United Republic of Tanzania

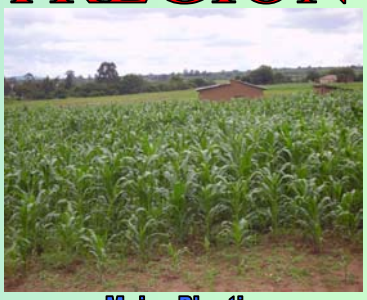
NATIONAL SAMPLE CENSUS OF AGRICULTURE
2002/2003

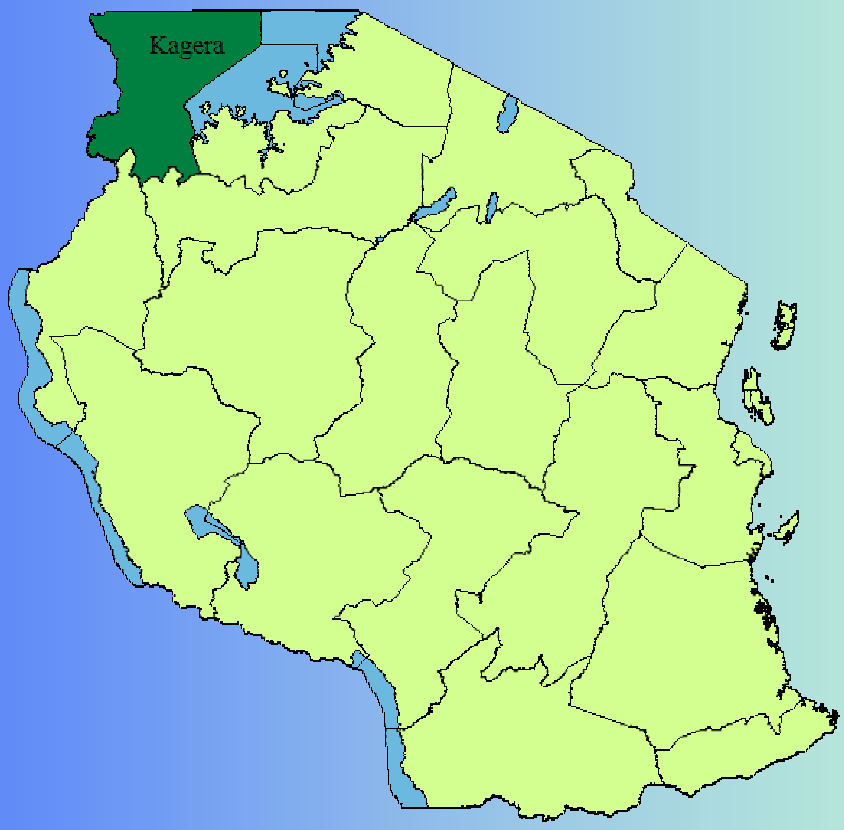
Volume Vr: REGIONAL REPORT: KAGERA REGION


Cattle Rearing


Fish Harvesting


Eggs Production


Maize Planting




Paddy Growing


Hand Cultivation


Indigenous Chicken


Irrigation Practice


Orange Marketing


Cassava Planting


Goats Rearing

National Bureau of Statistics, Ministry of Agriculture and Food Security, Ministry of Water and Livestock Development,
Ministry of Cooperatives and Marketing, Presidents Office, Regional Administration and Local Government
December 2007

United Republic of Tanzania

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VOLUME Vr: REGIONAL REPORT:KAGERA REGION

National Bureau of Statistics, Ministry of agriculture and Food Security,
Ministry of Water and Livestock Development, Ministry of Cooperatives and Marketing,
Presidents Office, Regional Administration and Local Government,
Ministry of Finance and Economic Affairs – Zanzibar

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ACRONYMS

ASDP	*Agricultural Sector Development Project*
CSPro	*Census and Survey Processing Program*
DFID	*Department For International Development*
DIAS	*District Integrated Agricultural Survey*
DS	*District Supervisor*
EAS	*Expanded Agricultural Survey*
EAs	*Enumeration Areas*
EU	*European Union*
FE	*Field Enumerator*
GDP	*Gross Domestic Product*
Ha	*Hectares*
IAS	*Integrated Agricultural Survey*
ICR	*Intelligent Character Recognition*
IEC	*Information, Education and Communication*
JICA	*Japanese International Cooperation Agency*
LRS	*Long Rainy Season,*
MAFS	*Ministry of Agriculture and Food Security*
MCM	*Ministry of Co-operatives and Marketing*
MWLD	*Ministry of Water and Livestock Development*
NBS	*National Bureau of Statistics*
NGO	*Non Governmental Organization*
NMS	*National Master Sample*
NSCA	*National Sample Census of Agriculture*
NSGRP	*National Strategy for Growth and Reduction of Poverty*
PORALG	*President's Office, Regional Administration and Local Government*
PPS	*Probability Proportional to Size*
PSU	*Primary Sampling Unit*
RAAS	*Rapid Appraisal Agricultural Survey*
RS	*Regional Supervisor*
RSM	*Regional Statistical Manager*
SAC	*Scotts Agriculture Consultancy Ltd*
SPSS	*Statistical Package for Social Science*
SRS	*Short Rainy Season*
TOT	*Training of Trainers*
ULG	*Ultek Laurence Gould*
UNDP	*United Nations Development Programme*
UNFAO	*United Nations Food and Agriculture Organization*
VPO	*Vice President Office*

PREFACE

At the end of the 2002/03 Agriculture Year, the National Bureau of Statistics, Tanzania Mainland and the Office of the Chief Government Statistician, Tanzania Zanzibar in collaboration with the Ministries of Agriculture and Food Security; Water and Livestock Development; Cooperatives and Marketing as well as the President's Office, Regional Administration and Local Government (PORALG) conducted the Agriculture Sample Census. This is the third Agriculture Census to be carried out in Tanzania, the first one was conducted in 1971/72, the second in 1993/94 and 1994/95 (data on household characteristics and livestock count were collected in 1993/1994 while data on crop area and production were collected in 1994/95).

It is considered that this census is one of the largest to be carried out in Africa and indeed in many other countries of the world. The census collected detailed data on crop production, crop marketing, crop storage, livestock production, fish farming, tree farming, access to infrastructures and services and poverty indicators.

In addition to this, the census was large in its coverage as it provides data that can be disaggregated at district level and thus allow comparisons with the 1998/99 District Integrated Agricultural Survey. The census covered smallholders in rural areas only and large scale farms.

This report presents Kagera region data disaggregated to district level. Due to numerous variables collected, the analysis is based on the most important smallholder variables. More variables can be found in the table of results annex.

The extensive nature of the census in relation to its scope and coverage is a result of the increasing demand for more detailed information to assist in the proper planning of this sector and in the administrative decentralization of planning to district level. It is hoped that this report will provide new insights for planners, policy makers, researchers and others involved in the agricultural sector in order to improve the prevailing conditions faced by crop producers and livestock keepers in the country.

On behalf of the Government of Tanzania, I wish to express my appreciation for the financial support provided by the development partners, in particular, the European Union as well as DFID, UNDP, Japanese Government, JICA and others who contributed through the pool fund mechanism.

Special thanks should go to all those who in one-way or the other contributed to the success of the survey. In particular, I would like to mention the enormous effort made by the Planning Group composed of professionals from the Agriculture Statistics Department of the National Bureau of Statistics (NBS), the Office of the Chief Government Statistician, Zanzibar (OCGS) and the Statistics Unit of the Ministry of Agriculture and Food Security (MAFS) with technical assistance provided by Ultec Lawrence Gould (ULG), Scotts Agriculture Consultancy Ltd and the Food and Agriculture Organisation of the United Nations (FAO).

Finally, let me extend my sincere gratitude to all professional staff of the National Bureau of Statistics and Office of the Chief Government Statistician, the sector Ministries of Agriculture and PORALG, the Consultants as well as Regional and District Supervisors and field enumerators for their commendable work. I am also indepted to the respondents, particularly the heads of households, for spending much of their valuable time in providing data and all necessary information during enumeration. Certainly without their dedication, the census would not have been successful.

Albina A. Chuwa
Director General,
National Bureau of Statistics

EXECUTIVE SUMMARY

The executive summary highlights the main survey results obtained during the National Sample Census of Agriculture 2002/03. This report covers small-scale agriculture households in rural areas of Kagera Region who were selected using statistical sampling techniques. The results in the report do not cover urban areas and large-scale farmers.

The highlights describe the important findings in relation to agricultural production, productivity, husbandry, access to resources, levels of involvement in agricultural activities and poverty in Kagera Region. Also included are activities' indicators for one to get an overview, at regional level, of the rural agricultural households and their levels of involvement in agricultural related activities.

i) Household Characteristics

The number of agricultural households in Kagera Region were 357,277 out of which 253,817 (71.8%) were involved in growing crops only, 3,049 (0.9%) were rearing livestock only, 628 (0.2%) were pastoralist, and 95,783 (27.1%) were involved in both crop production and livestock keeping. In summary, Kagera Region had 349,600 households involved in crop production and 99,460 involved in livestock production.

Most of the agricultural households ranked annual crop farming as the activity that provided most of their cash income followed by permanent crop farming, livestock keeping/herding, off-farm income, tree/forest resources, remittances and fishing.

The region had a literacy rate of 67 percent. The highest literacy rate was in Bukoba Urban district (84%) followed by Bukoba Rural (77%) and Muleba district (69%). Ngara and Biharamulo districts had the lowest literacy rates of 62 and 55 percent respectively. The literacy rate for the heads of households in the region was 71.8 percent.

The number of heads of agricultural households with formal education in Kagera Region was 252,674 (72%), those without formal education were 95,788 (27%) and those with only adult education were 4,814 (1%). The majority of heads of agricultural households (66%) had primary level education whereas only 6 percent had post primary education.

In Kagera Region 131,902 households (37%) had only one member aged 5 and above involved in off-farm income generating activities, 26,570 households (8%) had two members involved in off-farm income generating activities and 8,663 households (2%) had more than two members involved in off-farm income generating activities.

ii) Crop Production

- **Land Area**

The total area of land available to smallholders was 557,226 ha. The regional average land area utilised for agriculture per household was only 1.2 ha. This figure is below the national average which is estimated at 2.0 hectares.

- **Planted Area**

The area planted with annual crops and vegetables was 360,188 hectares out of which 241,812 hectares (67%) were planted during short rainy season and 117,377 hectares (33%) during long rainy season.

An estimated area of 153,993 ha (42.8% of the total planted area with annual and vegetable crops) were planted with pulses, followed by 120,225 hectares (33.4%) of cereals, 64,261 ha (17.8%) of roots and tubers, 10,416 ha (2.9%) of oil seeds, 7,737 ha (2.1%) of cash crops and 3,558 ha (1.0%) of fruits and vegetables.

- **Maize**

Maize dominates the production of cereal crops in the region. The number of households growing maize in Kagera Region during the short rainy season was 302,529, (93.8% of the total crop growing households in the region during the short rainy season). The total production of maize was 100,313 tonnes from a planted area of 102,342 hectares resulting in a yield of 0.98 t/ha.

There was great variation in maize production during the survey/census years hence the trend does not depict any specific pattern. The total production of maize in 2002/03 was 102,342 tonnes. The average area planted with maize per household was 0.29 hectares; however it ranged from 0.1 hectares in Bukoba Urban district to 0.5 hectares in Biharamulo district. Biharamulo district had the largest area of maize (28,288 ha) followed by Bukoba Rural (21,300 ha), Karagwe (21,167 ha), Ngara (16,908 ha), Muleba (14,068 ha) and Bukoba Urban (611 ha).

- **Sorghum**

Sorghum was the second most important cereal crop in the region in terms of planted area. The number of households that grew sorghum in Kagera Region during the long rainy season was 16,869. This represents 10.7 percent of the total crop growing households in Kagera Region in the long rainy season.

- **Cassava**

The area planted with cassava was larger than that of any other root and tuber crop in Kagera being (11.3% of the total area planted with annual crops and vegetables) and accounting for 63.3 percent of the area planted with roots and tubers.

- **Beans**

Beans was the dominant annual crop grown in Kagera Region and it had a planted area 1.5 times greater than maize, which had the second largest planted area. The area planted with beans constitutes 42 percent of the total area planted with annual crops in the region. The largest area planted with beans in the region was in Karagwe (52,054 ha, 34.5%). The average area planted per household in the region during the short rainy season was 0.36 ha.

- **Fruit and Vegetables**

The total production of fruits and vegetables was 9,046 tonnes. The most cultivated fruit and vegetable crop was tomatoes. The production of this crop was 4,468 tonnes, which was 49 percent of the total fruit and vegetable production, followed by cabbage (2,500t, 28%), carrots (631t, 7%), onions (561t, 6%) and eggplants (333t, 5%). The production of the other fruit and vegetable crops was relatively small.

- **Permanent Crops**

The smallholders' area planted with permanent crops was 162,395 hectares or 31 percent of the area planted with annual and permanent crops in the region. The most important permanent crop was banana which accounted for 66 percent of the total area planted with permanent crops followed by coffee (23%), jack fruit (5%) and mango (2%).

- **Improved Seeds**

The planted area using improved seeds was estimated at 13,614 ha which represents 3.8 percent of the total planted area with annual crops and vegetables. The percentage use of improved seed in the long rainy season was 12.5 percent, higher than the corresponding percentage use for the short rainy season (1.5%).

- **Use of Fertilizers**

Most annual crop growing households did not use any fertilisers. The are planted without fertiliser application for annual crops was 319,150 hectares representing 88.6 percent of the total planted area. Of the planted area with fertiliser application, farm yard manure was applied to 27,962 ha which represents 7.8 percent of the total planted area (68.1% of the area planted with fertiliser application in the region). This was followed by compost (11,592 ha, 28.2%). Inorganic fertilizers were used on a very small area and represented only 3.6 percent of the area planted with fertilizers.

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- **Irrigation**

In Kagera Region, the area of annual crops under irrigation was 6,305 ha representing 1.8 percent of the total area planted. The area under irrigation during the short rainy season was 3,779 ha accounting for 60 percent of the total area under irrigation.

- **Crop Storage**

There were 318,210 crop growing households (91% of the total crop growing households) that reported storing various agricultural products in the region.

The most important stored crop was beans and other pulses with 299,472 households storing 7,530 tonnes as of 1st January 2004. This was followed by maize (283,408, 8,773t), sorghum and millet (22,098 households, 680t), groundnuts/bambara nuts (12,353 households, 335t) and coffee (3,472 households, 213t). Other crops were stored in very small amounts.

- **Crop Marketing**

The number of households that reported selling crops was 312,670 which represents 89.4 percent of the total number of crop growing households. The percent of crop growing households selling crops was highest in Karagwe (94.7%) followed by Bukoba Rural (93.1%), Biharamulo (87.4%), Muleba (86.9%), Ngara (82.1%) and Bukoba Urban (61.7%).

- **Agricultural Credit**

In Kagera Region the households accessing credit were 1,004 (0.3% of all agricultural households) out of which 750 (75%) were male-headed households and 254 (25%) were female headed households. In Muleba district only female headed households got agricultural credit whereas in Ngara district only male households accessed credit. In Biharamulo district both male and female headed households accessed agricultural credit.

- **Crop Extension Services**

The number of Agricultural households that received crop extension was 69,081 (20% of total crop growing households in the region). Some districts had more access to extension services than others, with Bukoba Urban having a relatively high proportion of households (45%) that received crop extension messages in the district followed by Bukoba Rural (34%), Muleba (29%), Biharamulo (15%), Ngara (11%) and Karagwe (3%).

- **Soil Erosion and Water Harvesting Facilities**

The proportion of households with soil erosion control and water harvesting facilities was highest in Muleba district (11.0%) followed by Bukoba Rural (7.5%), Ngara (7.3%), Karagwe (3.3%), Bukoba Urban (4.1%) and Biharamulo (1.4%)

iii) Livestock and Poultry Production

- **Cattle**

The total number of cattle in the region was 886,474. Cattle rearing was the dominant livestock type in the region followed by goats, sheep and pigs. The region had 5.3 percent of the total cattle population on the Tanzanian Mainland. The number of indigenous cattle was 869,424 head (98.1% of the total number of cattle in the region), 17,050 (1.9%) were dairy breeds. There were no small holder beef cattle in the region.

- **Goats**

The number of goat-rearing-households in Kagera Region was 143,012 (40.5% of all agricultural households in the region) with a total of 699,301 goats giving an average of 5 head of goats per goat-rearing-household.

- **Sheep**

The number of sheep-rearing households was 18,449 (5.2% of all agricultural households in Kagera Region) rearing 90,321 sheep, giving an average of 5 heads of sheep per sheep-rearing household.

- **Pigs**

The number of pig-rearing agricultural households in Kagera Region was 27,685 (7.8% of the total agricultural households in the region) rearing 47,508 pigs. This gives an average of 2 pigs per pig-rearing household.

- **Chicken**

The number of households keeping chicken was 147,573 raising about 918,858 chickens. This gives an average of 6 chickens per chicken-rearing household. In terms of total number of chickens in the country, Kagera Region was ranked seventeenth out of the 21 Mainland regions.

- **Use of Draft Power**

The region had 11,932 oxen (all of them were found in Biharamulo District) which were used to cultivate 6,866 hectares of land. This represents only 0.53 percent of the total oxen found on the Mainland. The whole area cultivated using oxen was found in Biharamulo district.

- **Fish Farming**

The number of households involved in fish farming in Kagera Region was 542 representing 0.2 percent of the total agricultural households in the region. Ngara was the leading district with 230 households (0.5% of agricultural households) involved in fish farming. This was followed by Muleba (170 households, 0.2%) and Bukoba Rural (142 households, 0.2%). There was no fish farming in the rest of the districts

iv) Poverty Indicators

- **Availability of Toilets**

It was estimated that 90 percent of all rural agricultural households used the traditional pit latrines, 3 percent used flush toilets and 2 percent used improved pit latrine. The remaining 0.04 percent of households had other unspecified types of toilets. Households with no toilet facilities represented 5 percent of the total agriculture households in the region.

- **Household Assets**

Of all assets, radios had the highest percent of households owning them (50.8% of households) followed by bicycle (39.1%), iron (16.6%), wheelbarrow (5.9%), mobile phone (2.5%), television/video (0.9%), vehicle (0.8%) and landline phone (0.5%).

- **Source of Lighting Energy**

Wick lamp was the most common source of lighting energy in the region. About 83 percent of the total rural households used this source of energy followed by hurricane lamp (10.8%), pressure lamp (3.3%), firewood (2.0%), mains electricity (0.5%), solar (0.2%), candle (0.1%) and gas or biogas (0.03%).

- **Energy for Cooking**

The most prevalent source of energy for cooking was firewood, which was used by 97.73 percent of all rural agricultural households in Kagera Region. This is followed by charcoal (1.56%). The rest of energy sources accounted for 0.72 percent. These were crop residues (0.38%), mains electricity (0.09%), paraffin/kerocine (0.09%), solar (0.07%), livestock dung (0.06%) and bottled gas.

- **Roofing Materials**

The most common roofing material for the main dwelling was iron sheets which were used by 51.8 percent of the rural agricultural households. This was closely followed by grass/leaves (40.2%), grass/mud (5.2%), tiles (1.5%), concrete (0.9%), asbestos (0.2%) and others (0.1%).

- **Number of Meals per Day**

About 84.2 percent of the households in the region had two meals per day, 11.5 percent took three meals, 3.5 percent took one meal and 0.7 percent took four meals.

- **Food Security**

Households which seldom had problems in satisfying their food needs represented 32 percent of the total number of agriculture households in the region. Households with recurring food shortage problems represent 13 percent whereas those with little problems represent 8 percent. About 5 percent of agriculture households always faced food shortages whilst 41 percent had not experienced any food shortage problems.

- **Main Source of Cash Income**

Selling of food crops was the main cash income earning activity and was reported by 54.0 percent of all rural agricultural households. The second main cash income earning activity was sales of cash crops (18.9%) other casual earnings (8.7), fishing (4.3%), wages and salaries (4.3%) and business income (3.4%). Other income earning activities were sales of livestock (2.5%), cash remittance (2.0%), sale of forest products (0.7%) and sales of livestock products (0.6%).

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1. BACKGROUND INFORMATION

1.1 Introduction

This part of the report presents a brief description of the regional profile by providing information on geographical location, land area, climate, administrative set up, population and socio-economic indicators. The information will provide the user with a general understanding of the region and its resources.

1.2 Geographical Location and Boundaries

Kagera region is located in the extreme northwestern corner of Tanzania. It lies just below the equator between $1^0$00' and $2^0$45' south latitudes. Longitudinally it lies between $30^0$25' and $32^0$40' east of Greenwich. This includes large part of the water of Lake Victoria.

The landmass lies between $30^0$25' and $31^0$48' longitudes east. The region has common border with Uganda to the north, Rwanda and Burundi to the west, Shinyanga and Kigoma regions to the south. To the east of the region lies Lake Victoria.

1.3 Land Area

Kagera region covers a total area of 40,838 sq.km. Out of the total area, 28,953 sq.km is land and 11,885 sq.km is covered by water bodies of Lake Victoria, Ikimba and Burigi Lakes and Ngono and Kagera rivers. The region is divided into six administrative districts namely Biharamulo, Ngara, Muleba, Karagwe, Bukoba Rural and Bukoba Urban. Bukoba is the regional and major business town.

1.4 Climate

Kagera region experiences a bi-modal rainfall pattern, March – May and October – November, with average annual rainfall of 500 – 2000 mms. Rainfall is higher along the shores of Lake Victoria and decreases inland away from the lake and also with altitude, varying from 2000 mms a year near Bukoba to 500 mms in the west. Temperatures range between 20^0C - 28^0C. The region consists of series of hilly running North-South and parallel to the lakeshore.

1.5 Population

Kagera region is among the five most populated regions in the country. The region had a population of 2,033,888 according to the 2002 population and housing Census, with an average growth rate of 3.1. The region population represented 6.0 percent of the total Tanzania Mainland population.

1.6 Socio - Economic Indicators

The main economic activity carried out by Kagera region's population is agricultural production, which is the mainstay of the people of Kagera. It engages about 90 percent of the regional population in the production of food and cash crops. The most important food crops are bananas and beans. Coffee, cotton and tea are the main cash crops grown. The Kagera Sugar Company carries out sugar cane growing on a commercial scale.

In the past fishing contributed very little to the region's economy. However, with the introduction of fish fillet processing plants in Mwanza and Bukoba towns, fishing has become an important sector in cash earning, employment and as a source of protein. Other productive sectors in the region include livestock, mining and natural forestry.

2. INTRODUCTION

This part of the report provides the technical and operational description of the National Sample Census of Agriculture (NSCA), carried out in the rural areas of Tanzania Mainland and Zanzibar during the 2002/03 agricultural year. It details the background and the rationale for carrying out the NSCA in 2002/03 agricultural year. It also explains the sampling procedures, designing and implementation of the data processing system.

2.1 The Rationale for Conducting the National Sample Census of Agriculture

In 2003, the Government of Tanzania launched the Agricultural Sample Census as an important part of the Poverty Monitoring Master Plan which supports the production of statistics for advocacy of effective public policy, including poverty reduction, access to services, gender, as well as the standard crop production data normally collected in an agriculture census. The census is intended to fill the information gap and support planning and policy formulation by high level decision making bodies. It is also meant to provide critical benchmark data for monitoring Agriculture Sector Development Programme (ASDP) and other agriculture and rural development programs as well as prioritising specific interventions of most agriculture and rural development programs.

Following the decentralisation of the Government's administration and planning functions, there has been a pressing need for agriculture and rural development data disaggregated at regional and district levels. The provision of district level estimates will provide essential baseline information on the state of agriculture and support decision making by the Local Government Authorities in the design of District Agricultural Development and Investment Projects (DADIPS). The increase in investment is an essential element in the national strategy for growth and reduction of poverty.

This report (Volume V) is among the 21 regional reports for the mainland. Other Census reports include the Technical Report (Volume I), crop sector at national and regional levels including Zanzibar estimates (Volume II), Livestock Report (Volume III), Smallholder Household Characteristics and Access to Natural Resources Report (Volume IV), 21 Regional Reports for the Mainland (Volume V), Large Scale Farms Report (Volume VI) and a separate report for Zanzibar (Volume VII). In order to address the specific issue of gender, a separate thematic report on gender has been published. Other thematic reports will be produced depending on the demand and availability of funds. In addition to these reports two dissemination applications have been produced to allow users to create their own tabulations, charts and maps.

The report is divided into five main sections: Background Information, Introduction, Results, Evaluation and Conclusion and Appendices. The definitions relating to all aspects of this report can be found in the questionnaire (Appendix III).

2.2 Census Objectives

The 2003 Agriculture Sample Census was designed to meet the data needs of a wide range of users down to district level including policy makers at local, regional and national levels, rural development agencies, funding institutions, researchers, Non government Organisations (NGOs), farmer organisations, etc. As a result, the dataset is both more numerous in its sample and detailed in its scope compared to previous censuses and surveys. To date this is the most detailed Agricultural Census carried out in Africa. The census was carried out in order to:

- Identify structural changes if any, in the size of farm household holdings, crop and livestock production, farm input and implement use. It also seeks to determine if there are any improvements in rural infrastructure and in the level of agriculture household living conditions;

- Provide benchmark data on productivity, production and agricultural practices in relation to policies and interventions promoted by the Ministry of Agriculture and Food Security and other stake holders.
- Establish baseline data for the measurement of the impact of high level objectives of the Agriculture Sector Development Programme (ASDP), National Strategy for Growth and Reduction of Poverty (NSGRP) and other rural development programs and projects.
- Obtain benchmark data that will be used to address specific issues such as: food security, rural poverty, gender, agro-processing, marketing, service delivery, etc.

2.3 Census Coverage and Scope

The census was conducted for both large and small scale farms. The National Sample Census of Agriculture covered a total of 3,221 selected rural villages of Tanzania Mainland out of which 215 villages were from Kagera Region.

The census covered agriculture in detail as well as many other aspects of rural development and was conducted using three types of questionnaires:

- Small scale farm questionnaire
- Community level questionnaire
- Large scale farm questionnaire

The small scale farm questionnaire was the main census instrument and it includes questions related to crop and livestock production and practices; population demographics; access to services, resources and infrastructure; issues on poverty, gender and subsistence versus profit making production units. The main sections covered are as follows:

- Identification (i.e. region, district, ward and village)
- Household and holding characteristics
- Household information
- Land ownership/tenure
- Land use
- Access and use of resources
- Crop and vegetable production
- Agro processing and by-Products
- Crop storage and marketing
- On-farm investment
- Access to farm inputs and implements
- Use of credit for agricultural purposes
- Tree farming/agro-forestry
- Crop extension services
- Livelihood constraints
- Animal contribution to crop production
- Livestock
- Livestock products
- Fish farming
- Livestock extension
- Labour use

- Access to infrastructure and other services
- Household facilities

The community level questionnaire was designed to collect village level data such as access and use of common resources, community tree plantation and seasonal farm gate prices.

The large scale farm questionnaire was administered to large scale farms that were either privately or corporately managed. There will be a national report on large scale farming on Tanzania Mainland.

2.4 Legal Authority of the National Sample Census of Agriculture

The NSCA 2002/03 was conducted under the legal authority of the 2000 National Bureau of Statistics Act which, among other things, makes data collected from individuals strictly confidential and to be used for statistical purposes only.

2.5 Reference Period

Two types of reference periods were used namely the agricultural year and the reference date for livestock enumeration. The agricultural year 2002/03 (that is October 2002 to September 2003) was used for the data items that are related to crop production. The reference date of enumeration for livestock and poultry count was 1st October 2003.

2.6 Census Methodology

The main focus at all stages of the census execution was on data quality and this is emphasised in this section. The main activities undertaken include:

- Census organisation
- Tabulation plan preparation
- Sample design
- Design of census questionnaires and other instruments.
- Field pre-testing of the census instruments
- Training of trainers, supervisors and enumerators
- Information Education and Communication (IEC) campaign
- Data Collection
- Field supervision and consistency checks
- Data processing:
    - Scanning
    - ICR extraction of data
    - Structure formatting application
    - Batch validation application
    - Manual data entry application
    - Tabulation preparation using SPSS
- Table formatting and charts using Excel, map generation using Arc View and Freehand.
- Report preparation using Word and Excel.

2.6.1 Census Organization

The Census was conducted by the National Bureau of Statistics in collaboration with the sector ministries of agriculture, and the Office of the Chief Government Statistician in Zanzibar. At the national level the Census was headed by the

Director General of the National Bureau of Statistics with assistance from the Director of Economic Statistics. The Planning Group, made up of staff from the National Bureau of Statistics, Department of Agricultural Statistics and three representatives from the Ministry of Agriculture and Food Security (Department of Policy and Planning), oversaw the overall operational aspects of the Census. At the regional level, implementation of census activities was overseen by the Regional Statistical Officer of NBS and the Regional Agriculture Supervisor from the Ministry of Agriculture and Food Security. At the District level, two supervisors from the President's Office, Regional Administration and Local Government (PORALG), managed the enumerators who also came from the same ministry.

Members of the Planning Group had a minimum qualification of a bachelor degree; the regional supervisors were agricultural economists, statisticians or statistical officers. The district supervisors and enumerators had diploma level qualifications in agriculture.

The Census and Surveys Technical Working Group provided support in sourcing financing, approving budget allocations and technical assistance inputs as well as monitoring the progress of the census. A Technical Committee for the census was established with members from key stakeholder organisations (i.e. NBS, sector ministries of agriculture, President's Office, Planning and Privatization (POPP), PORALG, University of Dar es Salaam (UDSM), Tanzania Food and Nutrition Centre (TFNC) and the Office of Chief Government Statistician (OCGS) in Zanzibar). The main function of the committee was to approve the proposed instruments and procedures developed by the Planning Group. It also approved the tabulations and analytical reports prepared from the Census data.

2.6.2 Tabulation Plan

The tabulation plan was developed following three user group workshops and thus reflects the information needs of the end users. It took into consideration the tabulations from previous census and surveys to allow trend analysis and comparisons.

2.6.3 Sample Design

The Mainland sample consisted of 3,221 villages. These villages were drawn from the National Master Sample (NMS) developed by the National Bureau of Statistics (NBS) to serve as a national framework for the conduct of household based surveys in the country. The National Master Sample was developed from the 2002 Population and Housing Census. In most cases, within each selected village, data was collected from a sub-sample of fifteen agricultural households. In few large villages thirty households were selected. The total Mainland sample was 48,315 agricultural households. In Zanzibar a total of 317 EAs were selected and 4,755 agricultural households were covered. Nationwide, all regions and districts were sampled with the exception of three urban districts (two from Mainland and one from Zanzibar).

In both Mainland and Zanzibar a stratified two stage sample was used. In the first stage, villages/enumeration areas (EAs) were selected with probability proportional to the number of villages in each district. In the second stage, 15 households were selected from a list of farming households in each Village/EA using systematic random sampling. Table 2.1 gives the sample size of households, villages and districts for Tanzania Mainland and Zanzibar.

Table 2.1: Census Sample Size

Number of	Mainland	Zanzibar	Total
Households	48,315	4,755	53,070
Villages/Eas	3,221	317	3,539
Districts	117	9	126
Regions	21	5	26

2.6.4 Questionnaire Design and Other Census Instruments

The census questionnaires were designed following user/producer meetings to ensure that the information collected was in line with their data needs. Several features were incorporated into the design of the questionnaire to increase the accuracy of the data:

- Where feasible all variables were extensively coded to reduce post enumeration coding error.
- The definitions for each section were printed on the opposite page so that the enumerator could easily refer to the instructions whilst interviewing the farmer.
- The responses to all questions were placed in boxes printed on the questionnaire, with one box per character. This feature made it possible to use scanning and ICR technologies for data entry.
- Skip patterns were used to avoid asking unnecessary questions
- Each section was clearly numbered, which facilitated the use of skip patterns and provided a reference for data type coding for the programming of CSPro, SPSS and the dissemination applications.

Besides the questionnaires, there were other instruments used:

- Village listing forms that were used for listing households in the villages and from this list a systematic sample of 15 agricultural households were selected from each village.
- Training manual which was used by the trainers for the cascade/pyramid training of supervisors and enumerators. This manual was trainers guiding document on the procedures to follow during the training
- Enumerator Instruction Manual which was used as reference material.

2.6.5 Field Pre-Testing of the Census Instruments

The Questionnaire was pre-tested in five locations (Arusha, Dodoma,,Tanga, Unguja and Pemba). This was done purposely to test the wording, flow and relevance of the questions and to finalise crop lists, questionnaire coding and manuals. In addition to this, several data collection methodologies had to be finalised, namely, livestock numbers in pastoralist communities, cut flower production, mixed cropping, use of percentages in the questionnaire and finalising skip patterns and documenting consistency checks.

2.6.6 Training of Trainers, Supervisors and Enumerators

Cascade/pyramid training techniques were employed to maintain statistical standards. The top level training was provided to 66 national and regional supervisors (3 per region plus Zanzibar). The trainers were members of the Planning Group and the trainees were from the National Bureau of Statistics and the sector ministries of agriculture. The second level training was for the district supervisors and enumerators. This training was conducted in the regions. In each region three training sessions were conducted for the district supervisors and enumerators. In addition to training in field level Census methodology and definitions, emphasis was placed on training the enumerators and supervisors in consistency checking. Tests were given to the enumerators and supervisors and the best 50 percent of the trainees were selected to administer the smallholder and community level questionnaires. This increased the number of interviews per enumerator but it also released finance to increase the number of supervisors and hence the Supervisor Enumerator Ratio. The household listing exercise was carried out by all trained enumerators.

2.6.7 Information, Education and Communication (IEC) Campaign

Information, Education and Communication (IEC) is an important aspect of any census/survey undertaking. This is due to the fact that inadequately informed and hence uncooperative citizens may jeopardize the entire census/survey. As far as the

2002/03 Agricultural Sample Census was concerned, the main objective of the IEC program was to sensitize and mobilize Tanzanians to support, cooperate and participate in the census exercise.

Radio, television, newspapers, leaflets, t-shirts and caps were used to publicise the Sample Census. T-shirts and caps were used by the field staff and the village chairmen as official uniforms during the field work. The village chairmen helped to locate the selected households.

2.6.8 Household Listing

The household listing exercise was done in seven days. During the listing exercise, forms ACLF1 and ACLF2 were administered. The information collected included the number of fields operated by the household, the number of different types of livestock and poultry. This information was used to determine the agricultural households. From the list of agricultural households, 15 households were selected for the interview. The selection was done using the Random Number Table.

2.6.9 Data Collection

Data collection activities for the 2002/2003 Agricultural Sample Census took three months from January to March 2004. The data collection methods used during the census was by interview and no physical measurements, e.g., crop cutting and field area measurement were taken. Field work was monitored by a hierarchical system of supervisors at the top of which was the Mobile Response Team followed by the national, regional, and district supervisors.

The Mobile Response Team consisted of three principal supervisors who provided overall direction to the field operation and responded to queries arising outside the scope of the training exercise. The mobile response team consisted of the Manager of Agriculture Statistics Department, Long-term Consultant and Desk Officer for the Census. Decisions made on definitions and procedures were then communicated back to all enumerators via the national, regional and district supervisors.

District supervision and enumeration were done by staff from the President's Office, Regional Administration and Local Government (PORALG). National and regional supervisions were provided by senior staff of the National Bureau of Statistics and the sector ministries of agriculture. During the household listing exercise 3,221 extension staff was used. For the enumeration of the small holder questionnaire, 1,611 enumerators were used and additional 5 percent enumerators were held in reserve in case of drop outs during the enumeration exercise.

2.6.10 Field Supervision and Consistency Checks

Enumerators were trained to probe the respondents until they were satisfied with the responses given before they recorded them in the questionnaire. The first check of the questionnaires was done by enumerators in the field during enumeration. The second check was done by the district supervisors followed by regional and national supervisors. Supervisory visits at all levels of supervision focused on consistency checking of the questionnaires. Inconsistencies encountered were corrected, and where necessary a return visit to the respondent was made by the enumerator to obtain the correct information. Further quality control checks were made through a major post enumeration checking exercise where all questionnaires were checked for consistencies by all supervisors in the district offices.

2.6.11 Data Processing

Data processing consisted of the following processes:

- Manual editing
- Data entry
- Data structure formatting
- Batch validation
- Tabulation
- Illustration production
- Report formatting

Manual Editing

Prior to scanning, all questionnaires underwent a manual cleaning exercise. This involved checking that the questionnaire had a full set of pages, correct identification and good handwriting. A score was given to each questionnaire based on the legibility and the completeness of enumeration. This score will be used to assess the quality of enumeration and supervision in order to select the best field staff for future censuses/surveys.

Data entry/Scanning and ICR extraction technologies

Scanning and ICR data capture technology was used for the small holder questionnaire. This not only increased the speed of data entry, it also increased the accuracy due to the reduction in keystroke errors. Interactive validation routines were incorporated into the ICR software to track errors during the verification process. The scanning operation was so successful that it is highly recommended that this technology be adopted for future censuses/surveys.

The Census and Surveys Processing Program (CSPro) was used to enter 2,880 of small holder questionnaires that were rejected by the Intelligent Character Recognition (ICR) extraction application.

Data structure formatting

A program was developed in visual basic to automatically alter the structure of the output from the scanning/extraction process in order to harmonise it with the manually entered data. The program automatically checked and changed the number of digits for each variable, the record type code, the number of questionnaires in the village, the consistency of the Village Identification (ID) code and saved the data of one village in a file named after the village code.

Batch validation

A batch validation program was developed in order to identify inconsistencies within a questionnaire. This is in addition to the interactive validation during the ICR extraction process. The procedures varied from simple range checking within each variable to more complexes checking between variables. It took six months to screen, edit and validate the data from the smallholder questionnaire. After the long process of data cleaning, the results were prepared based on a pre-designed tabulation plan.

Tabulations

Statistical Package for Social Sciences (SPSS) was used to produce the Census results and Microsoft Excel was used to organize the tables and compute additional indicators.

Analysis and report preparation

The analysis in this report focuses on regional and district production estimates, districts comparisons and time series analysis. Microsoft Excel was used to produce charts; whereas Microsoft Word was used to compile the report.

Data quality

A great deal of emphasis was placed on data quality throughout the whole exercise from planning, questionnaire design, training, supervision, data entry, validation and cleaning/editing. As a result of this NBS believes that the Census is highly accurate and representative of what was experienced at field level during the Census year. With very few exceptions the variables in the questionnaire are within the norms for Tanzania and they follow expected time series trends when compared to historical data. Standard Errors and Coefficients of Variation for the main variables can be found in the Technical Report (Volume I).

2.7 Funding Arrangements

The Agricultural Sample Census was supported mainly by the European Union (EU) who financed most of the operational activities. Other funds for operational activities came from the Government of Tanzania, Government of Japan, United Nations Development Programme (UNDP) and other partners in the Pool Fund of the Vice President's Office (VPO). In addition to this, technical assistance was provided by the European Union (EU), Department for International Development (DFID) and Japanese International Cooperation Agency (JICA). Technical assistances were managed by Ultek Laurence Gould Consultants (ULG), Scotts Agriculture Consultancy Ltd (SAC) and the Food and Agriculture Organisation (FAO).

3. CENSUS RESULTS

This part of the report presents the results of the census for Kagera region based on the statistical tables presented in Appendix A2. The results are presented in different forms including brief summaries, charts, condensed tables, graphs and maps in order to make it easy for the users to understand. Comparisons are made between related variables and between districts. Comparisons are also made with past censuses and survey's results such as the 1994/95 National Sample Census of Agriculture (NSCA), the 1995/96 and the 1996/97 Expanded Agricultural Surveys, the 1997/98 Integrated Agricultural Survey, the 1998/99 District Integrated Agricultural Survey and the 1999/00 Rapid Agricultural Appraisal Survey. The presentation of results is divided into four main sections which are household characteristics, crop results, livestock results and poverty indicators. Compared to previous censuses and surveys, more effort has been placed in analyzing the results in order to formulate solid conclusions.

3.1 Household Characteristics

3.1.1 Type of Household

The number of agricultural households in Kagera Region was 353,277. The largest number of agriculture households was in Bukoba Rural (86,891) followed by Karagwe (84,914), Muleba (75,179), Biharamulo (55,319), Ngara (47,187) and Bukoba Urban (3,788) (Map 3.1). The highest density of households was found in Karagwe (35/km^2) and Ngara (28/ km^2) (Map 3.2). Most households (253,817, 71.8%) were involved in growing crops only, 3,049 (0.9%) were rearing livestock only, 628 (0.2%) were pastoralists, and 95,783 (27.1%) were involved in crop production as well as livestock keeping (Chart 3.1) (Map 3.3, 3.4, 3.5 and 3.6).

