107,810 | 84,518 | 130,425 | 6,230 | 22,250 | 1100 |
| Migori | 141,800 | 1,050 | 38,850 | 0 | 0 | 0 | 0 | 5,900 | 96000 |
| Murang'a | 692,800 | 0 | 640,800 | 0 | 0 | 0 | 0 | 16,000 | 0 |
| Nairobi City | 21,600 | 2,160 | 0 | 0 | 900 | 0 | 0 | 2,020 | 0 |
| Nakuru | 26,536,795 | 165,336 | 22,050,319 | 1,282,395 | 159,441 | 744,458 | 15,340 | 1,038,978 | 537000 |
| Nandi | 5,891,750 | 184,412 | 3,787,267 | 762,630 | 211,080 | 280 | 48,651 | 145,695 | 102870 |
| Narok | 36,515,730 | 216,680 | 22,408,700 | 5,435,100 | 18,540 | 305,620 | 23,070 | 121,500 | 90 |
| Nyamira | 1,800 | 900 | 900 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nyandarua | 982,326 | 98,242 | 769,297 | 9,920 | 32,200 | 13,609 | 350 | 2,570 | 0 |
| Nyeri | 776,366 | 735 | 655,305 | 250 | 70 | 31,605 | 526 | 230 | 0 |
| Samburu | 2,289,730 | 8,280 | 1,730,810 | 516,690 | 289,708 | 0 | 6,870 | 21,058 | 1530 |
| Taita-Taveta | 6,291,990 | 14,040 | 5,547,780 | 0 | 805,050 | 0 | 0 | 0 | 0 |
| Tana River | 9,287,158 | 1,491,843 | 6,073,010 | 331 | 9,460 | 353 | 0 | 75,600 | 1410 |
| Tharaka-Nithi | 122,420 | 900 | 104,130 | 17,100 | 17,100 | 90 | 0 | 200 | 0 |
| Trans Nzoia | 10,346,058 | 437,445 | 24,417,327 | 194,406,840 | 97,265 | 2,550 | 102,240 | 116,740 | 23150 |
| Uasin Gishu | 60,841,570 | 1,364,732 | 32,635,082 | 21,295,340 | 1,767,658 | 245,545 | 182,640 | 562,160 | 76500 |
| Vihiga | 5,850 | 1,150 | 2,970 | 0 | 0 | 0 | 0 | 0 | 0 |
| West Pokot | 2,937,894 | 172,085 | 2,575,924 | 3,240 | 0 | 71,040 | 17,730 | 38,970 | 5040 |
| Grand Total | 246,708,355 | 7,248,581 | 158,703,116 | 255,839,406 | 6,369,078 | 7,178,102 | 2,880,735 | 3,332,281 | 1129572 |

Annex 11: Total Production Utilization by County and type of fruit

| COUNTY | SUM Total production (Kgs) | Own Consumption kgs) | Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Crop output in Stock (Kgs) by December 2019 | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------|---------------------|------------------------------------|--------------------------------|-----------------------------|---|---------------------------|---------------------------------|
| Baringo | 14,000 | 2,000 | 5,000 | 0 | 0 | 0 | 0 | 0 | 200 |
| Bomet | 560,544 | 118,176 | 437,368 | 0 | 0 | 0 | 0 | 5,000 | 0 |
| Bungoma | 15,870 | 1,025 | 14,845 | 0 | 0 | 0 | 0 | 0 | 0 |
| Busia | 33,950 | 600 | 32,200 | 0 | 0 | 700 | 0 | 350 | 100 |
| Elgeyo-Marakwet | 64,460 | 1,500 | 52,960 | 0 | 0 | 0 | 0 | 10,000 | 0 |
| Embu | 63,000 | 6,330 | 56,425 | 30 | 0 | 110 | 0 | 60 | 20 |
| Garissa | 1,765,870 | 34,741 | 1,606,209 | 0 | 0 | 4,320 | 0 | 65,408 | 55,240 |
| Homa Bay | 7,500 | 0 | 7,253 | 0 | 0 | 247 | 0 | 0 | 0 |
| Isiolo | 150 | 50 | 100 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kajiado | 298,000 | 0 | 287,500 | 0 | 0 | 0 | 0 | 10,500 | 0 |
| Kakamega | 152,120 | 120 | 140,000 | 0 | 0 | 8,000 | 1,200 | 3,200 | 800 |
| Kericho | 25,600 | 160 | 25,000 | 0 | 0 | 0 | 0 | 200 | 240 |
| Kiambu | 381,241 | 421 | 380,700 | 20 | 0 | 0 | 2,000 | 0 | 100 |
| Kilifi | 251,920 | 3,090 | 209,140 | 0 | 3,000 | 13,240 | 4,600 | 21,730 | 320 |
| Kirinyaga | 2,512,450 | 4,955 | 2,487,395 | 0 | 0 | 250 | 0 | 150 | 100 |
| Kitui | 10,200 | 40 | 9,930 | 0 | 0 | 0 | 1,000 | 30 | 0 |
| Laikipia | 49,344 | 0 | 45,000 | 0 | 0 | 24 | 0 | 4,320 | 0 |
| Lamu | 8,900 | 0 | 8,900 | 0 | 0 | 0 | 0 | 0 | 0 |
| Machakos | 250,460 | 5,267 | 181,993 | 0 | 0 | 0 | 40 | 4,900 | 1,700 |
| Makueni | 41,030 | 500 | 21,732 | 0 | 0 | 200 | 0 | 3,598 | 15,000 |
| Mandera | 178,100 | 1,900 | 170,900 | 0 | 50 | 150 | 50 | 1,150 | 1,000 |
| Marsabit | 3,095 | 10 | 3,000 | 0 | 50 | 10 | 10 | 15 | 10 |
| Meru | 211,718 | 48,851 | 158,467 | 0 | 0 | 780 | 100 | 700 | 330 |
| Murang'a | 31,663 | 6,673 | 21,290 | 0 | 0 | 1,500 | 0 | 0 | 2,200 |
| Nakuru | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nyandarua | 20,800 | 0 | 20,740 | 0 | 0 | 0 | 0 | 60 | 0 |
| Taita-Taveta | 87,922 | 6,000 | 66,583 | 0 | 0 | 3,000 | 0 | 12,339 | 0 |
| Tana River | 3,000 | 0 | 2,500 | 0 | 0 | 0 | 0 | 300 | 20 |
| Tharaka-Nithi | 46,000 | 1,500 | 44,500 | 0 | 0 | 0 | 0 | 0 | 0 |
| Uasin Gishu | 20,000 | 0 | 15,000 | 0 | 0 | 0 | 0 | 5,000 | 0 |
| Vihiga | 4,335 | 360 | 3,945 | 0 | 0 | 30 | 390 | 0 | 0 |
| West Pokot | 29,280 | 1,870 | 26,770 | 0 | 50 | 590 | 0 | 0 | 0 |
| Grand Total | 7,142,772 | 246,139 | 6,543,345 | 50 | 3,150 | 33,151 | 9,390 | 149,010 | 77,380 |