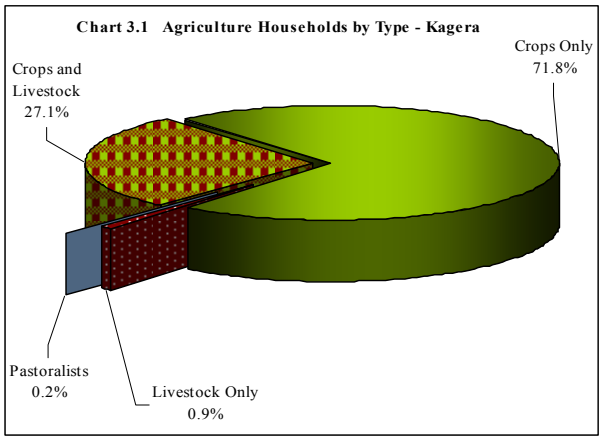
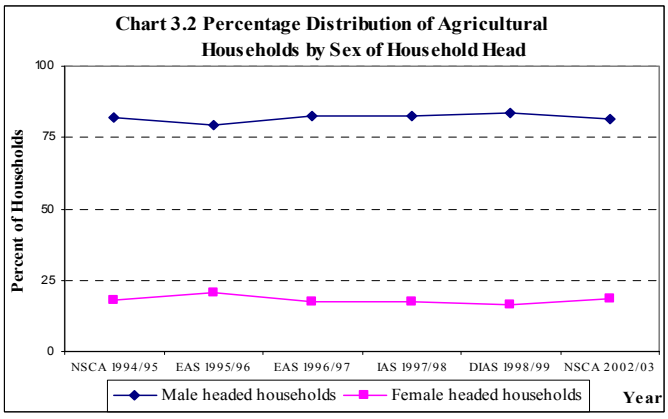


Table 3.1 The Livelihood Activities/Source of Income of the Households Ranked in Order of Importance by District

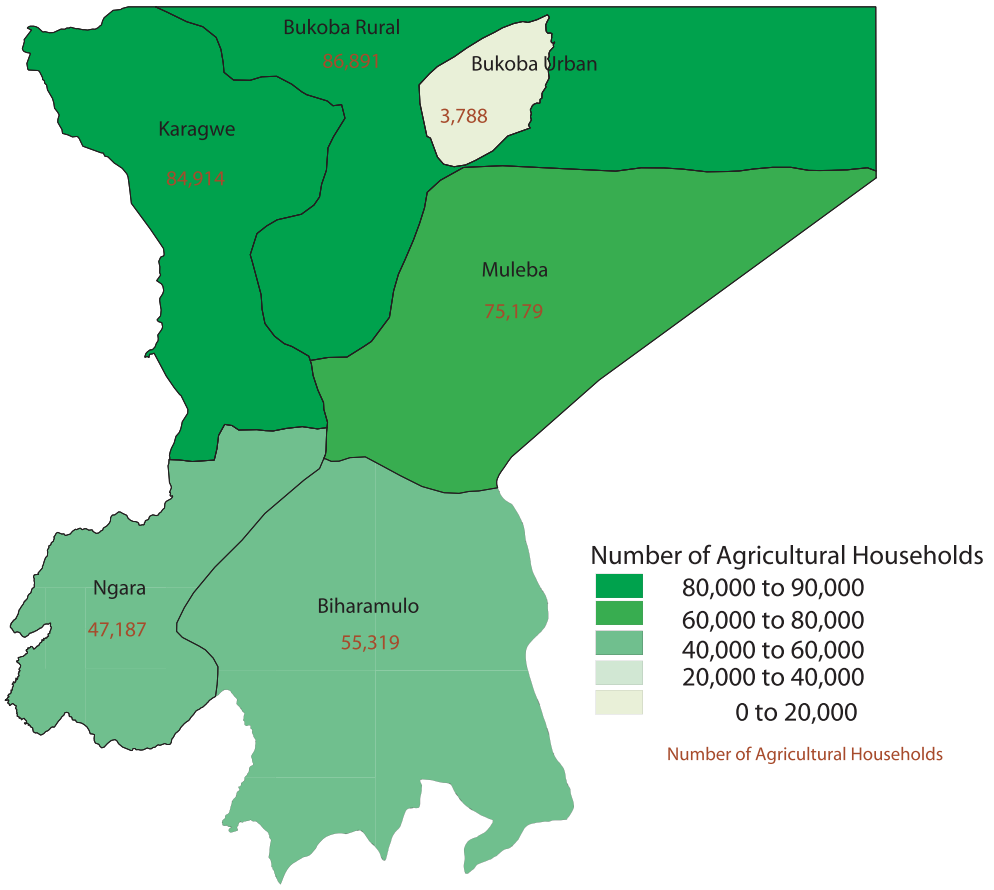
District	Livelihood Activity						
	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remitt -ances	Fishing / Hunting & Gathering	Tree / Forest Resources
Karagwe	2	1	3	4	6	7	5
Bukoba Rural	2	1	4	3	5	7	6
Muleba	1	2	4	3	7	6	5
Biharamulo	1	2	3	4	7	5	6
Ngara	1	2	3	4	6	7	5
Bukoba Urban	1	2	4	3	5	7	6
Total	1	2	3	4	6	7	5

3.1.2 Livelihood Activities/Source of Income

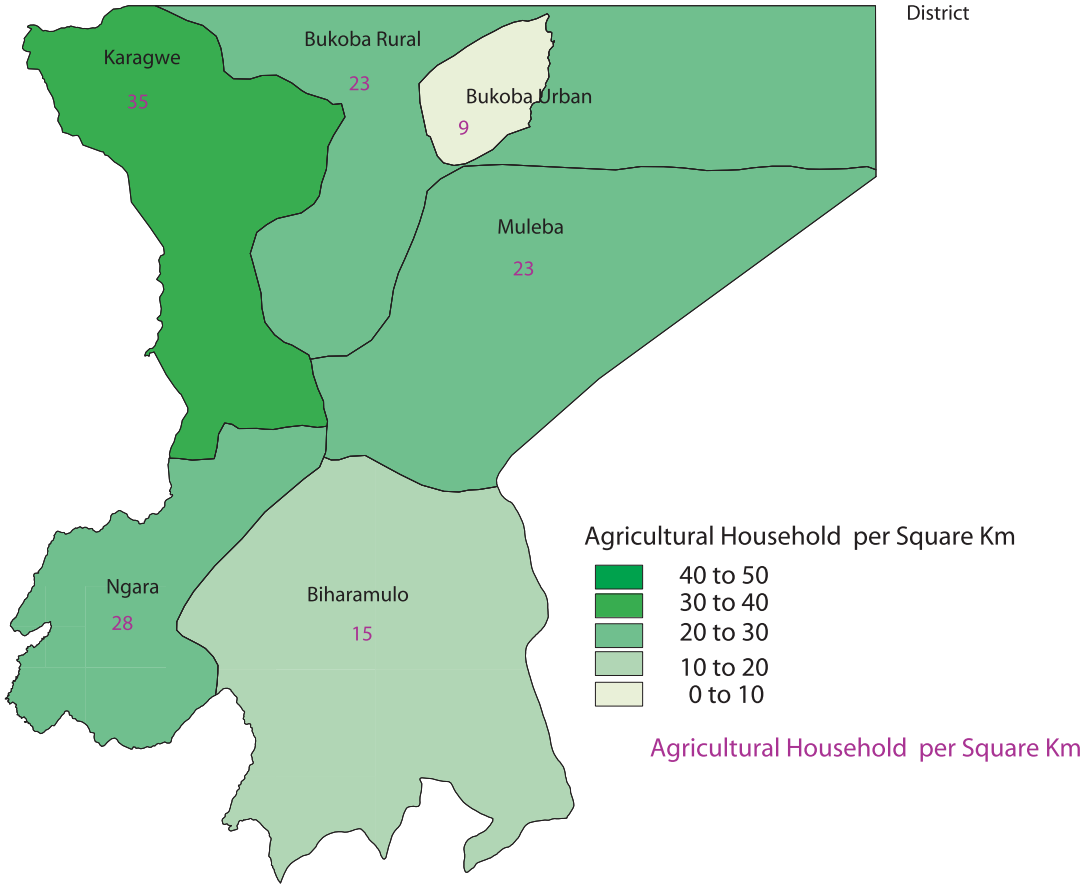
The census results for Kagera Region indicates that most of the agricultural households ranked annual crop farming as an activity that provides most of their cash income followed by permanent crop farming, livestock_keeping/herding, off farm Income, tree/forest resources, remittances and fishing/hunting (Table 3.1). Karagwe and Bukoba Rural districts are the only ones where annual crop farming was not the most important source of livelihood, being replaced by permanent crop farming.



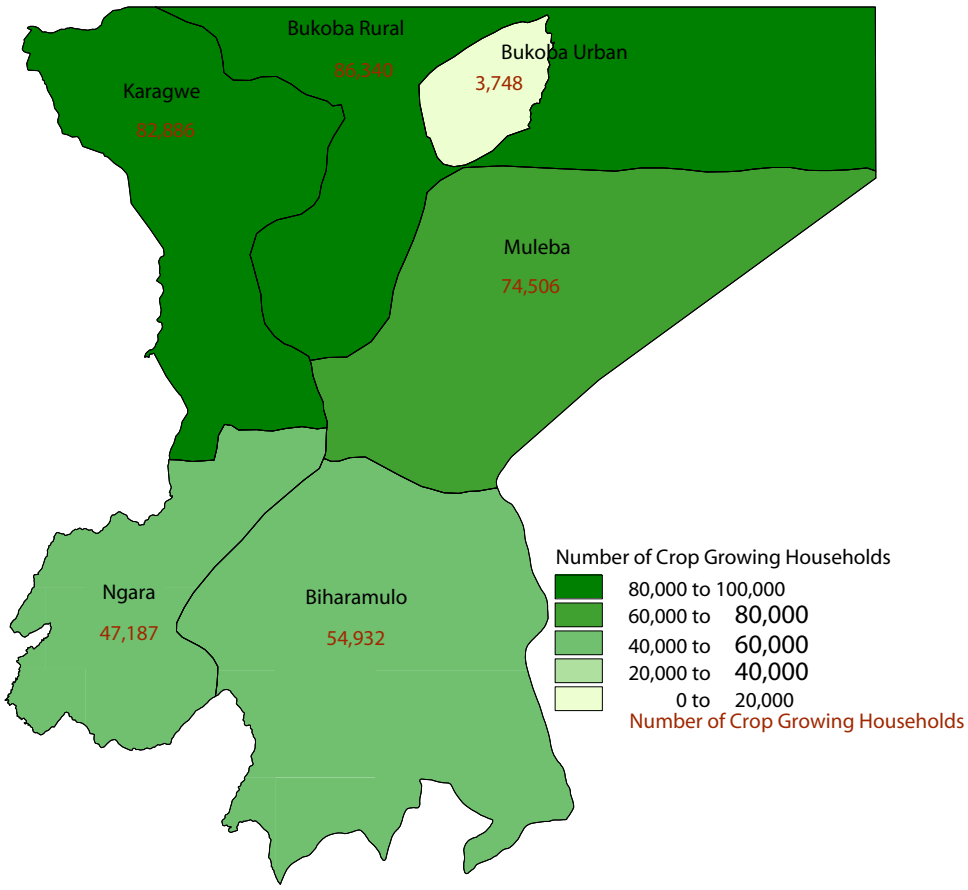
Map 3.1 KAGERA
Total Number of Agricultural Households by District



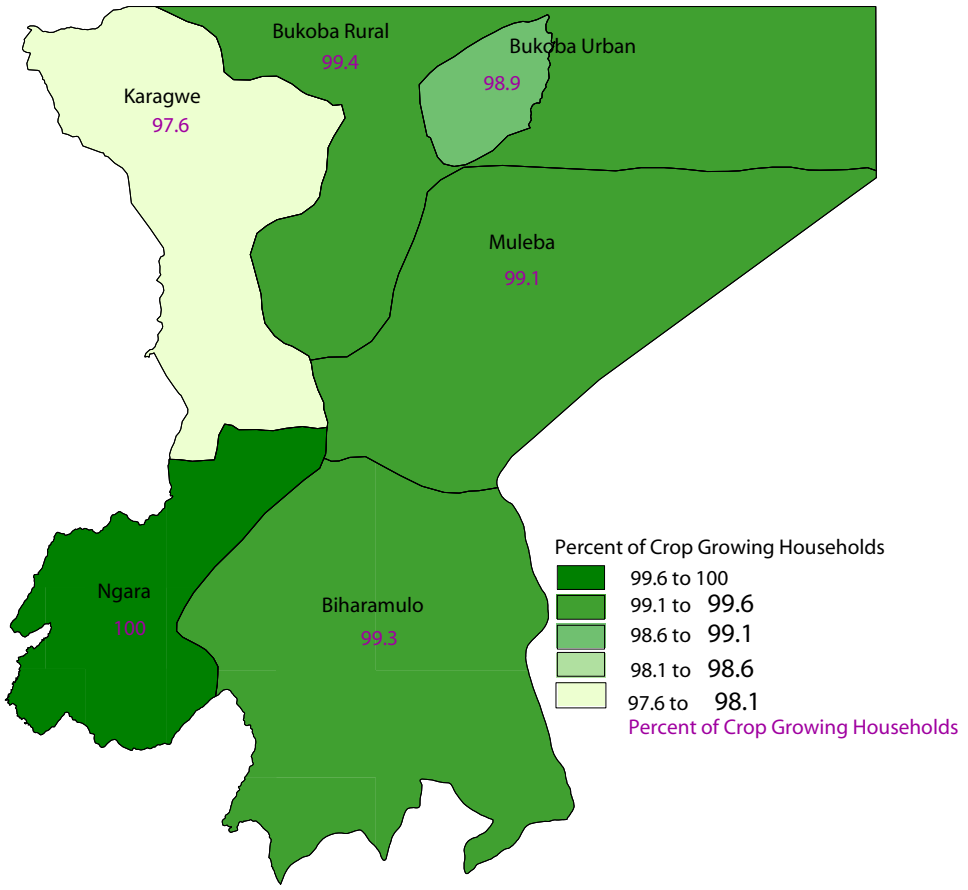
Map 3.2 KAGERA
Number of Agricultural Households per Square Kilometer of Land by District



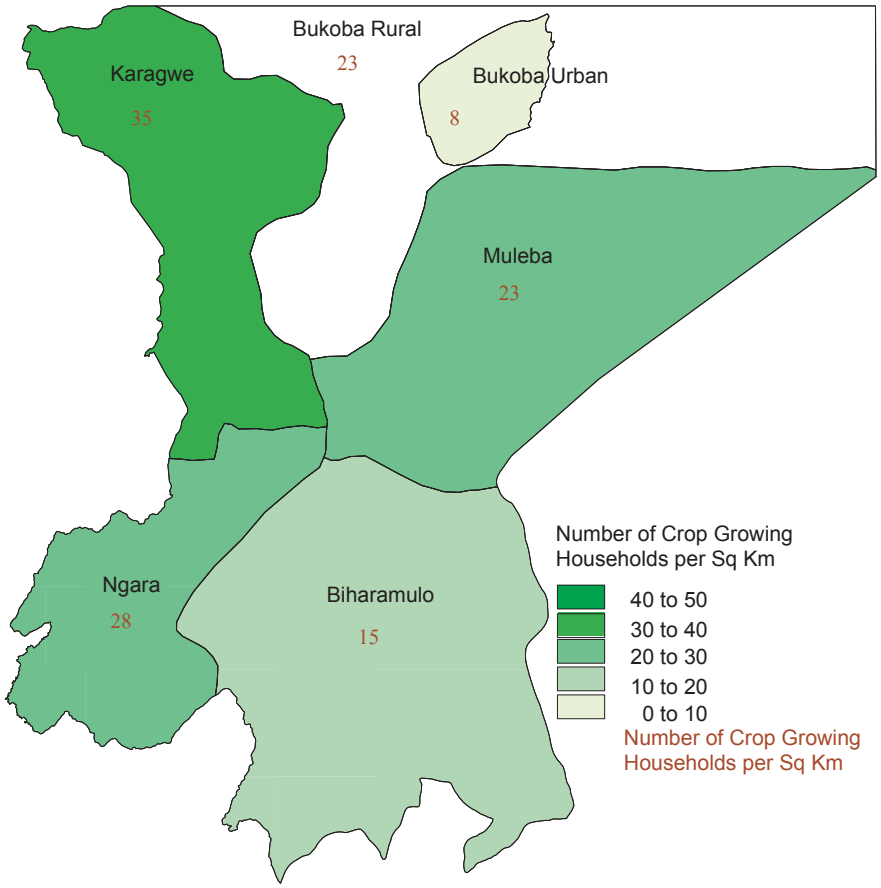
Map 3.3 KAGERA
Number of Crop Growing Households by District



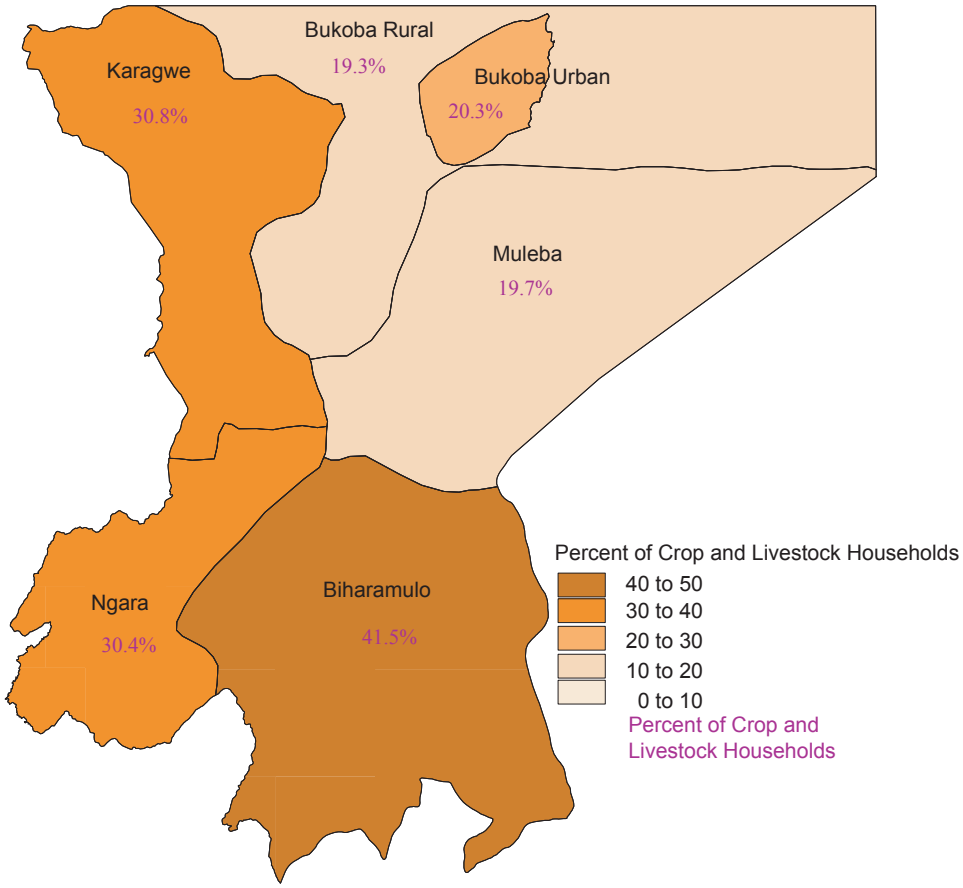
Map 3.4 KAGERA
Percent of Crop Growing Households by District



Map 3.5 KAGERA
Number of Crop Growing Households per Square Kilometer of Land by District



Map 3.6 KAGERA
Percent of Crop and Livestock Households by District

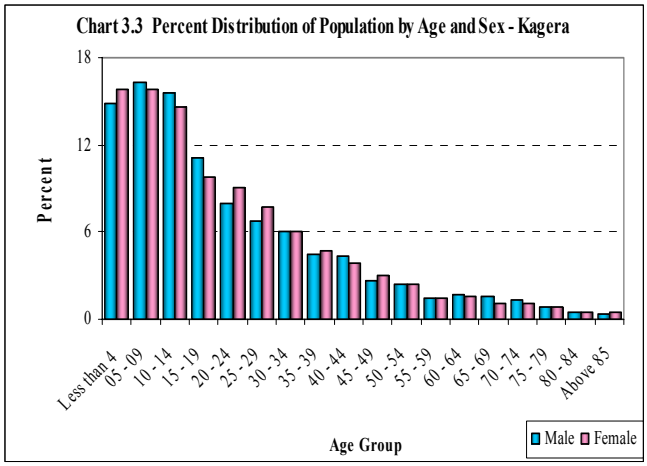


3.1.3 Sex and Age of Head of Households

The number of male-headed agricultural households in Kagera Region was 287,638 (81% of the total regional agricultural households) whilst the female-headed households were 65,639 (19% of the total regional agricultural households). The mean age of household heads was 44 years (44 years for male heads and 40 years for female heads). The percentage trend for six censuses/surveys years shows that there has not been any significant change in the distribution of agricultural households between male and female headed households (Chart 3.2).

3.1.4 Number and Age of Household Members

Kagera Region had a total rural agricultural population of 1,739,818 of which 866,030 (49.8%) were males and 873,788 (50.2%) were females. Whereas age group 0-14 constituted 46 percent of the total rural agricultural population, age group 15–64 (active population) was only 49 percent (Chart 3.3). Kagera Region had an average household size of 4.9 persons per household with Bukoba Rural district having the lowest household size of 4.4 persons per household.



3.1.5 Level of Education

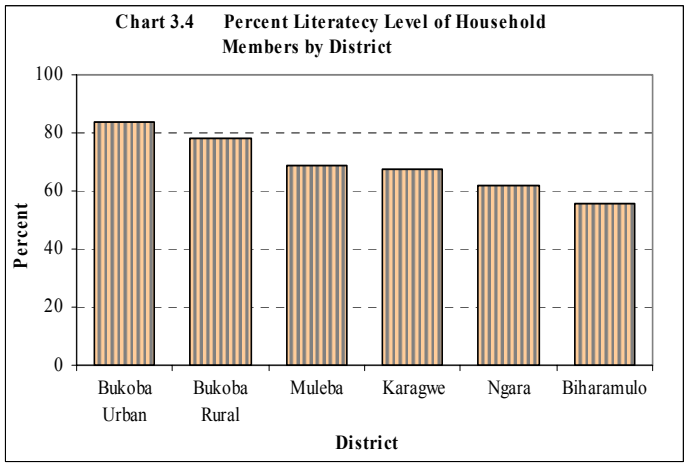
In order to obtain information on the level of education, information on literacy and education attainment were obtained for all persons aged five years and above in all households.

Literacy

The information on literacy level for family members aged five years and above was obtained by asking individual private households if their respective family members could read and write in Kiswahili only, English only, both English and Swahili or in any other language. Literacy was based on the ability to read and write Swahili, English or both.

Literacy Level for Household Members

Kagera Region had a total literacy rate of 67 percent. The highest literacy rate was found in Bukoba Urban (84%) followed by Bukoba Rural district (78%) and Muleba district (69%). Ngara and Biharamulo districts had the lowest literacy rates of 62 and 55 percent respectively (Chart 3.4).

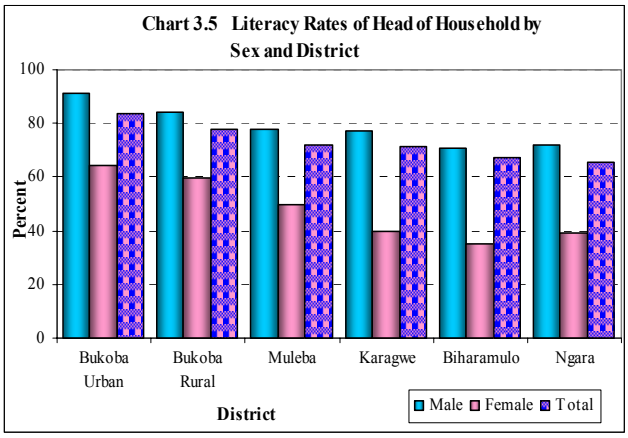


Literacy Rates for Heads of Households

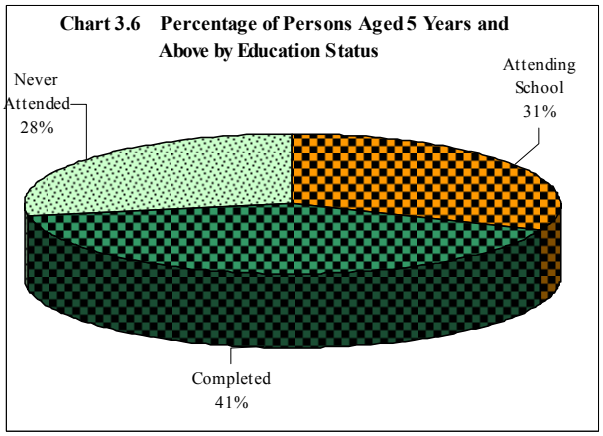
The literacy rate for the heads of households in the region was 71.8 percent. The literacy rates among the male and female heads of households were 77.2 and 48.4 percent respectively. Male heads' literacy rate was higher than that of female heads in all districts. The district with the highest literacy rate for heads of households was Bukoba Urban (83.7%) followed by Bukoba Rural (78.0%), Muleba (71.9%), Karagwe (71.5%), Biharamulo (67.0%), Ngara (65.7%) (Chart 3.5).

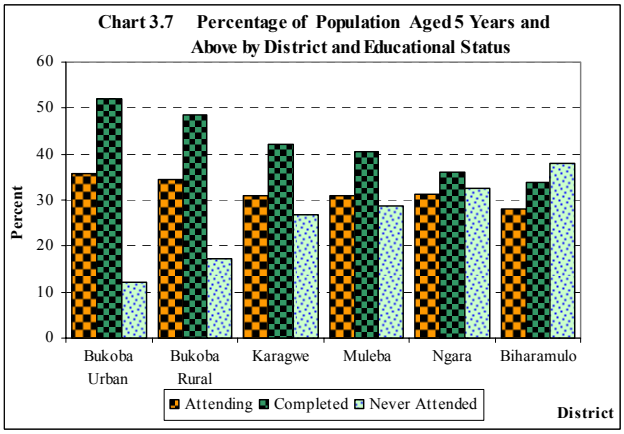
Educational Status

Information on educational status was collected from individual agricultural households. The results show that 41 percent of the population aged 5 years and above in agricultural households in the region had completed different levels of education and 31 percent were still attending school. Those who have never attended school were 28 percent (Chart 3.6).

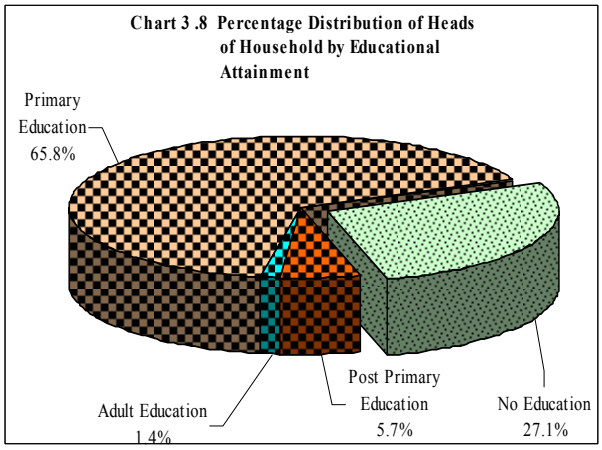


Agricultural households in Bukoba Urban district had the highest percentage (52%) of population aged 5 years and above who had completed different levels of education. This was followed by Bukoba Rural and Karagwe districts with 48 and 42 percent respectively. Ngara and Biharamulo districts had the lowest percentages of 36 and 34.





The number of heads of agricultural households with formal education in Kagera Region was 252,674 (72%), those without formal education were 95,788 (27%) and those with only adult education were 4,814 (1%). The majority of heads of agricultural households (66%) had primary level education whereas only 6 percent had post primary education (Chart 3.8).



With regard to the heads of agricultural households with primary or secondary education in Kagera Region, Bukoba Urban district had the highest percentages (70% for primary and 8% for secondary). This was followed by Bukoba Rural (68% primary and 6% secondary), Karagwe (66% primary and 4% secondary), Muleba (65% for primary and 5% secondary), Biharamulo (65% primary and 3% secondary) and Ngara (63% primary and 2% secondary).

3.1.6 Off-farm Income

Off-farm income refers to cash generated from non-agricultural activities. This can be either from permanent employment

Chart 3.9 Number of Households by Number of Members with Off-farm Income

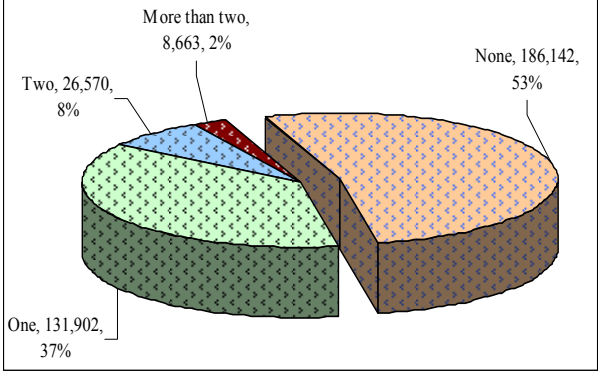
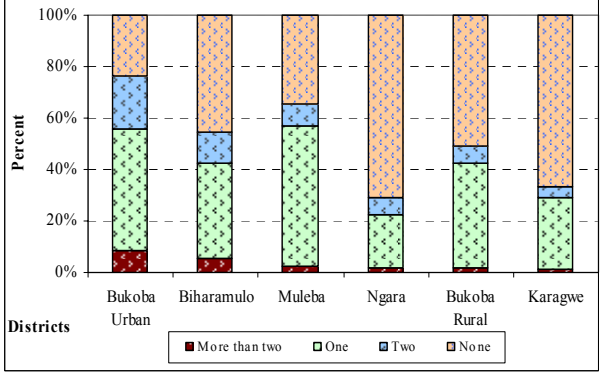


Chart 3.10 Percentage Distribution of Agricultural Households by Number of Household members with Off-farm Income Activities



(i.e., government, private sector or other), temporary employment or labourers. It also includes cash generated from working on farms belonging to other farmers. Off-farm income is important amongst agriculture households in Kagera with 47 percent of households having at least one member with off-farm income. In Kagera Region 131,902 households (37%) had only one member aged 5 and above involved in off-farm income generating activities, 26,570 households (8%) had two members involved in off-farm income generating activities and 8,663 households (2%) had more than two members involved in off-farm income generating activities. Bukoba Urban district had the highest percentage of agriculture households with off-farm income (over 76% of total agriculture households in the district). Other districts with high percent of agriculture households with off-farm income were Muleba (65%), Biharamulo (55%) and Bukoba Rural (49%). Karagwe and Ngara districts had the lowest percent of agriculture households with off-farm income (33% and 29% respectively). The district with the highest percent of agriculture households with more than one member with off-farm income was Bukoba Urban (29%). Karagwe district had very few households with more than one member having off-farm income (6%).

3.2 Land Use

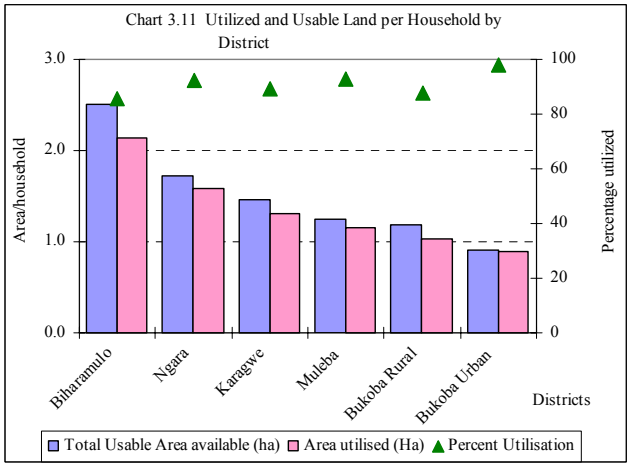
Land area and planted area are two different types of area measurements. Land area refers to the physical area of land and is the same regardless of the number of crops planted on the land in one year. Planted area is the total area of crops planted in a year and the area is summed if there were more than one crop on the same land per year. A number of terms are used in this section which requires defining for clarification as follows:

Land available refers to the area of land that has been allocated to smallholders through customary law, official title or other forms of ownership. Land available does NOT mean the total area of land that is designated as agriculture land in the country; however it is the land that is available to smallholders given the location of villages and lack of access to more remote parcels of unused agriculture designated land.

Usable land refers to the available land minus the land that cannot be used e.g. bare rock, shallow soils, steep slopes, swamp areas etc. It does however include uncleared bush, utilised land refers to the land that was used during the year.

3.2.1 Area of Land Utilised

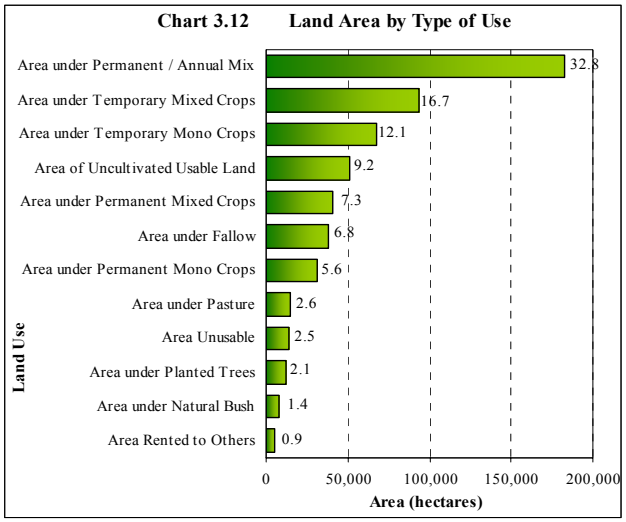
The total area of land available to smallholders was 557,266 ha. The regional average land area utilised for agriculture per household was only 1.4 ha. This figure is below the national average which is estimated at 2.0 hectares. Eighty nine percent of the total land available to smallholders was utilised. Only 11 percent of usable land available to smallholders was not used (Chart 3.11 and Map 3.7).



Large differences in land area utilised per household exist between districts with Biharamulo and Ngara utilizing 1.5 and 2.5 ha per household respectively. The smallest land area utilised per household was found in Bukoba Urban (0.9 ha). The percentage utilized of the usable land per household was highest in Bukoba Urban (98%) and lowest in Biharamulo (86%).

3.2.2 Types of Land Use

The area of land under permanent/annual mix was 182,555 hectares (32.8% of the total land available to smallholders in Kagera), followed by temporary mixed crops (93,256 ha, 16.7%), temporary mono crops (67,506 ha, 12.1%), uncultivatable usable land (51,046 ha, 9.2%), area under permanent mixed crops (40,512 ha, 7.3%), area under fallow (38,150 ha, 6.8%), permanent monocrop (30,980 ha, 5.6%), area under pasture (14,631 ha, 2.6%), unusable area (13,775 ha, 2.5%), area planted with trees (11,883 ha, 2.1%), area under natural bush (7,718 ha, 1.4%) and area rented to others (5,213 ha, 0.9%).

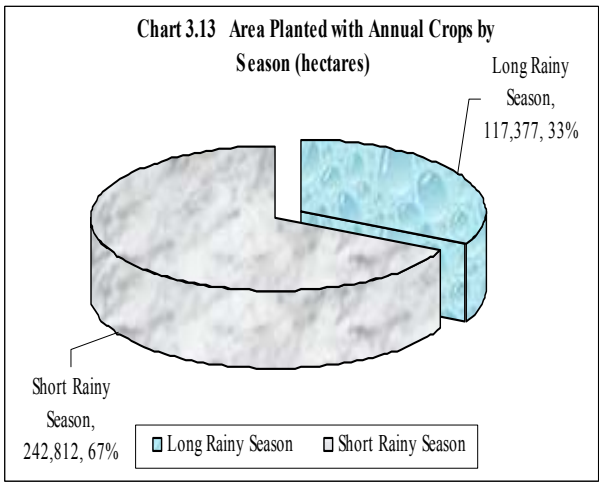


3.3 Annual Crop and Vegetable Production

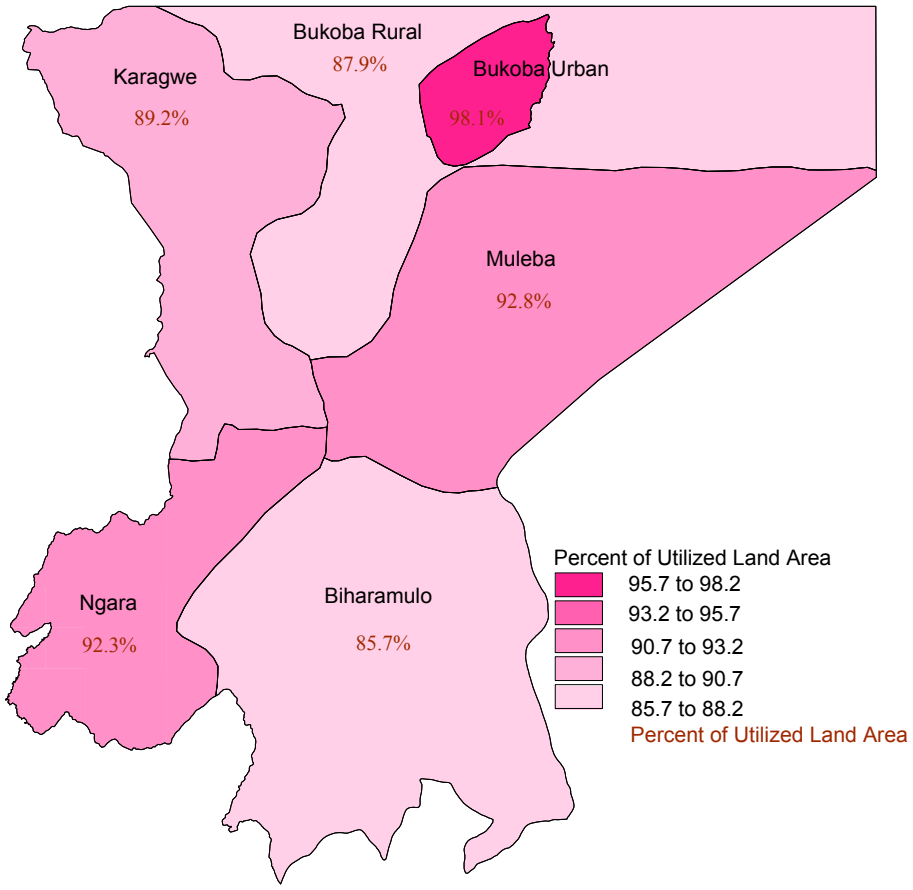
Kagera Region has two rainy seasons, namely the short rainy season (September to December) and the long rainy season (March to May). The quantity of crops produced in both seasons will be used as a basis for comparison with the past surveys and censuses.

3.3.1 Area Planted

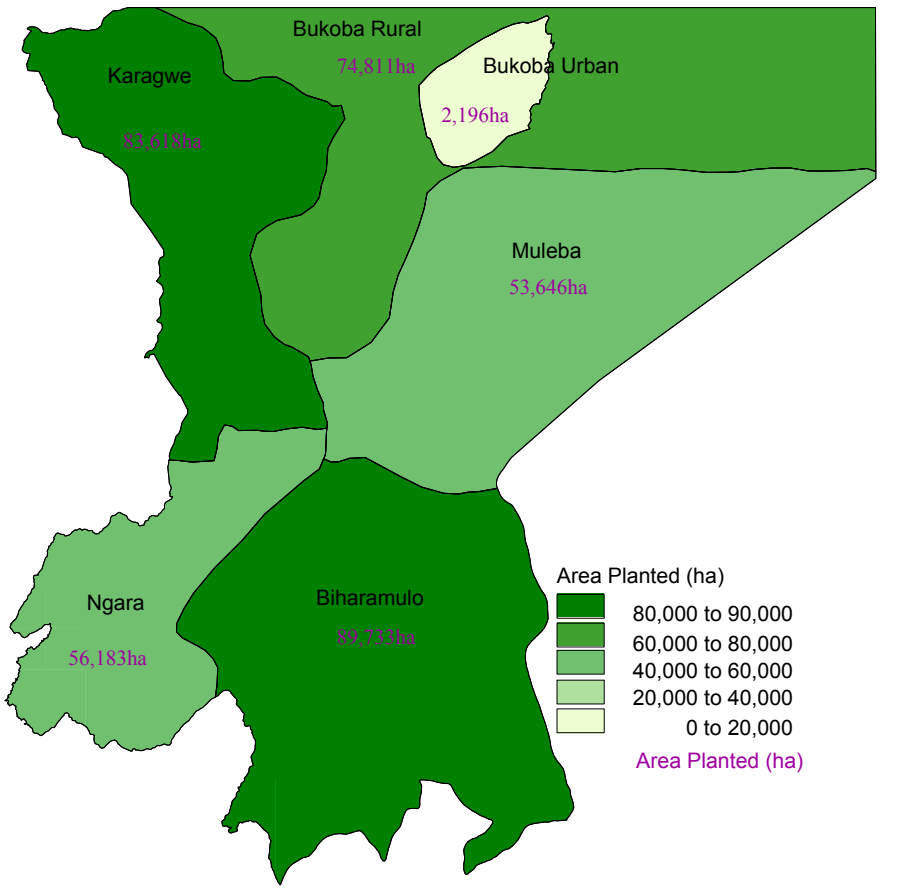
The area planted with annual crops and vegetables was 360,188 hectares out of which 241,812 hectares (67%) were planted during short rainy season and 117,377 hectares (33%) during long rainy season (Chart 3.13). The average areas planted per household during the short and long rainy seasons was 0.753 and 0.748 ha respectively. The districts with



Map 3.7 KAGERA
Utilized Land Area Expressed as a Percent of Available Land by District

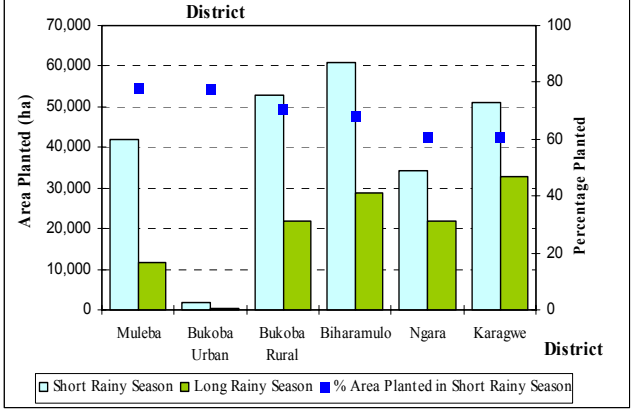


Map 3.8 KAGERA
Total Planted Area (annual crops) by District



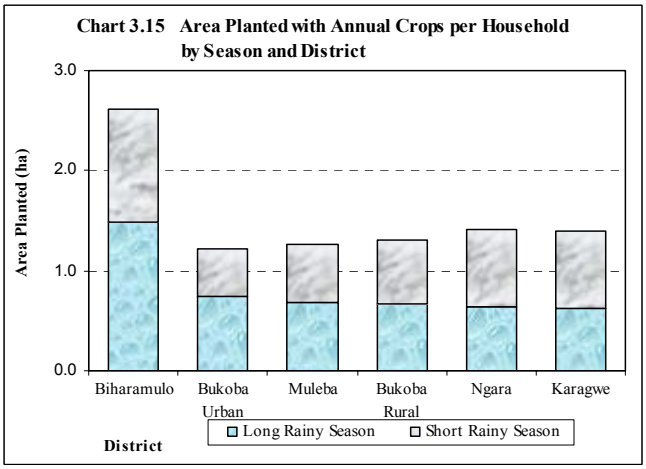
the largest area planted per household (the average of the two seasons) were Biharamulo (2.6 ha) followed by Ngara (1.4 ha). The district with the smallest average area planted was Bukoba urban (1.2ha). The area planted with annual crops during short rainy season was higher than that of the long rainy season in all districts. (Chart 3.14, Chart 3.15 and Map 3.9).

Chart 3.14 Area Planted with Annual Crops by Season and District



The planted area occupied by pulses was 153,993 ha (42.8% of the total area planted with annuals). This was followed by cereals (120,225 hectares, 33.4%), roots and tubers (64,261 hectares, 17.8%), oil seeds (10,416 hectares, 2.9%), cash crops (7,737 hectares, 2.1%) and fruits and vegetables (3,558 hectares, 1.0%). In Karagwe the area planted per household in the short rainy season represents 56 percent of the total planted area per household, whereas in Biharamulo the corresponding figure is 43 percent (Chart 3.15).

Chart 3.15 Area Planted with Annual Crops per Household by Season and District



Analysis of the Most Important Crops

Results on crop production are presented in two different sections. The first section compares the importance of each crop regardless of whether it is annual or permanent. The second section contains a more detailed analysis on production based on crop types.

3.3.2 Crop Importance

Beans was the dominant annual crop grown in Kagera Region and it had a planted area 1.5 times greater than maize, which had the second largest planted area. The area planted with beans constitutes 42 percent of the total area planted with annual crops in the region. Other crops in order of their importance (based on area planted) are cassava, sweet potatoes, groundnuts, sorghum and cotton (Chart 3.16). Households that grew cassava, chick peas and egg plant had larger planted areas per household than for other crops (Chart 3.17a).