Annex 12: Total Production Utilization by County and type of Industrial crops

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Baringo | 24,000 | 0 | 15,000 | 0 | 0 | 9,000 | 0 | 0 | 0 |
| Bomet | 118,585,064 | 0 | 112,956,464 | 0 | 88,000 | 0 | 0 | 56,600 | 5,570,000 |
| Bungoma | 14,155,678 | 4,387,500 | 8,207,628 | 740,000 | 84 | 35,000 | 0 | 36,000 | 0 |
| Busia | 12,102,975 | 0 | 6,220,250 | 0 | 460,000 | 81,750 | 500 | 159,475 | 29,000 |
| Elgeyo-Marakwet | 3,012,898 | 0 | 3,012,898 | 0 | 2,214,517 | 0 | 0 | 0 | 0 |
| Embu | 1,030,152 | 250 | 1,027,072 | 0 | 2,780 | 0 | 0 | 50 | 0 |
| Homa Bay | 4,105 | 0 | 4,105 | 0 | 5 | 0 | 0 | 0 | 0 |
| Kakamega | 28,931,120 | 200 | 21,820,697 | 2,500 | 1,200,000 | 25,000 | 0 | 426,200 | 107,250 |
| Kericho | 23,842,947 | 0 | 12,134,253 | 6,464,000 | 387,200 | 87,000 | 0 | 408,100 | 2,000 |
| Kiambu | 16,146,272 | 25 | 14,163,499 | 0 | 20,400 | 0 | 0 | 48,510 | 2,500 |
| Kilifi | 300,000 | 2,400 | 297,600 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kirinyaga | 259,722 | 0 | 216,304 | 0 | 1,442 | 0 | 0 | 0 | 0 |
| Kisumu | 217,734,570 | 0 | 195,581,440 | 1,000 | 141,638,350 | 7,136,350 | 20 | 2,252,990 | 609,330 |
| Kwale | 5,146,445 | 1,200 | 4,377,500 | 0 | 36,500 | 0 | 0 | 757,000 | 245 |
| Lamu | 45,125 | 35 | 50 | 45,040 | 0 | 0 | 0 | 0 | 0 |
| Machakos | 17,980 | 0 | 17,900 | 0 | 300 | 0 | 0 | 80 | 0 |
| Makueni | 7,044,500 | 0 | 0 | 0 | 217,500 | 0 | 7,038,350 | 0 | 0 |
| Meru | 1,379,987 | 0 | 1,315,522 | 0 | 0 | 0 | 0 | 2,620 | 0 |
| Migori | 1,160,000 | 0 | 1,160,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Murang'a | 1,792,141 | 0 | 1,792,111 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nakuru | 9,646,776 | 0 | 9,583,776 | 0 | 56,000 | 0 | 0 | 7,000 | 0 |
| Nandi | 40,847,056 | 1,193 | 18,260,688 | 0 | 1,106,696 | 5,600 | 1,200 | 344,670 | 52,000 |
| Narok | 16,004,960 | 0 | 15,214,960 | 0 | 0 | 0 | 0 | 80,000 | 0 |
| Nyamira | 6,225,900 | 0 | 702,400 | 0 | 0 | 0 | 0 | 100 | 0 |
| Nyeri | 2,272,221 | 20 | 2,272,201 | 0 | 0 | 0 | 0 | 0 | 0 |
| Taita-Taveta | 10,279,250 | 1,750 | 9,300,700 | 0 | 11,950 | 0 | 0 | 0 | 0 |
| Tharaka-Nithi | 26,719 | 0 | 5,953 | 0 | 0 | 0 | 0 | 0 | 0 |
| Trans Nzoia | 163,867 | 0 | 162,147 | 0 | 0 | 0 | 0 | 0 | 0 |
| Uasin Gishu | 205,000 | 0 | 204,900 | 0 | 0 | 0 | 0 | 100 | 0 |
| Vihiga | 74,541 | 30 | 54,477 | 0 | 360 | 0 | 0 | 234 | 5 |
| West Pokot | 5,300 | 0 | 5,300 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 538,467,270 | 4,394,603 | 440,087,796 | 7,252,540 | 147,442,084 | 7,379,700 | 7,040,070 | 4,579,729 | 6,372,330 |

Annex 13: Total Production Utilization by County and type of nut

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Bungoma | 2,495 | 450 | 2,045 | 0 | 35 | 0 | 0 | 0 | 0 |
| Embu | 19,030 | 20 | 18,860 | 0 | 0 | 0 | 0 | 0 | 8 |
| Homa Bay | 400 | 20 | 0 | 0 | 380 | 0 | 0 | 0 | 0 |
| Kiambu | 2,203,732 | 0 | 2,126,732 | 0 | 25,000 | 0 | 0 | 77,000 | 0 |
| Kirinyaga | 490 | 20 | 470 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lamu | 280,280 | 1,650 | 278,630 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mandera | 10,050 | 50 | 10,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Meru | 63,425 | 100 | 62,960 | 0 | 0 | 135 | 120 | 30 | 0 |
| Nakuru | 17,000 | 0 | 12,000 | 0 | 0 | 0 | 0 | 5,000 | 0 |
| Nyeri | 10,800 | 4 | 10,600 | 0 | 0 | 0 | 0 | 0 | 0 |
| Uasin Gishu | 74,680 | 0 | 70,000 | 4,500 | 0 | 180 | 0 | 0 | 0 |
| Vihiga | 720 | 80 | 480 | 0 | 40 | 40 | 0 | 120 | 0 |
| Grand Total | 2,683,102 | 2,394 | 2,592,777 | 4,500 | 25,455 | 355 | 120 | 82,150 | 8 |

Annex 14: Total Production Utilization by County and type of pasture and fodder

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Baringo | 203,800 | 0 | 82,400 | 109,400 | 12,000 | 150 | 50 | 0 | 0 |
| Bomet | 46,090 | 45 | 15,445 | 30,600 | 4,000 | 0 | 0 | 0 | 0 |
| Bungoma | 1,881,170 | 0 | 19,820 | 1,861,350 | 0 | 0 | 0 | 0 | 0 |
| Embu | 688,050 | 328,000 | 1,500 | 260,050 | 3,500 | 5,000 | 0 | 7 | 0 |
| Homa Bay | 28,800 | 0 | 5,200 | 200 | 23,650 | 0 | 180 | 0 | 0 |
| Kakamega | 934,967 | 44,250 | 63,163 | 35,810 | 115,705 | 403,000 | 0 | 1,250 | 0 |
| Kiambu | 1,650,091 | 0 | 957,172 | 368,960 | 203,879 | 0 | 0 | 41,165 | 13,000 |
| Kilifi | 366,000 | 183,000 | 0 | 183,000 | 183,000 | 0 | 0 | 0 | 0 |
| Kirinyaga | 586,000 | 288,000 | 0 | 298,000 | 1,800 | 0 | 0 | 0 | 0 |
| Laikipia | 765,606 | 0 | 341,200 | 326,456 | 54,000 | 1,350 | 6,174 | 4,200 | 0 |
| Meru | 500 | 0 | 0 | 300 | 0 | 0 | 0 | 0 | 0 |
| Nakuru | 7,482,183 | 126,100 | 4,567,459 | 1,855,105 | 471,400 | 17,325 | 0 | 167,850 | 0 |
| Narok | 718,000 | 0 | 557,500 | 84,000 | 0 | 0 | 0 | 1,950 | 0 |
| Nyandarua | 576,440 | 170 | 18,000 | 542,480 | 15,410 | 80 | 0 | 300 | 0 |
| Nyeri | 376,900 | 79,000 | 28,800 | 184,500 | 62,480 | 0 | 37,600 | 960 | 1,344 |
| Samburu | 228,890 | 0 | 129,590 | 85,300 | 4,200 | 0 | 5,600 | 2,800 | 0 |
| Tharaka-Nithi | 22,500 | 11,250 | 0 | 11,250 | 11,500 | 0 | 0 | 0 | 0 |
| Trans Nzoia | 30,300 | 10,500 | 6,000 | 11,100 | 1,125 | 0 | 0 | 2,700 | 0 |
| Uasin Gishu | 999,860 | 9,400 | 513,450 | 442,860 | 33,750 | 0 | 400 | 0 | 0 |
| West Pokot | 51,870 | 0 | 4,500 | 17,370 | 30,000 | 0 | 0 | 0 | 0 |
| Grand Total | 17,638,017 | 1,079,715 | 7,311,199 | 6,708,091 | 1,231,399 | 426,905 | 50,004 | 223,182 | 14,344 |

Annex 15: Total Production Utilization by County and type of root and tuber

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/ losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|----------------------------------|
| Homa Bay | 1,800 | 270 | 1,530 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kilifi | 2,000 | 1,000 | 1,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vihiga | 4,000 | 0 | 4,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 7,800 | 1,270 | 6,530 | 0 | 0 | 0 | 0 | 0 | 0 |

Annex 16: Total Production Utilization by County and type of vegetable

| County | Total Production (Kgs) | Total Own Consumption Kgs) | Total Quantity Sold (Kgs) | Crop Output Fed to Livestock (Kgs) | Crop Output in Stock (Kgs) by December 2019 | Crop Output Used as Seed (Kgs) | Crop Output Given Out (Kgs) | Post-Harvest Losses (Kgs) | Crop Output Stolen/ Losses (Kgs) |
|--------------------|------------------------|----------------------------|---------------------------|------------------------------------|---|--------------------------------|-----------------------------|---------------------------|----------------------------------|
| Baringo | 6,480 | 0 | 960 | 0 | 5,520 | 0 | 0 | 0 | 0 |
| Bomet | 331,589 | 29,560 | 281,828 | 0 | 0 | 0 | 0 | 1,000 | 0 |
| Bungoma | 144,000 | 600 | 107,400 | 0 | 0 | 15,000 | 1,000 | 20,000 | 0 |
| Elgeyo-Marakwet | 8,500 | 500 | 8,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Embu | 2,040,900 | 134,400 | 1,903,300 | 500 | 0 | 0 | 620 | 240 | 60 |
| Garissa | 312,050 | 7,050 | 291,000 | 0 | 0 | 0 | 1,550 | 11,450 | 1,000 |
| Homa Bay | 2,080 | 1,555 | 525 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kajiado | 1,438,775 | 18,030 | 1,357,500 | 1,900 | 291,500 | 0 | 1,750 | 31,775 | 300 |
| Kakamega | 46,000 | 100 | 45,400 | 0 | 0 | 0 | 0 | 400 | 100 |
| Kiambu | 3,303,800 | 2,410 | 3,237,490 | 200 | 0 | 0 | 0 | 20,800 | 4,900 |
| Kirinyaga | 2,116,145 | 18,846 | 1,921,769 | 2,000 | 15,000 | 0 | 27,100 | 59,080 | 100 |
| Kwale | 5,500 | 5,000 | 0 | 0 | 0 | 0 | 0 | 500 | 0 |
| Laikipia | 7,693,265 | 151,945 | 5,016,630 | 16,300 | 3,030 | 9,000 | 8,630 | 462,160 | 9,050 |
| Machakos | 1,179,265 | 41,662 | 1,023,183 | 300 | 0 | 0 | 500 | 17,280 | 240 |
| Makueni | 53,350 | 3,000 | 43,850 | 0 | 0 | 0 | 0 | 6,500 | 0 |
| Mandera | 735,500 | 5,920 | 697,000 | 0 | 0 | 0 | 2,800 | 24,730 | 4,150 |
| Marsabit | 14,400 | 300 | 200 | 0 | 0 | 0 | 40 | 60 | 0 |
| Meru | 448,457 | 76,388 | 341,989 | 3,200 | 0 | 0 | 140 | 450 | 290 |
| Migori | 69,050 | 100 | 59,950 | 0 | 0 | 0 | 0 | 9,000 | 0 |
| Murang'a | 273,850 | 0 | 273,750 | 0 | 0 | 0 | 100 | 0 | 0 |
| Nakuru | 9,647,805 | 31,666 | 8,250,188 | 0 | 0 | 20,100 | 0 | 1,342,855 | 0 |
| Narok | 2,000 | 0 | 2,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nyandarua | 1,058,800 | 266,250 | 682,500 | 4,000 | 0 | 0 | 0 | 106,050 | 0 |
| Nyeri | 743,350 | 6,450 | 442,650 | 200,000 | 0 | 0 | 3,000 | 37,500 | 750 |
| Taita-Taveta | 29,500 | 3,300 | 18,750 | 0 | 0 | 0 | 1,100 | 4,000 | 100 |
| Tana River | 40 | 10 | 30 | 0 | 0 | 0 | 0 | 0 | 0 |
| Uasin Gishu | 161,226 | 312 | 158,317 | 0 | 0 | 0 | 0 | 600 | 0 |
| Vihiga | 3,582 | 388 | 3,188 | 0 | 0 | 0 | 6 | 0 | 0 |
| West Pokot | 38,900 | 1,500 | 37,400 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 31,908,158 | 807,242 | 26,206,746 | 228,400 | 315,050 | 44,100 | 48,336 | 2,156,430 | 21,040 |

Annex 17: Total Production Utilization of maize by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Baringo | 3,010,150 | 25,210 | 2,875,740 | 0 | 15,250 | 24,200 | 1,900 | 28,250 | 3,600 |
| Bomet | 1,199,118 | 60,275 | 504,819 | 168,080 | 2,770 | 0 | 23,580 | 217,353 | 1,820 |
| Bungoma | 3,509,608 | 116,802 | 2,666,160 | 60,870 | 430,380 | 0 | 40,188 | 67,210 | 17,420 |
| Busia | 288,685 | 11,700 | 250,119 | 0 | 188,700 | 0 | 1,790 | 17,605 | 270 |
| Elgeyo-Marakwet | 27,490,250 | 2,134,680 | 6,202,710 | 18,905,270 | 69,210 | 450 | 6,930 | 34,560 | 3,240 |
| Embu | 410,720 | 34,010 | 168,750 | 14,900 | 3,420 | 680 | 120 | 0 | 0 |
| Garissa | 65,300 | 3,800 | 53,900 | 0 | 0 | 103 | 3,850 | 2,740 | 907 |
| Homa Bay | 134,436 | 28,220 | 77,430 | 0 | 2,402 | 0 | 58 | 8 | 0 |
| Isiolo | 46,800 | 3,150 | 36,000 | 0 | 2,450 | 35 | 2,700 | 360 | 0 |
| Kajiado | 478,410 | 9,220 | 331,500 | 450 | 2,600 | 0 | 2,972 | 7,230 | 365 |
| Kakamega | 8,159,053 | 219,244 | 3,609,831 | 3,137,306 | 498,544 | 50 | 69,730 | 325,841 | 195,810 |
| Kericho | 344,800 | 12,120 | 150,810 | 31,680 | 93,500 | 0 | 7,020 | 3,410 | 370 |
| Kiambu | 600,000 | 0 | 300,000 | 300,000 | 0 | 0 | 0 | 0 | 0 |
| Kilifi | 3,014,130 | 6,648 | 2,751,370 | 0 | 200,110 | 192 | 90 | 50,000 | 0 |
| Kirinyaga | 110,703 | 11,000 | 57,990 | 2,150 | 0 | 0 | 2,260 | 31,743 | 220 |
| Kisumu | 11,000 | 700 | 200 | 0 | 350 | 50 | 100 | 25 | 25 |
| Laikipia | 1,872,120 | 46,154 | 1,534,129 | 120,666 | 442,758 | 900 | 30,090 | 38,010 | 9,630 |
| Lamu | 38,243 | 5,320 | 32,860 | 8 | 0 | 5 | 0 | 0 | 0 |
| Machakos | 414,370 | 124,420 | 199,851 | 900 | 48,600 | 90 | 1,980 | 8,280 | 90 |
| Makueni | 14,500 | 1,800 | 12,700 | 0 | 100 | 0 | 0 | 0 | 0 |
| Mandera | 31,600 | 900 | 30,000 | 0 | 0 | 0 | 150 | 500 | 50 |
| Marsabit | 78,300 | 980 | 69,744 | 0 | 256 | 376 | 1,000 | 6,200 | 0 |
| Meru | 293,320 | 15,301 | 156,110 | 96,060 | 9,700 | 2,160 | 1,460 | 1,600 | 200 |
| Murang'a | 72,000 | 0 | 72,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nairobi City | 21,600 | 2,160 | 0 | 0 | 900 | 0 | 0 | 2,020 | 0 |
| Nakuru | 3,866,261 | 110,460 | 2,017,118 | 1,276,995 | 102,422 | 109,350 | 6,000 | 77,520 | 1,800 |
| Nandi | 5,891,750 | 184,412 | 3,787,267 | 762,630 | 211,080 | 280 | 48,651 | 145,695 | 102,870 |
| Narok | 11,772,382 | 212,850 | 4,889,160 | 5,435,100 | 9,000 | 0 | 21,172 | 22,770 | 90 |
| Nyamira | 1,800 | 900 | 900 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nyandarua | 170,026 | 18,650 | 120,077 | 9,920 | 13,050 | 309 | 0 | 820 | 0 |
| Nyeri | 5,810 | 550 | 570 | 160 | 70 | 0 | 30 | 0 | 0 |
| Samburu | 82,080 | 5,400 | 56,250 | 12,600 | 1,708 | 0 | 4,950 | 1,980 | 900 |
| Taita-Taveta | 6,291,990 | 14,040 | 5,547,780 | 0 | 805,050 | 0 | 0 | 0 | 0 |
| Tana River | 9,114,671 | 1,489,628 | 5,902,900 | 331 | 9,460 | 341 | 0 | 75,600 | 1,260 |
| Tharaka-Nithi | 35,300 | 900 | 17,100 | 17,100 | 17,100 | 0 | 0 | 200 | 0 |
| Trans Nzoia | 10,257,163 | 436,250 | 24,385,377 | 194,406,840 | 97,065 | 1,800 | 102,240 | 116,640 | 23,150 |
| Uasin Gishu | 47,982,980 | 968,750 | 23,594,020 | 20,382,310 | 1,720,958 | 102,920 | 135,990 | 483,680 | 76,500 |
| Vihiga | 5,850 | 1,150 | 2,970 | 0 | 0 | 0 | 0 | 0 | 0 |
| West Pokot | 2,450,009 | 165,000 | 2,172,104 | 3,240 | 0 | 0 | 17,730 | 33,570 | 4,500 |
| Grand Total | 149,637,288 | 6,482,754 | 94,638,316 | 245,145,566 | 4,998,963 | 244,291 | 534,731 | 1,801,420 | 445,087 |

Annex 18: Total Production Utilization of Bananas by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption (Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|-----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Bomet | 522,984 | 118,040 | 404,944 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bungoma | 15,870 | 1,025 | 14,845 | 0 | 0 | 0 | 0 | 0 | 0 |
| Embu | 52,300 | 6,120 | 45,945 | 30 | 0 | 0 | 110 | 60 | 20 |
| Garissa | 2,169,450 | 21,980 | 1,074,850 | 0 | 0 | 0 | 2,670 | 36,500 | 42,390 |
| Isiolo | 150 | 50 | 100 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kakamega | 152,120 | 120 | 140,000 | 0 | 1,200 | 0 | 8,000 | 3,200 | 800 |
| Kiambu | 40,241 | 421 | 39,700 | 20 | 2,000 | 0 | 0 | 0 | 100 |
| Kirinyaga | 2,462,450 | 4,950 | 2,437,400 | 0 | 0 | 0 | 250 | 150 | 100 |
| Machakos | 20,810 | 1,000 | 18,160 | 0 | 40 | 0 | 0 | 950 | 700 |
| Mandera | 30,300 | 300 | 30,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Meru | 78,318 | 46,551 | 29,267 | 0 | 0 | 0 | 80 | 0 | 30 |
| Murang'a | 18,360 | 2,040 | 16,320 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tharaka-Nithi | 36,000 | 1,000 | 35,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vihiga | 4,335 | 360 | 3,945 | 0 | 390 | 0 | 30 | 0 | 0 |
| West Pokot | 3,480 | 1,250 | 1,830 | 0 | 0 | 0 | 400 | 0 | 0 |
| Grand Total | 5,607,168 | 205,207 | 4,292,306 | 50 | 3,630 | 0 | 11,540 | 40,860 | 44,140 |