Chart 3.16 Planted Area (ha) for the Main Crops - Kagera

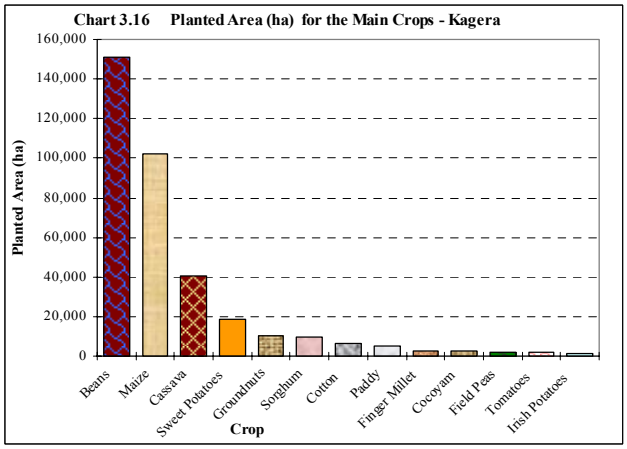
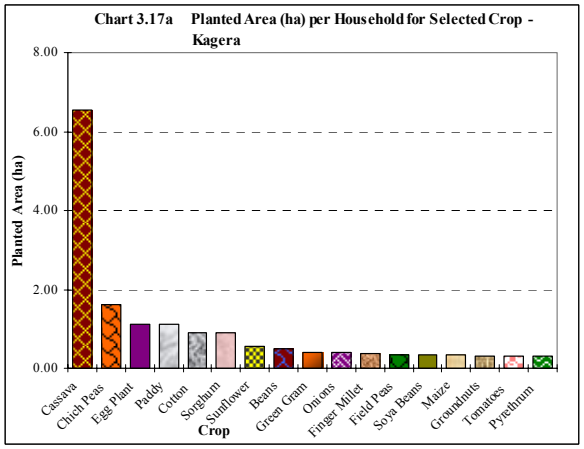


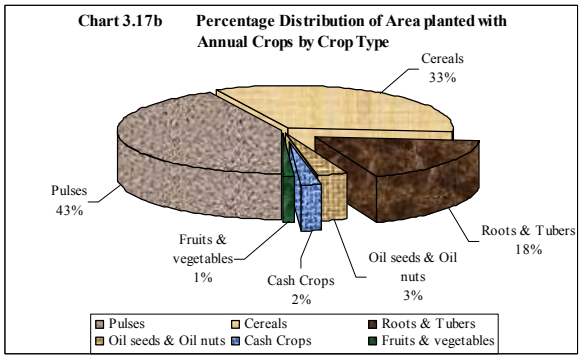
Chart 3.17a Planted Area (ha) per Household for Selected Crop - Kagera

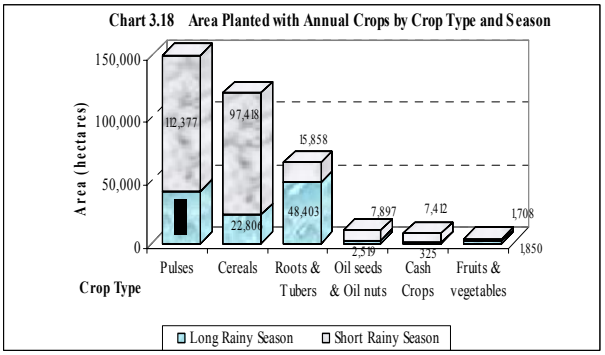


3.3.3 Crop Types

Pulses are the main crops grown in Kagera Region. The area planted with cereals was 153,993 ha (42.8% of the total planted area for annuals), followed by cereals with 120,225 ha (33.4%), root and tubers 64,261 ha (17.8%), oil seeds 10,416 ha (2.9%), cash crops 7,737 ha (2.1%) and fruits and vegetables 3,558 ha (1.0%). Annual cash crops were mainly constituted of cotton. (Chart 3.17b).

While cereals, pulses, oil seed and cash crops were the dominant crops in the short rainy season, root and tuber crops were dominant in the long rainy season. There was little difference in the proportions of fruits and vegetables grown between seasons (Chart 3.18).





3.3.4 Cereal Crop Production

The total production of cereals was 120,303 tonnes. Maize was the dominant cereal crop at 100,303 tonnes which was 83.4 percent of total cereal crops produced, followed by paddy (8.7%), sorghum (6.4%), fingermillet (1.1%) and bulrush millet (0.4%). Biharamulo district had the largest planted area of cereals in the region (38,127 ha) followed by Karagwe, (24,327 ha), Bukoba Rural (21,465 ha), Ngara (19,705 ha), Muleba (15,981 ha) and Bukoba Urban (619) (Map 3.10).

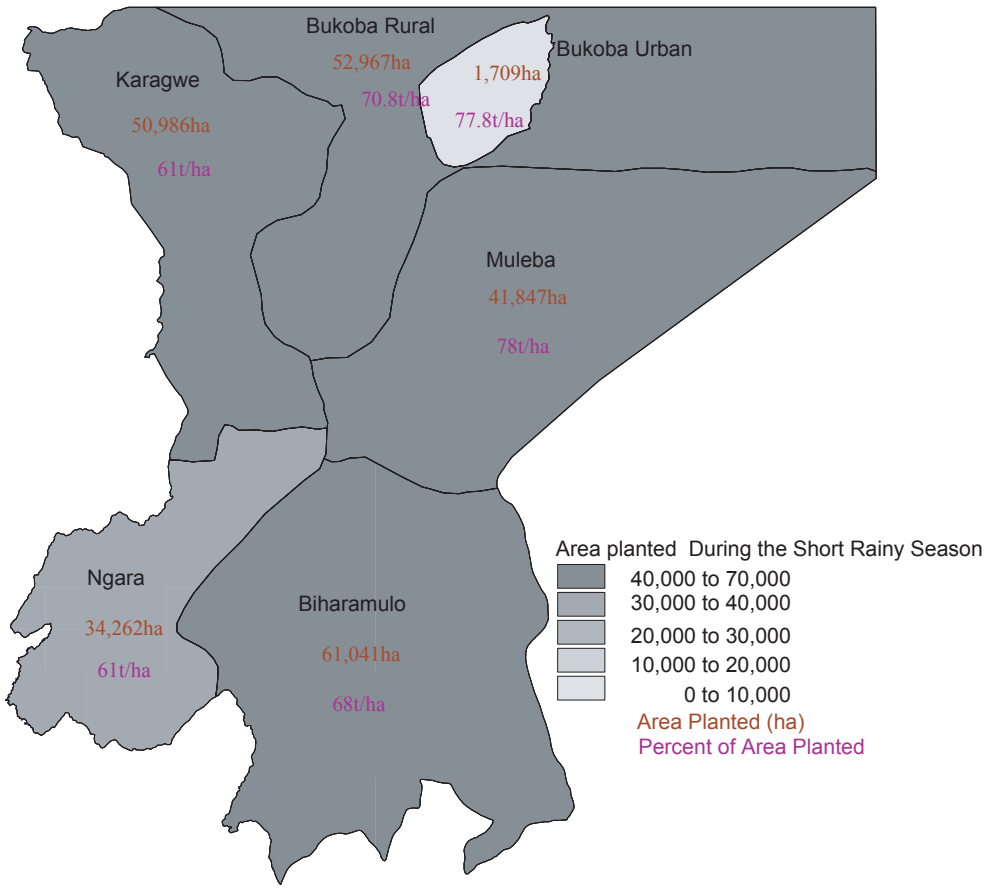
Table 3.2: Area, Production and Yield of Cereal Crops by Season

Crop	Short Rainy Season			Long Rainy Season			Total		
	Area Planted (ha)	Quantity Harvested (tonnes)	Yield (kg/ha)	Area Planted (ha)	Quantity Harvested (tonnes)	Yield (kg/ha)	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)
Maize	89,757	90,368	1,007	12,585	9,945	790	102,342	100,313	980
Paddy	2,347	3,488	1,486	2,932	6,972	2,378	5,279	10,459	1,981
Sorghum	3,227	2,604	807	6,370	5,142	807	9,597	7,746	807
Bulrush Millet	0	0		287	435	1,515	287	435	1,515
Finger Millet	2,087	980	470	632	369	583	2,719	1,349	496
Total	**97,418**	**97,440**		**22,806**	**22,863**		**120,225**	**120,303**	

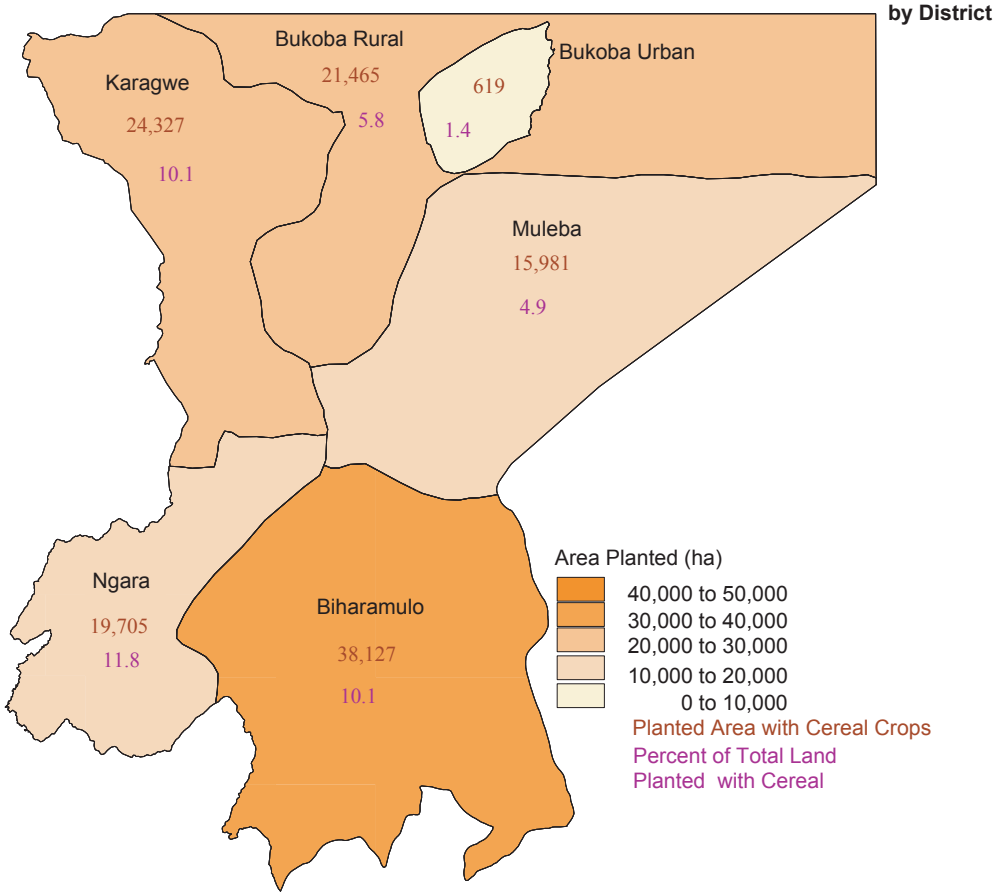
The total area planted with cereals in 2002/03 was 120,225 ha out of which 97,418 ha (81%) were planted in short rainy season and 22,806 ha (19%) were planted during the long rainy season. The short rainy season accounts for 81 percent of the total cereals produced in both seasons. The area planted with maize during the short rainy season was 92.1 percent of the total area planted with cereals in that season followed by sorghum (3.3%) and paddy (2.4%) (Table 3.2).

In Total, the area planted with maize was dominant and it represented 85.1 percent of the total area planted with cereal crops, then followed by sorghum (8.0%), paddy 4.4%), finger millet (2.3%) and bulrush millet (0.2%).

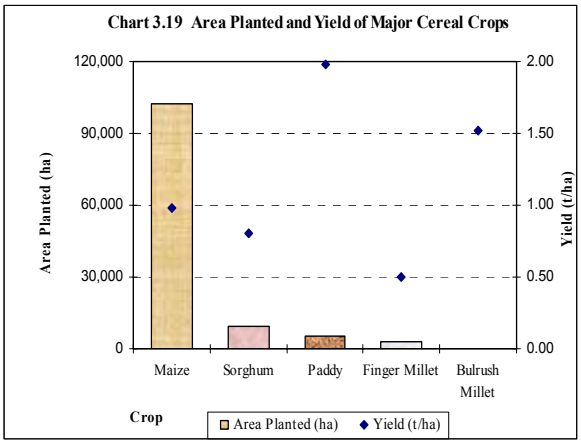
Map 3.9 KAGERA
Area planted and Percentage During the Short Rainy Season by District



Map 3.10 KAGERA
Area Planted with Cereals and Percent of Total Land Planted with Cereals by District



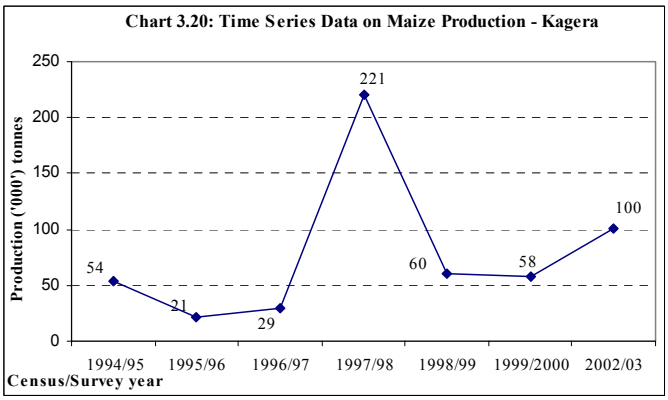
The yield of paddy was 1,981 kg/ha, followed by bulrush millet (1,515 kg/ha), maize (980 kg/ha), sorghum (807 kg/ha) and finger millet (496 kg/ha). Wheat and barley were not grown in the region (Chart 3.19).

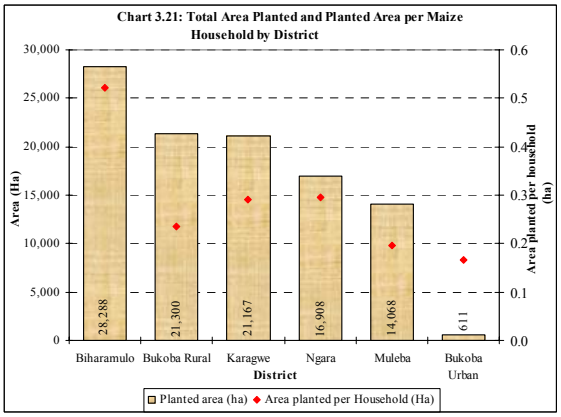


3.3.4.1 Maize

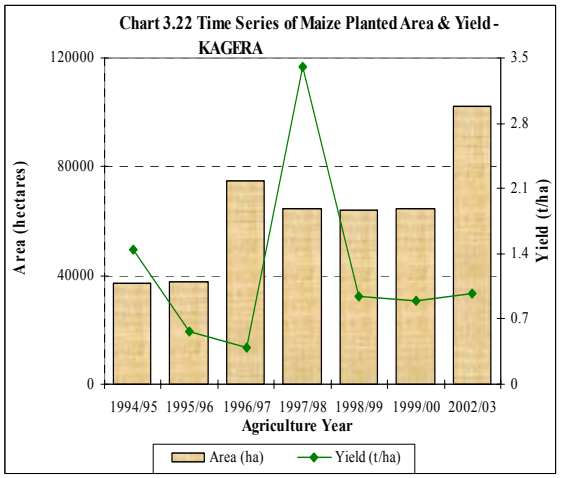
Maize dominates the production of cereal crops in the region. The number of households growing maize in Kagera Region during the short rainy season was 302,529, (93.8% of the total crop growing households in the region during the short rainy season). The total production of maize was 100,313 tonnes from a planted area of 102,342 hectares resulting in a yield of 0.98 t/ha.

Chart 3.20 Presents maize production trend (in thousand metric tonnes) for the combined long and short rainy seasons. There was great variation in maize production during the survey/census years hence the trend does not depict any specific pattern. The average area planted with maize per household was 0.29 hectares; however it ranged from 0.1 hectares in Bukoba Urban district to 0.5 hectares in Biharamulo district (Map 3.12). Biharamulo district had the largest area of maize (28,288 ha) followed by Bukoba Rural (21,300 ha), Karagwe (21,167 ha), Ngara (16,908 ha), Muleba (14,068 ha) and Bukoba Urban (611 ha) (Chart 3.21 and Map 3.11).

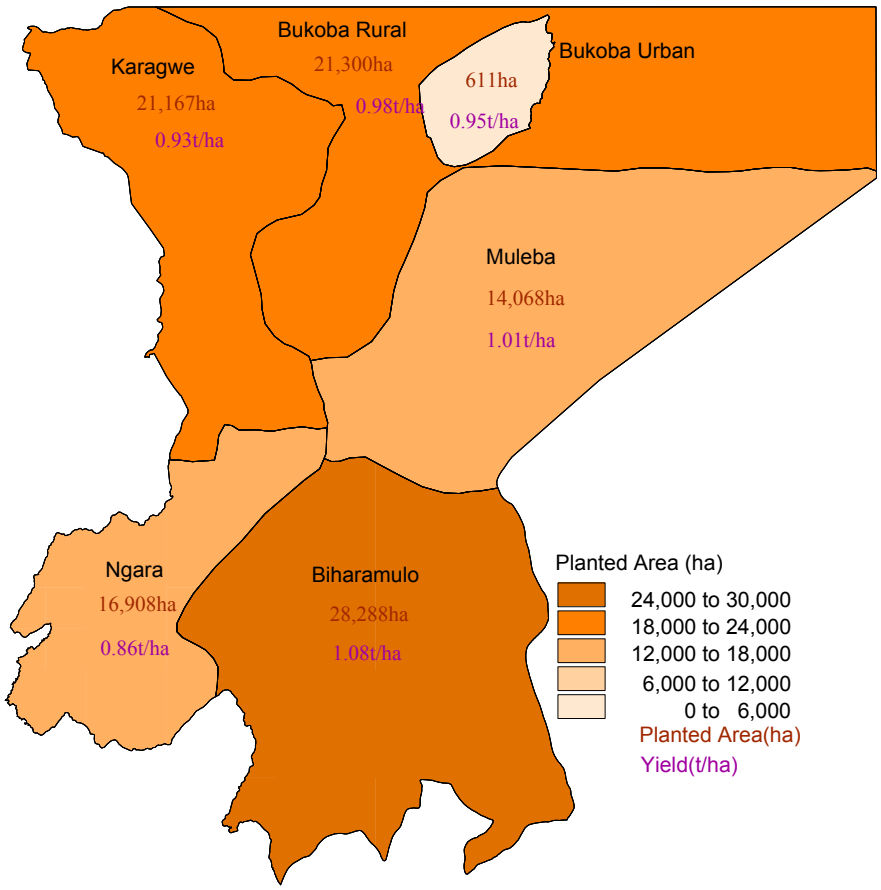




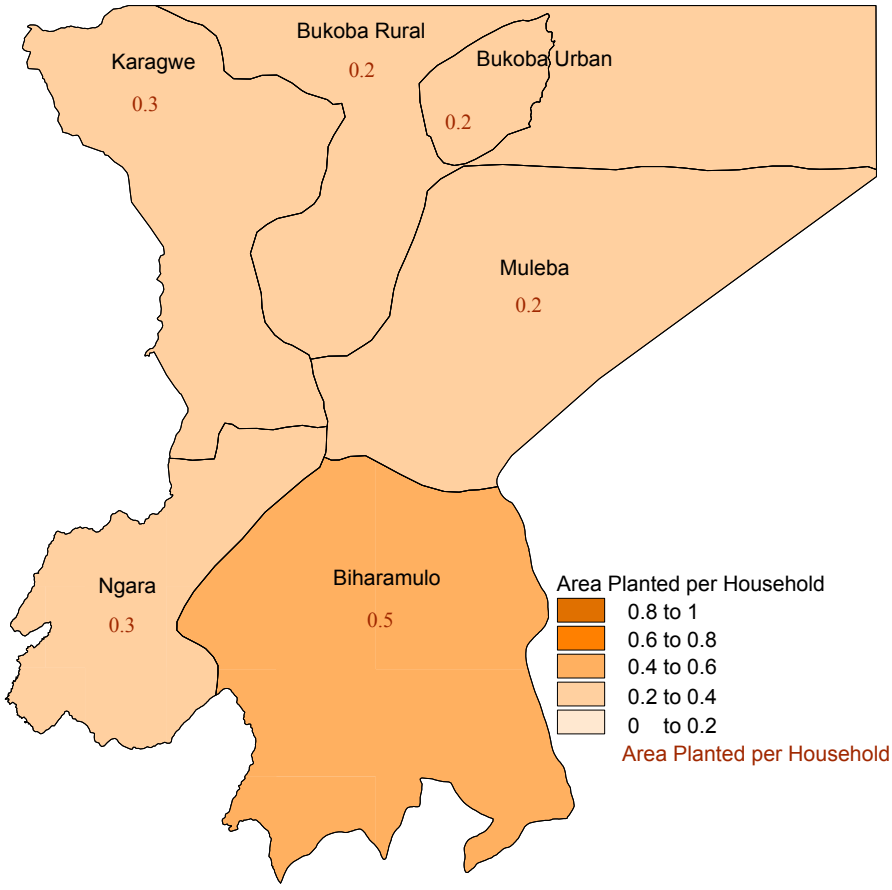
Charts 3.20 and 3.22 indicate that the quantity of maize produced over the indicated years was highly associated with the yield levels realised in the same periods. Whilst the area planted increased from 37,150 ha during the year 1994/95 to 102,342 ha in 2002/03, the yield has shown a gradual decline from 0.44 tons/ha to 0.98 tons/ha (with exception of the extraordinary yield of 3.4 t/ha experienced in the year 1997/98). Chart 3.22).



Map 3.11 KAGERA
Planted Area and Yield of Maize by District



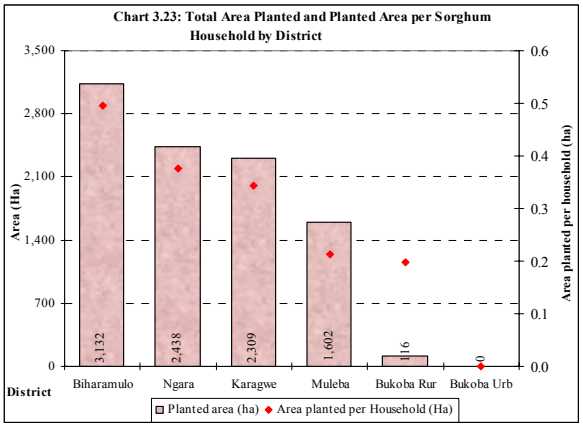
Map 3.12 KAGERA
Area Planted per Maize Growing Household by District

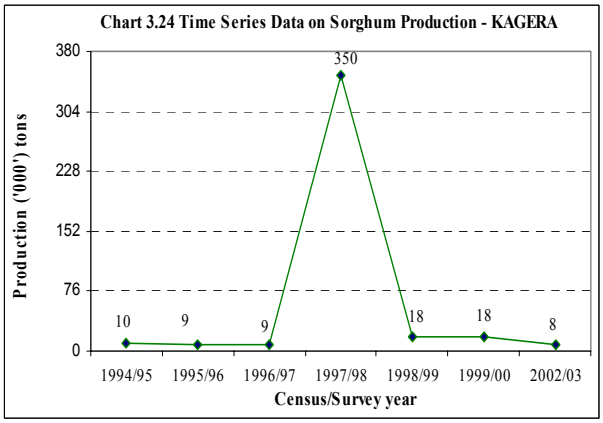


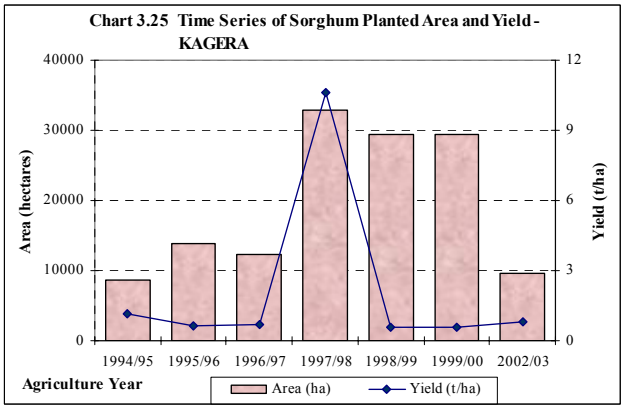
3.3.4.2 Sorghum

Sorghum was the second most important cereal crop in the region in terms of planted area. The number of households that grew sorghum in Kagera Region during the long rainy season was 16,869. This represents 10.7 percent of the total crop growing households in Kagera Region in the long rainy season.The total production of sorghum was 7,746 tonnes from a planted area of 9,597 hectares resulting in a yield of 0.81 t/ha. The district with the largest area planted with sorghum was Biharamulo (3,132 ha) followed by Ngara (2,438 ha), Karagwe (2,309 ha), Muleba (1,602 ha) and Bukoba Rural (116 ha) (Map 3.13).

There were large variations in the average area planted per crop growing household among the districts ranging from 0.2 ha in Bukoba Rural to 0.5 ha in Biharamulo (Chart 3.23 and Map 3.14).

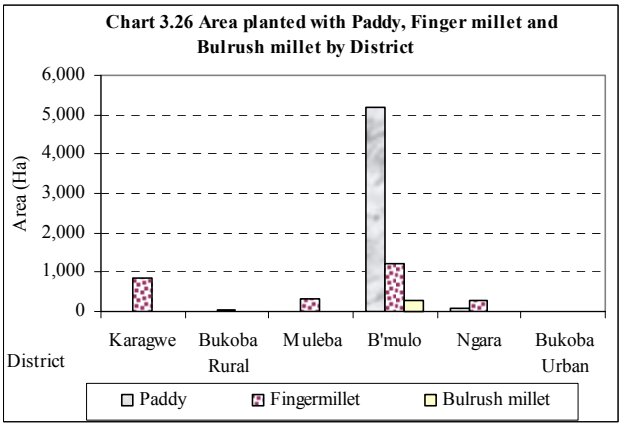






The production was almost constant from the year 1994/95 to 1996/97 after which there was a sharp increase in the production of sorghum in 1997/98 followed by a sharp drop in 1998/99. The production was constant for two years of 1998/99 and 1999/00 after which the production dropped by 56% in the year 2002/03.

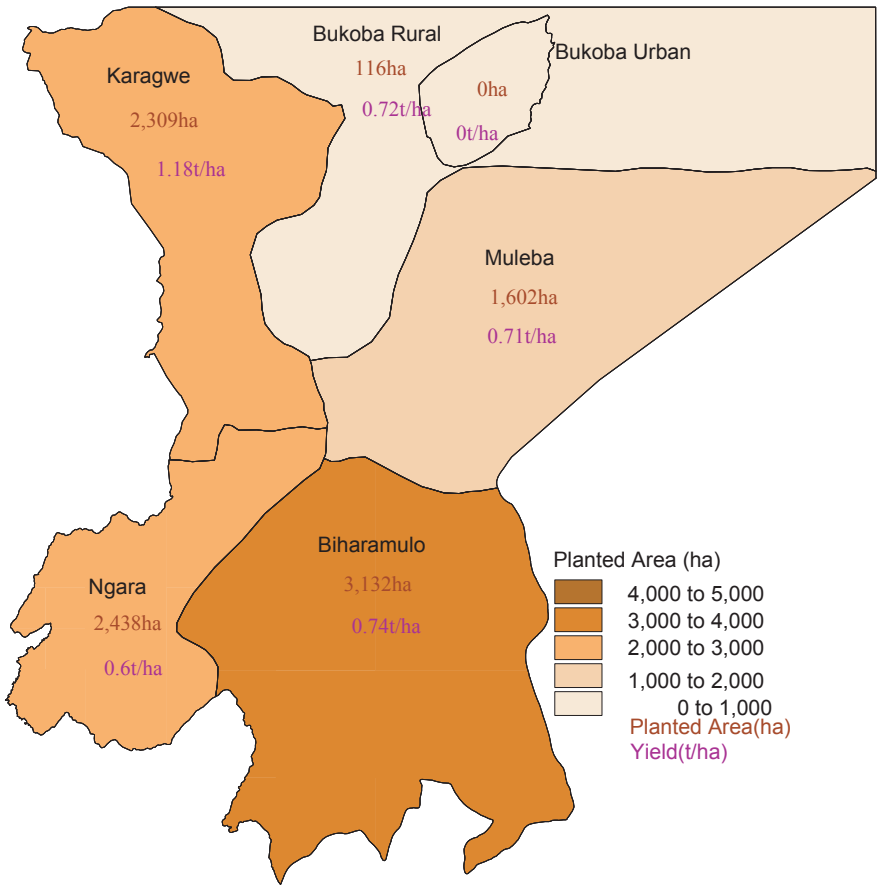
Charts 3.23 and 3.25 show that the quantity of sorghum that was produced during the indicated survey/census years was a function of both yield levels and size of area planted. The general trend of the size of area planted indicates a rise from 8,669 ha during the year 1994/95 to 32,950 ha in 1997/98. This was followed by a drop to 9,597 ha in the year 2002/03. (Chart 3.25).



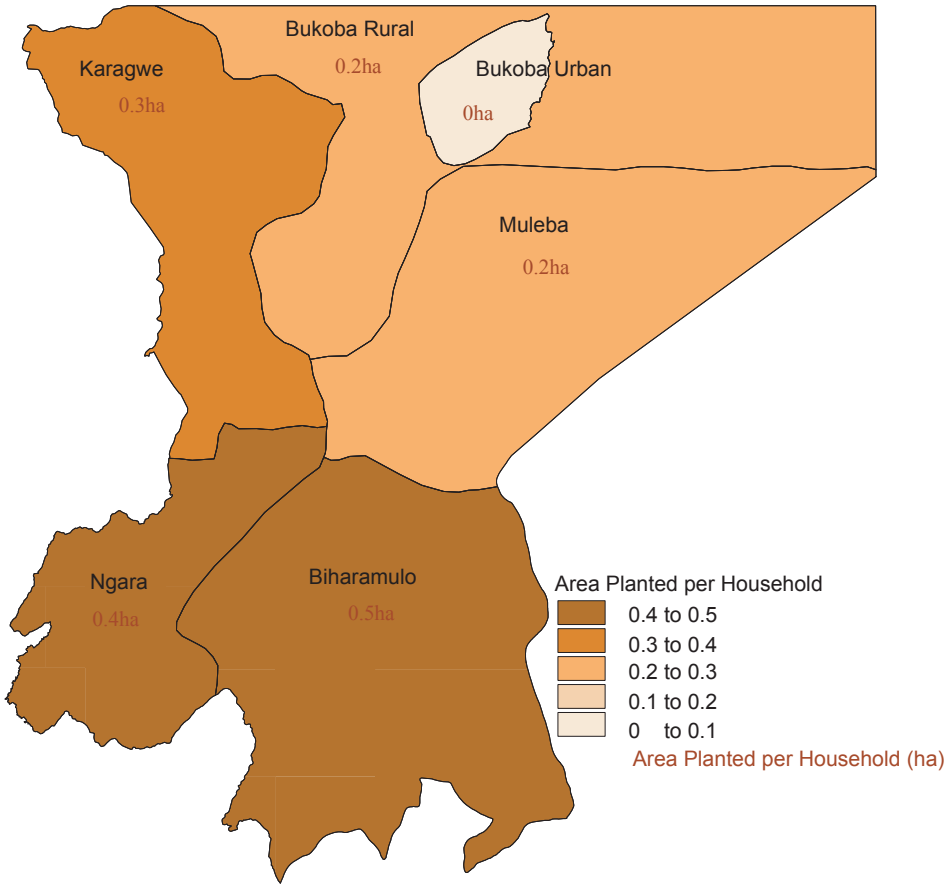
3.3.4.3 Other Cereals

Other cereals were produced in small quantities. Paddy was produced in Biharamulo (5,187 ha), and in smaller quantities in Ngara (84 ha) and Bukoba Urban (8 ha). The largest area planted with finger millet was found in Biharamulo (1,232 ha) followed by Karagwe (851 ha), Muleba (311 ha), Ngara (275 ha) and Bukoba Rural (50ha). Bulrush millet (287 ha) was grown in Biharamulo district only. (Chart 3.26).

Map 3.13 KAGERA
Planted Area and Yield of Sorghum by District



Map 3.14 KAGERA
Area Planted per Sorghum Growing Household by District



3.3.5 Roots and Tuber Crops Production

The total production of roots and tubers was 97,186 tonnes. Cassava production was higher than any other root and tuber crop in the region with a total production of 54,471 tonnes representing 56 percent of the total root and tuber crops production. This was followed by sweet potatoes with 34,003 tonnes (35%), cocoyams (4,716t, 5%) Irish potatoes (2,279t, 2%) and yams (1,717t, 2%) (Table 3.3). The area planted with cassava was larger than any other root and tuber crop and it was the most important root and tuber crop in Kagera in terms of planted area accounting for 63.3 percent of the area planted with roots and tubers, followed by sweet potatoes (29.2%), cocoyams (3.8%), Irish potatoes (2.3%) and yams (1.4%). It is difficult to determine the total planted area and production for the short and long rainy seasons for roots and tubers as the total production of cassava was reported under the long rainy season. However, excluding cassava, 63 percent of the area planted with roots and tubers was during the short rainy season. With exception of yams which had the largest planted area during the long rainy season, the rest of the root and tuber crops had the largest planted area during the short rainy season

Chart 3.27 Area Planted and Yield of Major Roots and Tuber Crops

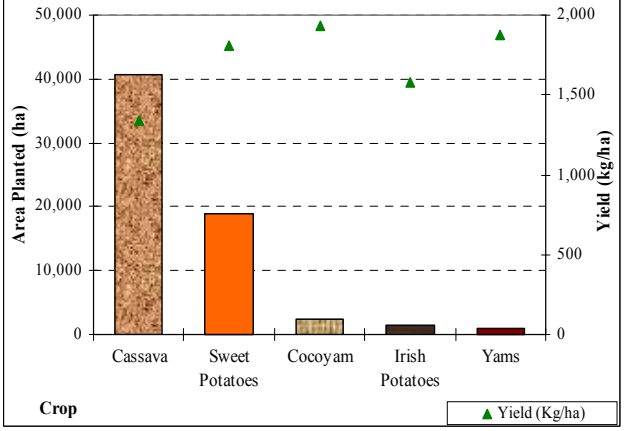


Table 3.3: Area, Production and Yield of Root and Tuber Crops by Season

Crop	Short Rainy Season			Long Rainy Season			Total		
	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)
Cassava	0	0	0	40,666	54,471	1,344	40,666	54,471	1,339
Sweet Potatoes	12,202	23,052	1,889	6,590	10,951	1,662	18,792	34,003	1,809
Irish Potatoes	1,062	1,710	1,610	385	569	1,477	1,447	2,279	1,574
Yams	414	597	1,441	503	1,120	2,226	917	1,717	1,872
Cocoyam	1,234	1,567	1,271	1,204	3,149	2,615	2,438	4,716	1,935
Total	**14,912**	**26,927**		**48,403**	**69,177**		**64,261**	**97,186**	

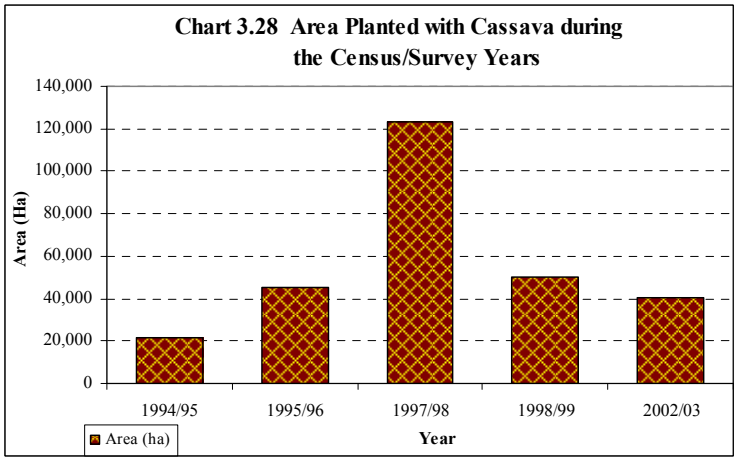
Note: Cassava is produced in both the long and short rainy season. However, it was not possible to separate cassava production in the different growing seasons as the growth period spans both seasons and even over a year in certain varieties. Because of this, cassava has been combined and is reported in the long rainy season only.

The estimated yield was high for cocoyams and yams (1.9t/ha each), followed by sweet potatoes (1.8 t/ha), Irish potatoes (1.6 t/ha) and cassava (1.3 t/ha).

3.3.5.1 Cassava

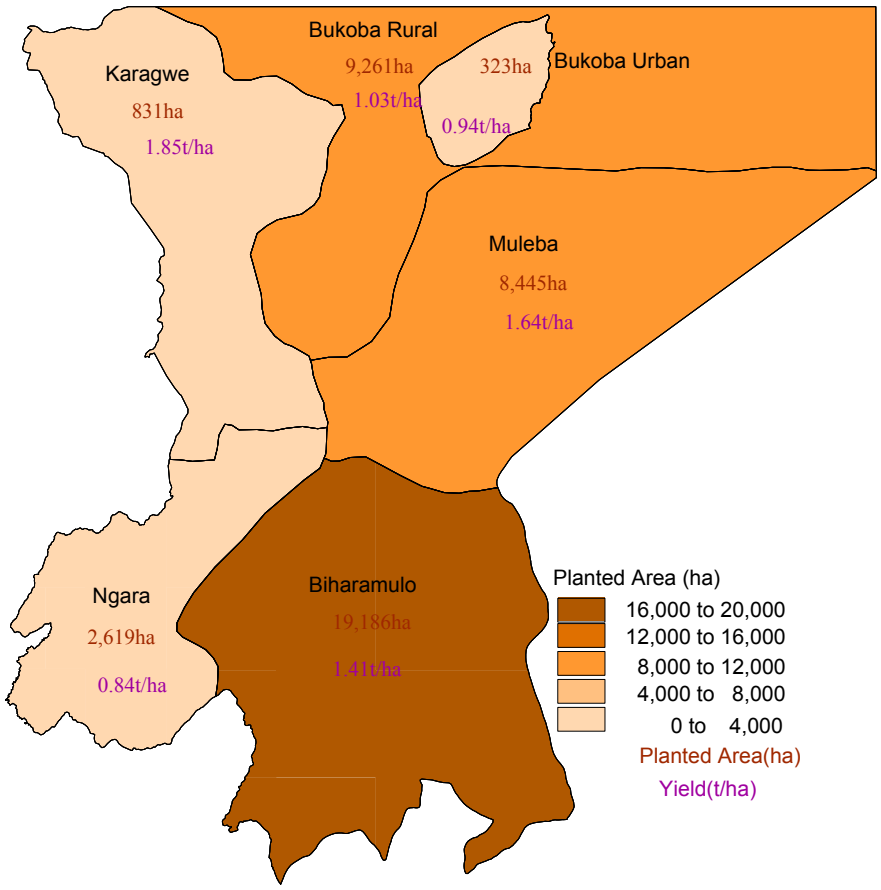
The number of households growing cassava in the region was 121,545. This represents 35 percent of the total crop growing households in the region. The total production of cassava during the census year was 54,471 tonnes from a planted area of 40,666 hectares resulting in a yield of 1.3t/ha.

Chart 3.28 Area Planted with Cassava during the Census/Survey Years

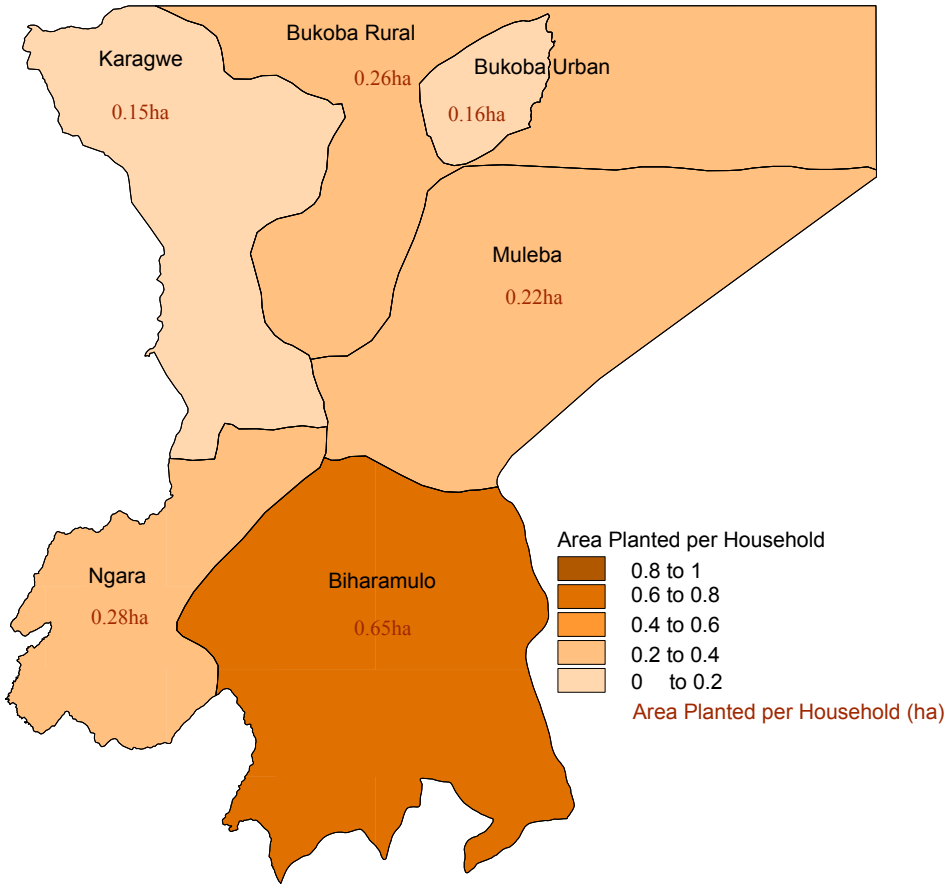


Previous censuses and surveys indicate that the area planted with cassava increased from 21,371 ha in 1995 to 122,987 ha 1998 after which it dropped dramatically to 40,666 ha in by 2003. (Chart 3.28).

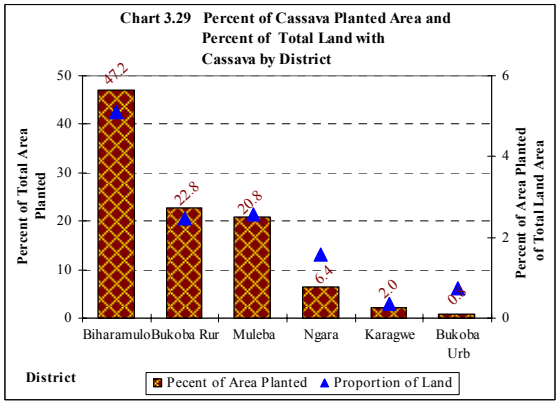
Map 3.15 KAGERA
Planted Area and Yield of Cassava by District

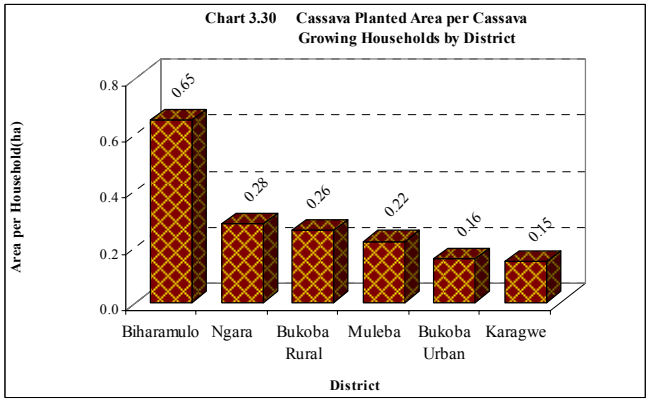


Map 3.16 KAGERA
Area Planted per Cassava Growing Household by District

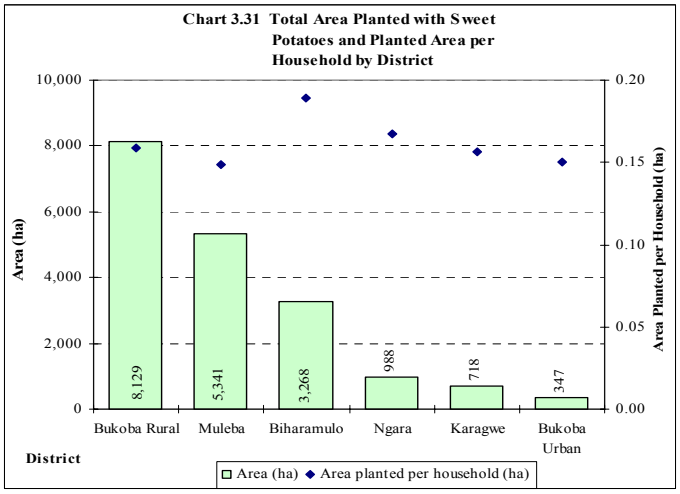


The area planted with cassava accounted for 11 percent of the total area planted with annual crops and vegetables in the census year. Biharamulo district had the largest planted area of cassava (19,186 ha, 47% of the cassava planted area in the region), followed by Bukoba Rural (9,261 ha, 23%), Muleba (8,445 ha, 21%), Ngara (2,619 ha, 6%) Karagwe (831 ha, 2%), and Bukoba Urban (323 ha, 1%) (Map 3.15). However, the highest proportion of land planted with cassava, expressed as a percent of the total land area was in Biharamulo district (5.1%). This was followed by Muleba (2.6%), Bukoba Rural (2.5%), Ngara (1.6%), Bukoba Urban (0.7%) and Karagwe (0.3%) (Chart 3.29).