Annex 19: Total Production Utilization of dry beans by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Bomet | 42,742 | 10,173 | 30,051 | 0 | 900 | 450 | 90 | 1,260 | 0 |
| Bungoma | 66,540 | 4,995 | 54,225 | 0 | 2,950 | 90 | 0 | 2,945 | 0 |
| Embu | 8,460 | 925 | 7,000 | 0 | 535 | 0 | 0 | 0 | 0 |
| Garissa | 10,300 | 200 | 10,000 | 0 | 0 | 100 | 0 | 0 | 0 |
| Homa Bay | 720 | 24 | 696 | 0 | 0 | 0 | 0 | 0 | 0 |
| Isiolo | 21,600 | 30 | 150 | 0 | 10 | 10 | 40 | 10 | 0 |
| Kajiado | 7,875,700 | 3,443 | 5,400,570 | 1,620 | 2,250,001 | 42,007 | 90 | 177,170 | 0 |
| Kakamega | 28,260 | 1,625 | 19,260 | 0 | 4,502 | 656 | 1,170 | 155 | 0 |
| Kirinyaga | 5,000 | 0 | 5,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Laikipia | 20,160 | 360 | 19,440 | 0 | 360 | 0 | 0 | 360 | 0 |
| Machakos | 80,910 | 1,250 | 77,690 | 0 | 0 | 230 | 0 | 1,380 | 360 |
| Marsabit | 5,500 | 100 | 2,900 | 0 | 0 | 0 | 500 | 2,000 | 0 |
| Meru | 11,815 | 2,770 | 5,910 | 0 | 470 | 1,365 | 150 | 600 | 550 |
| Murang'a | 620,800 | 0 | 568,800 | 0 | 0 | 0 | 0 | 16,000 | 0 |
| Nakuru | 19,450 | 2,180 | 16,450 | 0 | 0 | 0 | 0 | 360 | 0 |
| Narok | 19,360 | 1,620 | 12,880 | 60 | 540 | 540 | 90 | 4,230 | 0 |
| Trans Nzoia | 45 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Uasin Gishu | 18,990 | 3,240 | 14,625 | 90 | 0 | 495 | 540 | 0 | 0 |
| West Pokot | 3,695 | 1,205 | 2,290 | 0 | 0 | 200 | 0 | 0 | 0 |
| Grand Total | 8,860,047 | 34,185 | 6,247,937 | 1,770 | 2,260,268 | 46,143 | 2,670 | 206,470 | 910 |

Annex 20: Total Production Utilization of dry beans by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Elgeyo-Marakwet | 4,176,000 | 0 | 4,186,640 | 0 | 0 | 0 | 0 | 0 | 0 |
| Laikipia | 183,150 | 0 | 162,000 | 900 | 6,300 | 3,600 | 0 | 16,650 | 0 |
| Meru | 4,262,000 | 0 | 4,196,000 | 0 | 33,000 | 22,000 | 2,000 | 9,000 | 0 |
| Nakuru | 1,452,234 | 0 | 1,415,534 | 0 | 0 | 7,000 | 0 | 0 | 0 |
| Narok | 3,134,250 | 0 | 2,937,240 | 0 | 0 | 13,500 | 0 | 93,600 | 0 |
| Samburu | 584,000 | 0 | 567,000 | 0 | 0 | 0 | 0 | 17,000 | 0 |
| Uasin Gishu | 1,912,650 | 3,600 | 439,950 | 5,650 | 0 | 3,150 | 0 | 22,950 | 0 |
| Grand Total | 15,704,284 | 3,600 | 13,904,364 | 6,550 | 39,300 | 49,250 | 2,000 | 159,200 | 0 |

Annex 21: Total Production Utilization of Irish Potatoes by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Baringo | 154,000 | 500 | 101,280 | 0 | 0 | 2,220 | 0 | 2,000 | 48,000 |
| Bomet | 53,470 | 2,440 | 22,700 | 0 | 0 | 1,350 | 0 | 180 | 0 |
| Elgeyo-Marakwet | 138,600 | 350 | 133,350 | 0 | 0 | 4,900 | 0 | 0 | 0 |
| Embu | 490 | 490 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kiambu | 40,000 | 0 | 40,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kirinyaga | 2,020 | 25 | 1,955 | 0 | 0 | 0 | 30 | 10 | 0 |
| Laikipia | 962,700 | 50,000 | 900,000 | 0 | 0 | 10,000 | 0 | 2,700 | 0 |
| Marsabit | 3,500 | 500 | 2,500 | 0 | 300 | 300 | 100 | 100 | 0 |
| Meru | 107,080 | 5,200 | 95,900 | 50 | 78 | 3,700 | 300 | 450 | 350 |
| Nakuru | 11,846,818 | 31,620 | 9,847,620 | 0 | 30,360 | 562,218 | 7,000 | 795,210 | 535,200 |
| Narok | 354,100 | 1,290 | 332,530 | 0 | 0 | 20,280 | 0 | 0 | 0 |
| Nyandarua | 723,500 | 70,442 | 637,360 | 0 | 250 | 13,300 | 0 | 1,750 | 0 |
| Trans Nzoia | 25,850 | 250 | 24,750 | 0 | 200 | 750 | 0 | 100 | 0 |
| Uasin Gishu | 465,650 | 6,050 | 371,600 | 0 | 0 | 15,500 | 0 | 50,000 | 0 |
| West Pokot | 484,190 | 5,880 | 401,530 | 0 | 0 | 70,840 | 0 | 5,400 | 540 |
| Grand Total | 15,361,968 | 175,037 | 12,913,075 | 50 | 31,188 | 705,358 | 7,430 | 857,900 | 584,090 |

Annex 22: Total Production Utilization of Cabbages by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Bomet | 326,811 | 26,900 | 280,910 | 0 | 0 | 0 | 0 | 1,000 | 0 |
| Bungoma | 144,000 | 600 | 107,400 | 0 | 0 | 15,000 | 1,000 | 20,000 | 0 |
| Elgeyo-Marakwet | 8,000 | 500 | 7,500 | 0 | 0 | 0 | 0 | 0 | 0 |
| Embu | 188,100 | 124,600 | 63,000 | 500 | 0 | 0 | 0 | 0 | 0 |
| Kajiado | 21,000 | 9,000 | 9,000 | 0 | 0 | 0 | 0 | 3,000 | 0 |
| Kiambu | 646,500 | 1,510 | 644,990 | 0 | 0 | 0 | 0 | 0 | 0 |
| Laikipia | 384,000 | 144,150 | 160,650 | 16,000 | 0 | 6,000 | 5,250 | 13,500 | 8,500 |
| Machakos | 207,690 | 100 | 166,700 | 0 | 0 | 0 | 0 | 790 | 0 |
| Makueni | 48,000 | 3,000 | 42,000 | 0 | 0 | 0 | 0 | 3,000 | 0 |
| Meru | 117,222 | 37,035 | 55,987 | 1,600 | 0 | 0 | 100 | 350 | 150 |
| Nakuru | 5,420,000 | 30,751 | 5,382,603 | 0 | 0 | 0 | 0 | 3,650 | 0 |
| Nyandarua | 1,056,000 | 266,200 | 680,000 | 4,000 | 0 | 0 | 0 | 105,800 | 0 |
| Nyeri | 545,400 | 5,400 | 340,000 | 200,000 | 0 | 0 | 0 | 0 | 0 |
| Uasin Gishu | 134,700 | 100 | 134,600 | 0 | 0 | 0 | 0 | 0 | 0 |
| West Pokot | 23,400 | 1,500 | 21,900 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 9,270,823 | 651,346 | 8,097,239 | 222,100 | 0 | 21,000 | 6,350 | 151,090 | 8,650 |

Annex 23: Total Production Utilization of Coffee by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Bomet | 150 | 0 | 150 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bungoma | 47,178 | 0 | 47,178 | 0 | 0 | 0 | 0 | 0 | 0 |
| Embu | 403,415 | 250 | 400,385 | 0 | 2,780 | 0 | 0 | 0 | 0 |
| Kakamega | 6,000 | 0 | 6,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kericho | 345,900 | 0 | 345,900 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kiambu | 4,667,563 | 25 | 2,810,823 | 0 | 20,400 | 0 | 0 | 500 | 2,500 |
| Kirinyaga | 211,722 | 0 | 168,304 | 0 | 1,442 | 0 | 0 | 0 | 0 |
| Machakos | 7,900 | 0 | 7,900 | 0 | 0 | 0 | 0 | 0 | 0 |
| Meru | 34,990 | 0 | 25,990 | 0 | 0 | 0 | 0 | 0 | 0 |
| Murang'a | 1,534,144 | 0 | 1,534,114 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nakuru | 143,000 | 0 | 82,000 | 0 | 56,000 | 0 | 0 | 5,000 | 0 |
| Nyeri | 213,974 | 20 | 213,954 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tharaka-Nithi | 26,719 | 0 | 5,953 | 0 | 0 | 0 | 0 | 0 | 0 |
| Trans Nzoia | 4,220 | 0 | 2,500 | 0 | 0 | 0 | 0 | 0 | 0 |
| Uasin Gishu | 205,000 | 0 | 204,900 | 0 | 0 | 0 | 0 | 100 | 0 |
| West Pokot | 4,220 | 0 | 4,220 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 7,856,095 | 295 | 5,860,271 | 0 | 80,622 | 0 | 0 | 5,600 | 2,500 |

Annex 24: Total Production Utilization of Mangoes by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Baringo | 14,000 | 2,000 | 5,000 | 0 | 0 | 0 | 0 | 0 | 200 |
| Elgeyo-Marakwet | 63,500 | 1,500 | 52,000 | 0 | 0 | 0 | 0 | 10,000 | 0 |
| Embu | 100 | 10 | 80 | 0 | 0 | 0 | 0 | 0 | 0 |
| Garissa | 12,465 | 2,000 | 10,465 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kilifi | 8,920 | 700 | 3,140 | 0 | 4,600 | 3,000 | 240 | 120 | 320 |
| Lamu | 6,400 | 0 | 6,400 | 0 | 0 | 0 | 0 | 0 | 0 |
| Machakos | 68,267 | 1,967 | 64,450 | 0 | 0 | 0 | 0 | 1,350 | 500 |
| Makueni | 30,030 | 300 | 11,232 | 0 | 0 | 0 | 0 | 3,498 | 15,000 |
| Mandera | 15,300 | 350 | 11,500 | 0 | 50 | 0 | 0 | 0 | 500 |
| Marsabit | 3,095 | 10 | 3,000 | 0 | 10 | 50 | 10 | 15 | 10 |
| Meru | 20,000 | 1,000 | 19,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Murang'a | 11,150 | 4,500 | 4,750 | 0 | 0 | 0 | 0 | 0 | 1,900 |
| Tharaka-Nithi | 10,000 | 500 | 9,500 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 263,227 | 14,837 | 200,517 | 0 | 4,660 | 3,050 | 250 | 14,983 | 18,430 |

Annex 25: Total Production Utilization of Rhodes Grass by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Baringo | 187,000 | 0 | 74,000 | 101,000 | 12,000 | 150 | 50 | 0 | 0 |
| Bomet | 90,000 | 0 | 12,400 | 30,600 | 4,000 | 0 | 0 | 0 | 0 |
| Bungoma | 420,000 | 0 | 0 | 420,000 | 0 | 0 | 0 | 0 | 0 |
| Embu | 30,000 | 8,000 | 1,500 | 12,000 | 3,500 | 5,000 | 0 | 0 | 0 |
| Homa Bay | 27,000 | 0 | 3,600 | 0 | 23,400 | 0 | 180 | 0 | 0 |
| Kakamega | 560,918 | 31,750 | 40,463 | 22,750 | 65,705 | 400,000 | 0 | 250 | 0 |
| Kiambu | 70,091 | 0 | 7,172 | 48,960 | 9,703 | 0 | 0 | 4,165 | 0 |
| Laikipia | 262,200 | 0 | 237,600 | 56 | 0 | 0 | 0 | 0 | 0 |
| Meru | 500 | 0 | 0 | 500 | 0 | 0 | 0 | 0 | 0 |
| Nakuru | 6,183,675 | 126,100 | 4,158,575 | 1,409,125 | 306,200 | 15,825 | 0 | 167,850 | 0 |
| Narok | 643,450 | 0 | 557,500 | 84,000 | 0 | 0 | 0 | 1,950 | 0 |
| Nyandarua | 54,000 | 0 | 18,000 | 26,000 | 10,000 | 0 | 0 | 0 | 0 |
| Nyeri | 355,400 | 79,000 | 28,800 | 163,000 | 44,696 | 0 | 37,600 | 960 | 1,344 |
| Samburu | 228,890 | 0 | 129,590 | 85,300 | 5,600 | 0 | 5,600 | 2,800 | 0 |
| Tharaka-Nithi | 22,500 | 11,250 | 0 | 11,250 | 0 | 0 | 0 | 0 | 0 |
| Uasin Gishu | 942,400 | 9,400 | 465,500 | 433,350 | 33,750 | 0 | 400 | 0 | 0 |
| West Pokot | 51,870 | 0 | 4,500 | 17,370 | 30,000 | 0 | 0 | 0 | 0 |
| Grand Total | 10,129,894 | 265,500 | 5,739,200 | 2,865,261 | 548,554 | 420,975 | 43,830 | 177,975 | 1,344 |

Annex 26: Total Production Utilization of Rice (Paddy) by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Busia | 200,000 | 150 | 88,500 | 0 | 0 | 1,500 | 5,200 | 650 | 0 |
| Garissa | 18,000 | 3,000 | 15,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kirinyaga | 198,220 | 93,600 | 104,620 | 0 | 5,500 | 0 | 0 | 0 | 0 |
| Kisumu | 45,610 | 3,460 | 19,800 | 0 | 5,400 | 450 | 1,450 | 20,225 | 225 |
| Migori | 136,800 | 800 | 37,600 | 0 | 0 | 0 | 0 | 2,400 | 96,000 |
| Tana River | 90,207 | 2,005 | 88,050 | 0 | 0 | 2 | 0 | 0 | 150 |
| Grand Total | 688,837 | 103,015 | 353,570 | 0 | 10,900 | 1,952 | 6,650 | 23,275 | 96,375 |

Annex 27: Total Production Utilization of Sugar Cane by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Bungoma | 14,106,500 | 4,387,500 | 8,158,450 | 740,000 | 84 | 35,000 | 0 | 36,000 | 0 |
| Busia | 12,102,975 | 0 | 6,220,250 | 0 | 460,000 | 81,750 | 500 | 159,475 | 29,000 |
| Kakamega | 28,925,120 | 200 | 21,814,697 | 2,500 | 1,200,000 | 25,000 | 0 | 426,200 | 107,250 |
| Kericho | 2,059,300 | 0 | 1,500,000 | 0 | 387,200 | 87,000 | 0 | 85,100 | 0 |
| Kisumu | 217,734,570 | 0 | 195,581,440 | 1,000 | 141,638,350 | 7,136,350 | 20 | 2,252,990 | 609,330 |
| Kwale | 5,092,445 | 1,200 | 4,334,000 | 0 | 20,000 | 0 | 0 | 757,000 | 245 |
| Migori | 1,160,000 | 0 | 1,160,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nandi | 11,290,000 | 0 | 10,820,030 | 0 | 0 | 5,600 | 0 | 290,000 | 52,000 |
| Narok | 15,764,960 | 0 | 14,974,960 | 0 | 0 | 0 | 0 | 80,000 | 0 |
| Vihiga | 20,000 | 30 | 170 | 0 | 0 | 0 | 0 | 0 | 5 |
| Grand Total | 308,255,870 | 4,388,930 | 264,563,997 | 743,500 | 143,705,634 | 7,370,700 | 520 | 4,086,765 | 797,830 |

Annex 28: Total Production Utilization of Tea by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Bomet | 520,000 | 0 | 518,000 | 0 | 0 | 0 | 0 | 0 | 2,000 |
| Bungoma | 2,000 | 0 | 2,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Elgeyo-Marakwet | 3,012,898 | 0 | 3,012,898 | 0 | 2,214,517 | 0 | 0 | 0 | 0 |
| Embu | 626,737 | 0 | 626,687 | 0 | 0 | 0 | 0 | 50 | 0 |
| Kericho | 6,743,847 | 0 | 4,330,028 | 0 | 0 | 0 | 0 | 323,000 | 2,000 |
| Kiambu | 11,478,709 | 0 | 11,352,676 | 0 | 0 | 0 | 0 | 48,010 | 0 |
| Kirinyaga | 48,000 | 0 | 48,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Meru | 1,344,997 | 0 | 1,289,532 | 0 | 0 | 0 | 0 | 2,620 | 0 |
| Murang'a | 257,997 | 0 | 257,997 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nakuru | 9,501,776 | 0 | 9,499,776 | 0 | 0 | 0 | 0 | 2,000 | 0 |
| Nandi | 29,557,056 | 1,193 | 7,440,658 | 0 | 1,106,696 | 0 | 1,200 | 54,670 | 0 |
| Narok | 240,000 | 0 | 240,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nyamira | 6,225,900 | 0 | 702,400 | 0 | 0 | 0 | 0 | 100 | 0 |
| Nyeri | 2,058,247 | 0 | 2,058,247 | 0 | 0 | 0 | 0 | 0 | 0 |
| Trans Nzoia | 159,647 | 0 | 159,647 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vihiga | 54,541 | 0 | 54,307 | 0 | 360 | 0 | 0 | 234 | 0 |
| Grand Total | 71,832,351 | 1,193 | 41,592,854 | 0 | 3,321,573 | 0 | 1,200 | 430,684 | 4,000 |