The average cassava planted area per cassava growing household was 0.3 hectares. However, with exception of households in Biharamulo district that had the largest average planted area of cassava per households (0.7 ha), there were small variations among the rest of the districts. The second largest area planted per cassava growing household was in Ngara (0.3 ha) followed by Bukoba Rural (0.3 ha), Muleba (0.2 ha), Bukoba Urban (0.2 ha) and Karagwe (0.1 ha). (Chart 3.30 and Map 3.16).



3.3.5.2 Sweet Potatoes

The number of households that grew sweet potatoes in Kagera Region during the short rainy season was 78,206. This was 22 percent of the total crop growing households. The total production of sweet potatoes during the census year was 34,003 tonnes from a planted area of 18,792 hectares resulting in a yield of 1.8t/ha.

Bukoba Rural District has the largest planted area for sweet potatoes (8,129 ha, 43.3%), followed by Muleba (5,341 ha, 28.4%), Biharamulo (3,268 ha, 17.4%), Ngara (988 ha, 5.3%), Karagwe (718 ha, 3.8%) and Bukoba Urban (347 ha ha, 1.8%). (Chart 3.31). Other root and tuber crops are of minor important in terms of area planted compared to cassava and sweet potatoes.

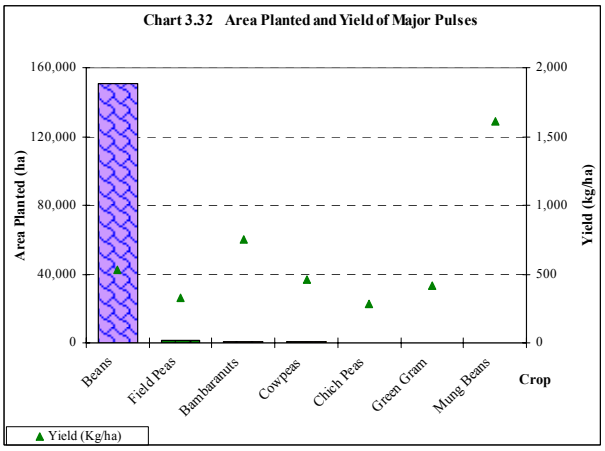
Table 3.4: Area, Production and Yield of Pulses by Season

Crop	Short Rainy Season			Long Rainy Season			Total		
	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)
Mung Beans	17	28	1,611	0	0	-	17	28	1,611
Beans	110,315	57,433	521	40,632	23,327	574	150,947	80,760	535
Cowpeas	317	143	452	58	31	534	375	174	465
Green Gram	10	3	247	60	26	445	70	29	415
Chick Peas	209	59	284	0	0	-	209	59	284
Bambaranuts	379	322	849	295	187	634	675	509	755
Field Peas	1,129	364	322	571	187	327	1,700	551	324
TOTAL	**112,377**	**58,352**		**41,616**	**23,758**		**153,993**	**82,110**	

3.3.6 Pulse Crops Production

The total area planted with pulses was 153,993 hectares out of which 150,947 ha were planted with beans (98 percent of the total area planted with pulses), followed by field peas (1,700 ha, 1.10%), bambaranuts (675 ha, 0.44%), cow peas (374 ha, 0.24%), chick peas (209 ha, 0.14%), green gram (70 ha, 0.05%) and mung beans (17 ha, 0.01%).

Chart 3.32 Area Planted and Yield of Major Pulses



The area planted with pulses in the short rainy season was 112,377 ha which represented 73 percent of total area planted with pulses during the year. Beans was the most dominant crop during short rainy season with 110,315 ha (98 % of the total area planted with pulses in that particular season), followed by field peas (1,129 ha, 1.00%), bambaranuts (379 ha, 0.34%), cowpeas (317 ha, 0.28%), chick peas (209 ha, 0.19%), mung beans (17 ha, 0.02%) and green gram (10 ha, 0.01%).

The total production of pulses was 82,110 tonnes. Beans were the most cultivated crop producing 80,760 tonnes which accounted for 98.36 percent of the total pulse production. This was followed by field peas (551t, 0.67%), bambaranuts (509t, 0.62%), cowpeas (174t, 0.21%), chick peas (59t, 0.07%), green gram (29t, 0.04%) and mung beans (28t, 0.03%). Mung beans and bambara nuts had relatively higher yields of 1,611 and 755 kgs/ha respectively. The yields of the rest of the pulses in kilograms per hectare were cowpeas 465 kgs/ha, green gram 415 kgs/ha, field peas 324 kgs/ha and chick peas 284 kgs/ha (Chart 3,32).

3.3.6.1 Beans

Beans dominate the production of pulse crops in the region. The number of households that grew beans in Kagera Region during the short rain season was 304,932. This was 87 percent of the total pulse crops growing households. The total

Chart 3.33 Percent of Bean Planted Area and Percent of Total Land with Beans by District

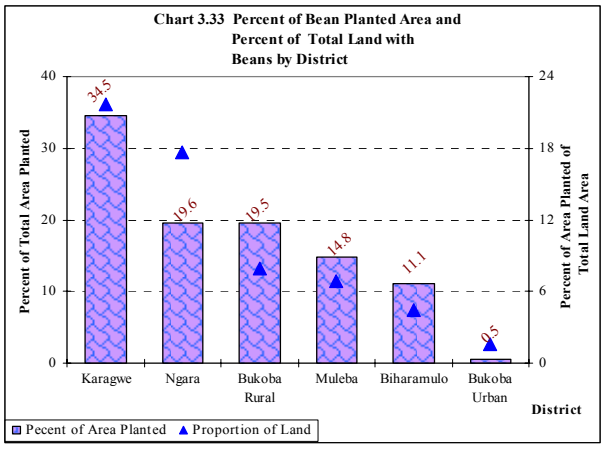
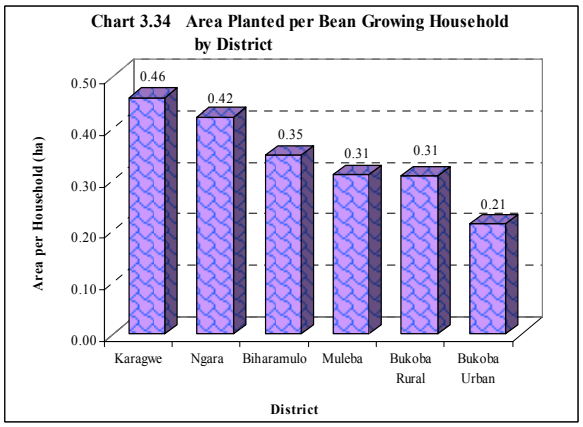
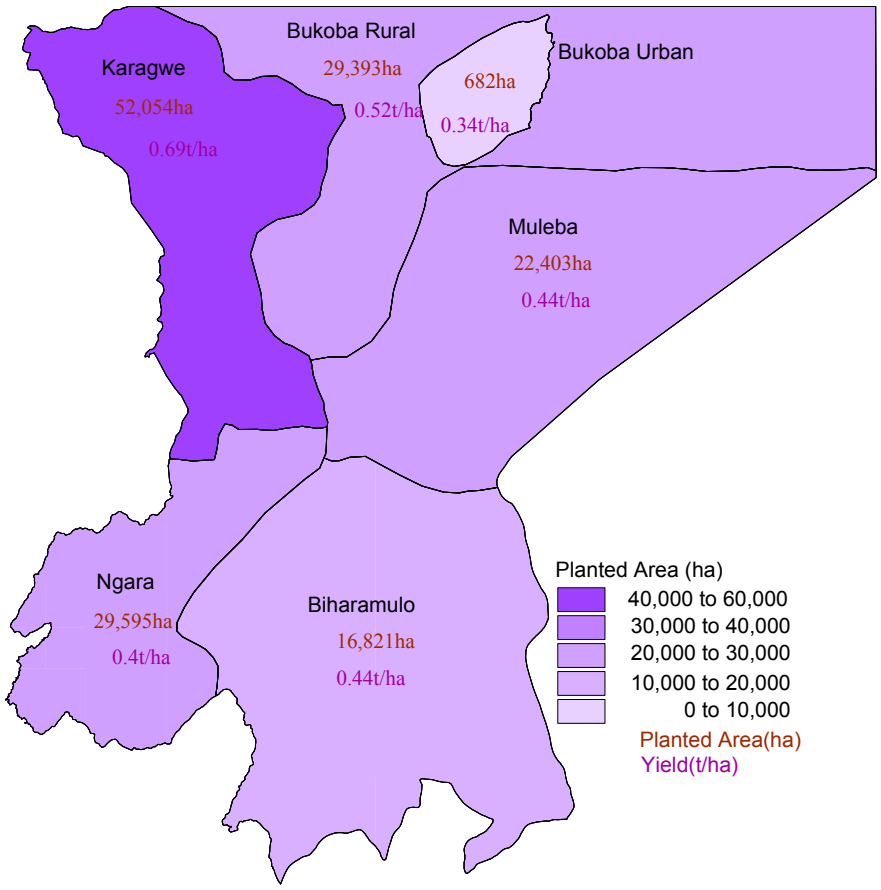


Chart 3.34 Area Planted per Bean Growing Household by District

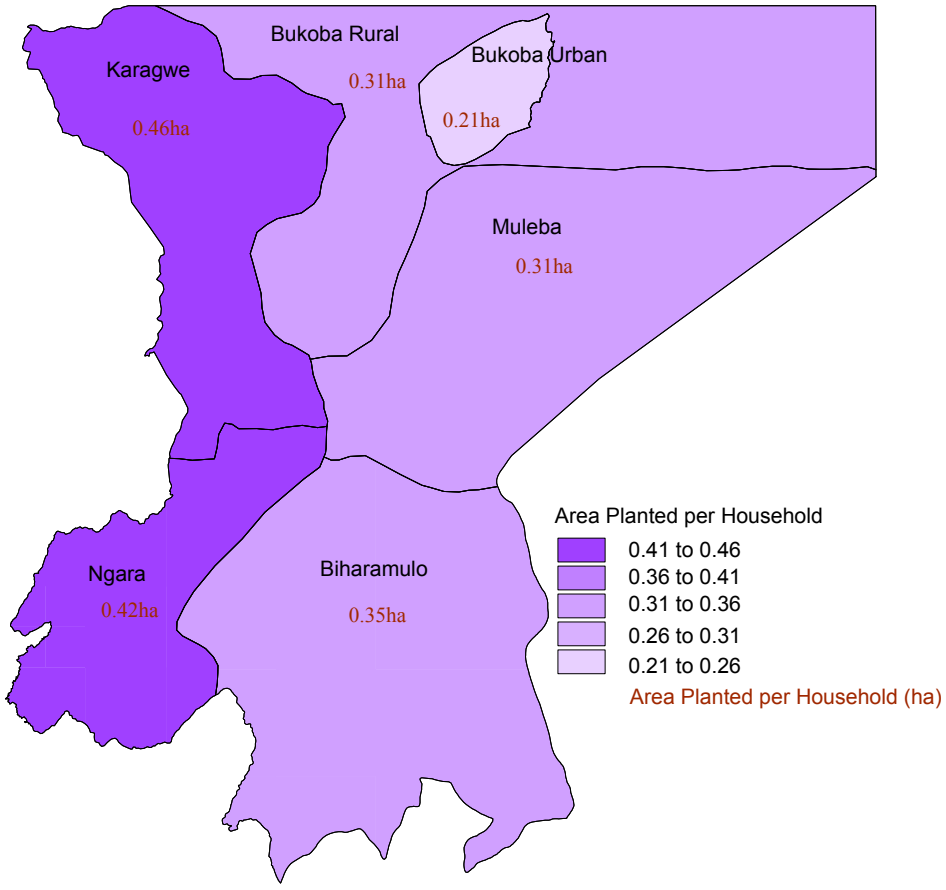


production of beans in the region was 80,760 tonnes from a planted area of 150,947 hectares resulting in a yield of 0.5 t/ha. The largest area planted with beans in the region was in Karagwe (52,054 ha, 34.5%) (Chart 3.33 and Map 3.17), and the largest area planted with beans per household was also found in Karagwe district (0.46 ha) (Chart 3.34). The average area planted per household in the region during the short rainy season was 0.36 ha. There was significant variations in area planted with beans per household among districts ranging from 0.2 ha in Bukoba Urban to 0.5 ha in Karagwe district (Chart 3.34 and Map 3.18).

Map 3.17 KAGERA
Planted Area and Yield of Beans by District

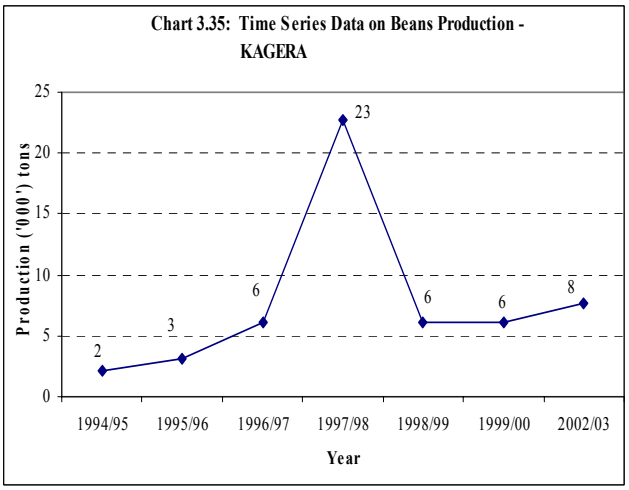


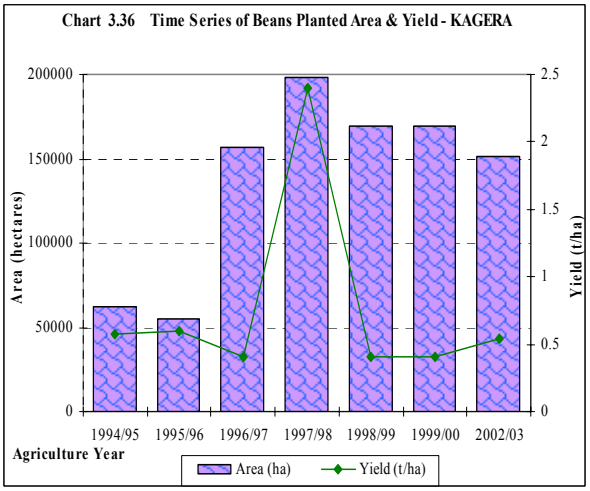
Map 3.18 KAGERA
Area Planted per Beans Growing Household by District



In Kagera Region, bean production has increased steadily (with exception of bumper harvest in 1998) over the period 1995 to 2003 from 35,682 tonnes in 1995 to 80,760 tonnes in 2003 (Chart 3.35).

Increase in beans production for the period from 1995 to 1998 was a result of both increased yield and the size of the area under beans production. On the other hand, production increase for the period from 1999 to 2003 was due to increased yield. (Chart 3.35 and 3.36).





3.3.7 Oil Seed Production

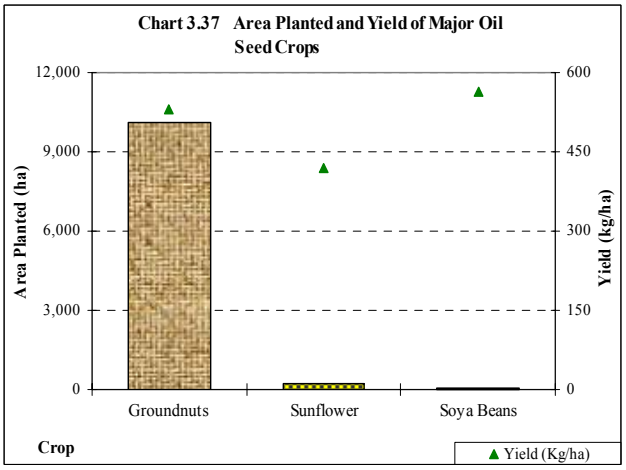
The total production of oilseed crops was 5,505 tonnes planted on an area of 10,416 hectares. The total planted area of oilseeds in the short rainy season was 7,897 ha representing 76 percent of the total area planted with oil seeds.

able 3.5: Area, Quantity Harvested and Yield of Oil Seed Crops by Season

Crop	Short Rainy Season			Long Rainy Season			Total		
	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)
Sunflower	243	102	420	0	0	0	243	102	420
Groundnuts	7,649	4,050	529	2,483	1,330	535	10,132	5,380	531
Soya Beans	5	1	200	36	22	611	41	23	563
Total	**7,897**	**4,153**		**2,519**	**1,352**		**10,416**	**5,505**	

Groundnuts was the most important oilseed crop with 10,132 ha (97.3% of the total area planted with oil seeds), followed by sunflower (2.3%) and soya beans (0.4%) (Chart 3.37). The yield of groundnuts was moderate (531 kg/ha). Sunflower had a yield of 420 kg/ha and soya beans 563 kg/ha.

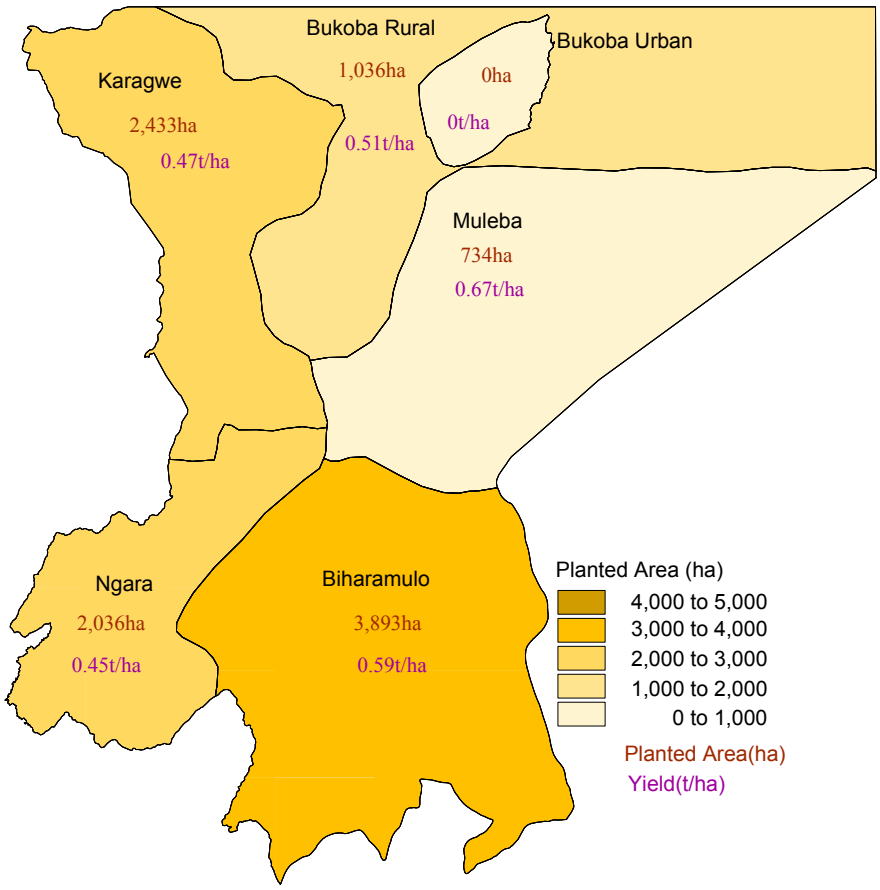
The production of groundnuts was 5,380 tonnes and accounted for 97.7 percent of the total production of oil seeds, followed by sunflower (1.9%) and soya beans (0.4%).



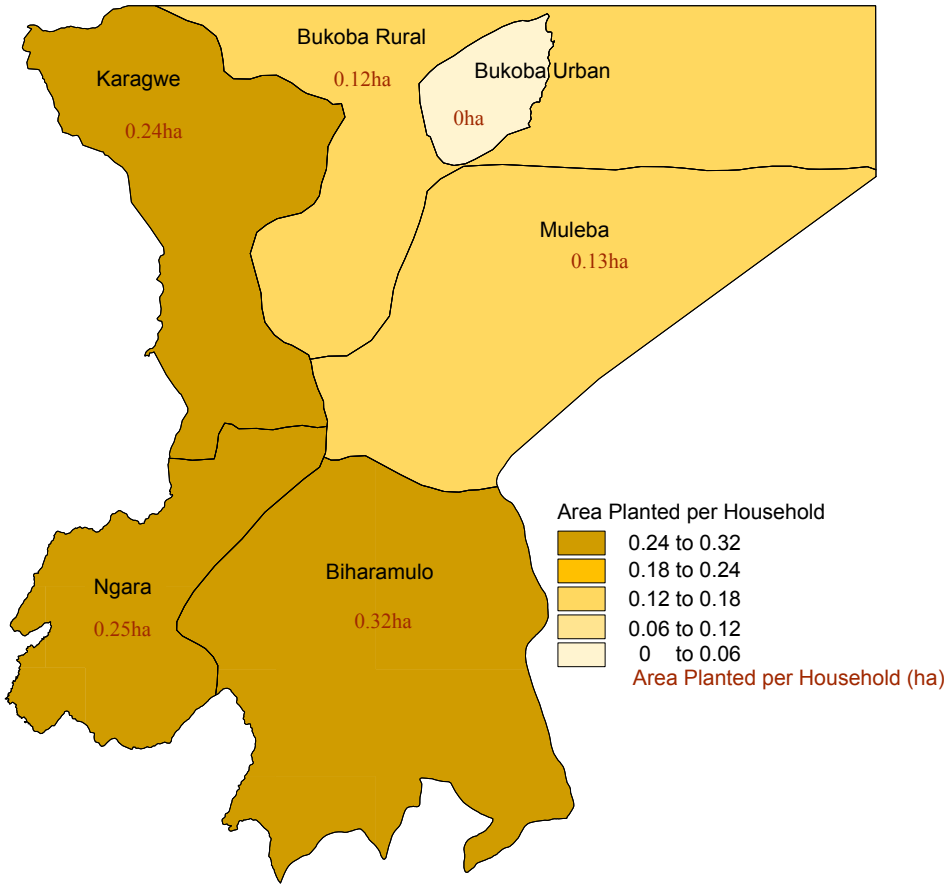
3.3.7.1 Groundnuts

The number of households growing groundnuts in Kagera Region during the short rainy season was only 31,860. The total production of groundnuts in the region was 5,380 tonnes from a planted area of 10,132 hectares resulting in a yield of 0.5 t/ha. Area planted increased at a decreasing rate from 5444 ha in 1995 to 16107 ha in 1999 after which it dropped to 10,132 ha by 2003 (Chart 3.38).

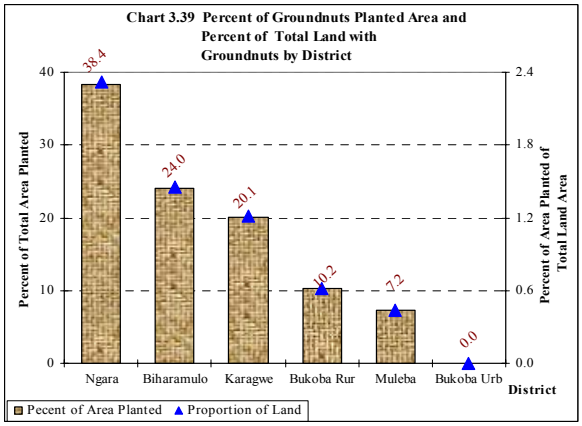
Map 3.19 KAGERA
Planted Area and Yield of Groundnuts by District

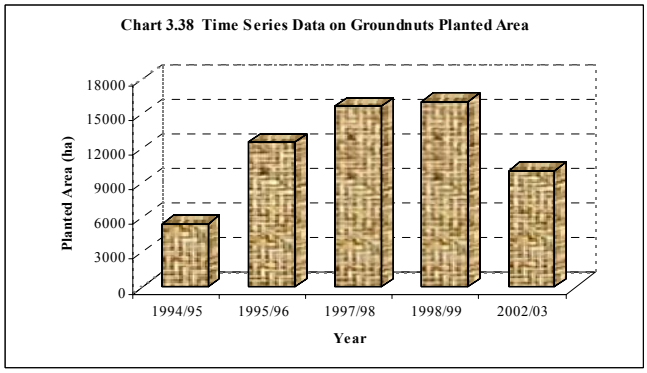


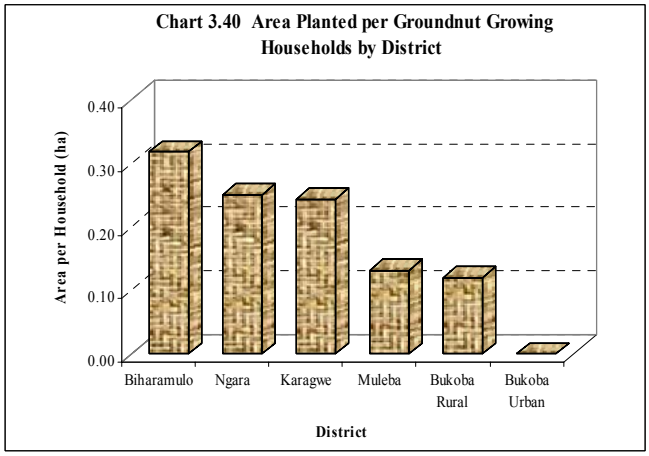
Map 3.20 KAGERA
Area Planted per Groundnuts Growing Household by District



Thirty eight percent of the area planted with groundnuts was located in Biharamulo District (3,893 ha) followed by Karagwe (2,433 ha, 24%), Ngara (2,036 ha, 20%), Bukoba Rural (1,036 ha, 10%) and Muleba (734 ha, 7%). Groundnuts were not grown in Bukoba Urban district (Map 3.19). The highest proportion of land with groundnuts was found in Ngara followed by Biharamulo, Karagwe, Bukoba Rural and Muleba







The largest area planted per groundnut growing household was found in Biharamulo District (0.32 ha) and the lowest was in Bukoba Rural (0.12 ha). There was no groundnuts production in Bukoba Urban district (Chart 3.39 and Map 3.20). The

Range between the district with the highest and the lowest area planted per household depicts high variations in area planted among the districts (Chart 3.40).

3.3.8 Fruit and Vegetables

The collection of fruit and vegetables production data was difficult due to the small quantities produced per household. Most of the data presented here gives the production of smallholders who grew these crops as cash crops and not merely for household consumption. Most fruit production is from permanent crops and only water melon is reported as an annual crop in this section. The short rainy season is relatively important for fruit and vegetables production since 52 percent ofthe total area planted with fruit and vegetables was during the short rainy season. For ginger, spinach, carrot, chillies, amaranths, cucumber and water mellon over 60 percent of the planted area for each crop was during the short rainy season. The planted areas for bitter aubergine and pumpkins during the long rainy season were abnormally large

Table 3.6: Area, Production and Yield of Fruits and Vegetables by Season

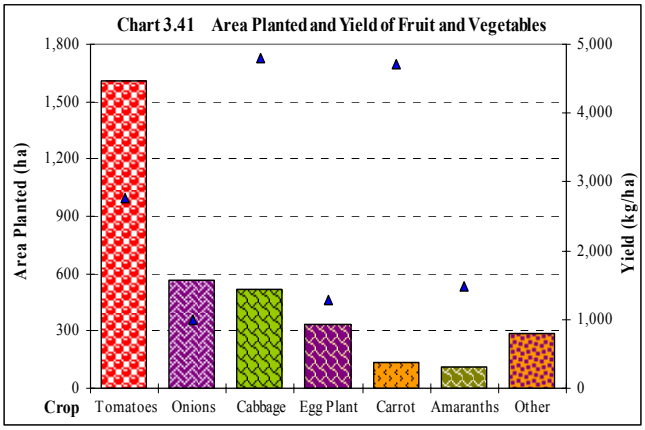
Crop	Short Rainy Season			Long Rainy Season			Total		
	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)
Bitter Aubergine	0	0	-	15	15	988	15	15	1000
Onions	249	408	1,637	314	153	487	563	561	995
Ginger	78	107	1,373	0	0	-	78	107	1,373
Cabbage	252	413	1,638	268	2,087	7,798	520	2,500	4,811
Tomatoes	787	2,173	2,761	825	2,295	2,783	1,612	4,468	2,772
Spinnach	87	25	284	0	0	-	87	25	284
Carrot	104	536	5,143	30	96	3,211	134	631	4,713
Chillies	30	13	437	18	16	930	48	30	625
Amaranths	81	33	406	28	129	4,602	109	162	1,490
Pumpkins	0	3	-	24	0	-	24	3	124
Cucumber	12	13	1,079	0	0	-	12	13	1,079
Egg Plant	146	320	2,197	187	106	566	333	426	1,280
Water Mellon	24	106	4,446	0	0	-	24	106	4,417
Total	**1,850**	**4,149**		**1,708**	**4,897**		**3,558**	**9,046**	

(100% of the total planted area was in the long rainy season). Reliable historical data for time series analysis of fruit and vegetables were not available.

The total production of fruits and vegetables was 9,046 tonnes. The most cultivated fruit and vegetable crop was tomatoes. The production of this crop was 4,468 tonnes, which was 49 percent of the total fruit and vegetable production, followed by cabbage (2,500t, 28%), carrots (631t, 7%), onions (561t, 6%) and eggplants (333t, 5%). The production of the other fruit and vegetable crops was relatively small (Table 3.6).

The yield of tomatoes was 4,811 kg/ha, carrot (4,713 kg/ha), water melon (4,417 kg/ha) and tomatoes (2,772 kg/ha). Spinnach and pumpkins had yields of 284 and 124 kg/ha respectively (Chart 3.41).

Chart 3.41 Area Planted and Yield of Fruit and Vegetables



3.3.8.1 Tomatoes

The number of households growing tomatoes in the region during the short rainy season was 5,131 and 4,201 households in the long rainy season. This represented 1.6 percent of the total crop growing households in the region during the short rainy season and 2.7 percent during the long rainy season.

Chart 3.42 Percent of Tomato Planted Area and Percent of Total Land with Tomatoes by District

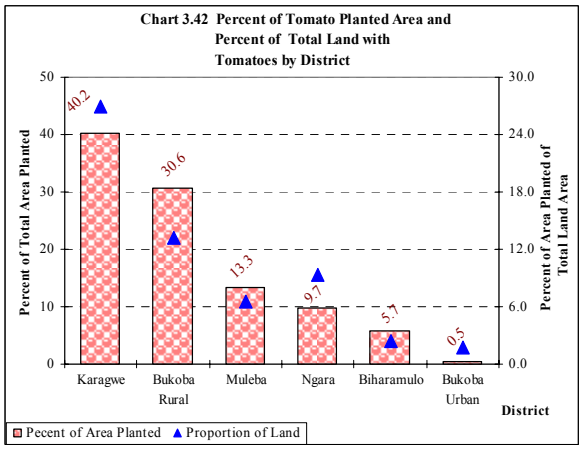
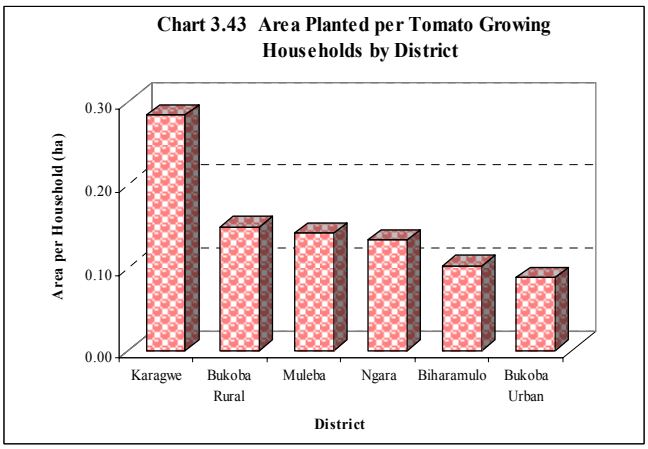


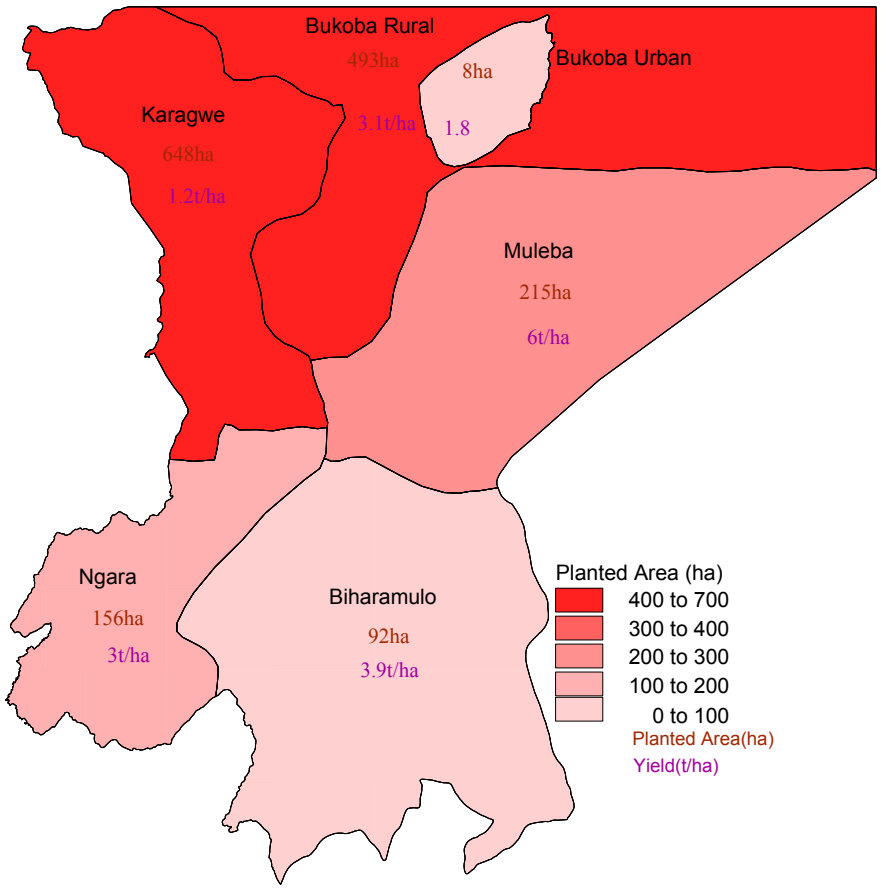
Chart 3.43 Area Planted per Tomato Growing Households by District



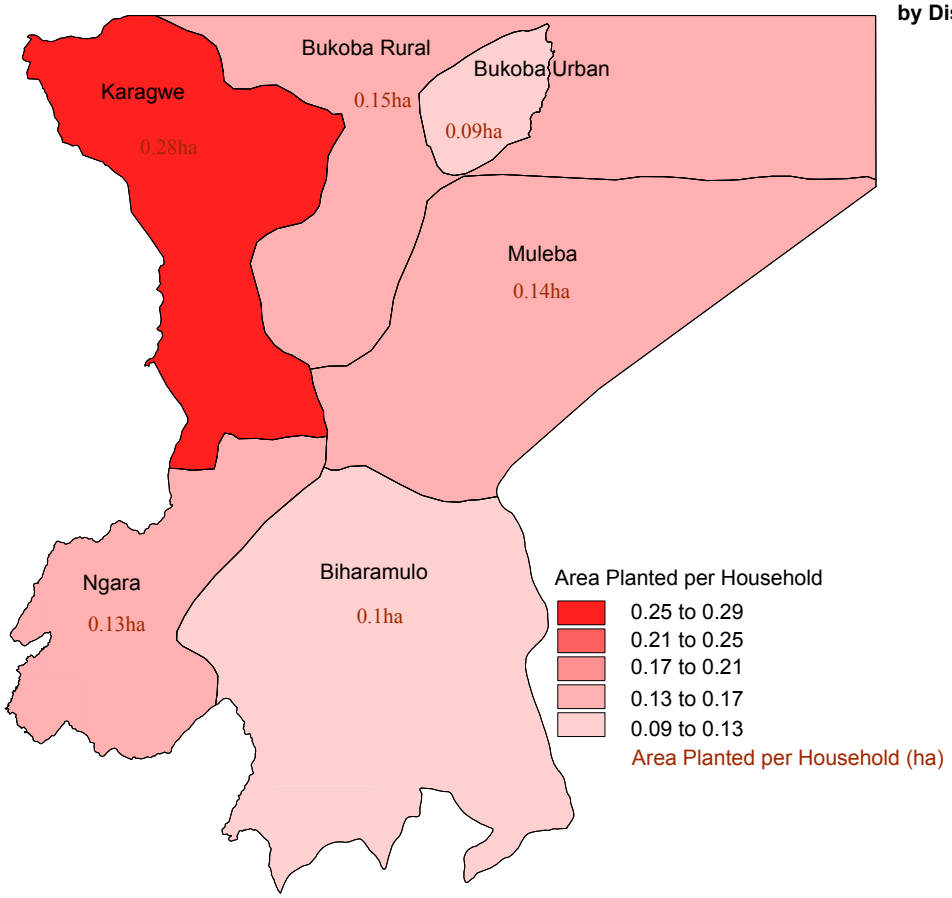
Karagwe district had the largest planted area for tomatoes (40.2% of the total area planted with tomatoes in the region), followed by Bukoba Rural (30.6%), Muleba (13.3%), Ngara (9.7%), Biharamulo (5.7%) and Bukoba Urban (0.5%) (Map 3.22).

The highest percentage of land with tomatoes was found in Karagwe, followed by Bukoba Rural district. With exception of Karagwe district, the rest of the districts had relatively low percentage of land used for tomato production (Chart 3.42). The largest area planted per tomato growing household was found in Karagwe district (0.28 ha) followed by Bukoba Rural (0.15 ha), Muleba (0.14 ha), Ngara (0.13 ha), Biharamulo (0.10 ha) and Bukoba Urban (0.09 ha) (Chart 3.43 and Map 3.22). The total area planted with tomatoes accounted for 0.4 percent of the total area planted with annual crops and vegetables during the short and long rainy seasons.

Map 3.21 KAGERA
Planted Area and Yield of Tomatoes by District



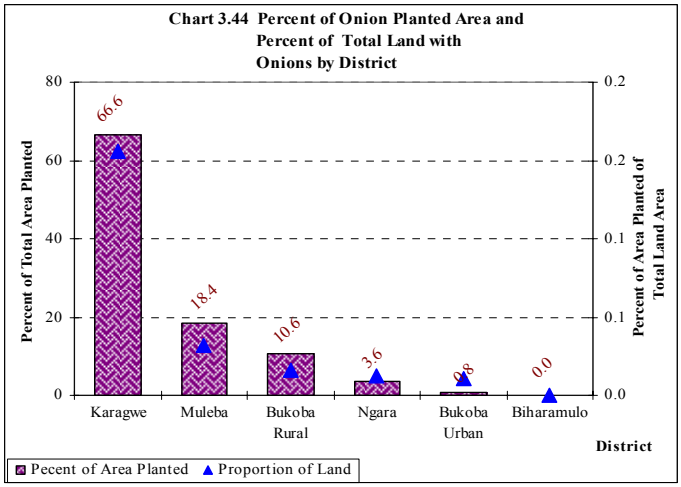
Map 3.22 KAGERA
Area Planted per Tomato Growing Household by District



3.3.8.2 Onions

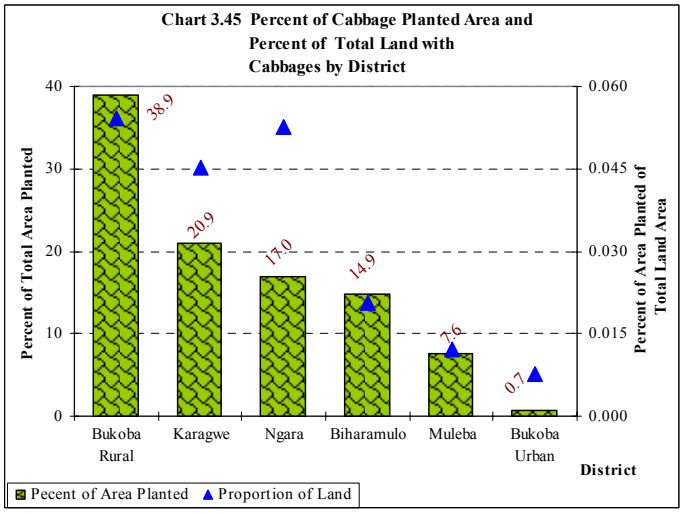
The number of households growing onions in the region during the short rainy season was 1,442 and 1,129 in the long rainy season. This represented 0.4 percent of the total crop growing households in the region in the short rainy season and 0.7 percent in the short rainy season.

Karagwe district had the largest planted area of onions (375 ha, 66.6% of the total area planted with onions in the region), followed by Muleba (104 ha, 18.4%), Bukoba Rural (60 ha, 10.6%), Ngara (20 ha, 3.6%) and Biharamulo (5 ha, 0.8%) (Chart 3.44 and Map 3.23 and 2.24). The total area planted with onions accounted for 0.2 percent of the total area planted with annual crops and vegetables during the short and long rainy seasons.



3.3.8.3 Cabbages

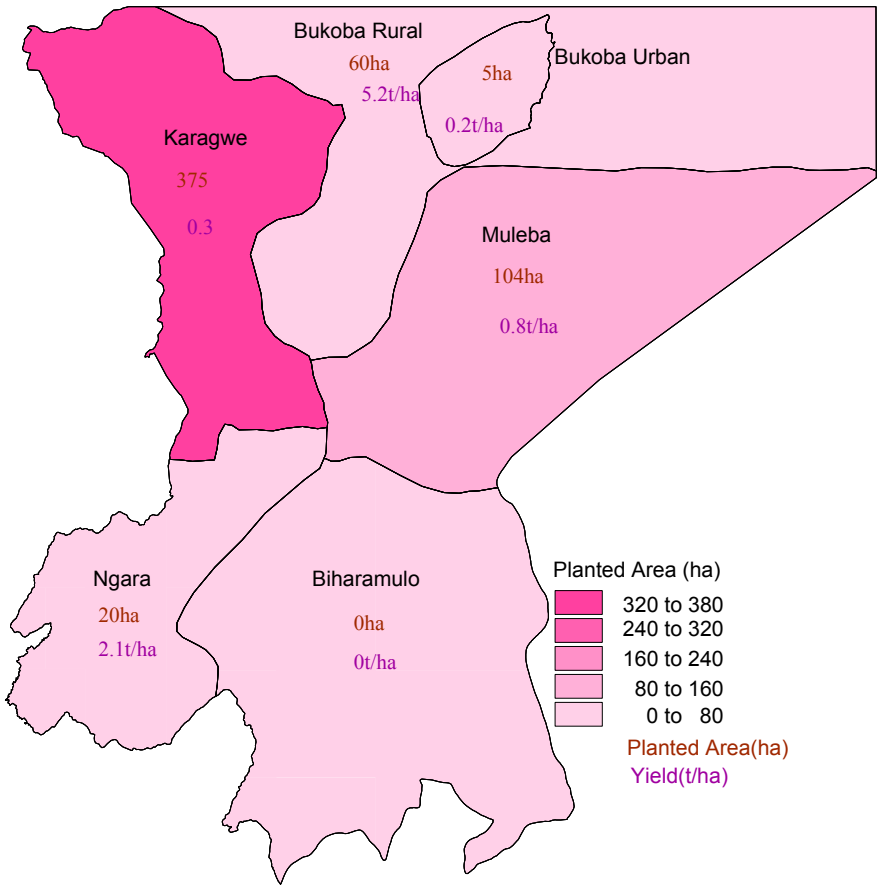
The number of households growing cabbages in the region during the long rainy season was 1,811 households and 1,759 in the short rainy season. This represents 1.2 percent of the total crop growing households in the region in the long rainy season and 0.5 percent in the short rainy season. Bukoba Rural district had the largest planted area of cabbages (202 ha, 39% of the total area planted with cabbages in the region), followed by Karagwe (109 ha, 21%), Ngara (88 ha, 17%), Biharamulo (77 ha, 15%), Muleba (39 ha, 8%) and Bukoba Urban (3 ha, 1%) districts (Map 3.25 and 3.26).



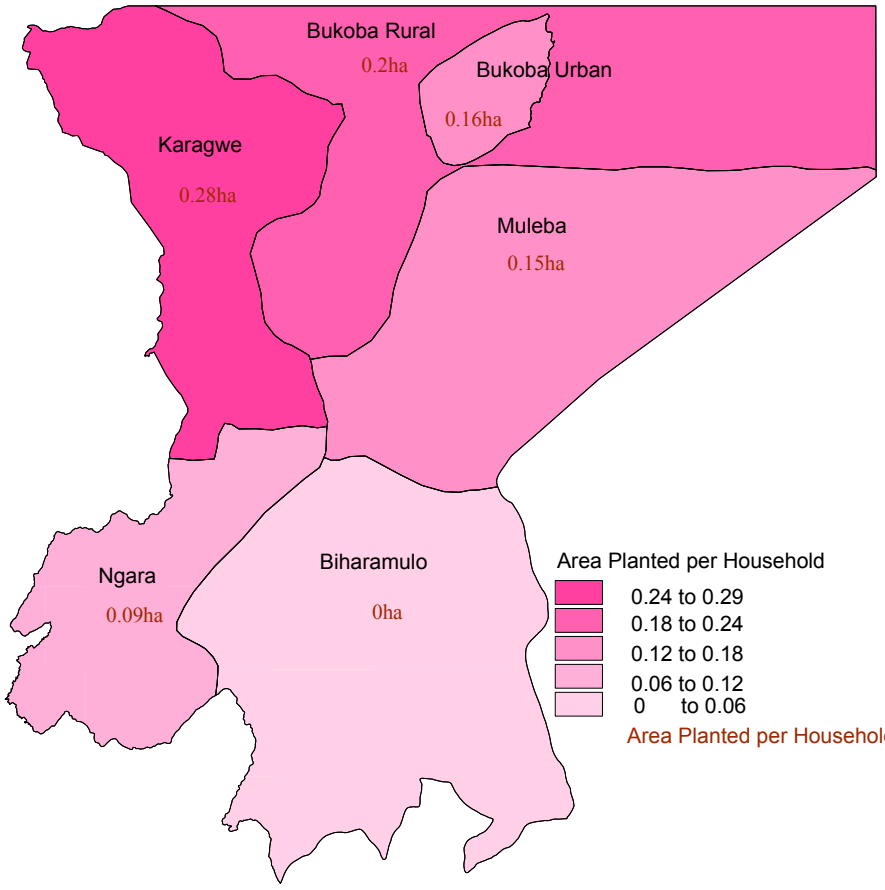
The largest proportion of the area planted with cabbages was found in Bukoba Rural district (0.054%), followed by Ngara (0.053%), Karagwe (0.045%), Biharamulo (0.021%), Muleba (0.012%) and Bukoba Urban (0.005) (Chart 3.45).

The total area planted with cabbages accounted for 0.14 percent of the total area planted with annual crops and vegetables during the short and long rainy seasons.

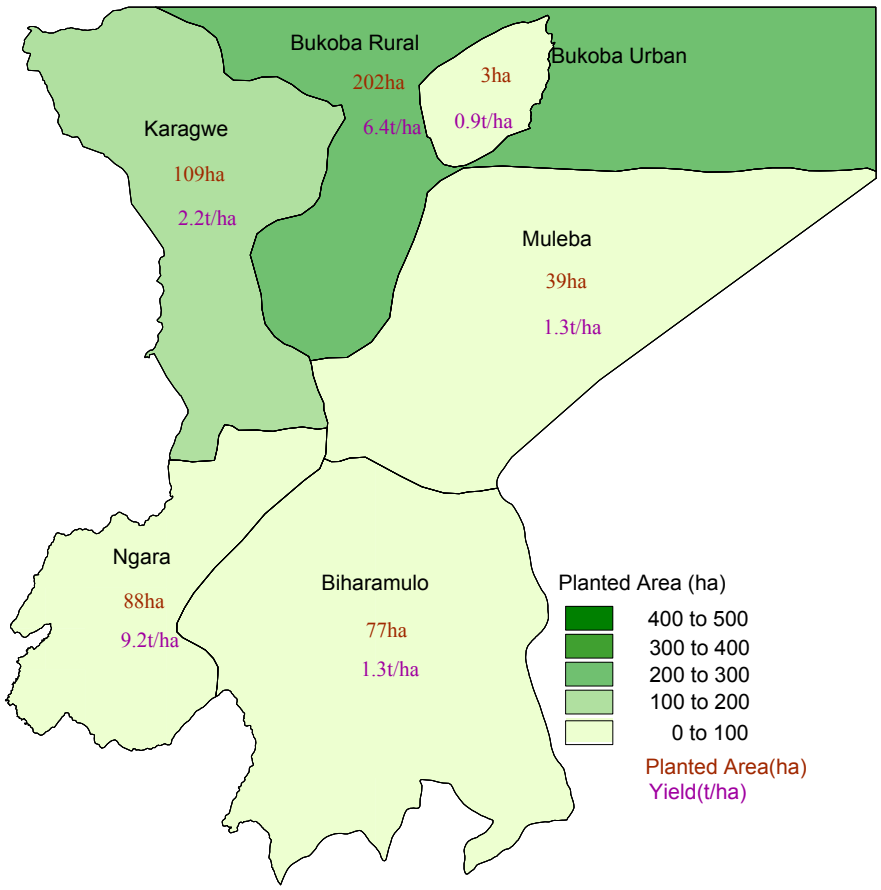
Map 3.25 KAGERA
Planted Area and Yield of Onions by District



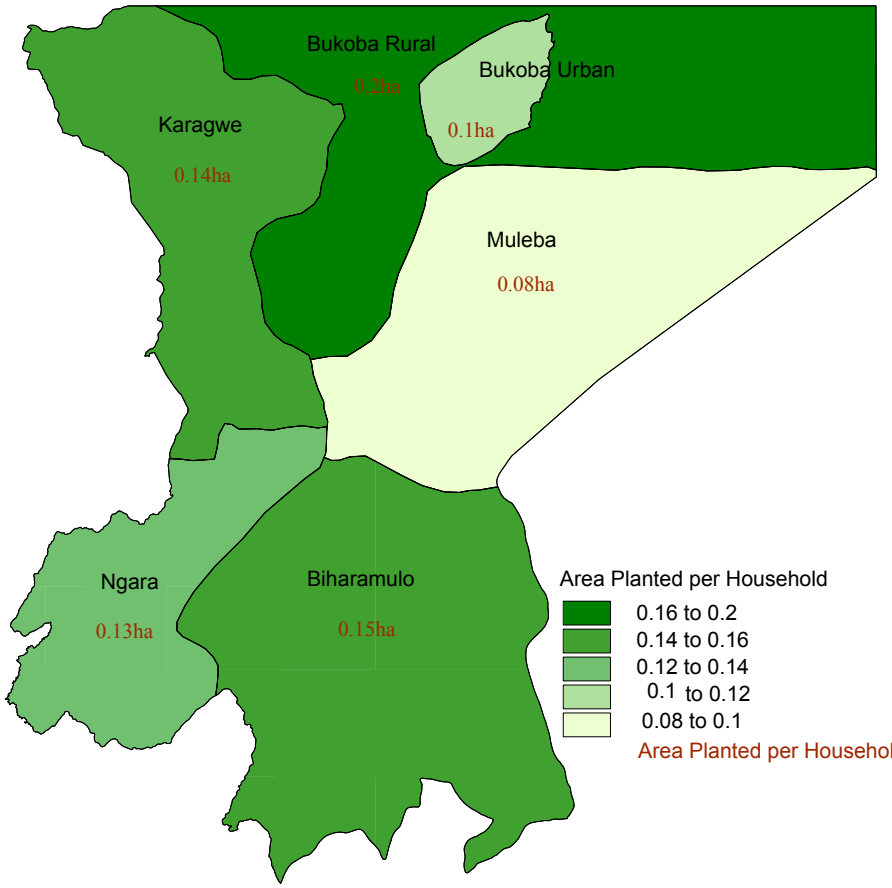
Map 3.26 KAGERA
Area Planted per Onion Growing Household by District



Map 3.23 KAGERA
Planted Area and Yield of Cabbages by District



Map 3.24 KAGERA
Area Planted per Cabbages Growing Household by District



3.9 Other Annual Crop Production

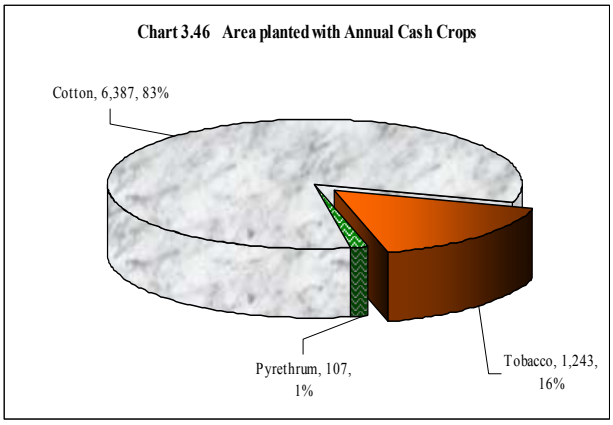
Most of the other annual crops are cash crops. An area of 7,737 ha was planted with other annual crops and cotton was the most prominent followed by tobacco and pyrethrum. The area planted with annual cash crops in short rainy season was 7,412 ha which represents 96 percent of the total area planted with other annual cash crops in short and long rainy season.

Table 3.7: Area, Production and Yield of Annual Cash Crops by Season

Crop	Short Rainy Season			Long Rainy Season			Total		
	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)
Cotton	6,062	4,416	728	325	290	893	6,387	4,706	737
Tobacco	1,243	792	637	0	0	-	1,243	792	637
Pyrethrum	107	92	862	0	0	-	107	92	862
TOTAL	**7,412**	**5,300**	**xxxxxx**	**325**	**290**	**xxxxxx**	**7,737**	**5,590**	**xxxxxx**

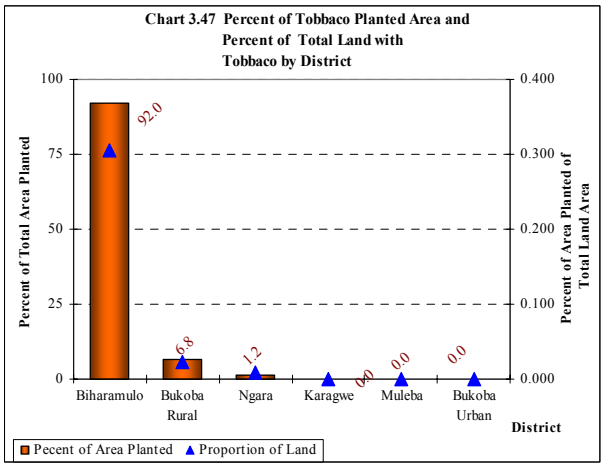
3.3.9.1 Cotton

A total of 4,706 tonnes of cotton was produced in Kagera Region on a planted area of 6,387 ha. About 95 percent of the total area planted with cotton in the region was during the short rainy season. The crop is grown in Biharamulo district only (Map 3.27) and only 0.64 ha was grown per household (Map 3.28).



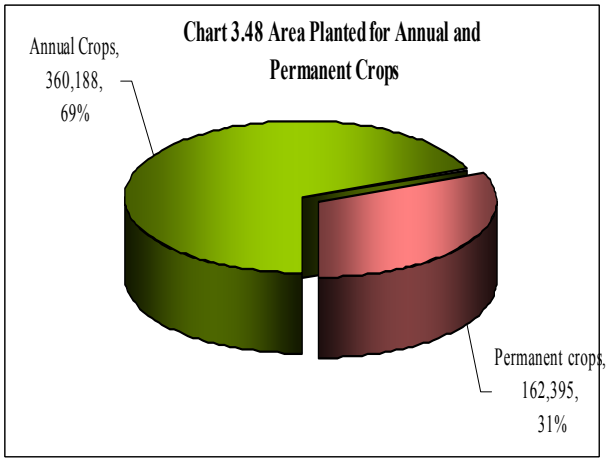
3.3.9.2 Tobacco

The quantity of tobacco produced was 792 tonnes. Tobacco had a planted area of 1,243 ha and it was planted during the long rainy season only. Tobacco production was found in three districts with Biharamulo having the largest planted area (92% of total area planted with tobacco in the region), followed by Bukoba Rural (6.8%), and Ngara (1.2%) (Chart 3.47) (Map 3.29 and 3.30).

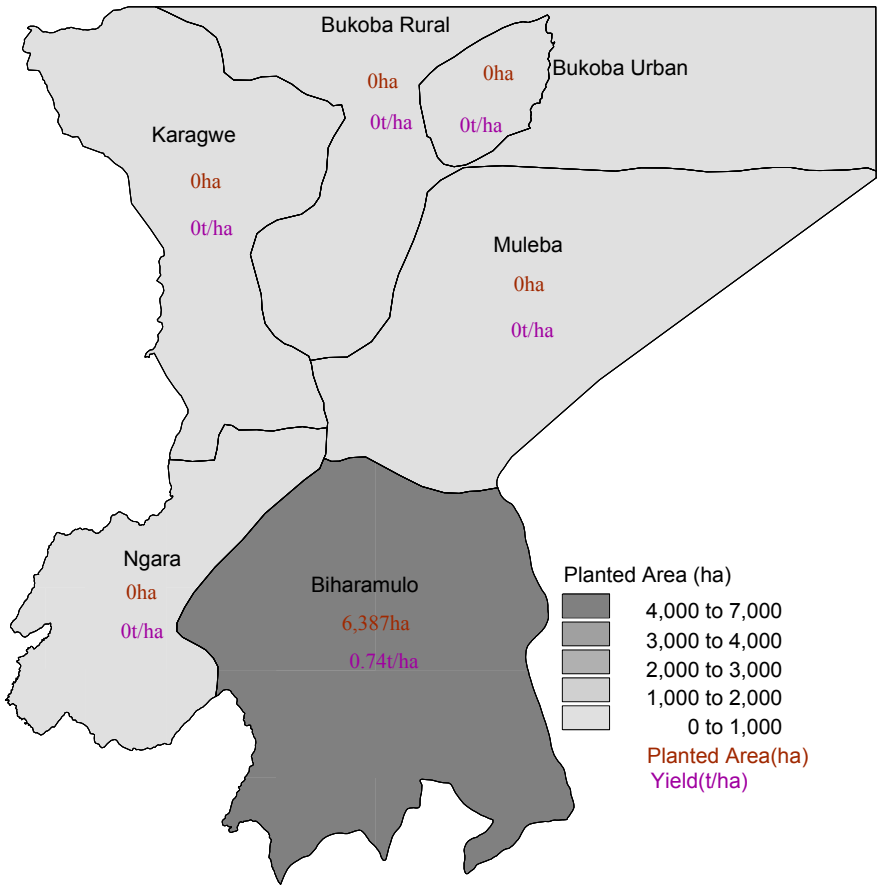


3.4 Permanent Crops

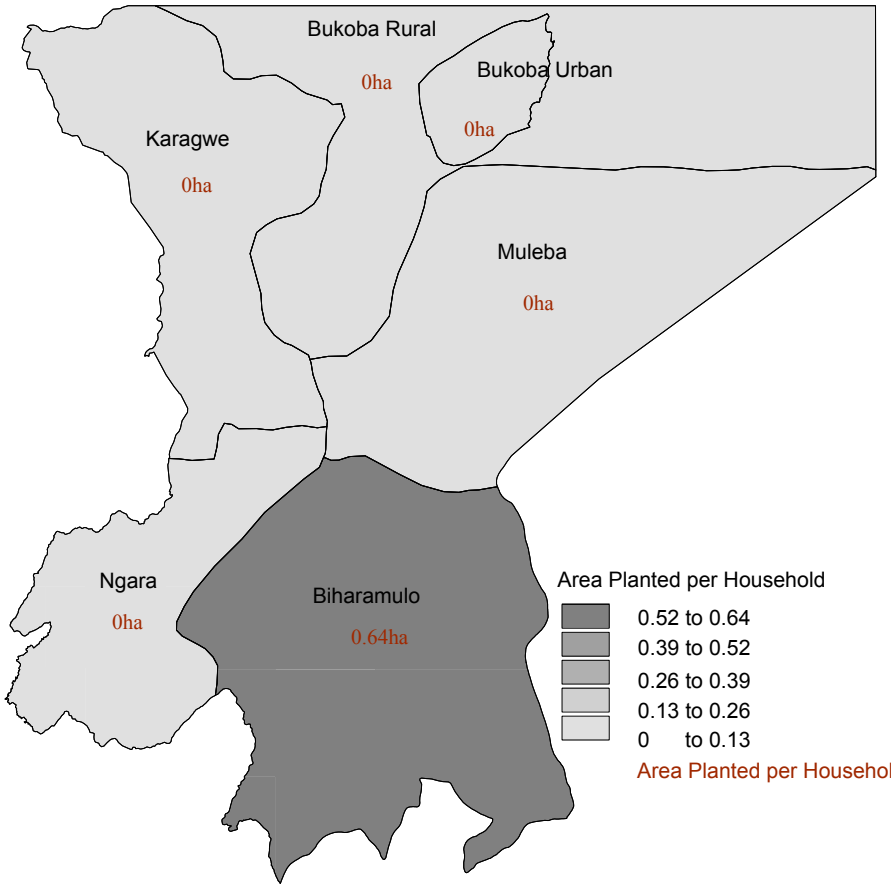
Permanent crops (sometimes referred as perennial crops) are crops that normally take over a year to mature and once mature can be harvested for a number of years. For most crops, it is easy to determine if they are annual or permanent. However, for crops like cassava and bananas the distinction is not so clear. Cassava has varieties that mature within a year and produce only one harvest, whilst other varieties survive for more than one year and produces several harvests. In this census, cassava has been treated as an annual crop. Conversely, bananas normally take less than a year to mature, survive for more than one year and are thus treated as a permanent crops. In this report the agriculture census results are presented



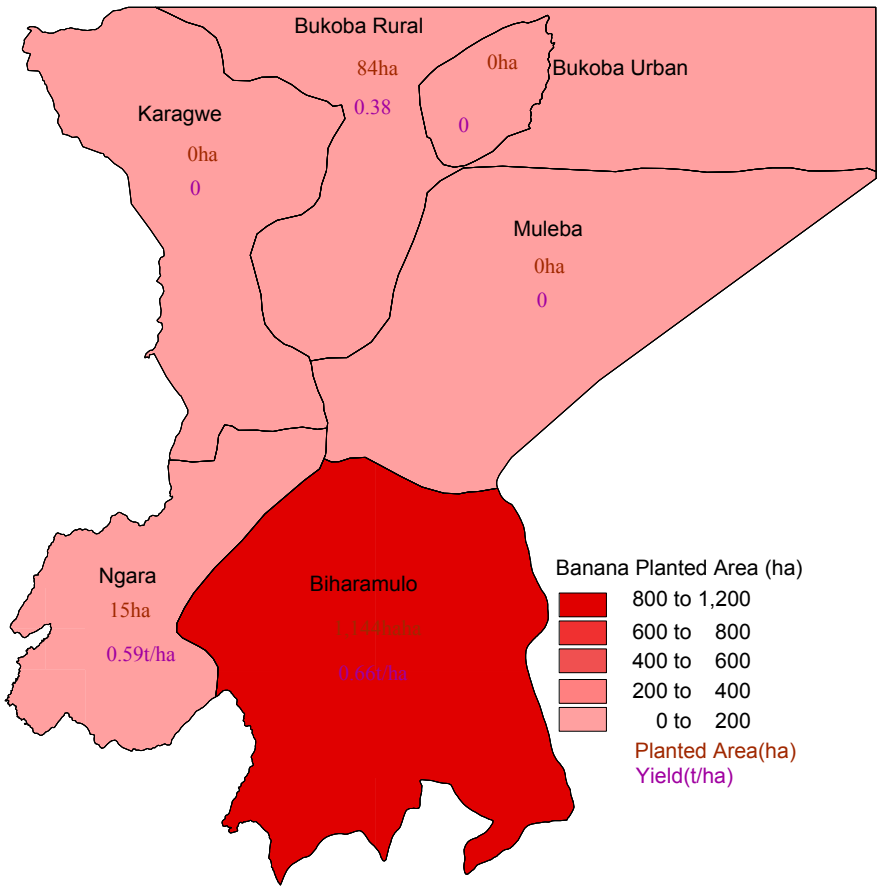
Map 3.27 KAGERA
Planted Area and Yield of Cotton by District



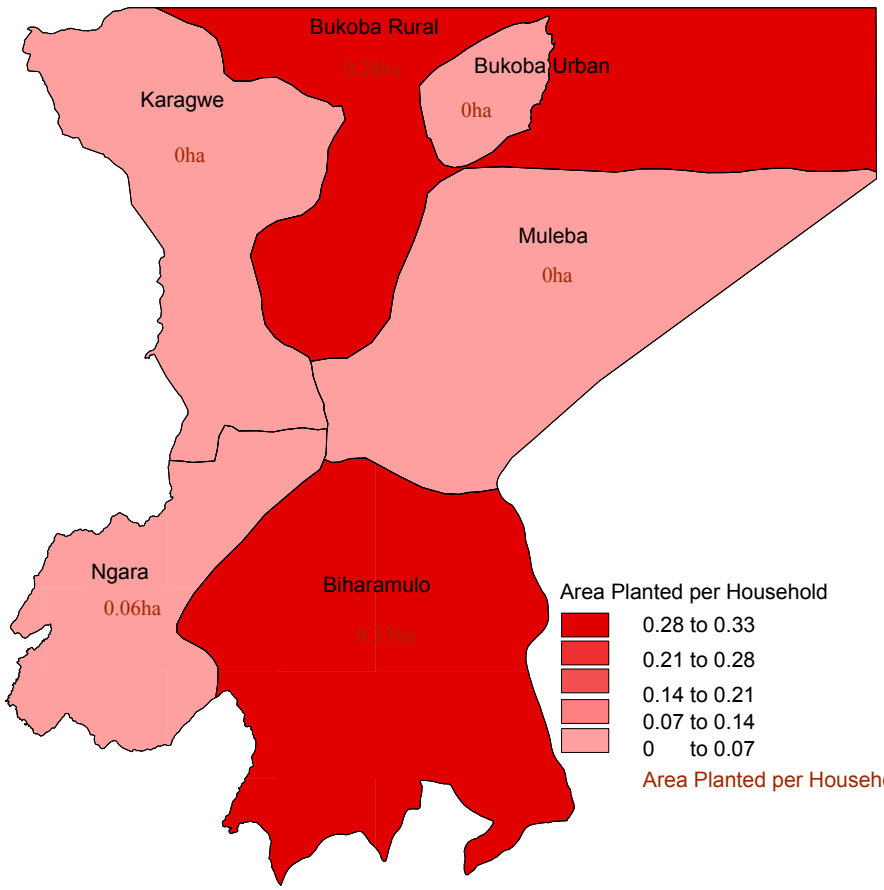
Map 3.28 KAGERA
Area Planted per Cotton Growing Household by District



Map 3.29 KAGERA
Planted Area and Yield of Tobbaco by District



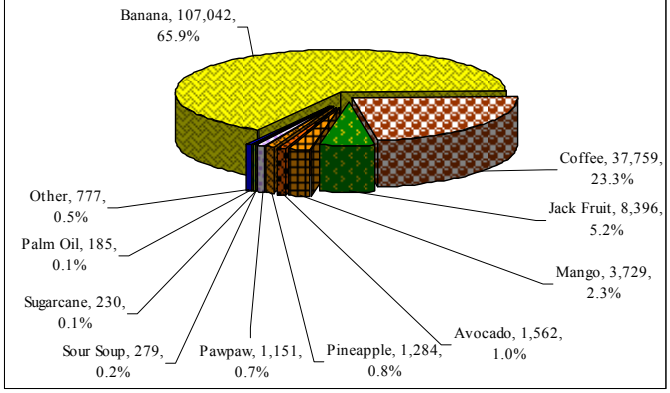
Map 3.30 KAGERA
Area Planted per Tobbaco Growing Household



for the most important permanent crops in terms of production, yield and area planted. Previous censuses and surveys did not measure these variables for permanent crops, therefore there is no time series analysis made in this section.

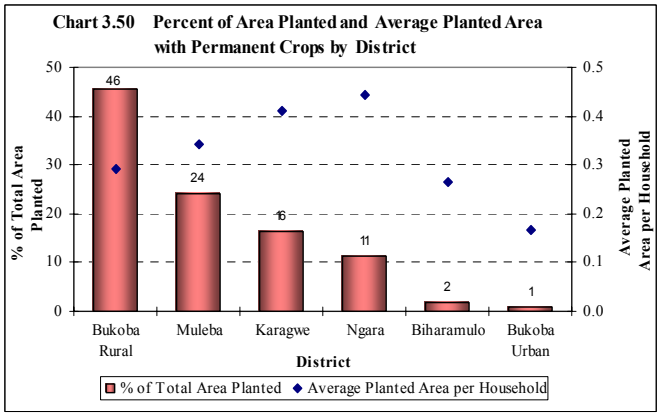
The area of smallholders planted with permanent crops was 162,395 hectares (31% of the total area planted with annual and permanent crops in the region). However, the area planted with annual crops is not the actual physical land area as it includes the area planted of crops planted more than once on the same land, whilst for the planted area for permanent crops is the same as physical planted land area. So the percentage physical area planted with permanent crops would be higher than indicated in Chart 3.48.

Chart 3.49 Area Planted with the Main Perennial Crops



The most important permanent crop in Kagera Region was banana which accounted for a planted area of 107,042 ha, (65.9% of the planted area of all permanent crops) followed by coffee (37,759 ha, 23.3%), jack fruits (8,396 ha, 5.2%), mango (3,729 ha, 2.3%), avocado 1,562 ha, 1.0%), pineapple (1,284 ha, 0.8) and pawpaw (1,151 ha, 0.7%). Each of the remaining permanent crops had an area of less than 0.2 percent of the total area planted with permanent crops (Chart 3.49).

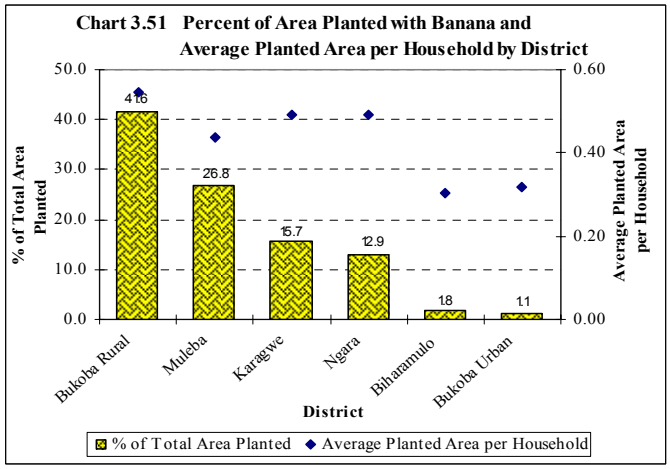
Chart 3.50 Percent of Area Planted and Average Planted Area with Permanent Crops by District



Bukoba Rural district had the largest area under smallholder permanent crops (74,108 ha, 46%). This was followed by Muleba (39,383 ha, 24%), Karagwe (26,462 ha, 16%), Ngara (18,148 ha, 11%), Biharamulo (2,711 ha, 2%) and Bukoba Urban (1,584 ha, 1%). However, Ngara had the largest area per permanent crop growing household (0.44 ha) followed by Karagwe (0.41 ha), Muleba (0.34 ha), Bukoba Rural (0.29 ha), Biharamulo (0.27 ha) and Bukoba Urban (0.17 ha) (Chart 3.50).

In terms of area of permanent crops planted expressed as a percentage of the total area planted with crops per district, Bukoba Rural had the highest (49.8%) followed by Muleba (42.3%), Bukoba Urban (41.9%), Ngara (24.4%), Karagwe (24.4%) and Biharamulo (2.9%).

Chart 3.51 Percent of Area Planted with Banana and Average Planted Area per Household by District



3.4.1 Banana

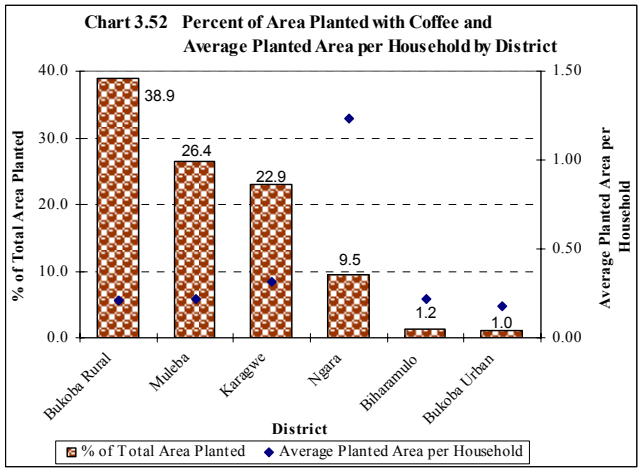
The total production of bananas by smallholders was 74,794 tonnes. In terms of area planted, banana was the most important permanent crop grown by smallholders in the region. They were grown by 219,347 households (63% of the total crop growing households). The average area planted with bananas per household was relatively small at around 0.5 ha per banana growing household and the average yield obtained by smallholders was 16,568 kg/ha from a harvest area of 74,794 hectares.

Bukoba Rural had the largest area of bananas in the region (44,566 ha, 41.6%) followed by Muleba (28,723 ha, 26.8%), Karagwe (16,835 ha, 15.7%), Ngara (13,817 ha, 12.9%), Biharamulo (1,932 ha, 1.8%) and Bukoba Urban (1,171 ha, 1.1%). (Map 3.31). However, the average area planted with bananas per banana growing household was highest in Bukoba Rural (0.55 ha) followed by Ngara (0.49 ha), Karagwe (0.49 ha), Mulebaa (0.44 ha), Bukoba Urban (0.32 ha) and Biharamulo (0.31 ha) (Chart 3.51 and Map 3.32).

3.4.2 Coffee

The total production of coffees by smallholders was 71,860 tonnes. In terms of area planted, coffee was the second most important permanent crop grown by smallholders in the region. It was grown by 152,036 households (43.5% of the total crop growing households). The average area planted with coffees per household was relatively small at around 0.25 ha per coffee growing household and the average yield obtained by smallholders was 3,012 kg/ha from a harvest area of 23,859 hectares.

Chart 3.52 Percent of Area Planted with Coffee and Average Planted Area per Household by District

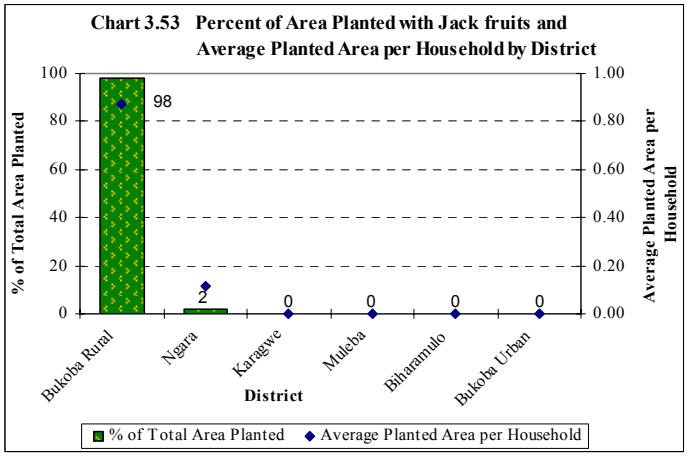


Bukoba Rural had the largest area of coffees in the region (14,704 ha, 39%) followed by Muleba (9,968 ha, 26%), Karagwe (8,660 ha, 23%), Ngara (3,600 ha, 10%), Biharamulo (454 ha, 1%) and Bukoba Urban (373 ha, 1%) (Map 3.33). However, the average area planted with coffees per coffee planting household was highest in Ngara (1.23 ha) followed by Karagwe (0.32 ha), Biharamulo (0.22 ha), Muleba (0.21 ha), Bukoba Rural (0.21 ha) and Bukoba Urban (0.18 ha) (Chart 3.52 and Map 3.34).

3.4.3 Jack fruit

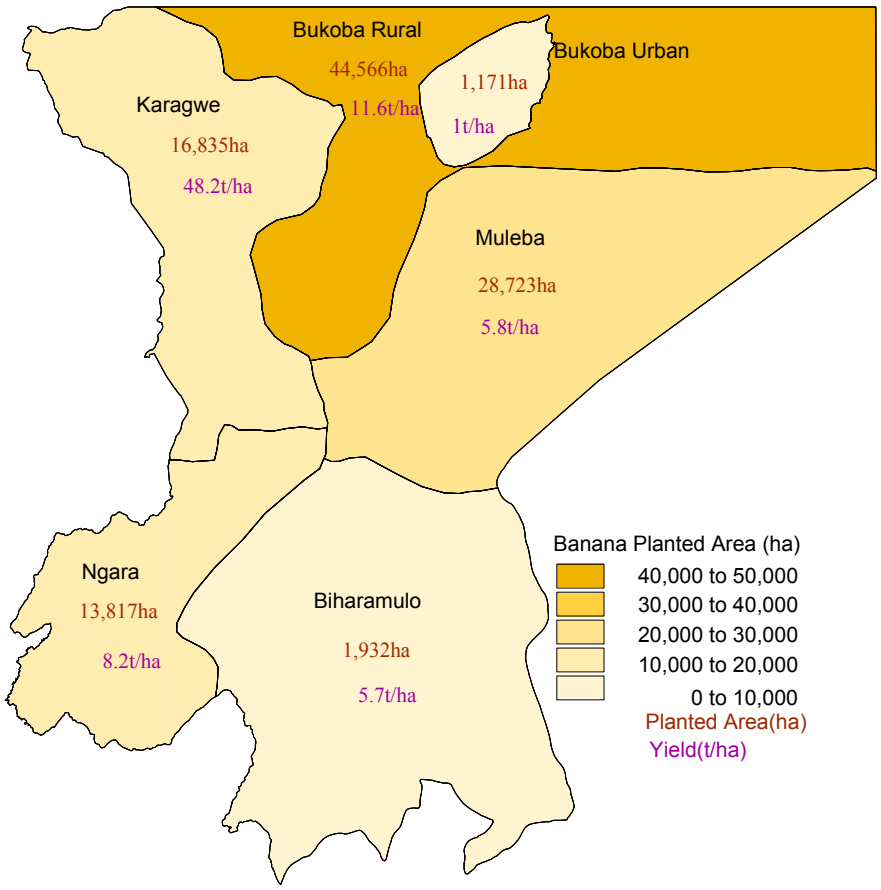
The total production of jack fruit by smallholders was 1,324 tonnes. In terms of area planted, jack fruit was the third most important permanent crop grown by smallholders in the region. It was grown by 10,670 households (3% of the total crop growing households). The average area planted with jack fruit per household was relatively large at around 0.8 ha per jack fruit growing household and the average yield obtained by smallholders was 161 tonnes/ha from a harvested area of 6 hectares.

Chart 3.53 Percent of Area Planted with Jack fruits and Average Planted Area per Household by District

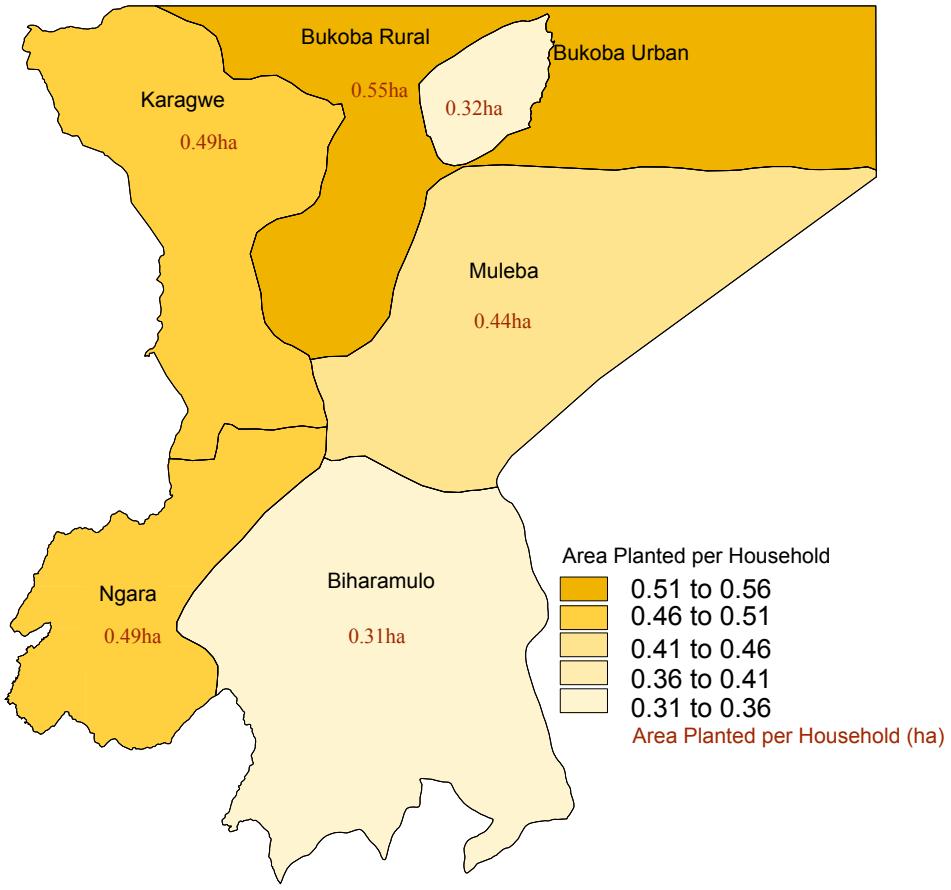


Bukoba Rural had the largest planted area of jack fruits in the region (8,259 ha, 98%) followed by Ngara (137 ha, 2%). There was no jack fruits production in the rest of the districts. (Map 3.35). However, the average area planted per jack fruit growing household was higher in Bukoba Rural (0.9 ha) than Ngara (0.1 ha) (Chart 3.53 and Map 3.36).