Annex 29: Total Production Utilization of Sisal by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Kilifi | 300,000 | 2,400 | 297,600 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kwale | 54,000 | 0 | 43,500 | 0 | 16,500 | 0 | 0 | 0 | 0 |
| Makueni | 7,044,500 | 0 | 0 | 0 | 217,500 | 0 | 7,038,350 | 0 | 0 |
| Taita-Taveta | 10,279,250 | 1,750 | 9,300,700 | 0 | 11,950 | 0 | 0 | 0 | 0 |
| Grand Total | 17,677,750 | 4,150 | 9,641,800 | 0 | 245,950 | 0 | 7,038,350 | 0 | 0 |

Annex 30: Total Production Utilization of Wheat by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Baringo | 54,500 | 0 | 54,500 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bungoma | 630 | 0 | 450 | 0 | 180 | 0 | 0 | 45 | 0 |
| Elgeyo-Marakwet | 556,000 | 4,050 | 460,360 | 0 | 1,000 | 23,550 | 1,050 | 3,690 | 0 |
| Laikipia | 2,693,663 | 19,713 | 2,350,256 | 24,960 | 840,690 | 154,130 | 19,350 | 84,780 | 2,270 |
| Meru | 3,108,340 | 460 | 2,960,590 | 0 | 33,270 | 20,800 | 2,320 | 9,000 | 0 |
| Nakuru | 9,307,482 | 16,576 | 8,731,057 | 5,400 | 26,659 | 65,890 | 2,340 | 163,998 | 0 |
| Narok | 21,231,638 | 720 | 14,233,090 | 0 | 9,000 | 271,300 | 1,808 | 900 | 0 |
| Nyandarua | 59,400 | 8,800 | 11,450 | 0 | 18,900 | 0 | 0 | 0 | 0 |
| Nyeri | 770,556 | 185 | 654,735 | 90 | 0 | 31,605 | 496 | 230 | 0 |
| Samburu | 1,623,650 | 2,880 | 1,107,560 | 504,090 | 288,000 | 0 | 1,920 | 2,078 | 630 |
| Trans Nzoia | 63,000 | 900 | 7,200 | 0 | 0 | 0 | 0 | 0 | 0 |
| Uasin Gishu | 10,409,500 | 382,912 | 8,163,267 | 907,290 | 46,700 | 123,480 | 46,110 | 5,530 | 0 |
| Grand Total | 49,878,359 | 437,196 | 38,734,515 | 1,441,830 | 1,264,399 | 690,755 | 75,394 | 270,251 | 2,900 |

Annex 31: Total Production Utilization of fodder Maize by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Bungoma | 1,440,000 | 0 | 0 | 1,440,000 | 0 | 0 | 0 | 0 | 0 |
| Embu | 470,000 | 220,000 | 0 | 160,000 | 0 | 0 | 0 | 7 | 0 |
| Kiambu | 40,000 | 0 | 0 | 40,000 | 0 | 0 | 0 | 0 | 0 |
| Kilifi | 366,000 | 183,000 | 0 | 183,000 | 183,000 | 0 | 0 | 0 | 0 |
| Kirinyaga | 586,000 | 288,000 | 0 | 298,000 | 1,800 | 0 | 0 | 0 | 0 |
| Nakuru | 280,000 | 0 | 0 | 280,000 | 0 | 0 | 0 | 0 | 0 |
| Nyandarua | 500,080 | 0 | 0 | 500,000 | 0 | 80 | 0 | 0 | 0 |
| Nyeri | 18,000 | 0 | 0 | 18,000 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 3,700,080 | 691,000 | 0 | 2,919,000 | 184,800 | 80 | 0 | 7 | 0 |

Annex 32: Total Production Utilization of Macadamia Nuts by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Bungoma | 1,820 | 0 | 1,820 | 0 | 0 | 0 | 0 | 0 | 0 |
| Embu | 19,030 | 20 | 18,860 | 0 | 0 | 0 | 0 | 0 | 8 |
| Kiambu | 2,203,732 | 0 | 2,126,732 | 0 | 25,000 | 0 | 0 | 77,000 | 0 |
| Kirinyaga | 490 | 20 | 470 | 0 | 0 | 0 | 0 | 0 | 0 |
| Meru | 5,550 | 0 | 5,420 | 0 | 0 | 0 | 20 | 30 | 0 |
| Nyeri | 3,400 | 4 | 3,200 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 2,234,022 | 44 | 2,156,502 | 0 | 25,000 | 0 | 20 | 77,030 | 8 |

Annex 33: Total Production Utilization of Avocados by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Bomet | 14,000 | 0 | 9,000 | 0 | 0 | 0 | 0 | 5,000 | 0 |
| Busia | 3,500 | 500 | 2,200 | 0 | 0 | 0 | 500 | 200 | 100 |
| Embu | 2,400 | 0 | 2,400 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kiambu | 331,000 | 0 | 331,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Makueni | 1,000 | 200 | 500 | 0 | 0 | 0 | 200 | 100 | 0 |
| Uasin Gishu | 20,000 | 0 | 15,000 | 0 | 0 | 0 | 0 | 5,000 | 0 |
| West Pokot | 1,800 | 360 | 1,440 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 373,700 | 1,060 | 361,540 | 0 | 0 | 0 | 700 | 10,300 | 100 |

Annex 34: Total Production Utilization of Coconut by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Lamu | 268,600 | 1,550 | 267,050 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 268,600 | 1,550 | 267,050 | 0 | 0 | 0 | 0 | 0 | 0 |

Annex 35: Total Production Utilization of Sorghum by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Bungoma | 3,270 | 0 | 3,270 | 0 | 0 | 0 | 0 | 0 | 0 |
| Elgeyo-Marakwet | 13,500 | 0 | 13,500 | 0 | 0 | 0 | 0 | 0 | 0 |
| Homa Bay | 101,300 | 0 | 100,000 | 0 | 0 | 0 | 0 | 1,300 | 0 |
| Kwale | 4,500 | 400 | 4,100 | 0 | 0 | 0 | 0 | 0 | 0 |
| Meru | 13,045 | 50 | 12,995 | 0 | 0 | 0 | 0 | 0 | 0 |
| Migori | 5,000 | 250 | 1,250 | 0 | 0 | 0 | 0 | 3,500 | 0 |
| Narok | 4,000 | 200 | 3,800 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tana River | 430 | 120 | 300 | 0 | 0 | 10 | 0 | 0 | 0 |
| Tharaka-Nithi | 87,120 | 0 | 87,030 | 0 | 0 | 90 | 0 | 0 | 0 |
| Grand Total | 232,165 | 1,020 | 226,245 | 0 | 0 | 100 | 0 | 4,800 | 0 |

Annex 36: Total Production Utilization of Pyrethrum by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Nakuru | 2,000 | 0 | 2,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| West Pokot | 1,080 | 0 | 1,080 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 3,080 | 0 | 3,080 | 0 | 0 | 0 | 0 | 0 | 0 |

Annex 37: Total Production Utilization of Simsims by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Lamu | 5,600 | 100 | 5,500 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mandera | 10,050 | 50 | 10,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 15,650 | 150 | 15,500 | 0 | 0 | 0 | 0 | 0 | 0 |

Annex 38: Total Production Utilization of Peas by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Meru | 5,750 | 10 | 5,730 | 0 | 0 | 0 | 10 | 0 | 0 |
| Nakuru | 80,000 | 0 | 60,000 | 0 | 0 | 20,000 | 0 | 0 | 0 |
| Narok | 2,000 | 0 | 2,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nyandarua | 2,800 | 50 | 2,500 | 0 | 0 | 0 | 0 | 250 | 0 |
| Nyeri | 17,250 | 750 | 14,250 | 0 | 0 | 0 | 0 | 1,500 | 750 |
| Grand Total | 107,800 | 810 | 84,480 | 0 | 0 | 20,000 | 10 | 1,750 | 750 |

Annex 39: Total Production Utilization of Cotton by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Baringo | 24,000 | 0 | 15,000 | 0 | 0 | 9,000 | 0 | 0 | 0 |
| Homa Bay | 4,105 | 0 | 4,105 | 0 | 5 | 0 | 0 | 0 | 0 |
| Lamu | 45,100 | 30 | 30 | 45,040 | 0 | 0 | 0 | 0 | 0 |
| Machakos | 10,080 | 0 | 10,000 | 0 | 300 | 0 | 0 | 80 | 0 |
| Grand Total | 83,285 | 30 | 29,135 | 45,040 | 305 | 9,000 | 0 | 80 | 0 |

Annex 40: Total Production Utilization of Cassava by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Homa Bay | 1,800 | 270 | 1,530 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kilifi | 2,000 | 1,000 | 1,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vihiga | 4,000 | 0 | 4,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 7,800 | 1,270 | 6,530 | 0 | 0 | 0 | 0 | 0 | 0 |