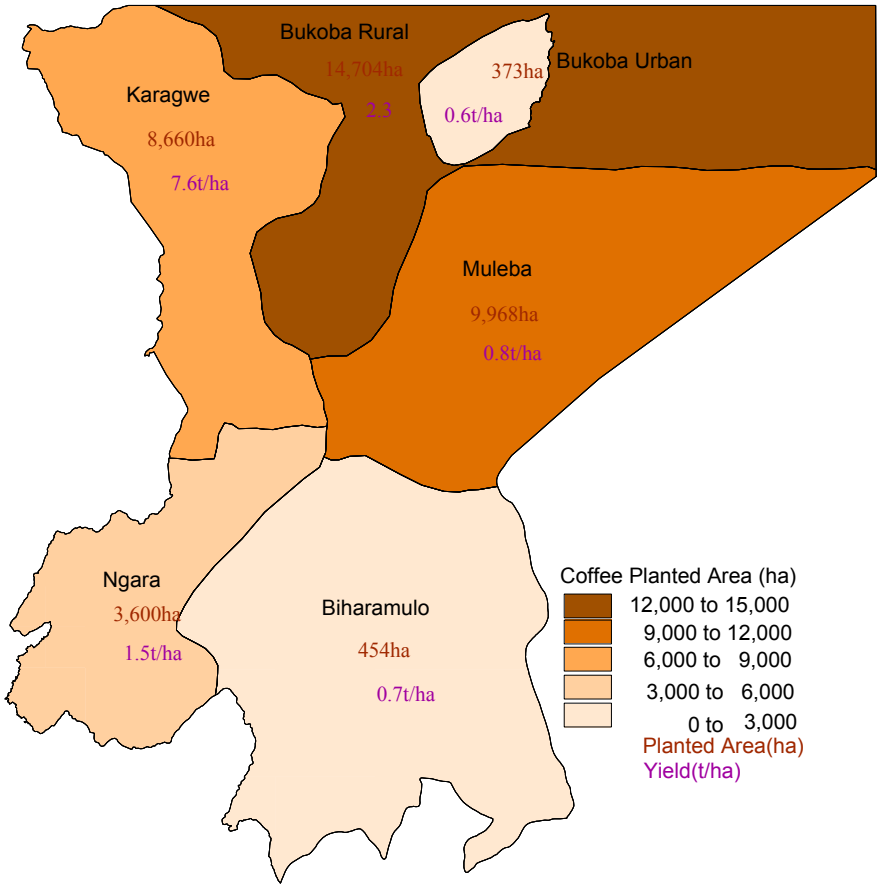
Map 3.31 KAGERA
Planted Area and Yield of Banana by District



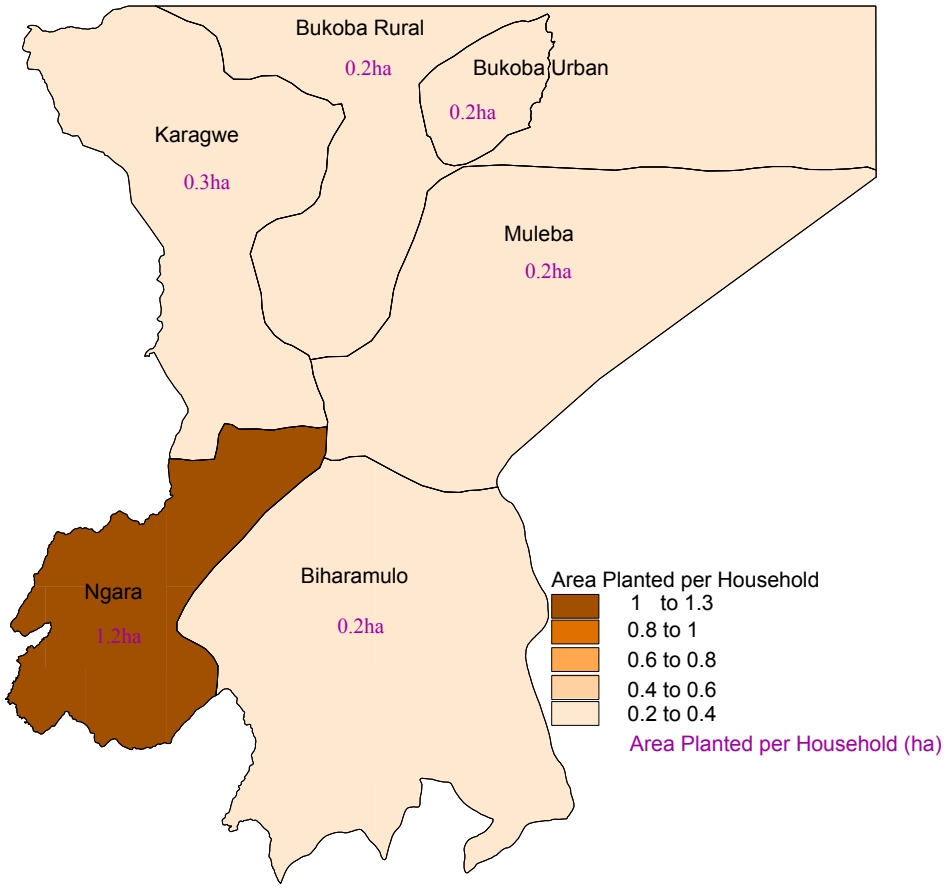
Map 3.32 KAGERA
Area Planted per Banana Growing Household by District



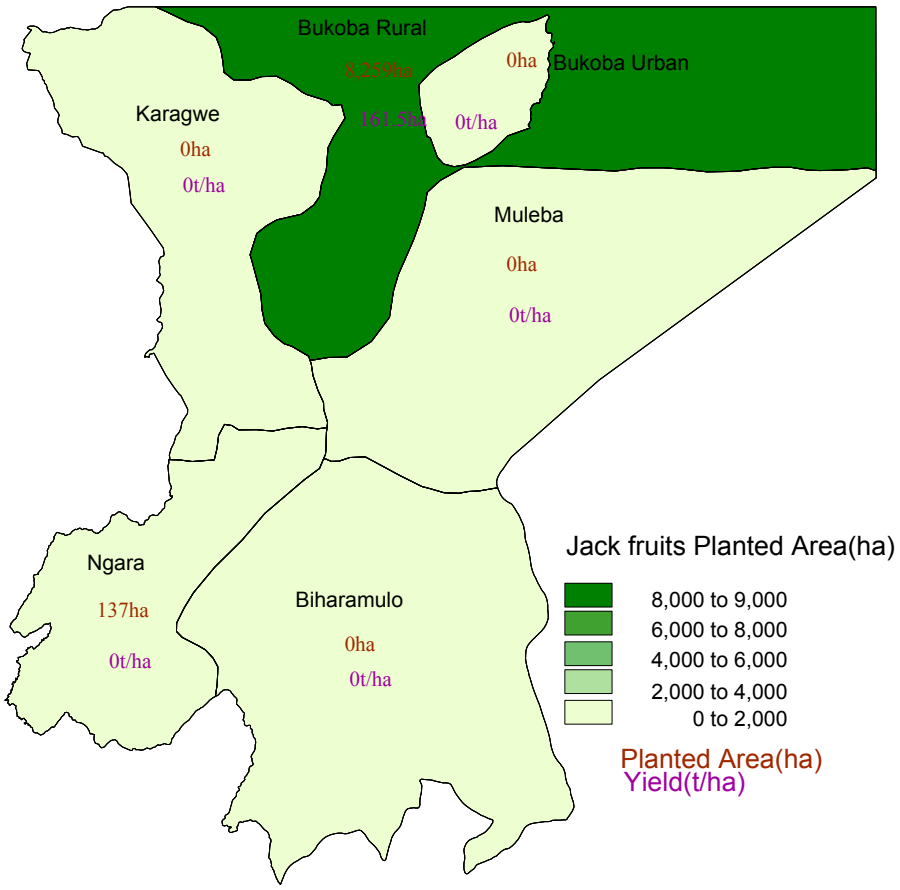
Map 3.33 KAGERA
Planted Area and Yield of Coffee by District



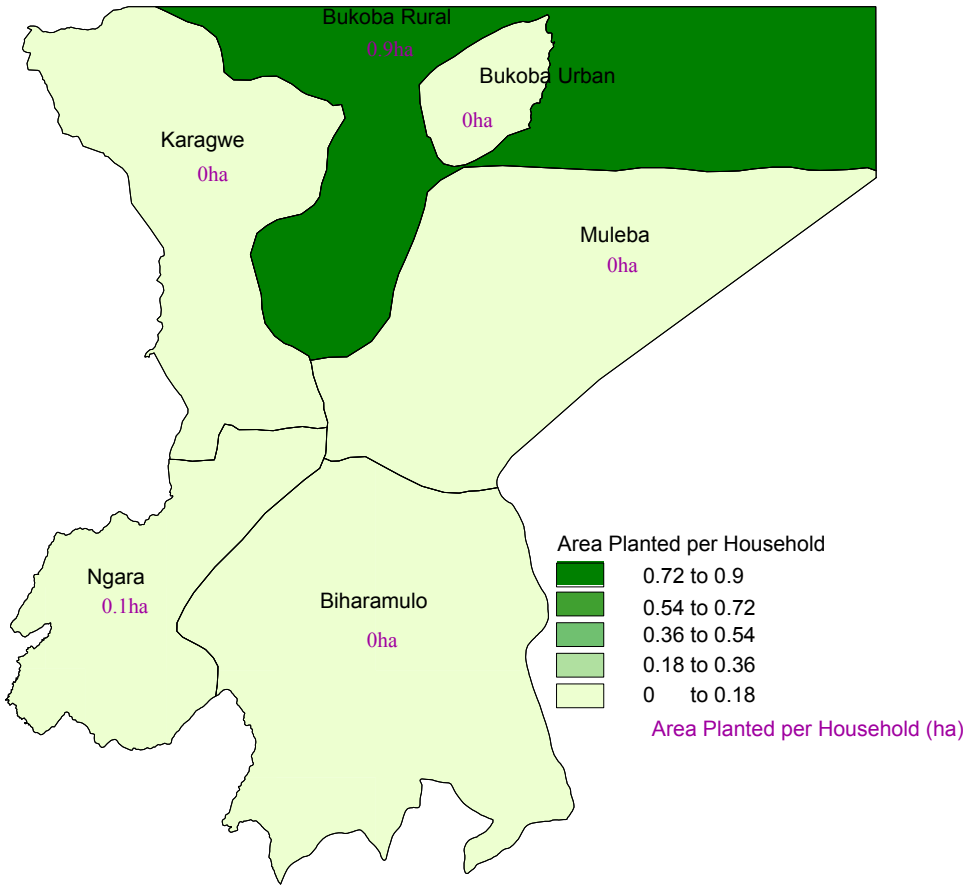
Map 3.34 KAGERA
Area Planted per Coffee Growing Household by District



Map 3.35 KAGERA
Planted Area and Yield of Jack fruits by District



Map 3.36 KAGERA
Area Planted per Jack fruit Growing Household by District

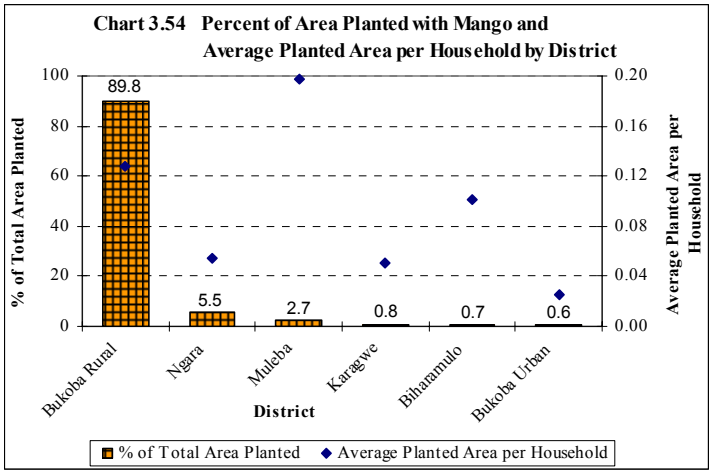


3.4.4 Mango

The total production of mangoes by smallholders was 22,062 tonnes. In terms of area planted, mango was the fourth most important permanent crop grown by smallholders in the region. It was grown by 32,097 households (9.2% of the total crop growing households). The average area planted with mangoes per household was relatively small at around 0.12 ha per mango growing household and the average yield obtained by smallholders was 3,398 kg /ha from a harvest area of 6,493 hectares.

Bukoba Rural has the largest area of mangoes in the region (3,349 ha, 89.8%) followed by Ngara (205 ha, 5.5%), Muleba (100 ha, 2.7%), Karagwe (29 ha, 0.8%), Biharamulo (25 ha, 0.7%) and Bukoba Urban (21 ha, 0.6%) (Map 3.37). However, the average area planted per mango growing household was highest in Muleba (0.20 ha), followed by Bukoba Rural (0.13 ha), Biharamulo (0.10 ha), Ngara (0.05 ha), Karagwe (0.05 ha) and Bukoba Urban (0.03 ha) (Map 3.38).

Chart 3.54 Percent of Area Planted with Mango and Average Planted Area per Household by District



3.5 Input/Implement Use

3.5.1 Methods of Land Clearing

Land clearing is a common pre-tillage operation practiced by most farmers in the region. Land clearing is divided into two categories: bush clearing, which by definition implies either expansion into virgin areas or into areas which have been left fallow for a long period. The other category, which includes burning, hand slashing or tractor slashing, is normally an annual clearing exercise to remove vegetation growth from the previous season.

Chart 3.55 Number of Households by Method of Land Clearing during the Long Rainy Season

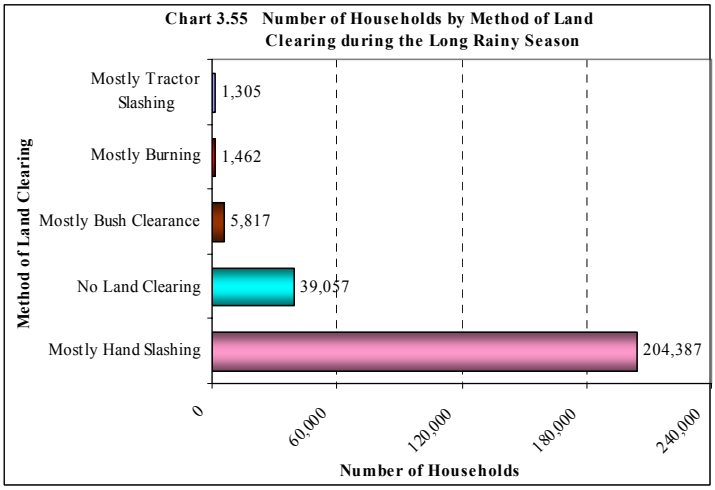
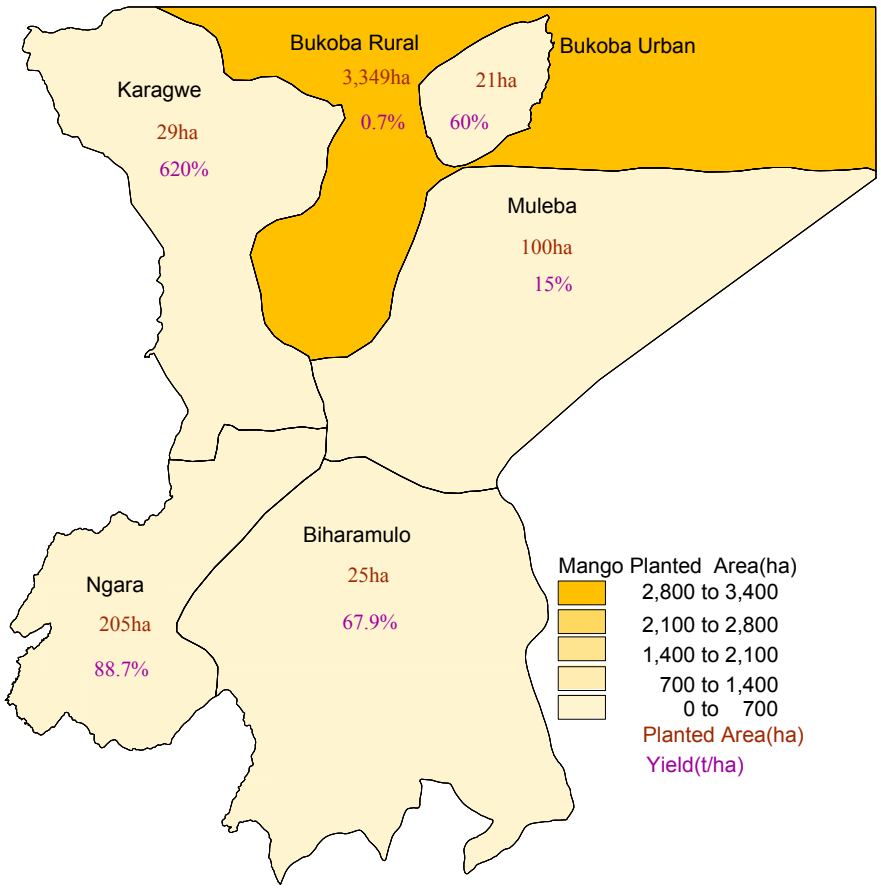


Table 3.8: Land Clearing Methods

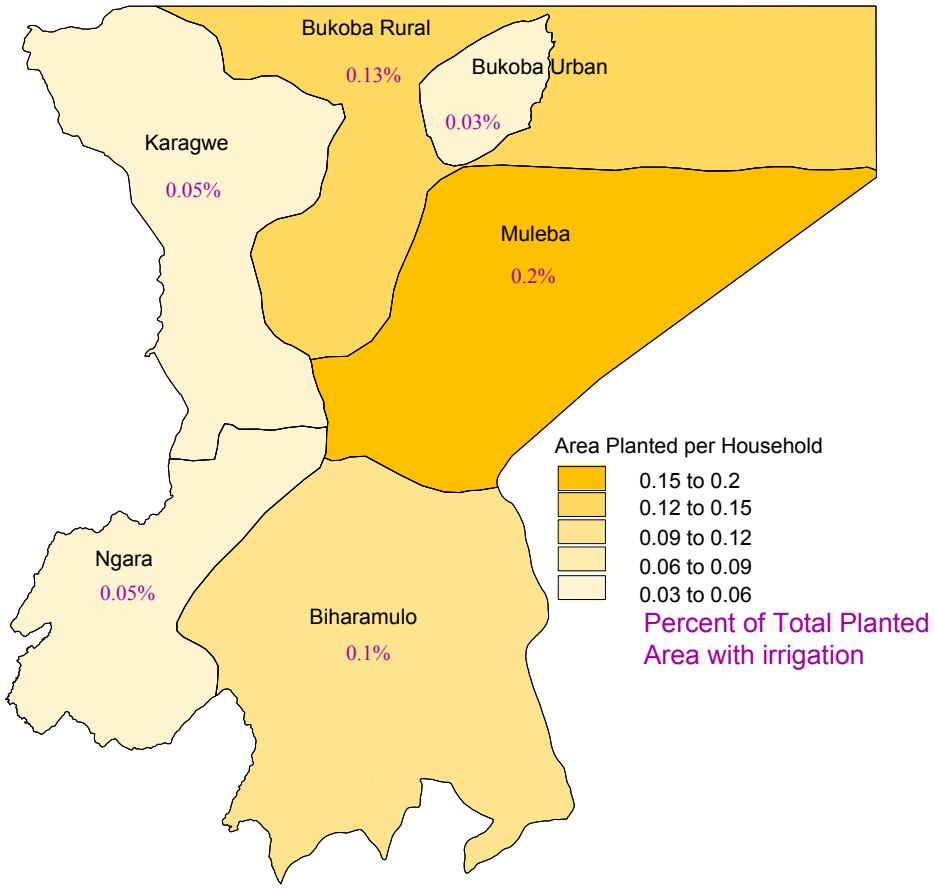
Method of Land Clearing	Long Rainy Season			Short Rainy Season			Total		
	Number of Households	Area Planted	%	Number of Households	Area Planted	%	Number of Households	Area Planted	%
Mostly Hand Slashing	204,387	63,228	81.0	580,838	187,349	77.6	785,224	250,577	78.4
No Land Clearing	39,057	12,070	15.5	157,825	39,664	16.4	196,882	51,734	16.2
Mostly Bush Clearance	5,817	2,162	2.8	16,750	5,519	2.3	22,568	7,681	2.4
Mostly Burning	1,462	249	0.3	4,803	1,558	0.6	6,265	1,807	0.6
Mostly Tractor Slashing	1,305	391	0.5	4,651	950	0.4	5,957	1,341	0.4
Other	0	0	0.0	29,546	6,430	2.7	29,546	6,430	2.0
Total	252,028	78,101	100.0	794,414	241,469	100	1,046,442	319,570	100

Hand slashing is the most widespread method used for land clearing. The area cleared by hand slashing in the region during the long rainy season was 63,228 ha which represented 81 percent of the total planted area. Bush clearance, burning and tractor slashing are less important methods for land clearing and they represent 2.8, 0.3 and 0.5 percent respectively (Chart 3.56 and Table 3.8).

Map 3.37 KAGERA
Planted Area and Yield of Mango by District



Map 3.38 KAGERA
Area Planted per Mango Growing Household by District

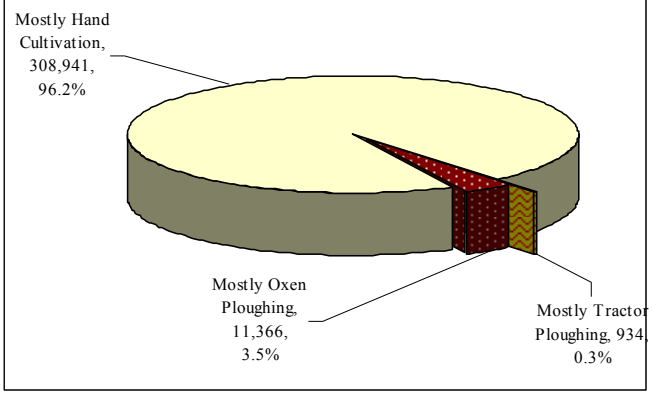


3.5.2 Methods of Soil Preparation

Hand cultivation is mostly used for soil preparation as it has been used in an area of 308,941 ha which represented 96.2 percent of the total planted area, followed by ox-ploughing (11,366 ha, 3.5%) and tractor ploughing (934 ha, 0.3%) (Chart 3.56).

More hand cultivation was used during short rainy season at 97 percent against 95 percent for the long rainy season, whereas, oxen ploughing was more common in the long season with 4.9 percent and 3.1 percent respectively. Tractor ploughing was more common during the short rainy season at 0.3 percent against 0.2 percent for the long rainy season.

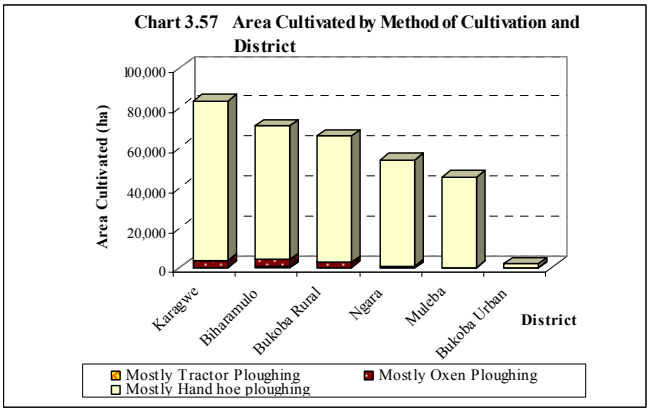
Chart 3.56 Area Cultivated by Cultivation Method



In Kagera Region, Karagwe district has the largest planted area cultivated with oxen (3,819 hectares, 34% of the total area cultivated by oxen in the region) followed by Biharamulo (3,649 ha, 32%), Bukoba Rural (2,599 ha, 23%), Ngara (1,036 ha, 9%), Muleba (139 ha, 1%) and Bukoba Urban (125 ha, 1%).

During the short rainy season, 60.4 percent of the total area cultivated by oxen was planted with pulses followed by cereals (30.7%), oil seeds (6.9%), fruits and vegetables (1.7%) and roots and tubers (0.3%).

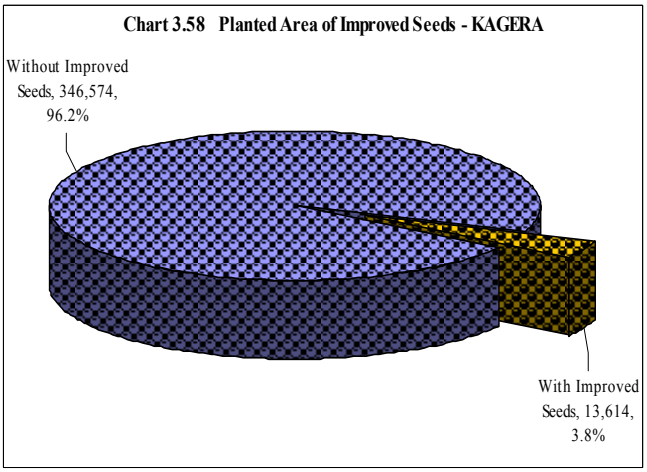
Chart 3.57 Area Cultivated by Method of Cultivation and District



3.5.3 Improved Seed Use

The planted area using improved seeds was estimated at 13,614 ha which represents 3.8 percent of the total planted area with annual crops and vegetables. The percentage use of improved seed in the long rainy season was 12.5 percent, higher than the corresponding percentage use for the short rainy season (1.5%).

Chart 3.58 Planted Area of Improved Seeds - KAGERA



Pulses had the largest planted area with improved seeds (5,037 ha, 37% of the planted area with improved seeds) followed by fruits and vegetables (cereals 4,091 ha, 30%), fruit and vegetables (2,011 ha, 15%), roots and tubers (1,325 ha, 10%), oil seeds (280 ha, 1%) and oil seed (680 ha, 5%) and cash crops (471 ha, 3%) (Chart 3.59). However, the use of improved seed in fruit and vegetables is much greater than in other crop types (56.5%), only 2.1 percent of the planted area for roots and tuber crops used improved seed (Chart 3.60).

Chart 3.59 Planted Area with Improved Seed by Crop Type

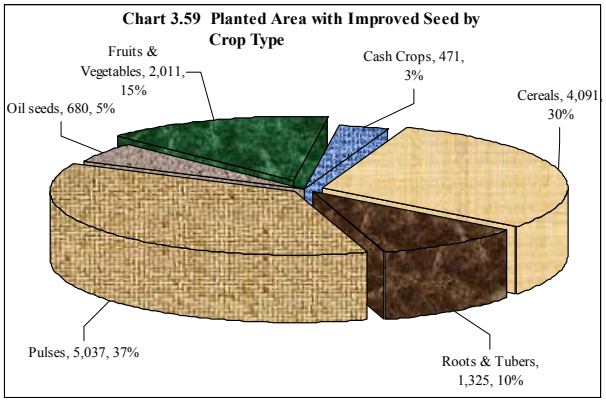
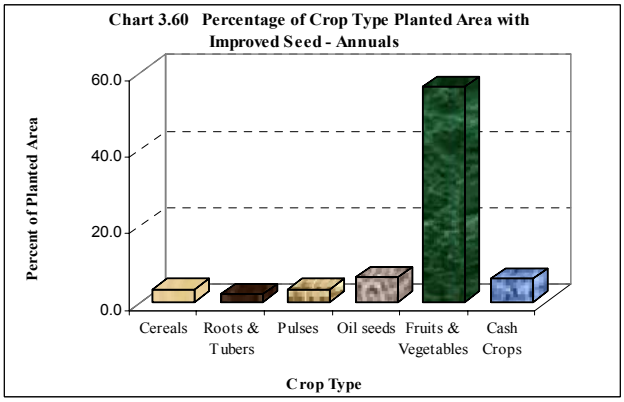


Chart 3.60 Percentage of Crop Type Planted Area with Improved Seed - Annuals



3.5.4 Fertilizer Use

Chart 3.61 Area of Fertiliser Application by Type of Fertiliser

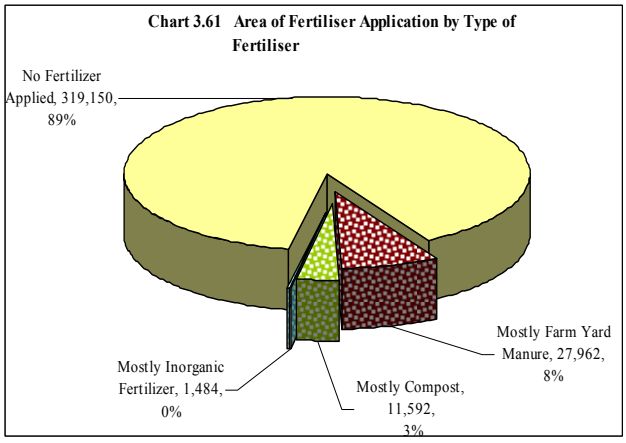
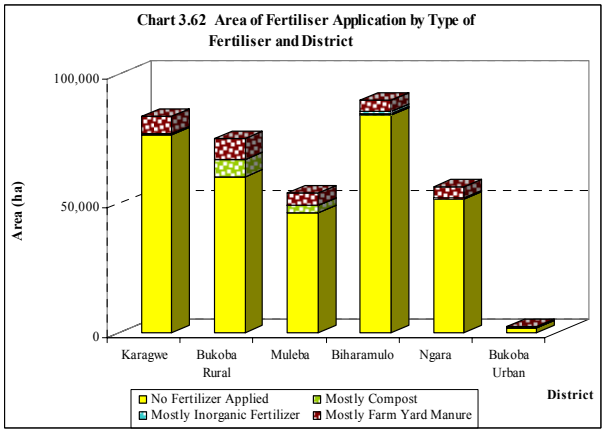


Chart 3.62 Area of Fertiliser Application by Type of Fertiliser and District



The use of fertilisers on annual crops is very small with a planted area of only 41,038 ha (11.4% of the total planted area in the region). The planted area without fertiliser for annual crops was 319,150 hectares representing 88.6 percent of the total planted area with annual crops. of the planted area with fertiliser application, farm yard manure was applied to 27,962 ha which represents 7.8 percent of the total planted area (68.1% of the area planted with fertiliser application in the region). This was followed by compost (11,592 ha, 28.2%). Inorganic fertilizers were used on a very small area and represented only 3.6 percent of the area planted with fertilizers.

The highest percentage of the area planted with fertilizer (all types) was in Bukoba Rural district (36.5%) followed by Muleba (18.3%), Karagwe (18.2%), Biharamulo (13.8%), Ngara (12.1%) and Bukoba Urban (1.1%) (Table 3.9 and Charts 3.61 and 3.62).

Table 3.9 Planted Area by Type of Fertiliser Use and District - Long and Short Rainy Season

District	Fertilizer Use				No Fertilizer Applied
	Mostly Farm Yard Manure	Mostly Compost	Mostly Inorganic Fertilizer	Total	
Karagwe	6,741	678	58	7,477	76,141
Bukoba Rural	7,862	6,716	382	14,960	59,851
Muleba	4,459	3,047	24	7,530	46,116
Biharamulo	4,433	261	949	5,643	84,091
Ngara	4,201	755	0	4,956	51,227
Bukoba Urban	266	135	71	472	1,725
Total	**27,962**	**11,592**	**1,484**	**41,038**	**319,150**

Most annual crop growing households did not use any fertiliser (Map 3.39). The percentage of the planted area with applied fertiliser was highest for fruit and vegetables (55% of the area planted with these fruit and vegetables during the short rainy season had an application of fertilizers). This was followed by cereals (16%), cash crops (13%), roots and tubers (12%), pulses (11%) and oil seeds (7%). (Table 3.10).

3.5.4.1 Farm Yard Manure Use

The total planted area applied with farm yard manure in Kagera Region was 21,606 ha. The number of households that applied farm yard manure in their annual crops during the short rainy season was 33,278 and it was applied to 21,606 ha representing 8.9 percent of the total area planted during that season (Table 3.10). Cereals had the highest percent of the total area planted with applied farm yard manure (48%), followed by pulses (38%), fruits and vegetables (7%), roots and tubers (4%), oil seeds (2%) and cash crops (1%).

Table 3.10: Number of Crop Growing Households and Planted Area by Type of Fertiliser Use and Crop type – Short Rainy Season

District	Fertiliser Use									
	Mostly Farm Yard Manure		Mostly Compost		Mostly Inorganic Fertiliser		No Fertiliser Applied		Total	
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
Cereals	36,088	11,330	16,110	3,692	900	289	272,407	82,108	325,505	97,418
Roots & Tubers	1,789	249	12,562	1,523	255	57	89,203	14,028	103,808	15,858
Pulses	20,544	8,549	14,248	4,119	531	182	280,056	99,526	315,379	112,377
Oil Seeds & Oil Nuts	1,416	430	511	142	0	0	30,477	7,325	32,404	7,897
Fruits & Vegetables	4,623	773	294	36	1,455	211	5,002	830	11,374	1,850
Cash Crops	459	274	0	0	1,671	694	9,282	6,445	11,412	7,412
Total	**33,278**	**21,606**	**17,861**	**9,511**	**1,497**	**1,433**	**269,849**	**210,262**	**322,485**	**242,812**

Chart 3.63 Planted Area with Farm Yard Manure by Crop Type - KAGERA

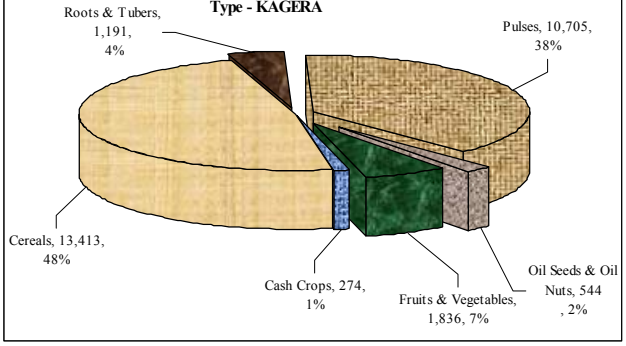
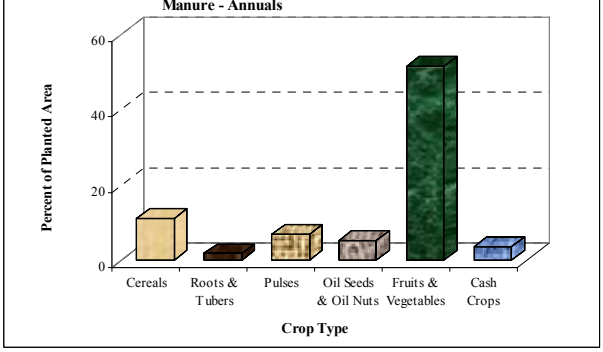


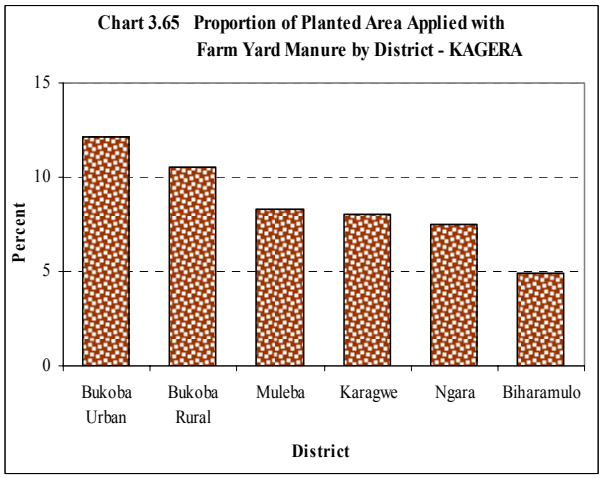
Chart 3.64 Percentage of Crop Type Planted Area with Farm Yard Manure - Annuals



However, fruit and vegetables had the highest percent of the planted area with farm yard manure (51.6% of the total area of fruit and vegetables in Kagera). This was followed by cereals (11.2%), pulses (7.0%), oil seeds (5.2%), cash crops (3.5%) and roots and tubers (1.9%) (Charts 3.63 and 3.64).

Farm yard manure is mostly used in Bukoba Urban (12.2% of the total planted area in the district), followed by Bukoba Rural (10.5%), Muleba (8.3%), Karagwe (8.1%), Ngara (7.5%), and Biharamulo (4.9%) (Chart 3.65).

Chart 3.65 Proportion of Planted Area Applied with Farm Yard Manure by District - KAGERA



For permanent crops, most farm yard manure is used for the production of banana (24.6%), followed by coffee (18.0%) and palm oil (15.6%).

3.5.4.2 Inorganic Fertiliser Use

The total planted area applied with inorganic fertilisers in Kagera Region was 1,484 ha which represents 0.4 percent of the total planted area with annuals in the region and 3.6 percent of the total planted area with fertiliser. The number of households that applied inorganic fertilizer on their annual crops during the short rainy season was 1,497 and it was applied to 1,433 ha representing 0.6 percent of the total area planted during that season (Table 3.10). The largest area applied with inorganic fertilizers was on cash crops (47% of the total area applied with inorganic fertilizers), followed by cereals (20%), fruit and vegetables (15%), pulses (14%) and roots and tubers (4%) (Chart 3.66). However, the proportion of cash crops with inorganic fertilizers was 9.0 percent higher than other crop types, closely followed by fruits and vegetables (6.3%), cereals (0.3%), pulses (0.1%) and roots and tubers (0.1%). There was no inorganic fertilizer application in oil seed crops (Chart 3.67). Inorganic fertiliser is mostly used in

Chart 3.66 Planted Area with Inorganic Fertilizers by Crop Type - KAGERA

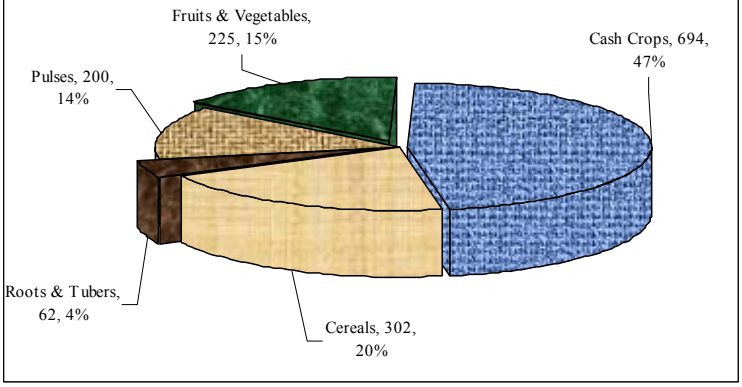


Chart 3.67 Percentage of Planted Area with Inorganic Fertilizers by Crop Type - KAGERA

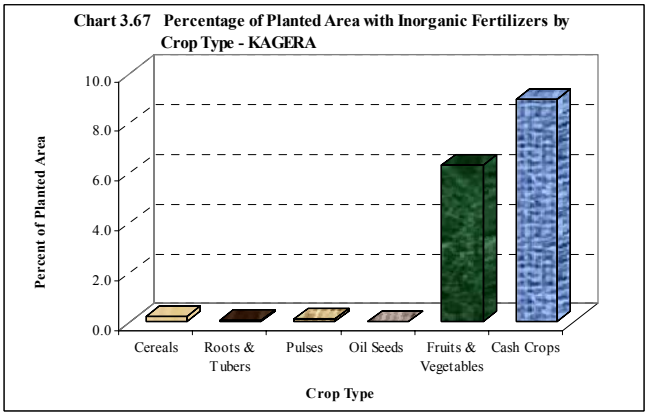
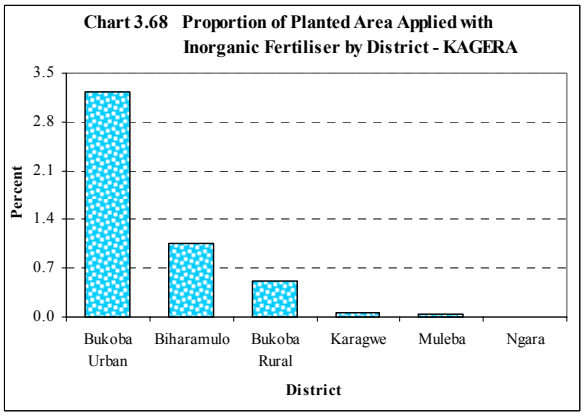


Chart 3.68 Proportion of Planted Area Applied with Inorganic Fertiliser by District - KAGERA



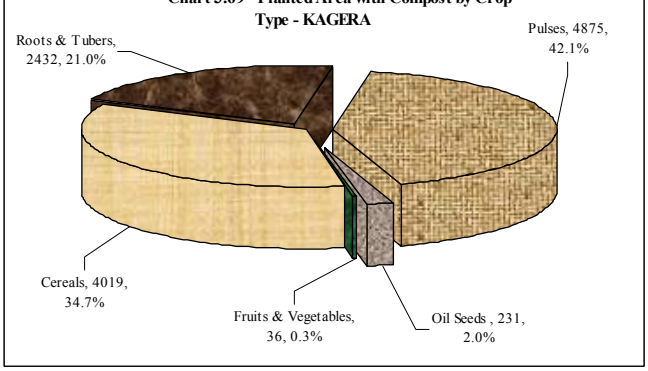
Bukoba Urban (3.2% of the total planted area in the district), followed by Biharamulo (1.1%), Bukoba Rural (0.5%) and Kagwe (0.1%). (Chart 3.68).

In permanent crops inorganic fertiliser were used on mandarine/tangerine (45.8%), followed by coffee (1.7%), jack fruits (0.3%), lime/lemon (0.2%) and mango (0.2%).

3.5.4.3 Compost Use

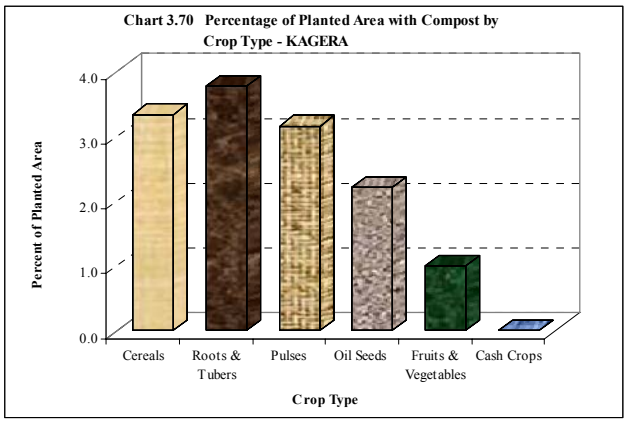
The total planted area applied with compost was 11,592 ha which represents only 3.2 percent of the total planted area with annual crops in the region and 28.2 percent of the total planted area with fertiliser in the region. The number of households that applied compost on their annual crops during the short rainy season was 17,861 and it was applied to 9,511 ha representing 3.9 percent

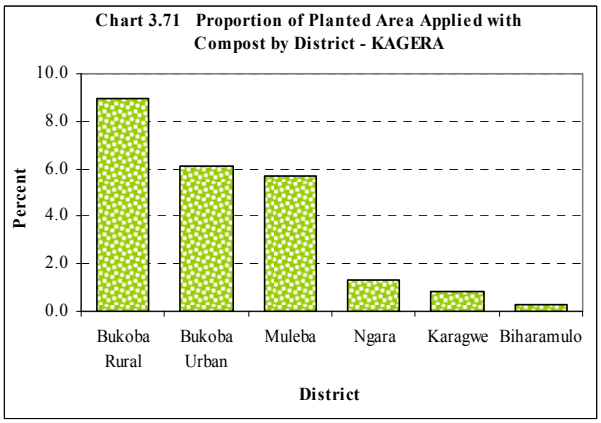
Chart 3.69 Planted Area with Compost by Crop Type - KAGERA



of the total area planted (Table 3.10 and Chart 3.69). The proportion of area applied with compost was very low for each type of crop (0 to 4%); however the distribution of the total area using compost shows that 42.1 percent of this area was cultivated with pulses, followed by cereals (34.7%), roots & tubers (21.0%), oil seeds (2.0%) and fruit and vegetables (0.3%)(Chart 3.69).

Compost is mostly used in Bukoba Rural (9.0% of the total planted area in the district), and this is followed by Bukoba Urban (6.1%), Muleba (5.7%), Ngara (1.3%), Karagwe (0.8%) and Biharamulo (0.3%) (Chart 3.71).

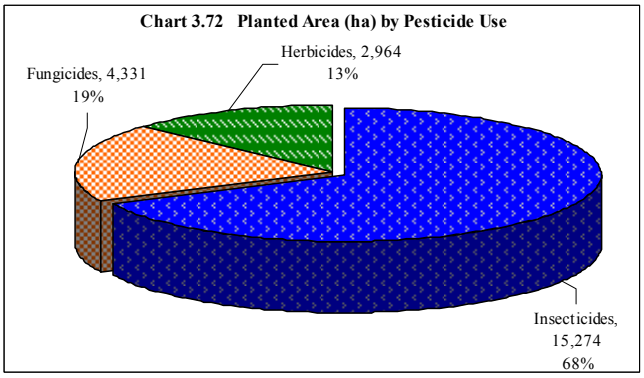




In permanent crops, compost was mostly used to sugar cane (25.9%) followed by sour soup (16.7%), banana (9.6%), mango (2.5%) and coffee (2.5%).

3.5.5 Pesticide Use

Pesticides are chemicals used for controlling insects, diseases and weeds. This section analyses the use of these chemicals by smallholders on both annual and permanent crops in the region. Pesticides were applied to a planted area of 22,569 ha of annual crops and vegetables.

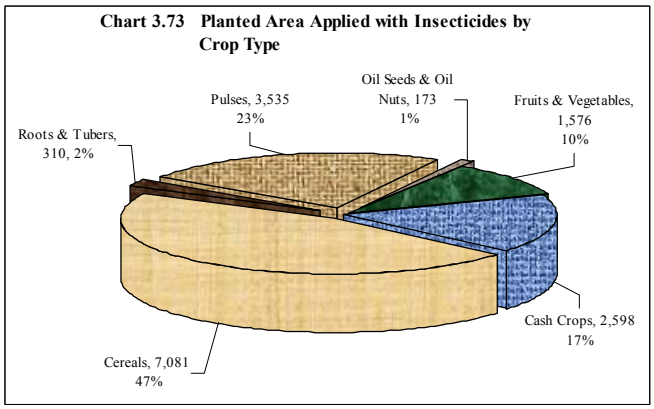


Insecticides are the most common pesticide used in the region (68% of the total area applied with pesticides). This was followed by fungicides (19%) and herbicides (13%) (Chart 3.72).