Annex 41: Total Production Utilization of Sweet Potatoes by County

| COUNTY | SUM Total production (Kgs) | Total Own Consumption Kgs) | Total Quantity sold (Kgs) | Crop output fed to livestock (Kgs) | Crop output in Stock (Kgs) by December 219 | Crop output used as seed (Kgs) | Crop output given out (Kgs) | Post-harvest losses (Kgs) | Crop output stolen/losses (Kgs) |
|--------------------|----------------------------|----------------------------|---------------------------|------------------------------------|--|--------------------------------|-----------------------------|---------------------------|---------------------------------|
| Kakamega | 9,691 | 700 | 7,941 | 0 | 0 | 0 | 500 | 390 | 160 |
| Meru | 197,000 | 0 | 103,500 | 11,500 | | 80,400 | 0 | 1,600 | 0 |
| Nyandarua | 29,400 | 350 | 410 | 0 | 0 | 0 | 350 | 0 | 0 |
| Uasin Gishu | 50,000 | 0 | 50,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 286,091 | 1,050 | 161,851 | 11,500 | 0 | 80,400 | 850 | 1,990 | 160 |

Annex 42: Distribution of Total Area Cropped by type of crop and county

| County | Area Plated (Acres) | | | | | | | | |
|-----------------|---------------------|--------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|
| | Barley | Coffee | Maize | Rhodes Grass | Sisal | Sugar cane | Tea | Wheat | Others |
| Total | 10,135 | 8,747 | 53,400 | 2,926 | 20,201 | 24,071 | 15,900 | 40,121 | 16,946 |
| Kwale | | | | | 7,000 | 624 | | | 38 |
| Kilifi | | | 2,516 | | 630 | | | | 543 |
| Tana River | | | 2,134 | | | | | | 357 |
| Lamu | | | 85 | | | | | | 463 |
| Taita-Taveta | | | 2,625 | | 1,012 | | | | 238 |
| Garissa | | | 38 | | | | | | 1,840 |
| Mandera | | | 18 | | | | | | 257 |
| Marsabit | | | 53 | | | | | | 59 |
| Isiolo | | | 40 | | | | | | 31 |
| Meru | 3,620 | 53 | 189 | 3 | | | 310 | 3,301 | 409 |
| Tharaka-Nithi | | 36 | 10 | 3 | | | | | 28 |
| Embu | | 252 | 384 | 41 | | | 230 | | 536 |
| Kitui | | | 342 | | | | | | 107 |
| Machakos | | 30 | | | | | | | 459 |
| Makueni | | | 35 | | 11,559 | | | | 158 |
| Nyandarua | | | 293 | 14 | | | | | 261 |
| Nyeri | | 303 | 11 | 304 | | | 549 | 794 | 282 |
| Kirinyaga | | 145 | 75 | | | | 6 | | 509 |
| Murang'a | | 627 | 80 | | | | 68 | | 189 |
| Kiambu | | 6,558 | 25 | 60 | | | 2,320 | | 2,171 |
| West Pokot | | 6 | 1,869 | 13 | | | | | 106 |
| Samburu | 400 | | 45 | 69 | | | | 880 | |
| Trans-Nzoia | | 18 | 6,528 | | | | 71 | 20 | 29 |
| Uasin-Gishu | 1,339 | 50 | 15,205 | 243 | | | | 6,128 | 400 |
| Elgeyo-Marakwet | | 100 | 3,759 | | | | 765 | 406 | 318 |
| Nandi | | | 2,808 | | 6,424 | 2,054 | | | |
| Baringo | | | 2,250 | 165 | | | 60 | | 175 |
| Laikipia | 80 | | 993 | 72 | | | 2,236 | | 2,442 |
| Nakuru | 1,154 | 380 | 1,743 | 1,281 | | | 1,489 | 5,887 | 2,789 |
| Narok | 3,442 | | 3,535 | 420 | | 558 | 50 | 20,354 | 181 |
| Kajiado | | | 172 | | | | | | 539 |
| Kericho | | 191 | 208 | | | 615 | 1,787 | | 3 |
| Bomet | | 1 | 334 | 129 | | | 5,830 | | 210 |
| Kakamega | | 19 | 2,779 | 87 | | 2,051 | | | 255 |
| Vihiga | | | 6 | | | 1 | 26 | | 18 |
| Bungoma | | 78 | 1,879 | 10 | | 580 | 3 | 2 | 292 |
| Busia | | | 192 | | | 1,174 | | | 75 |
| Kisumu | | | 15 | | | 11,953 | | | 35 |
| Homa Bay | | | 121 | 12 | | | 20 | | 109 |
| Migori | | | 4 | | | | 72 | | 39 |
| Nyamira | | | 7 | | | | 342 | | |
| Nairobi | | | | | | | | | |
| City | | | | | | | | | |

Annex 43: Total Area Harvested

| County | Total Area Harvested (Acres) | | | | | | | | |
|-----------------|------------------------------|--------|-------|--------------|-------|------------|-------|-------|--------|
| | Barley | Coffee | Maize | Rhodes Grass | Sisal | Sugar cane | Tea | Wheat | Others |
| Total | 18388 | 8272 | 51230 | 3558 | 40760 | 11733 | 30156 | 46851 | 15539 |
| Kwale | | | | | 320 | 374 | | | 56 |
| Kilifi | | | 2015 | | 400 | | | | 249 |
| Tana River | | | 2078 | | | | | | 357 |
| Lamu | | | 85 | | | | | | 463 |
| Taita-Taveta | | | 2625 | | 29217 | | | | 235 |
| Garissa | | | 31 | | | | | | 1477 |
| Mandera | | | 13 | | | | | | 226 |
| Marsabit | | | 52 | | | | | | 56 |
| Isiolo | | | 40 | | | | | | 30 |
| Meru | 12620 | 55 | 162 | 3 | | | 309 | 12301 | 407 |
| Tharaka-Nithi | | 36 | 10 | 3 | | | | | 27 |
| Embu | | 244 | 384 | 21 | | | 228 | | 449 |
| Kitui | | | 333 | | | | | | 103 |
| Machakos | | 30 | | | | | | | 441 |
| Makueni | | | 37 | | | | | | 140 |
| Nyandarua | | | 215 | 14 | | | | | 209 |
| Nyeri | | 301 | 11 | 134 | | | 546 | 758 | 281 |
| Kirinyaga | | 127 | 75 | | | | 6 | | 490 |
| Murang'a | | 627 | 80 | | | | 68 | | 187 |
| Kiambu | | 6142 | 25 | 60 | | | 2320 | | 2411 |
| West Pokot | | 4 | 1858 | 12 | | | | | 114 |
| Samburu | 350 | | 45 | 69 | | | | 860 | |
| Trans Nzoia | | 18 | 6094 | | | | 71 | 20 | 29 |
| Uasin Gishu | 1339 | 40 | 14795 | 343 | | | | 5996 | 315 |
| Elgeyo-Marakwet | 100 | | 3753 | | | | 758 | 406 | 241 |
| Nandi | | | 2747 | | | 490 | 10131 | | |
| Baringo | | | 2225 | 115 | | | | 60 | 157 |
| Laikipia | 80 | | 978 | 72 | | | | 1894 | 2019 |
| Nakuru | 1154 | 383 | 1637 | 2056 | | | 1489 | 5768 | 2744 |
| Narok | 2745 | | 3185 | 420 | | 261 | 50 | 18732 | 150 |
| Kajiado | | | 172 | | | | | | 499 |
| Kericho | | 186 | 206 | | | 388 | 1697 | | 3 |
| Bomet | | 1 | 329 | 129 | | | 5814 | | 205 |
| Kakamega | | 14 | 2724 | 85 | | | 1208 | | 219 |
| Vihiga | | | 6 | | | 1 | 5450 | | 44 |
| Bungoma | | 65 | 1879 | 10 | | 290 | 3 | | 290 |
| Busia | | | 182 | | | | 517 | | 70 |
| Kisumu | | | 15 | | | | 8179 | | 15 |
| Homa Bay | | | 121 | 12 | | 0 | | | 101 |
| Migori | | | 4 | | | 26 | | | 33 |
| Nyamira | | | 7 | | | | 1217 | | |
| Nairobi | | | | | | | | | |
| City | | | | | | | | | |