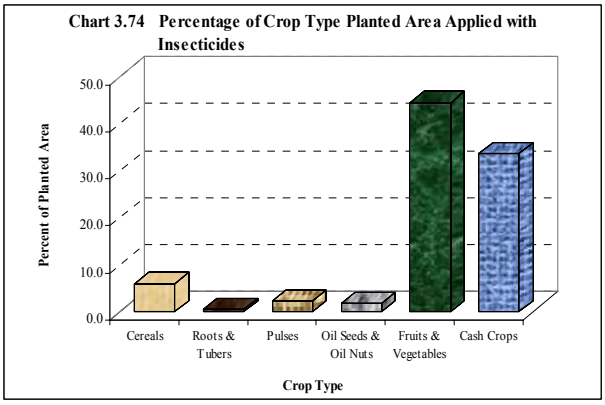
3.5.5.1 Insecticide Use

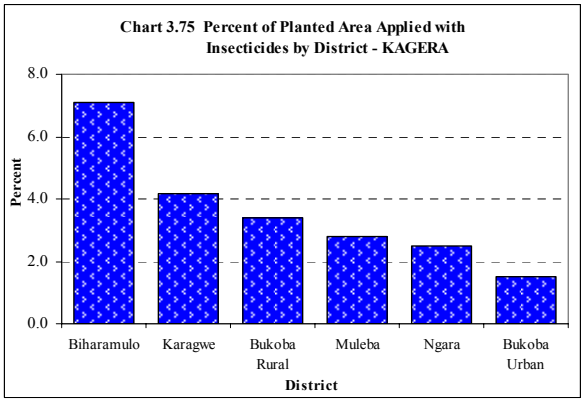
The planted area applied with insecticides was estimated at 15,274 ha which represented 4.2 percent of the total planted area for annual crops and vegetables.

Cereals had the largest planted area applied with insecticides (7,081 ha, 47% of the total planted area with insecticides) followed by pulses (3,535 ha, 23%), cash crops (2,598 ha, 17%), fruits and vegetables (1,576 ha, 10%), roots and tubers (310 ha, 2%) and oil seed (173 ha, 1%) (Chart 3.73).



However, the percent of insecticides used in fruits and vegetables and cash crops is much greater than in other crop types (44 and 34% respectively), while only 0.5 percent of roots and tubers were applied with insecticides (Chart 3.74).



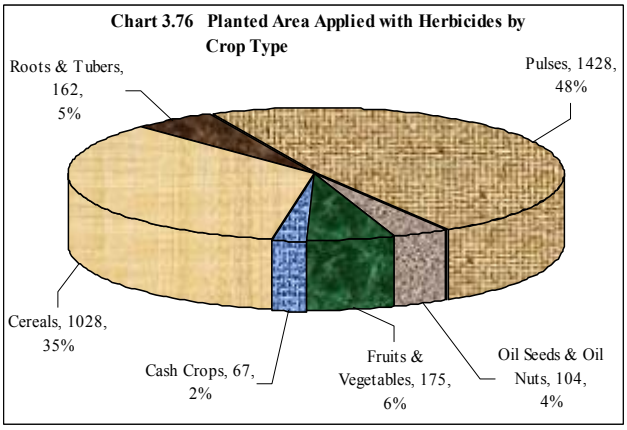


Annual Crops with more than 30 percent insecticide use were chick peas (100%), tomatoes (73.3%), chillies (42.4%), cabbages (41.0%) and cotton (34.9%).

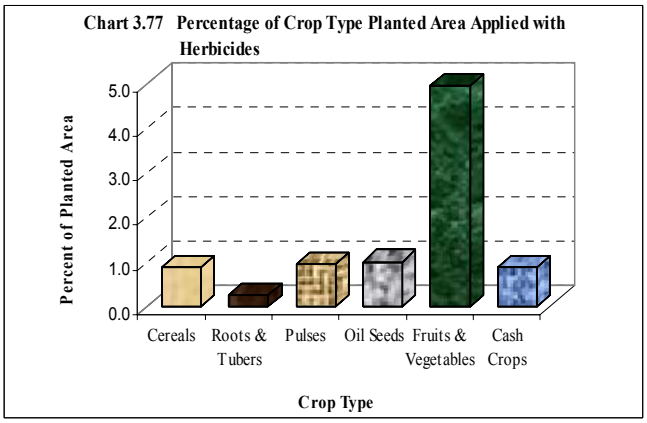
Biharamulo had the highest percent of planted area with insecticides (7.1% of the total planted area with annual crops in the district). This was followed by Karagwe (4.2%) then Bukoba Rural (3.4%), Muleba (2.8%) and Ngara (2.5%). The smallest percentage use was recorded in Bukoba Urban district (1.5%) (Chart 3.75).

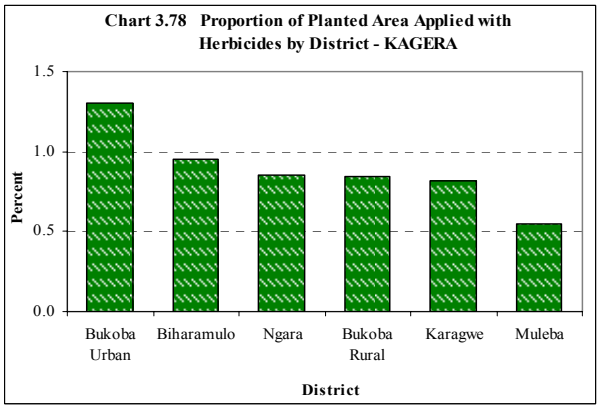
3.5.5.2 Herbicide Use

The planted area applied with herbicides was 2,964 ha which represented 0.8 percent of the total planted area annual crops and vegetables. Pulses had the largest planted area applied with herbicides (1,428 ha, 48%) followed by cereals (1,028 ha, 35%), fruits and vegetables (175 ha, 6%), roots and tubers (162 ha, 5%), oil seed (104 ha, 4%) and cash crops (67 ha, 2%) (Chart 3.76).



However, the percent of herbicide use on fruit and vegetables was much greater than in other crop types (4.9%) while only 0.3 percent of roots and tubers were applied with herbicides (Chart 3.77). The top six annual crops with highest percentage use of herbicides in terms of planted area were tomatoes (8.4%), cabbages (7.8%), tobacco (5.4%), paddy (4.1%), Irish potatoes (2.1%) and yams (1.8%).





Bukoba Urban had the highest percent of planted area with herbicides (1.3% of the total planted area with annual crops in the district). This was followed by Biharamulo (0.9%) then Ngara (0.9%), Bukoba Rural (0.8%) and Karagwe (0.8%). The smallest percentage use was recorded in Muleba district (0.5%) (Chart 3.78).

3.5.5.3 Fungicide Use

The planted area applied with fungicides was 4,331 ha which represented 1.2 percent of the total planted area for annual crops and vegetables. The percentage use of fungicides in the long rainy season at (1.6%) was higher than the corresponding percentage for the short rainy season (1.0%). Pulses had the largest planted area applied with fungicides (1,298ha, 30%) followed by fruits and vegetables (1,074 ha, 25%), cereals (935 ha, 22%), roots and tubers (924 ha, 21%) and oil seeds (100 ha, 2%) (Chart 3.79).

However, the percentage use of fungicide in fruits and vegetables was much greater than in other crop types (30.2%), while only 0.8 percent of pulses and none in cash crops was applied with fungicides (Chart 3.80).

Chart 3.79 Planted Area Applied with Fungicides by Crop Type

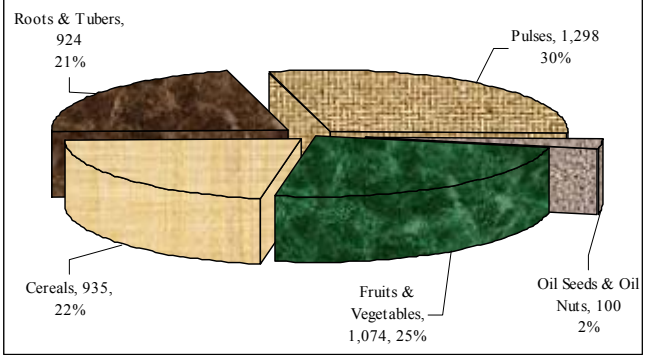


Chart 3.80 Percentage of Crop Type Planted Area Applied with Fungicides

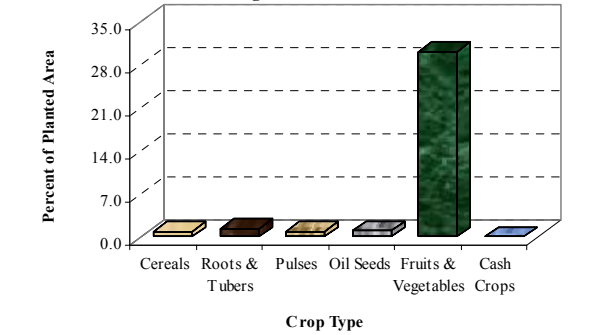
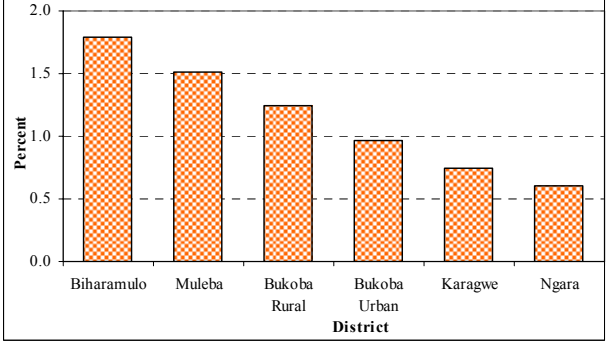


Chart 3.81 Proportion of Planted Area with Fungicides by District - KAGERA



Annual crops with more than 10 percent fungicide use were tomatoes (55.5%), ginger (30.2%), cabbage (22.3%) and chillies (11.2%).

Biharamulo had the highest percent of planted area with fungicides (1.8% of the total planted area with annual crops in the district). This was closely followed by Muleba (1.5%) and Bukoba Rural (1.2%). The smallest percentage use was recorded in Ngara district (0.6%) (Chart 3.81).

3.5.6 Harvesting Methods

The main harvesting method for cereals was reported to be by hand. Very small amounts of maize were harvested by machine (0.04%). All other cereals were harvested by hand.

3.5.7 Threshing Methods

Hand threshing was the most common method used, with 93 percent of the total area planted with cereals during the short rainy season threshed by hand. Human powered tools and engine driven machines were only used on crops harvested from 0.8% and 0.2 percent of the total planted area respectively.

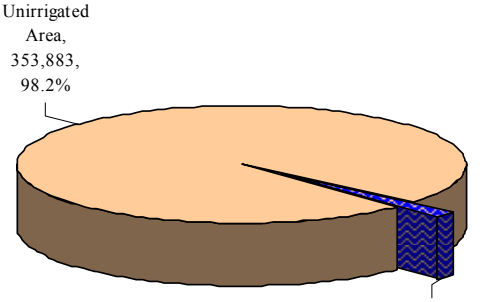
3.6 Irrigation

Water is the limiting factor to crop production in the majority of areas in Tanzania and without water most other agricultural practices applied to crops do not result in significant increases in yields. This section deals with the area under irrigation for different crops and the means by which water was extracted from the source and applied to the field.

3.6.1 Area Planted with Annual Crops and Under Irrigation

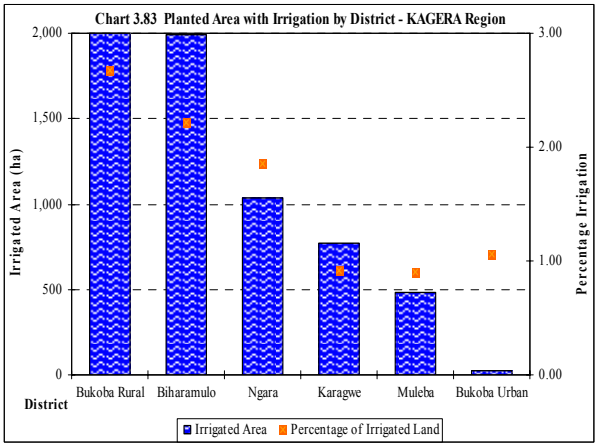
In Kagera Region, the area of annual crops under irrigation was 6,305 ha representing 1.8 percent of the total area planted (Chart 3.82). The area under irrigation during the short rainy season was 3,779 ha accounting for 60 percent of the total area under irrigation. Some crops, especially vegetables, were predominantly grown in the short rainy season with irrigation. In the short rainy season, 48 percent of the area planted with vegetables was irrigated, whilst 69 percent of the vegetables were irrigated in the long rainy season.

Chart 3.82 Area of Irrigated Land



The district with the largest planted area under irrigation for annual crops was Bukoba Rural (1,999 ha, 31.7% of the total irrigated planted area with annual crops in the region). This was closely followed by Biharamulo (1,991 ha, 31.6%) and then Ngara (1,039 ha, 16.5%). When expressed as a percentage of the total area planted in each district, Bukoba Rural with 2.7 percent had the highest percentage. This was followed by Biharamulo (2.2%), Ngara (1.8%), Bukoba Urban (1.1%), Karagwe (0.9%) and Muleba (0.9%) (Chart 3.83 and Map 3.40).

Chart 3.83 Planted Area with Irrigation by District - KAGERA Region

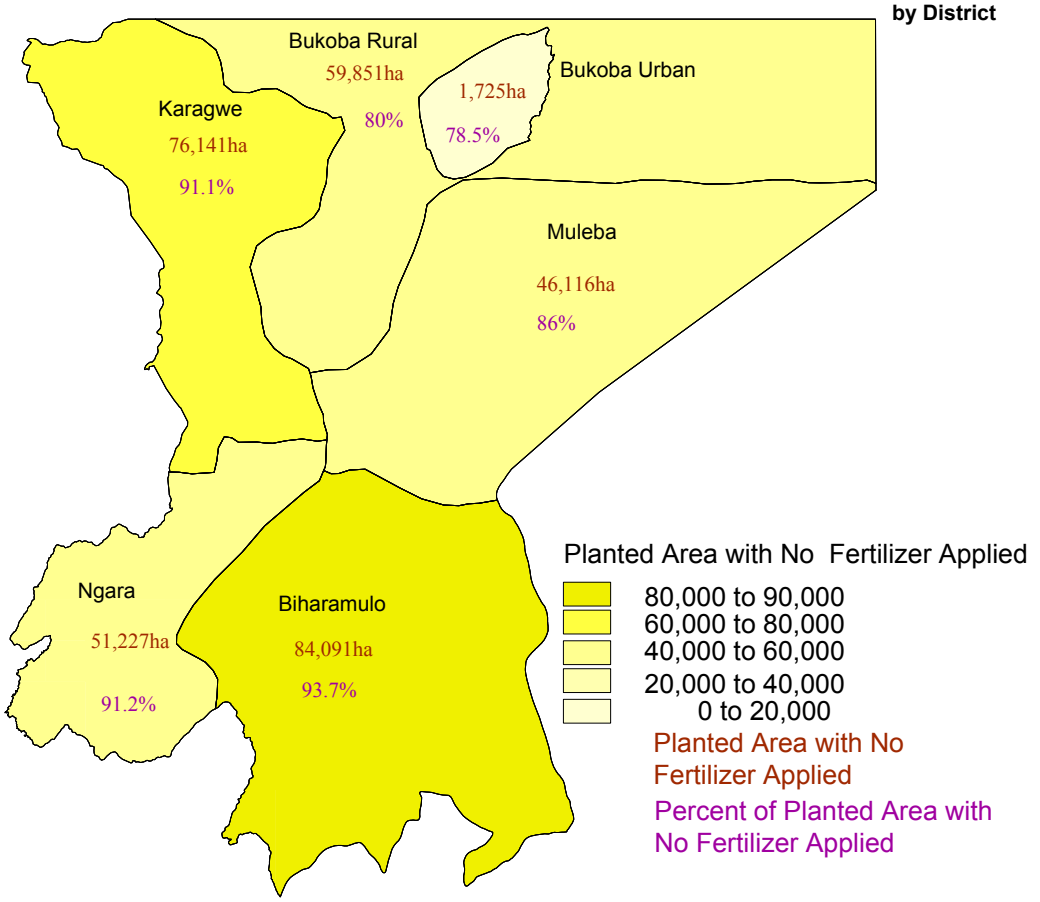


Of all the different crops and in terms of proportion of the irrigated planted area, water mellon was the most irrigated crop with 100 percent irrigation followed by egg plant (92.0%), carrots (82.3%), tomatoes (69.1%) and cabbages (63.1%).

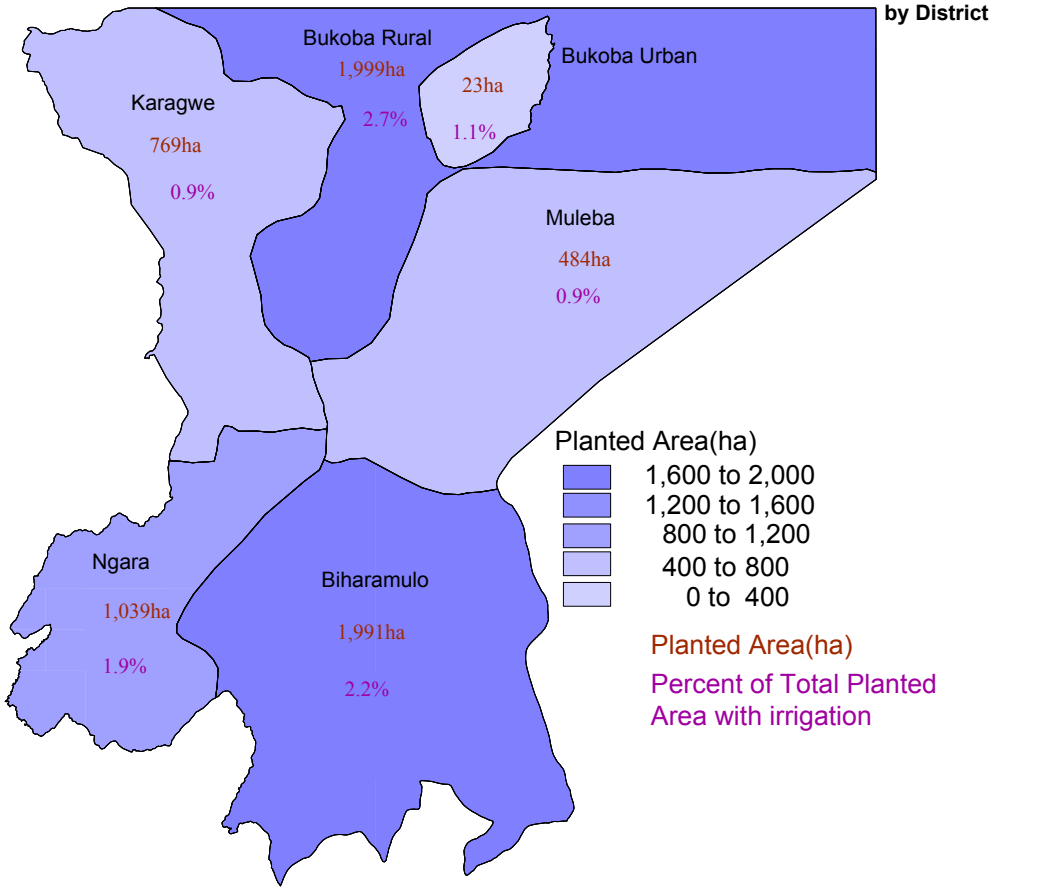
In terms of crop type, the area under irrigation for cereals was 2,150 ha (34.1% of the total area under irrigation), followed by fruits and vegetables with 2,066 ha (32.8%), pulses (1,462 ha, 23.2%), roots and tuber (275 ha, 4.4%), oils seeds (205 ha, 3.2%) and cash crops (147 ha, 2.3%). All of the irrigation on pulses was applied to beans and bambaranuts.

The area of fruit and vegetables under irrigation was 2,066 ha which represents 32.8 percent of the total area planted with fruit and vegetables. Water mellon, egg plants and carrot were the most irrigated annual crops.

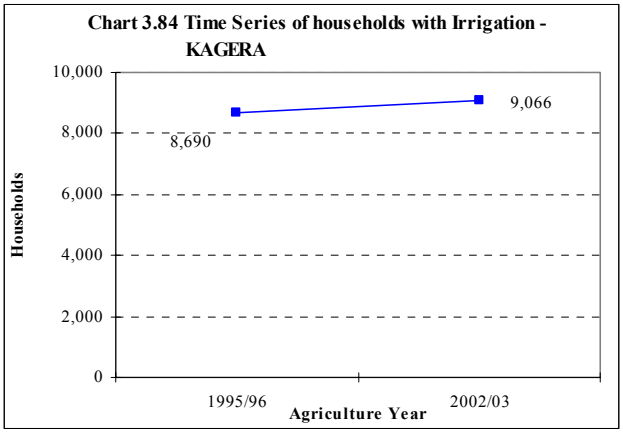
Map 3.39 KAGERA
Planted Area and Percent of Planted Area with No Application of Fertilizer by District



Map 3.40 KAGERA
Area Planted and Percent of Total Planted Area with Irrigation by District

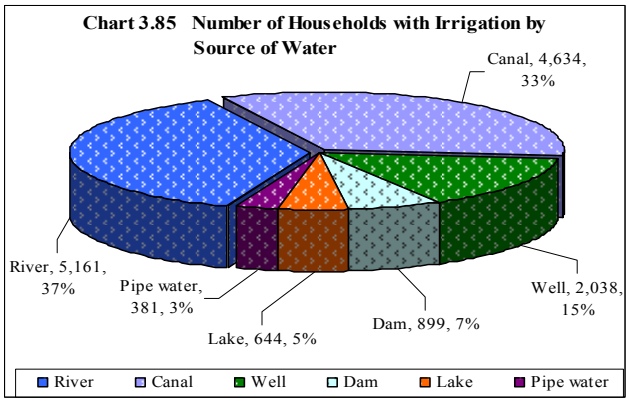


The number of household practicing irrigation in Kagera Region appears to have increased over the 7 year intercensal period from 8,690 to 9,066 hectares. This may not be statically significant due to the small number of households sampled with irrigation.



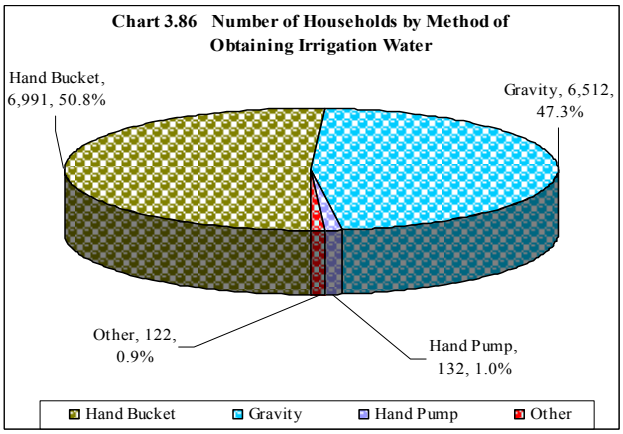
3.6.2 Sources of Water Used for Irrigation

The main source of water used for irrigation was from rivers (37% of households with irrigation). This was followed by canals (33%) and wells (15%). Only 3 percent of the households used piped water and the proportion of households that used dams and lake as a source of water for irrigation were very few (7% and 5% respectively) (Chart 3.45). Most households using irrigation in Ngara get their irrigation water from canals (93%) and most households in Bukoba Rural get irrigation water from rivers (55%).

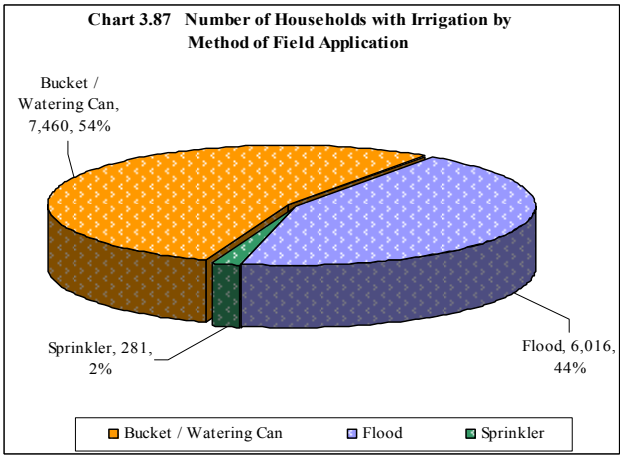


3.6.3 Methods of Obtaining Water for Irrigation

Hand bucket was the most common means of getting water for irrigation with 50.8 percent of households using this method. This was closely followed by gravity with 47.3 percent of households. The remaining methods (hand pump and others) were of minor importance (Chart 3.86).



Hand buckets were mostly used in Bukoba Rural (35.9%), followed by Muleba (26.5%), Biharamulo (18.6%), Karagwe (12.2%) and Ngara (6.7%). Gravity method was more common in Ngara with 48 percent of households using the method to get water for irrigation, followed by Biharamulo (44%), Muleba (5%) and Karagwe (3%).



Although the method of obtaining irrigation water by hand bucket was the most common method in all five districts, Biharamulo districts used some hand pumps for obtaining water.

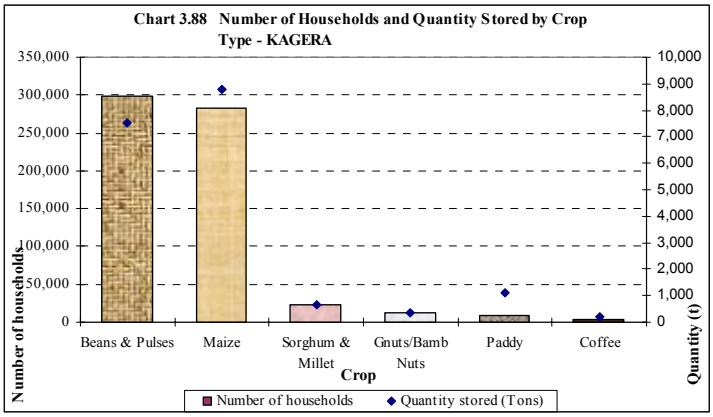
3.6.4 Methods of Water Application

Most households used bucket/watering can irrigation (54% of households using irrigation) as a method of field application. This was closely followed by flood irrigation (44%). Sprinklers were not widely used (2%) (Chart 3.87).

3.7 Crop Storage, Processing and Marketing

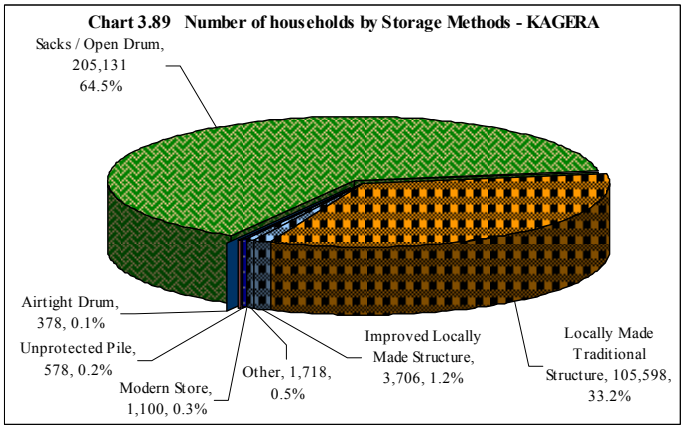
3.7.1 Crop Storage

Crop storage means keeping a crop for a certain period of time as food for the household, in order to sell at higher prices or as seed for planting in the following season.



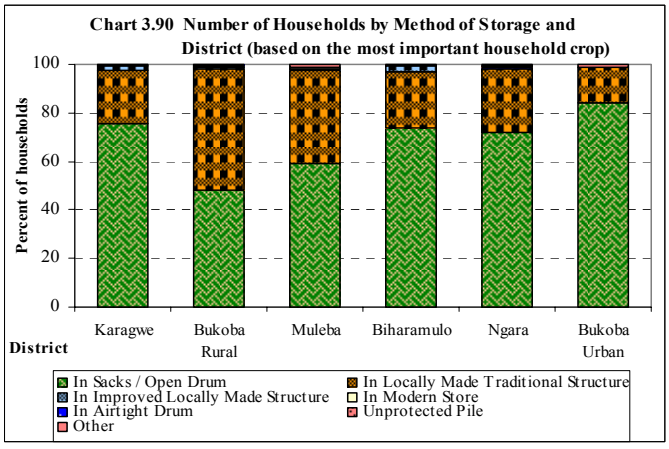
The results for Kagera Region show that there were 318,210 crop growing households (91% of the total crop growing households) that stored various agricultural products in the region.

The most important stored crop was beans and other pulses with 299,472 households storing 7,530 tonnes as of 1st January 2004. This was followed by maize (283,408, 8,773t), sorghum and millet (22,098 households, 680t), groundnuts/bambara nuts (12,353 households, 335t) and coffee (3,472 households, 213t). Other crops were stored in very small amounts.



3.7.1.1 Methods of Storage

The region had 205,131 crop growing households storing their produce in sacks and open drums (64.5% of households that stored crops in the region). The number of households that stored their produce in locally made traditional structures was 105,598 (33.2%). This was followed by: improved locally made structures (3,706 households, 1.2%), modern stores (1,100 households, 0.3%), unprotected piles (578 households, 0.2%) and air tight drums (378 households, 0.1%).



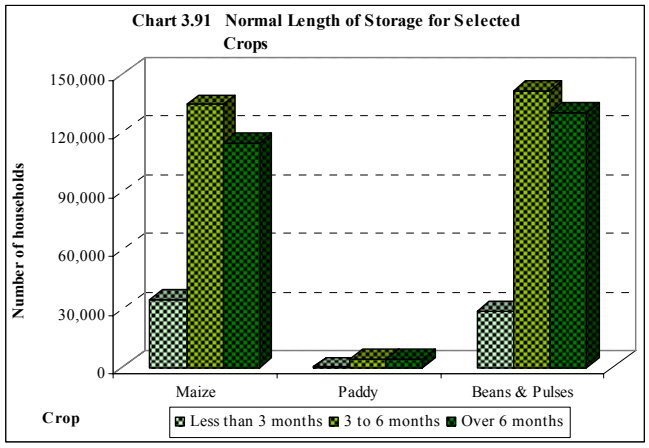
Sack and open drums were the dominant storage methods in all districts, with the highest percent of households in Bukoba Urban using this method (84% of the total number of households storing crop products). This was followed by Karagwe (75%), Bioharamulo (74%), Ngara (72%), Muleba (59%) and Bukoba Rural (48%) (Chart 3.89).

The highest percent of households using locally made traditional structures was in Bukoba Rural (50% of the total number of households storing crops), followed by Muleba (39%), Ngara (26%), Biharamulo (23%), Karagwe (22%) and Bukoba Urban (15%).

3.7.1.2 Duration of Storage

Most households (49% of the households storing crops) stored their produce for a period of 3 to 6 months followed by those who stored for a period of over 6 months (39%). The minority of households stored their crop for a period of less than 3 months (12%).

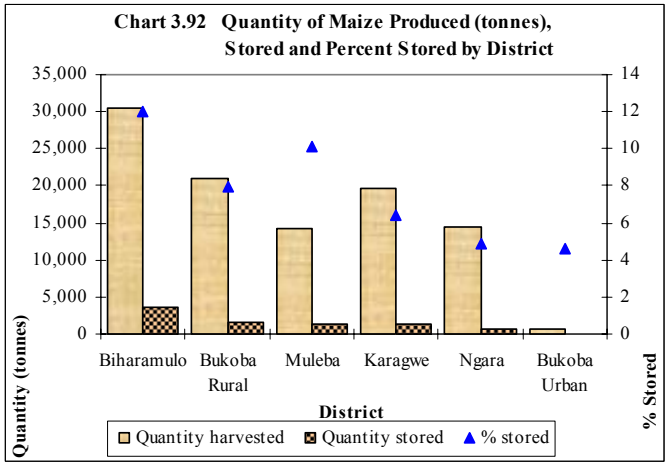
Chart 3.91 Normal Length of Storage for Selected Crops



Most households stored pulses for a period of 3 to 6 months followed by over 6 months. A small number of households stored pulses for the period of less than 3 months (Chart 3.91).

The proportion of households that stored their produce for the duration of 3 to 6 months was highest in Ngara district (68.3%) followed by Karagwe (63,2%), Bukoba Urban (61,2%), Muleba (44.8%), Biharamulo (39.7%) and Bukoba Rural (34.1%) (Map 3.41). District comparison of quantity stored cannot be done for all crops combined. However, the analysis has been done for maize only as it is the most commonly stored crop. In general, quantity stored was related to the quantity produced. Districts with greater production had a higher percent of their crop stored as on 1st October 2003 (Chart 3.92).

Chart 3.92 Quantity of Maize Produced (tonnes), Stored and Percent Stored by District

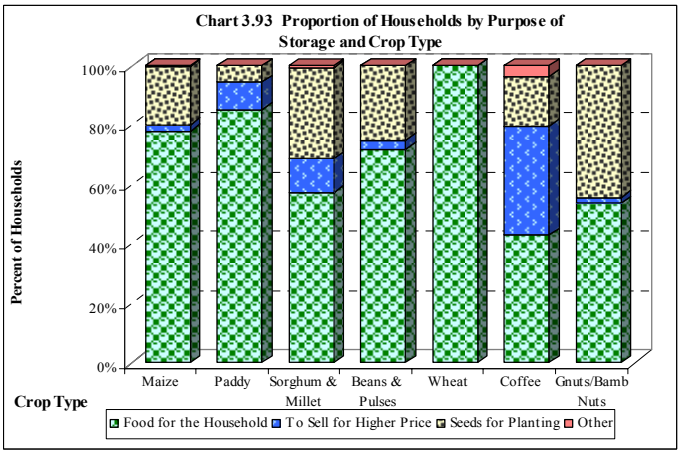


3.7.1.3 Purposes of Storage

Subsistence food crops (maize, paddy, sorghum and millet, beans and pulses) are mainly stored for household consumption. The percent of households that stored maize for household consumption as the main purpose of storage was 78 percent followed by seed for planting.

There is a haya tribe traditional practice of chewing cooked unripe sun-dried Robusta coffee and this is the reason behind the largest percent (43%) of household storing coffee for household consumption. This is followed by selling for higher price (37%), and seed for planting (17%) (Chart 3.93).

Chart 3.93 Proportion of Households by Purpose of Storage and Crop Type



3.7.1.4 The Magnitude of Storage Loss

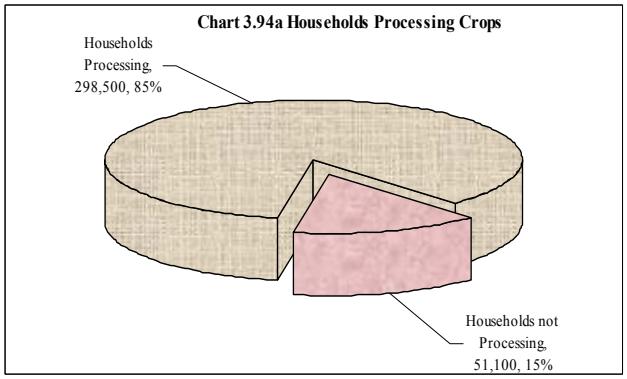
About 83 percent of households that stored crops had little or no loss. The proportion of households that reported a loss of more than a quarter was greatest for maize (7.6% of the total number of households that stored the crop). This was followed by beans and pulse (5.9%), sorghum and millet (2.8%), paddy (2.8%) and groundnuts/bambara nuts (1.2%). All households that stored coffee and wheat had no loss. Most households storing groundnuts and bambara nuts had little or no storage loss (99%) (Table 3.11).

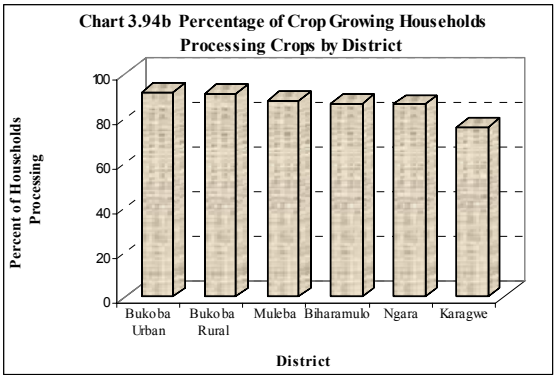
Table 3.11: Number of Households Storing Crops by Estimated Storage Loss and District

District	Estimate Storage Loss				
	Little or no Loss	Up to 1/4 Loss	Between 1/4 and 1/2 Loss	Over 1/2 Loss	Total
Karagwe	61,962	7,814	4,743	2,461	76,979
Bukoba Rural	72,748	4,931	1,329	580	79,589
Muleba	60,856	6,274	1,526	679	69,334
Biharamulo	38,534	5,376	1,576	1,007	46,492
Ngara	28,359	4,901	8,398	828	42,486
Bukoba Urban	2,317	739	239	35	3,330
Total	264,775	30,034	17,810	5,590	318,210

3.7.2 Agro processing and By-products

Agro processing refers to the process of converting a crop product from one form to another form in order to add value or increase its palatability. Agro-processing was practiced in most crop growing households in Kagera Region (298,500 households, 85% of the total crop growing households) (Chart 3.94a).

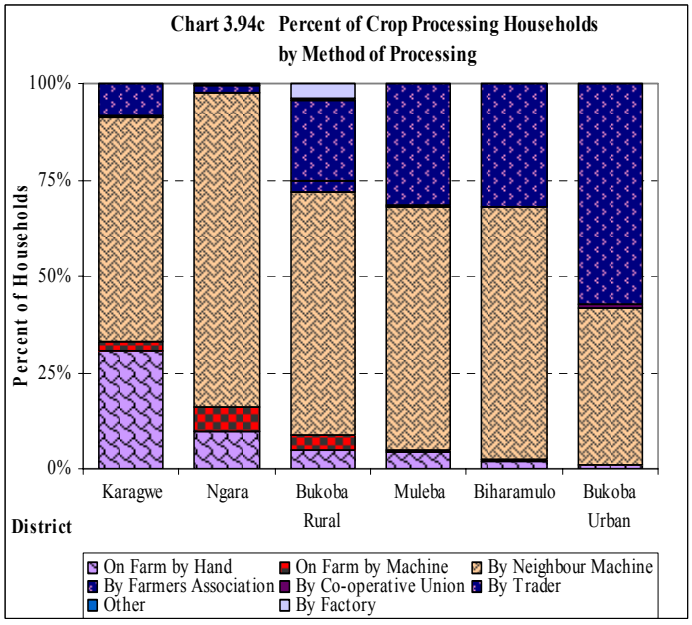




The percent of households processing crops was very high in most districts (above 80%). Karagwe had the lowest percent of households processing crops (76% of crop growing households) (Chart 3.94b).

3.7.2.1 Processing Methods

Most crop processing households processed their crops using neighbour's machines representing 65 percent (193,197 households). This was followed by those processing using traders machines (60,090 households, 20.1%), on farm by hand (30,982 households, 10.4%), on-farm by machine (7,606 households, 2.5%) and by factory (3,120 households, 1.0%). The remaining methods of processing were used by very few households (not more than 1% for each method).



Although processing by machine was the most common processing method in most of districts in Kagera Region, however district differences

existed. Ngara had a higher percent of neighbour's machines processing than other districts.(81.5%), followed by Biharamulo (65.5%), Muleba (63.1%), Bukoba Rural (63.0%), Karagwe (58.4%) and Bukoba Urban (40.9%). Processing by trader was more common in Bukoba Urban (57%), whilst processing on farm by machine was more prevalent in Ngara and Bukoba Rural (Chart 3.94c).

3.7.2.2 Main Agro-processing Products

Two types of products can be produced from agro-processing namely, the main product and the by-product. The main product is the major product after processing and the by-product is secondary after processing. For example the main product after processing maize is normally flour whilst the by-product is normally the bran.

The main processed product was flour/meal with 275,732 households processing crops into flour (92.4%) followed by juice with 18,566 households (6.2%) and grain (3,933 households, 1.3%). The remaining products were produced by a small number of households (Chart 3.95).

The number of households producing by-products accounted for 10 percent of the households processing crops. The most common by-product produced by crop processing households was bran with 11,087 households (37.1%) followed by shell (35,392 households, 18.0%), husks (5,242 households, 17.5%) and pulp (2,406 households, 8.0%). The remaining by-products were produced by a small number of households (Chart 3.96).

3.7.2.3 Main Use of Primary Processed Products

Primary processed products were used by households for human consumption, selling, and animal consumption and as fuel for cooking. The most important use was household/human consumption which accounted for 93.8 percent of the total households that used primary processed product (Chart 3.97). Ngara was the only district that used primary processed products as fuel for cooking and Bukoba Rural was the only district that used the products for animal consumption.

Out of 17,941 households that sold processed products, 15,193 were from Karagwe (84.7% of the total number of

Chart 3.95 Percent of Households by Type of Main Processed Product

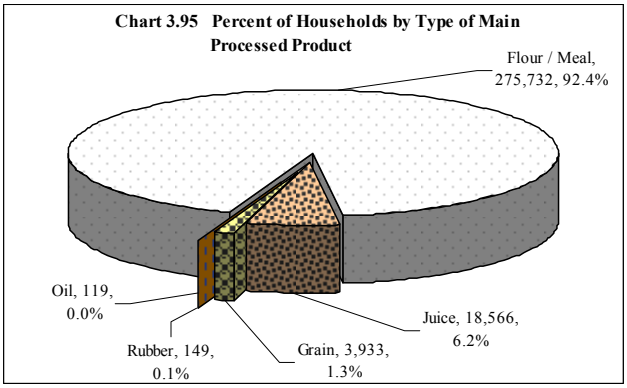


Chart 3.96 Number of Households by Type of By-product

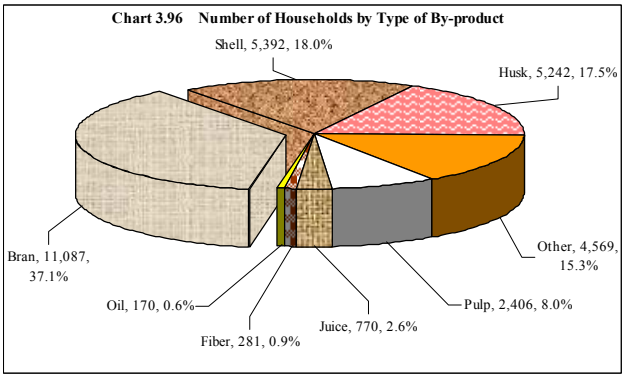


Chart 3.97 Use of Processed Product

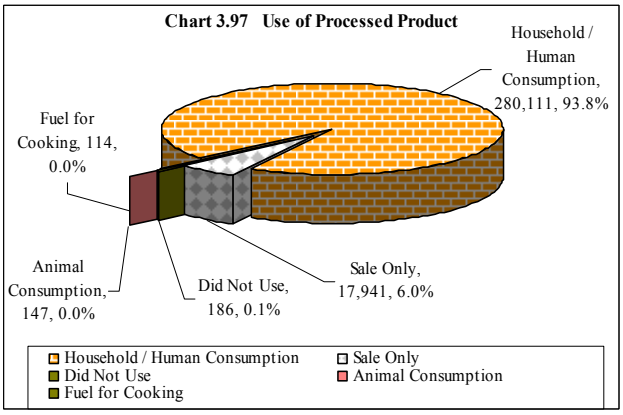
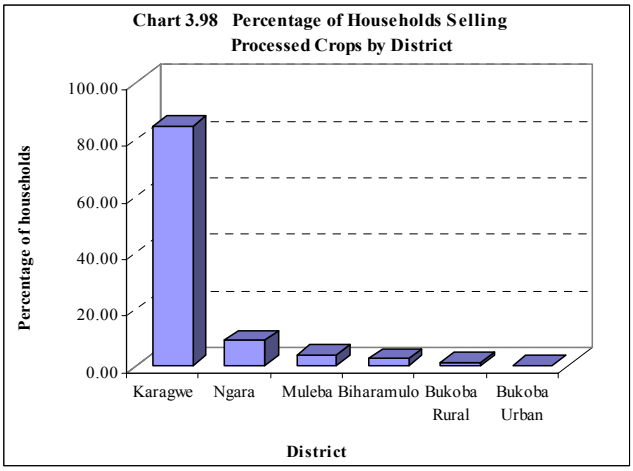


Chart 3.98 Percentage of Households Selling Processed Crops by District



households selling processed products in the region), followed by Ngara with 1,544 households (8.6%), Muleba with 670 households (3.7%), Biharamulo with 386 households (2.2%) and Bukoba Rural with 147 households (0.8%) (Chart 3.98). Compared to other districts in Kagera Region, Karagwe had the highest percent of households that sold processed products. This is followed by Ngara (8.6), Muleba (3.7%), Biharamulo (2.2%) and Bukoba Rural (0.8%).