Annex 44: Production in Kilograms of Selected Crops by County

| County | Bananas | Barley | Beans, dry | Cabbage | Cauliflowers/brocoli | Coffee | Irish Potatoes | Lemon | Maize | Mangoes | Rhodes Grass | Rice(paddy) | Sisal | Sugar cane | Tea | Wheat | Others |
|--------------------|------------------|-------------------|------------------|------------------|----------------------|------------------|-------------------|------------------|--------------------|------------------|-------------------|------------------|-------------------|--------------------|--------------------|-------------------|-------------------|
| Baringo | | | | | | | | | | | | | | | | | |
| Bomet | 522,984 | | | | | | | | | | | | | | | 54,500 | 47,280 |
| Bungoma | 15,870 | | | | | | | | | | | | | | | 554,582 | |
| Busia | | | | | | | | | | | | | | | | 1,530,253 | |
| Elgeyo-Marakwet | | | | | | | | | | | | | | | | 30,450 | |
| Embu | 52,300 | 4,176,000 | | | | | | | | | | | | | | 556,000 | 14,960 |
| Garissa | 2,169,450 | | | | | | | | | | | | | | | 3,031,480 | |
| Homa Bay | | | | | | | | | | | | | | | | 7,458,928 | |
| Isiolo | 150 | | | | | | | | | | | | | | | 118,985 | |
| Kajiado | | | | | | | | | | | | | | | | 2,850 | |
| Kakamega | 152,120 | | | | | | | | | | | | | | | 1,715,775 | |
| Kericho | | | | | | | | | | | | | | | | 585,485 | |
| Kiambu | 40,241 | | | | | | | | | | | | | | | 371,500 | |
| Kilifi | | | | | | | | | | | | | | | | 11,833,336 | |
| Kirinyaga | 2,462,450 | | | | | | | | | | | | | | | 686,150 | |
| Kisumu | | | | | | | | | | | | | | | | 5,426,807 | |
| Kitui | | | | | | | | | | | | | | | | 12,970 | |
| Kwale | | | | | | | | | | | | | | | | 15,400 | |
| Laikipia | | | | | | | | | | | | | | | | 8,302,859 | |
| Lamu | | | | | | | | | | | | | | | | 329,205 | |
| Machakos | 20,810 | | | | | | | | | | | | | | | 1,184,208 | |
| Makueni | | | | | | | | | | | | | | | | 38,750 | |
| Mandera | 30,300 | | | | | | | | | | | | | | | 902,050 | |
| Marsabit | | | | | | | | | | | | | | | | 26,400 | |
| Meru | 78,318 | 4,262,000 | | | | | | | | | | | | | | 1,344,997 | 3,108,340 |
| Migori | | | | | | | | | | | | | | | | 918,656 | |
| Murang'a | 18,360 | | | | | | | | | | | | | | | 74,050 | |
| Nairobi City | | | | | | | | | | | | | | | | 1,828,507 | |
| Nakuru | | | | | | | | | | | | | | | | | |
| Nandi | | | | | | | | | | | | | | | | | |
| Narok | | | | | | | | | | | | | | | | | |
| Nyamira | | | | | | | | | | | | | | | | | |
| Nyandarua | | | | | | | | | | | | | | | | | |
| Nyeri | | | | | | | | | | | | | | | | | |
| Sanburu | | | | | | | | | | | | | | | | | |
| Taita-Taveta | | | | | | | | | | | | | | | | | |
| Tana River | | | | | | | | | | | | | | | | | |
| Tharaka-Nithi | 36,000 | | | | | | | | | | | | | | | 117,422 | |
| Trans Nzoia | | | 45 | | | | | | | | | | | | | 85,320 | |
| Uasin Gishu | | 1,912,650 | 18,990 | 134,700 | | | | | | | | | | | | 149,839 | |
| Vihiga | 4,335 | | 3,695 | 23,400 | | | | | | | | | | | | 34,520 | |
| West Pokot | 3,480 | | | | | | | | | | | | | | | 415,466 | |
| Grand Total | 5,607,168 | 15,704,284 | 8,860,047 | 9,063,133 | 4,344,844 | 7,856,095 | 15,361,968 | 6,522,350 | 149,097,288 | 6,449,312 | 10,456,495 | 5,769,685 | 17,677,750 | 322,949,770 | 189,897,265 | 49,878,359 | 58,861,140 |

Annex 45: Distribution of bonus dividends by county

| County | Dividends/bonus (KSh) |
|-----------------|-----------------------|
| Total | 2,259,914,327 |
| Kwale | 771,000 |
| Kilifi | 26 |
| Tana River | 720,000 |
| Lamu | 0 |
| Taita-Taveta | 0 |
| Garissa | 12,593,586 |
| Mandera | 336,408 |
| Marsabit | 0 |
| Isiolo | 0 |
| Meru | 1,730,800 |
| Tharaka-Nithi | 0 |
| Embu | 10,723,428 |
| Kitui | 180,000 |
| Machakos | 1,981,546,840 |
| Makueni | 168,000 |
| Nyandarua | 1,855,007 |
| Nyeri | 0 |
| Kirinyaga | 2,792,000 |
| Murang'a | 0 |
| Kiambu | 16,800,000 |
| West Pokot | 4,574,000 |
| Samburu | 0 |
| Trans Nzoia | 9,877,765 |
| Uasin Gishu | 39,639,700 |
| Elgeyo-Marakwet | 0 |
| Nandi | 8,095,000 |
| Baringo | 780,000 |
| Laikipia | 18,212,704 |
| Nakuru | 9,215,937 |
| Narok | 13,647,683 |
| Kajiado | 5,194,408 |
| Kericho | 11,717,039 |
| Bomet | 7,241,160 |
| Kakamega | 83,066,336 |
| Vihiga | 2,274,000 |
| Bungoma | 10,110,500 |
| Busia | 1,859,000 |
| Kisumu | 3,966,000 |
| Homa Bay | 0 |
| Migori | 226,000 |
| Nyamira | 0 |

Annex 46: Changes in Fish stock, 2019

| Counties | Beginning Stock | | | Purchased | Production | Utilization | | | Closing Stocks | | |
|---------------|--|---|---|------------------------------------|------------------------------------|-------------------------------------|---------------------------------|-----------------------------------|--|---|---|
| | Total stock from the fish ponds (fingerling) | Total stock from the fish ponds (table size) | Total stock from the fish ponds (brood stock) | Quantity of fish purchased in 2019 | Quantities of fingerlings produced | Quantity of fish sold in 2019 (Kgs) | Number of fish consumed in 2019 | Number of fish given away in 2019 | Total stock in the fish ponds (fingerling) | Total stock in the fish ponds (table size) | Total stock in the fish ponds (brood stock) |
| Meru | 18,700 | 2,480 | 12,000 | 18,480 | 1,000 | 3,492 | 363 | 605 | 15,900 | 4,080 | 7,000 |
| Tharaka Nithi | 14,500 | 1,500 | 300 | - | 170,000 | 10,000 | 200 | 500 | 212,000 | 650 | 200 |
| Embu | 3,200 | 555 | 30 | 100 | 3,000 | - | - | 30 | 2,000 | 1,025 | 20 |
| Nyeri | 221,000 | 210,831 | 25,557 | 10,050 | 357,545 | 39,894 | 8,144 | 1,240 | 331,152 | 293,685 | 10,085 |
| Kirinyaga | 69,500 | 7,374 | 870 | 3,010 | 2,002,000 | 1,880 | 530 | 134 | 805,750 | 14,620 | 1,005 |
| Murang'a | - | - | - | - | - | - | - | - | - | - | - |
| Kiambu | 500 | 500 | 1,000 | 2,000 | - | 10,000 | 20 | - | 1,500 | 700 | 200 |
| West Pokot | - | 1,800 | - | 1,000 | - | 9,000 | 3,000 | - | - | 600 | - |
| Trans Nzoia | 22,000 | 19,100 | 15,500 | - | - | 5,000 | 5,000 | 503 | 5,500 | 6,500 | 6,500 |
| Nandi | 10,000 | 5,000 | 1,000 | 1,000 | 120,000 | 1,200 | 240 | 150 | 18,000 | 700 | 500 |
| Baringo | 2,900 | 1,000 | 900 | - | - | 240 | 25 | 50 | 995 | - | - |
| Laikipia | - | 7,200 | 150 | - | 9,000 | 117 | 8 | 70 | 12,500 | 3,800 | 150 |
| Nakuru | 50 | 50 | 50 | 2,000 | 10,050 | - | - | - | 5,050 | 5,050 | 2,046 |
| Kericho | 25,750 | 13,575 | 6,200 | - | 112,600 | 11,645 | 1,009 | 2,970 | 25,650 | 45,600 | 10,680 |
| Bomet | 51,300 | 20,000 | 20,250 | - | - | 1,800 | 900 | 960 | 51,300 | 2,080 | 2,040 |
| Kakamega | 394,845 | 78,125 | 27,317 | 62,190 | 200,340 | 1,036,073 | 8,848 | 4,943 | 259,170 | 72,690 | 10,883 |
| Vihiga | 38,700 | 46,815 | 3,900 | 31,400 | 40,000 | 1,833,075 | 2,406 | 6,195 | 50,900 | 13,100 | 6,600 |
| Bungoma | 26,950 | 13,200 | - | - | - | 13,330 | - | - | - | 5,000 | - |
| Busia | 96,400 | 77,478 | 1,995 | 17,000 | 150,500 | 31,335 | 3,960 | 2,066 | 130,350 | 69,350 | 15,500 |
| Kisumu | 15,000 | 15,000 | 15,000 | 40,000 | 70,000 | 10,000 | 480,000 | 200 | 15,000 | 40,000 | 45,000 |
| Homa Bay | 1,534,650 | 937,755 | 37,760 | 609,200 | 6,084,600 | 2,045,918 | 14,880 | 100 | 1,523,020 | 545,433 | 32,793 |
| Migori | 61,700 | 20,508 | 2,800 | - | 1,680,000 | 10,272 | 2,502 | 270 | 42,000 | 6,900 | 2,200 |
| Total | 2,607,645 | 1,479,846 | 172,579 | 797,430 | 11,010,635 | 5,074,271 | 532,035 | 20,986 | 3,507,737 | 1,131,563 | 153,402 |