3.7.2.4 Outlets for Sale of Processed Products

Most households that sold processed products sold to neighbours (19,461 households, 39.7% of households that sold crops). This was followed by selling to traders at farm (6,514 households, 13.0%), local markets and trade stores (6,188 households, 12.6%), large scale farms (827 households, 1.7%), farmers associations (281 households, 0.6%), secondary markets (188 households, 0.4%) and marketing cooperatives (171 households, 0.3%) (Chart 3.99).

There were large differences between districts in the proportion of households selling processed products to neighbours with Muleba district having the largest percent of households in the district selling to neighbours (66%), whereas Bukoba Rural had only 20 percent. Ngara had a higher percent of households relying on local markets/trade stores than other outlets.

Compared to other districts, Karagwe had the highest percent of households selling processed products to traders at farm. In Biharamulo, the sale of processed produce to farmer associations was most prominent compared to other districts. Muleba was the only district that had the households selling processed products to marketing cooperative.

3.7.3 Crop Marketing

The number of households that reported selling crops was 312,670 which represents 89.4 percent of the total number of crop growing households. The percent of crop growing households selling crops was highest in Karagwe (94.7%) followed by Bukoba Rural (93.1%), Biharamulo (87.4%), Muleba (86.9%), Ngara (82.1%) and Bukoba Urban (61.7%) (Chart 3.101 and Map 3.42).

Chart 3.99 Location of Sale of Processed Products

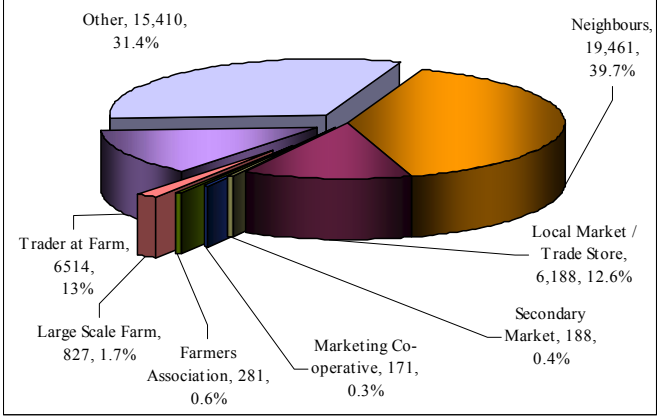


Chart 3.100 Percent of Households Selling Processed Products by Outlet for Sale and District

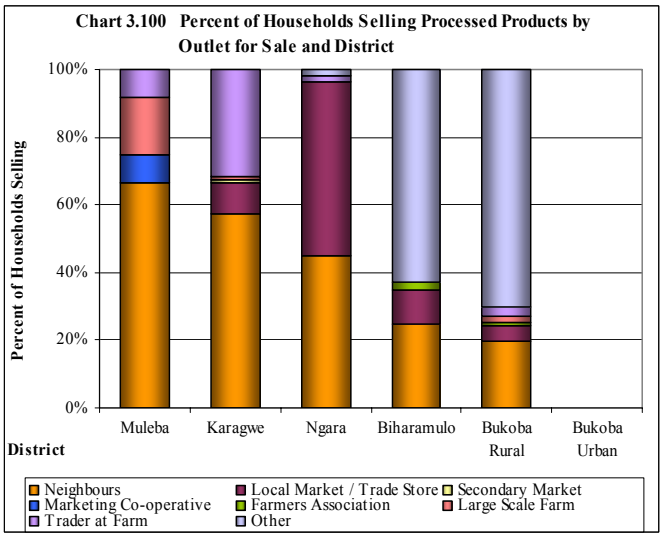
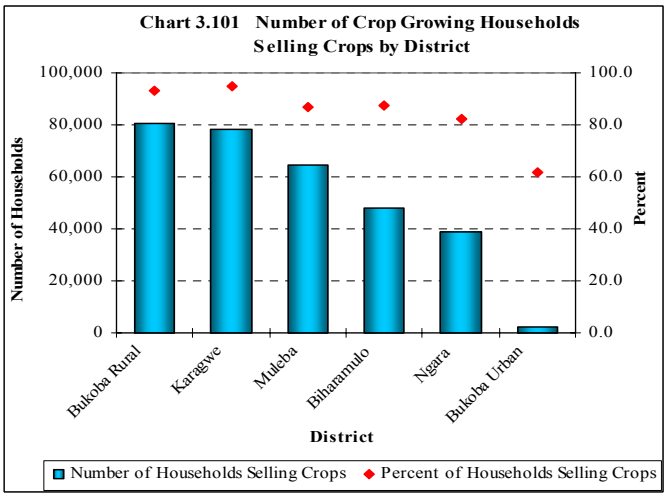
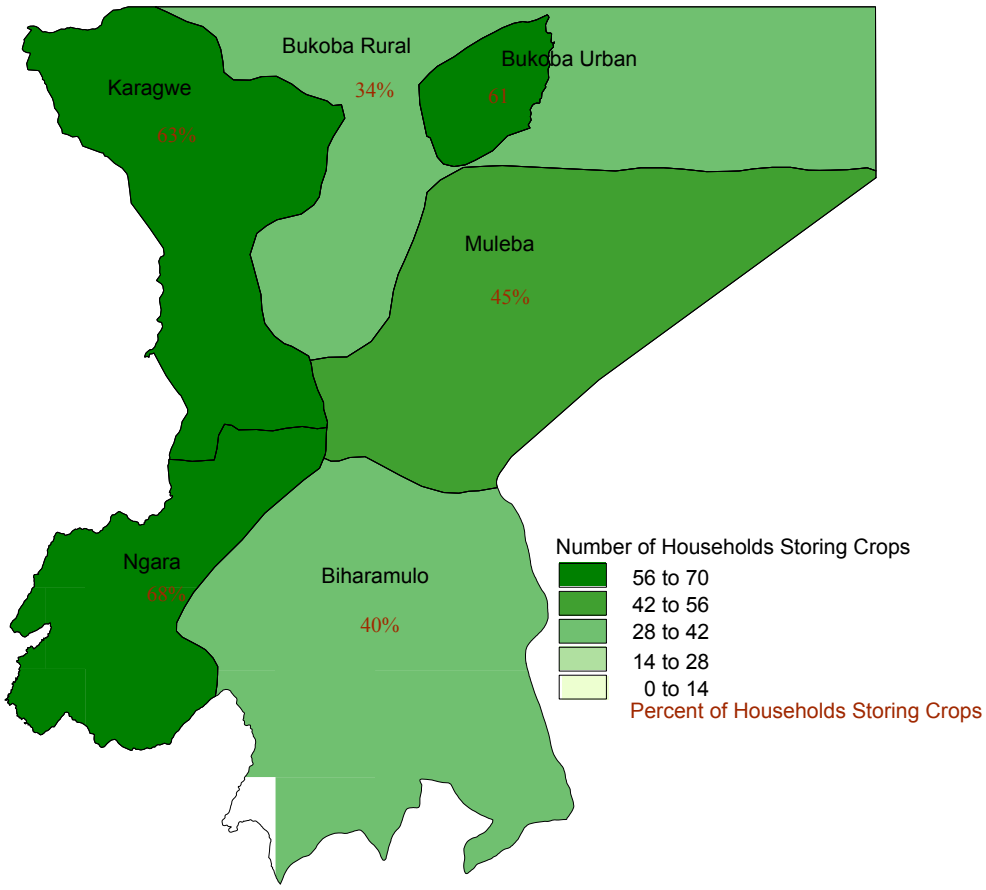


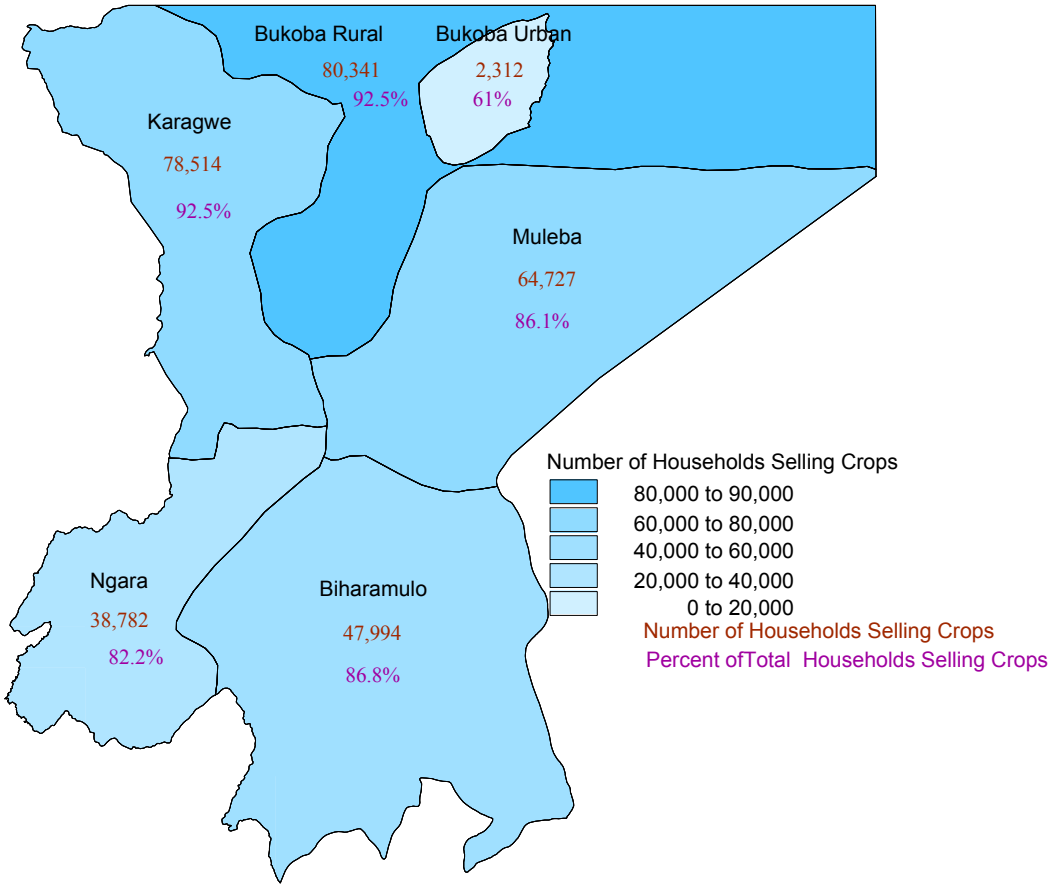
Chart 3.101 Number of Crop Growing Households Selling Crops by District



Map 3.41 KAGERA
Percent of Households Storing Crops for 3 to 6 Months by District



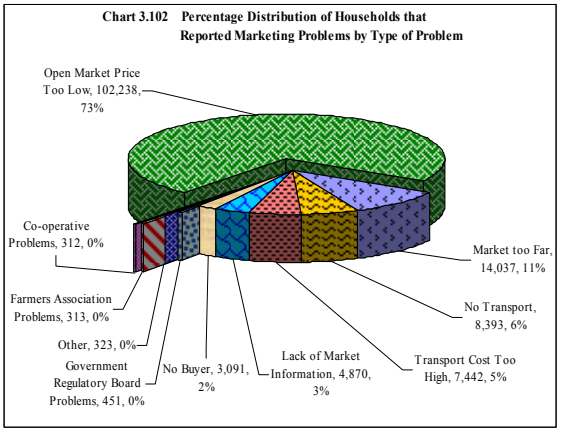
Map 3.42 KAGERA
Number of Households and Percent of Total Households Selling Crops by District



3.7.3.1 Main Marketing Problems

Low price for agricultural produce was the main marketing problem reported by households (73% of crop growing households). Apart from low market prices, other problems were longer distances to the markets (11%), lack of transport (6%), high transport costs (5%), lack of marketing information (3%) and lack of buyers (2%). Other marketing problems are minor and represented less than 1 percent of the total reported problems.

Chart 3.102 Percentage Distribution of Households that Reported Marketing Problems by Type of Problem



3.7.3.2 Reasons for Not Selling Crops

The main reason for not selling crops was reported as "insufficient production to sell", representing 83 percent of the smallholders. The remaining reasons for not selling are in such low numbers that it is not appropriate to rank their importance (Table 3.12). This general trend applies to all districts except for Bukoba Rural where the proportion of households reporting low price reason for not marketing their agricultural products was relatively high (16%).

Table 3.12 Reasons for Not Selling Crop Produce

Main Reason	Household Number	%
Production Insufficient to Sell	59,407	83.2
Price Too Low	4,985	7.0
Other	4,435	6.2
Trade Union Problems	1,481	2.1
Market Too Far	843	1.2
Co-operative Problems	135	0.2
Government Regulatory Board Problems	129	0.2
Total	**71,415**	**100**

3.8 Access to Crop Production Services

3.8.1 Access to Agricultural Credit

The census result shows that in Kagera Region very few agricultural households (1,004, 0.3%) accessed credit out of which 750 (75%) were male-headed households and 254 (25%) were female headed households. In Muleba district only female headed households got agricultural credit whereas in Ngara district only male households accessed credit. In Biharamulo district both male and female headed households accessed agricultural credit (Table 3.13).

Table 3.13 Number of Agricultural Households that Received Credit by Sex of Household Head and District

District	Male		Female		Total
	Number	%	Number	%	
Karagwe	0	0	0	0	0
Bukoba Rural	0	0	0	0	0
Muleba	0	0	169	100	169
Biharamulo	396	82	85	18	481
Ngara	355	100	0	0	355
Bukoba Urban	0	0	0	0	0
Total	**750**	**75**	**254**	**25**	**1004**

Chart 3.103 Percentage Distribution of Households Receiving Credit by Main Source

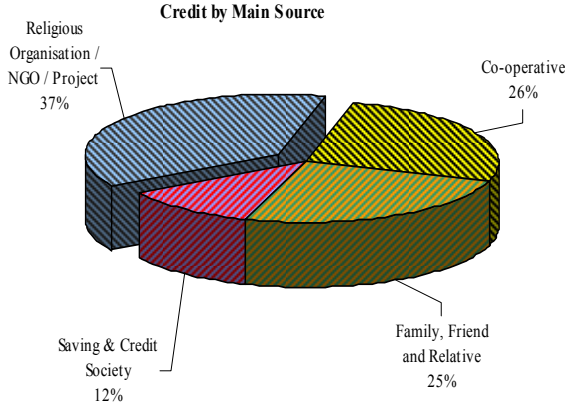
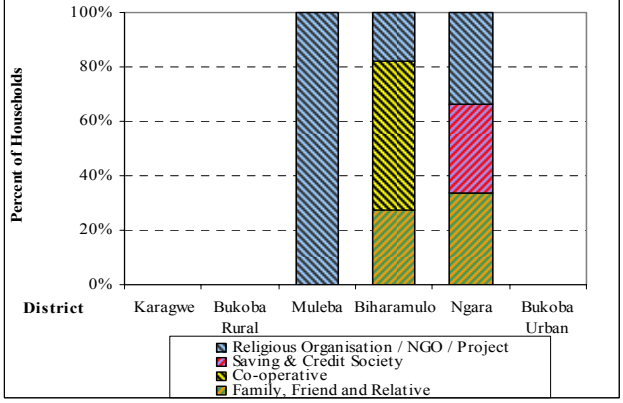


Chart 3.104 Number of Households Receiving Credit by Main Source of Credit and District



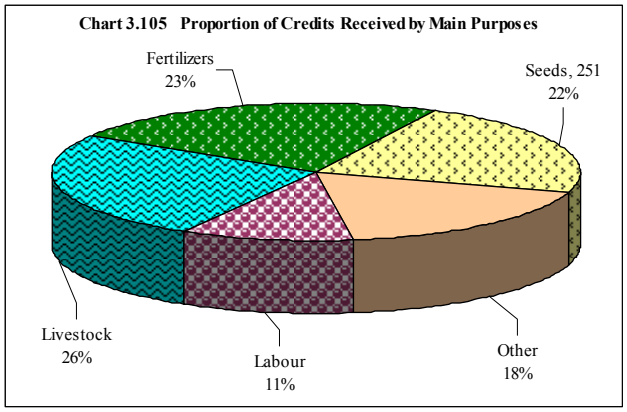
3.8.1.1 Source of Agricultural Credit

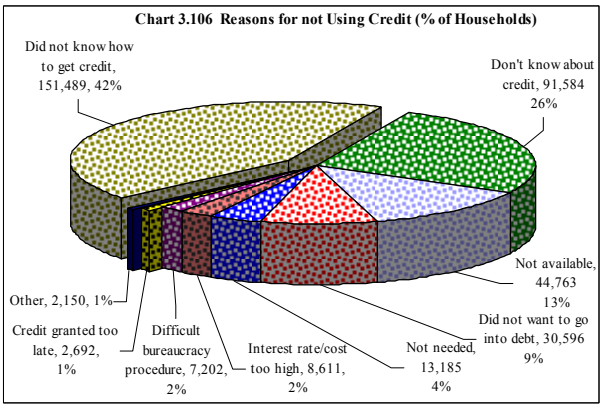
The major agricultural credit provider in Kagera Region were religious organizations/non-governmental organizations/ projects which collectively provided credit to 373 agricultural households (37% of the total number of households that accessed credit), followed by co-operatives (26%), family, friends and relatives (25%) and saving and credit societies (12%) (Chart 3.103). Religious organizations/NGOs/projects were the sole source of credit in Muleba district. Cooperatives were a major credit provider in Biharamulo district. Family, friends and relatives were major credit providers in Ngara disrtict (Chart 3.104).

3.8.1.2 Use of Agricultural Credit

A large proportion of the agricultural credit provided to agricultural households in the region were used on livestock and related activities (26%), followed by purchasing of fertilizers (23%), seeds (22%) and labour (11%). (Chart 3.105).

3.8.1.3 Reasons for Not Using Agricultural Credit

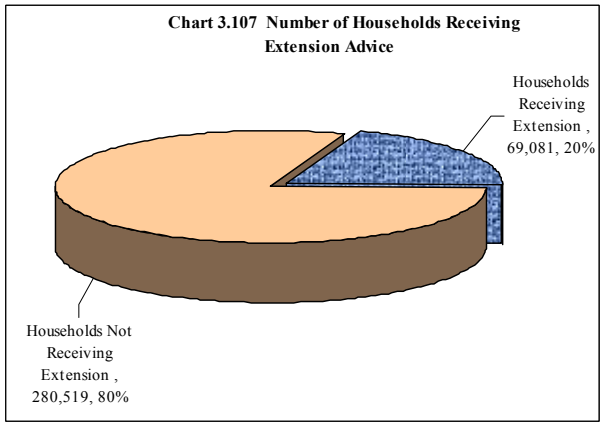


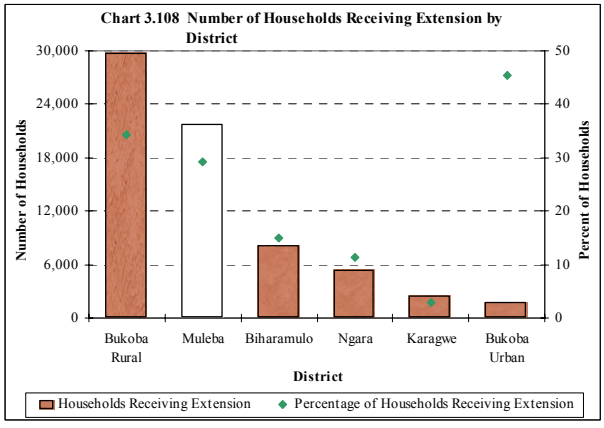


The main reason for not using agricultural credit as a source of finance was little credit awareness accounting to 68 percent of the agricultural households ("did not know how to get credit" and "don't know about credit"). This was followed by households reporting the un-availability of credit (13%), followed by "not wanting to go into debt" (9%) and those who didn,t need credit (4%). The rest of the reasons collectively accounted for less than 7 percent of the households.

3.8.2 Crop Extension

The number of Agricultural households that received crop extension was 69,081 (20% of total crop growing households in





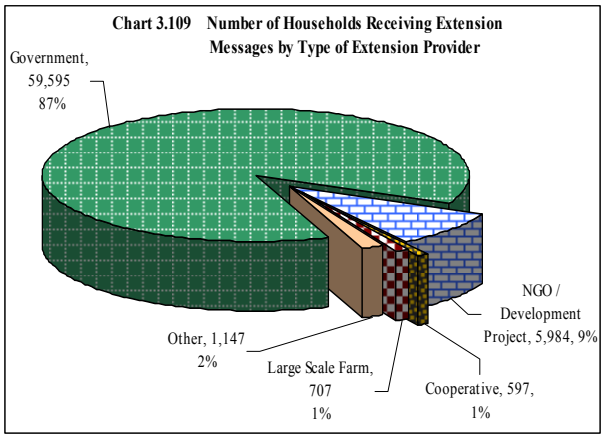
the region) (Chart 3.107). Some districts had more access to extension services than others, with Bukoba Urban having a relatively high proportion of households (45%) that received crop extension messages in the district followed by Bukoba Rural (34%), Muleba (29%), Biharamulo (15%), Ngara (11%) and Karagwe (3%) (Chart 3.108 and Map 3.43).

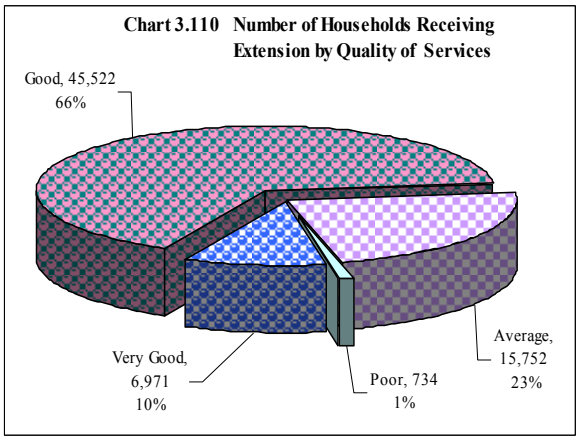
3.8.2.1 Sources of Crop Extension Messages

Of the households receiving extension advice the Government provided the greatest proportion (87%, 59,595 households). NGOs provided extension advice to 9 percent of the households, cooperatives (1 percent) and large scale farms (1 percent) (Chart 3.109), however district differences exist with the proportion of the households receiving advice from government services ranging from 78.2 percent in Ngara to 91.7 percent in Bukoba Urban.

3.8.2.2 Quality of Extension

On the quality of extension, 66 percent of the households receiving extension ranked the service as being good followed by average (23 %), very good (10%) and poor (1%) (Chart 3.110). However, care should be exercised when making decisions on quality of extension and also other variables in the extension report as all the enumerators were extension agents and some degree of bias is expected.





3.9 Access to Inputs

This section refers to all crop growing households in Kagera regardless of whether the households grew annual or permanent crops. In previous sections the reference was on annual crops only. Because of this, some of the figures presented in this section may be slightly different from those in the previous section on inputs use (Section 3.5). Data on source of inputs is only found in this section and it applies to both annual and permanent crops.

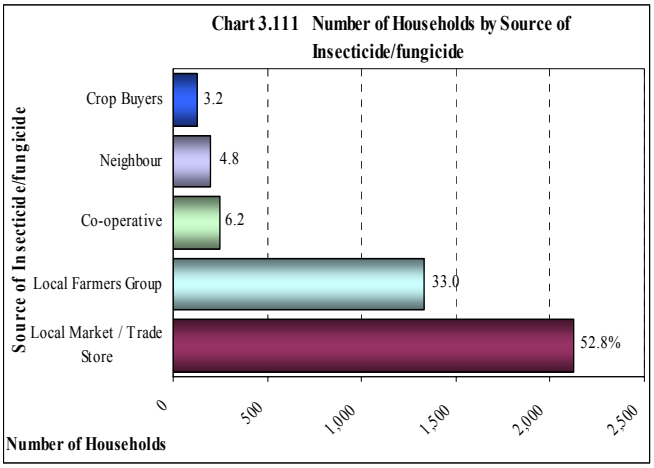
Table 3.14 Access to Inputs

Type of Input	Households With Access to Input		Households Without Access to Inputs	
	Number	%	Number	%
Farm Yard Manure	72,527	20.7	277,073	79.3
Improved Seeds	40,133	11.5	309,467	88.5
Insecticide/Fungicide	27,881	8.0	321,719	92.0
Compost	47,193	13.5	302,407	86.5
Inorganic Fertiliser	4,031	1.2	345,568	98.8
Herbicide	650	0.2	348,949	99.8

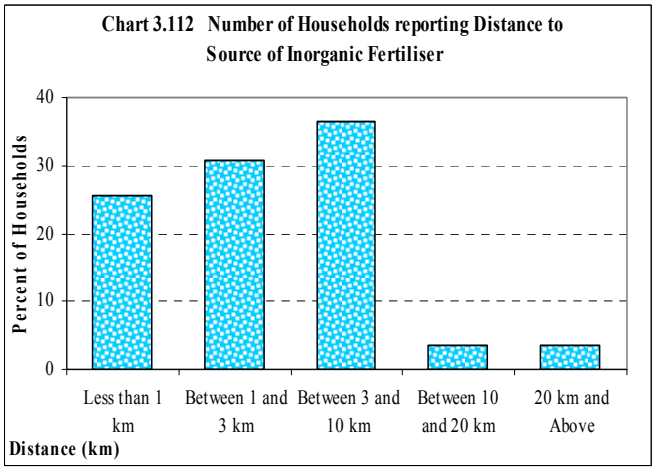
A small number of households use inputs and this is particularly true of inputs that are not produced on farm such as fungicides, inorganic fertiliser and herbicides. In Kagera Region farm yard manure was used by 72,527 households which represent 20.7 percent of the total number of crop growing households. This is followed by households using compost (13.5%), improved seeds (11.5%), fungicide (8.0%), inorganic fertilisers (1.2%), and herbicides (0.2%) (Table 3.14).

3.9.2 Inorganic Fertilisers

Smallholders using inorganic fertilisers in Kagera mostly purchase them from local markets/trades store (52.8% of the total number of inorganic fertiliser users), followed by local farmers groups (33.0%), co-operatives (6.2%), neighbours (4.8%) and crop buyers (3.2%). (Chart 3.111).



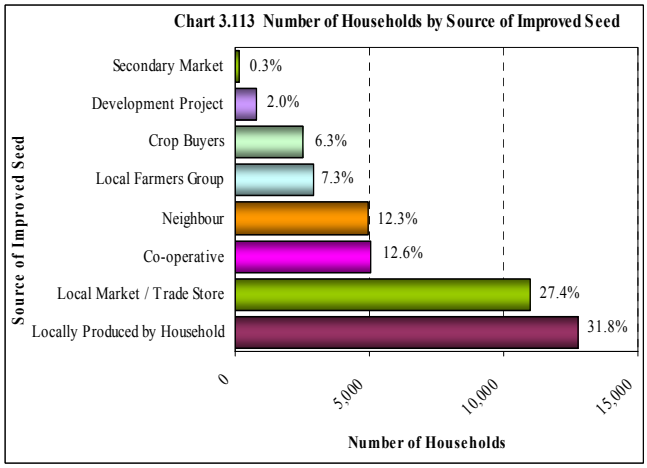
Most households reside between 3 and 10 km from the source (36%), followed by between 1 and 3 km (31%) and less than 1 km (25%) (Chart 3.112). Due to the very small number of households using inorganic fertilisers coupled with the small number of households responding to "not available" (25%) as the reason for not using them, it may be assumed that access to inorganic fertilisers is not the main reason for not using them. Other reasons such as cost are more important with 67 percent of households responding to cost factors as the main reason for not using the fertilizers. In other words, if the cost was affordable the demand would be higher and inorganic fertilisers would be made more available.



More smallholders use inorganic fertilisers in Biharamulo than in other districts in Kagera Region (51% of households using inorganic fertilisers), followed by Bukoba Rural (22%), Muleba (13%), Karagwe (9%) and Bukoba Urban (5%). There was no inorganic fertilizer use in Ngara district.

3.9.3 Improved Seeds

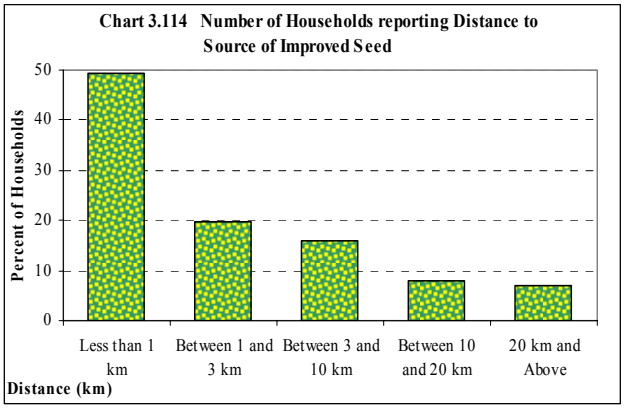
Improved seeds were used by 11.5 percent of the total number of crop growing households. Most of the improved seeds were locally produced by households (31.8%) followed by local markets/trade stores (27.4%), cooperatives (12.6%) and neighbours (12.3%). Other less important sources of improved seed were local farmers groups (7.3%), crop buyers (6.3%), development projects (2.0%) and secondary markets (0.3%). (Chart 3.113).



Access to improved seeds was better than access to chemical inputs with 49 percent of households obtaining the input within 1 km of the household (Chart 3.114). This is in line with the higher use of improved seed compared to chemical inputs, which further supports the contention that it is not the availability that is the main issue in the use of inputs but rather other

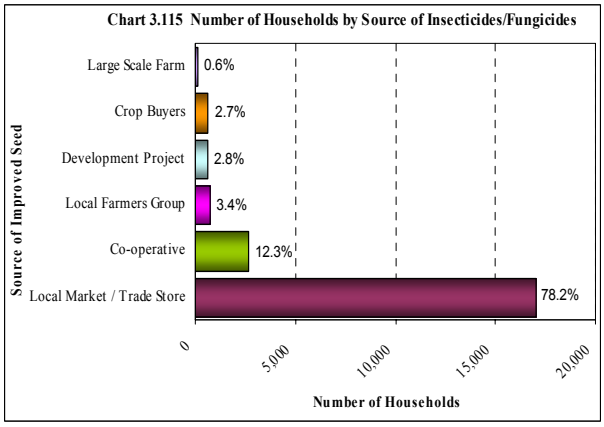
factors such as cost.

The districts that used improved seeds most was Bukoba Rural (53.7 percent of the total number of households using improved seeds in Kagera Region), followed by Biharamulo (27.5%) and Muleba (14.2%). There was little use of improved seeds in other districts (Map 3.44).



3.9.4 Insecticides and Fungicides

Most smallholder households using insecticides and fungicides, mainly purchased them from local markets/trade stores (78.2% of the total number of fungicide users) followed by cooperatives (12.3%). Other sources of insecticides/ fungicides are of minor importance (Chart 3.115).



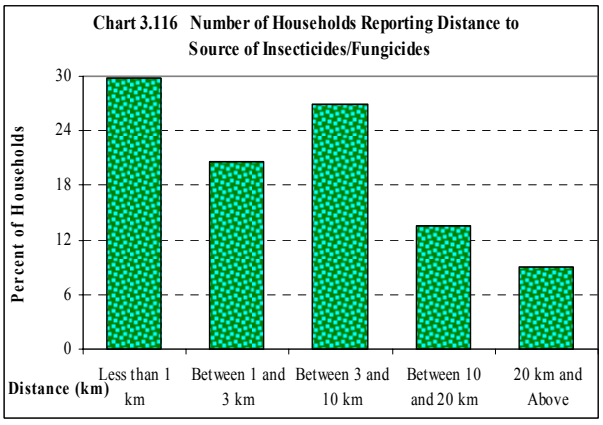
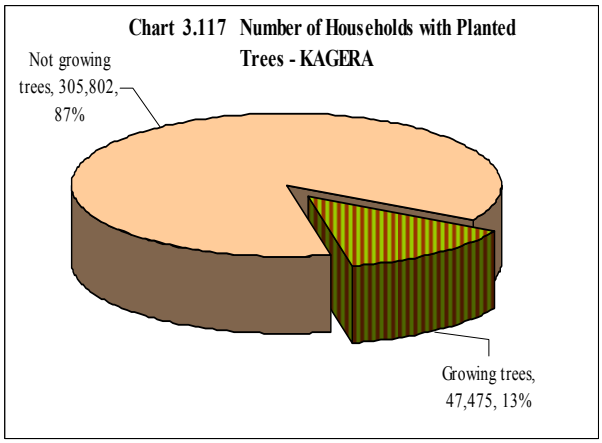


Chart 3.116 shows that most households obtain insecticides and fungicides within a distance of less than 1 kilometre and between 3 and 10 kilometres. The small number of households using insecticides/fungicides coupled with the 15 percent of households responding to "not available" as the reason for not using it may be assumed that access is not the main reason for not using. Other reasons such as cost are more important with 62 percent of households responding to cost factors as the main reason for not using. In other words, it is assumed that if the cost was affordable, the demand would be higher and access to insecticides/fungicides would be made more available. Fungicide is used more in Biharamulo district (30.6 percent of the total number of households that use fungicide in the region), followed by Muleba (28.1%), Bukoba Rural (16.9%), Karagwe (14.3%), Ngara (10.0%) and Bukoba Urban (0.1%).

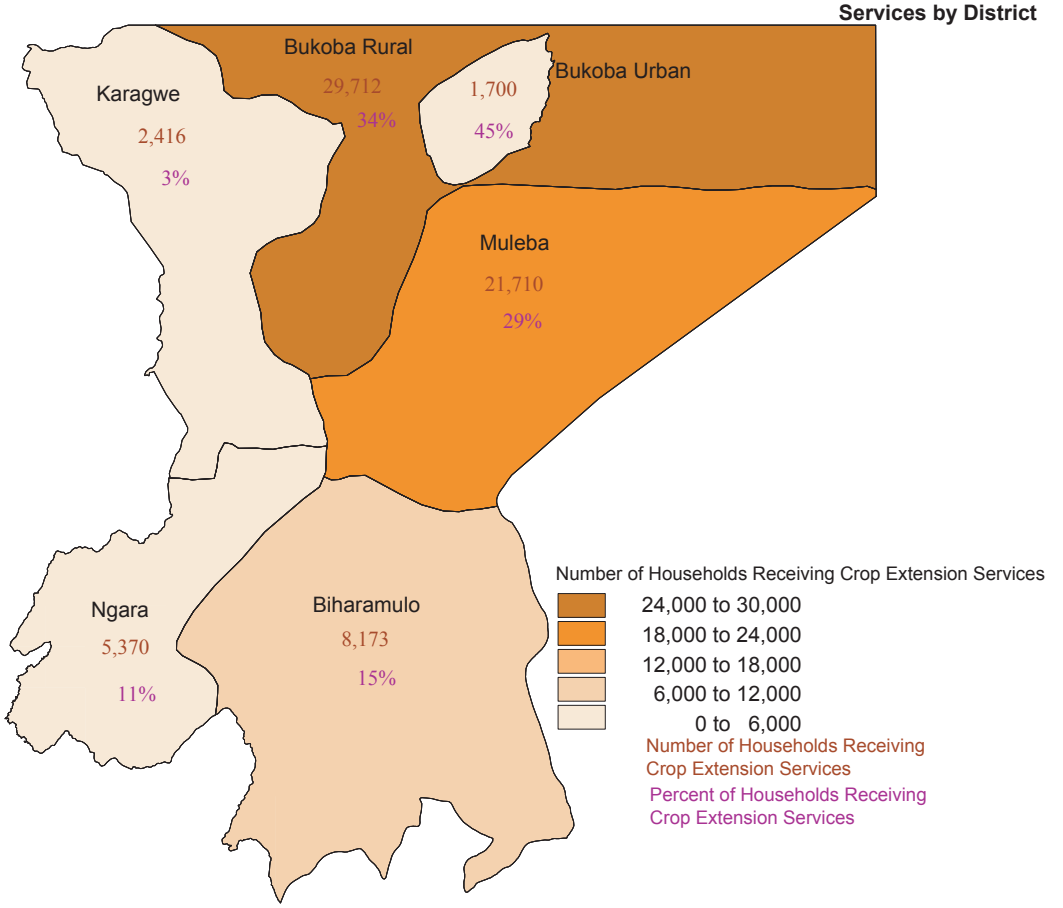


3.10 Tree Planting

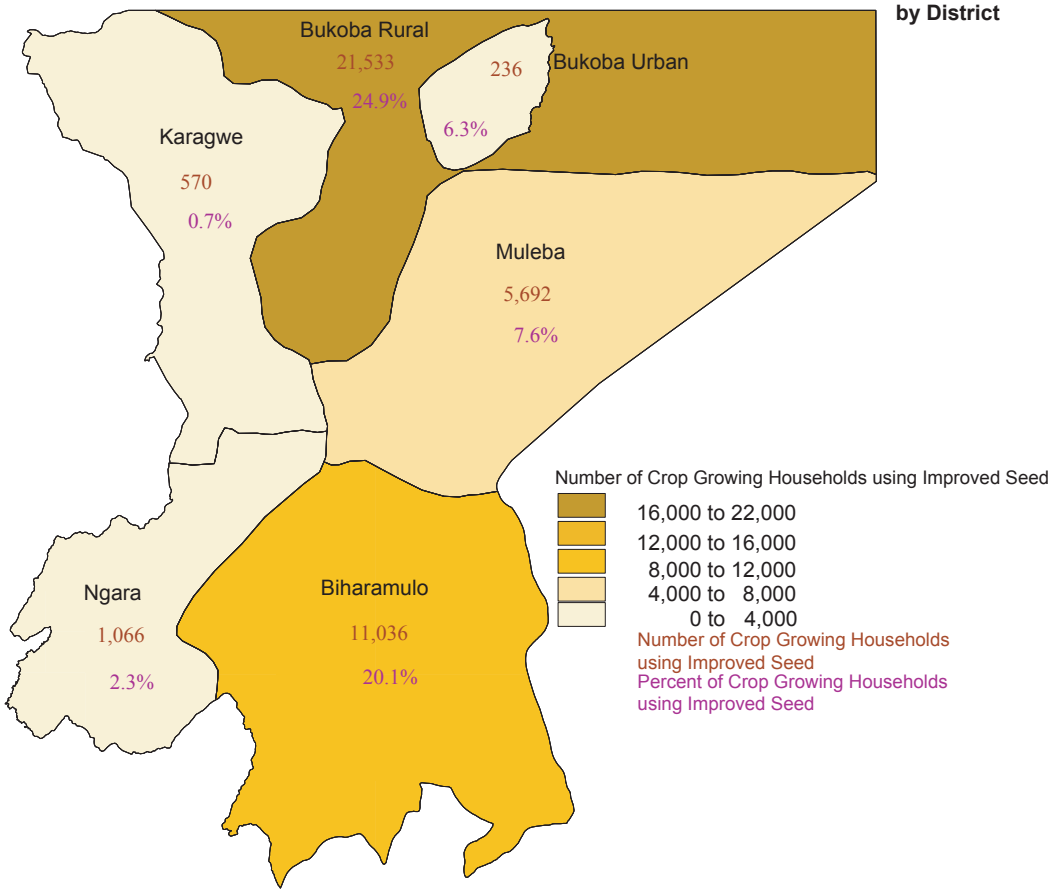
The number of households involved in tree farming was 47,475 representing 13 percent of the total number of agriculture households (Chart 3.117).

The number of trees planted by smallholders on their allotted land was 14,326,368 trees. The average number of trees planted per household planting trees was 302 trees.

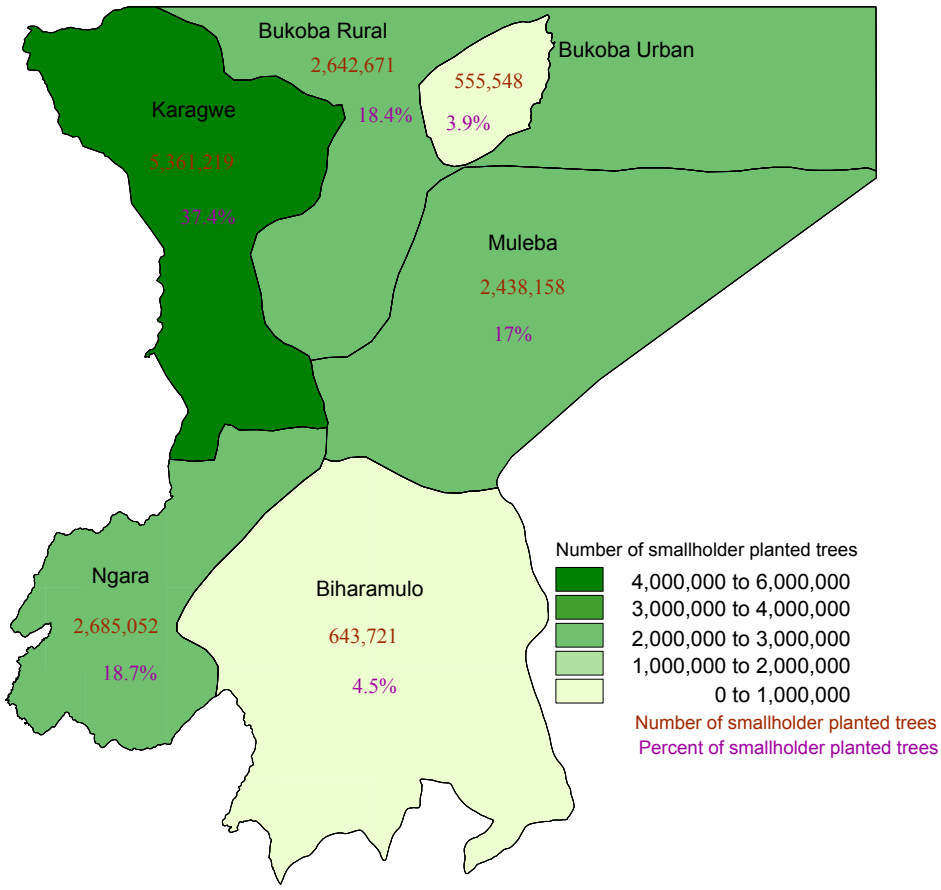
Map 3.43 KAGERA
Number of Households and Percent of Total Household Receiving Crop Extension Services by District



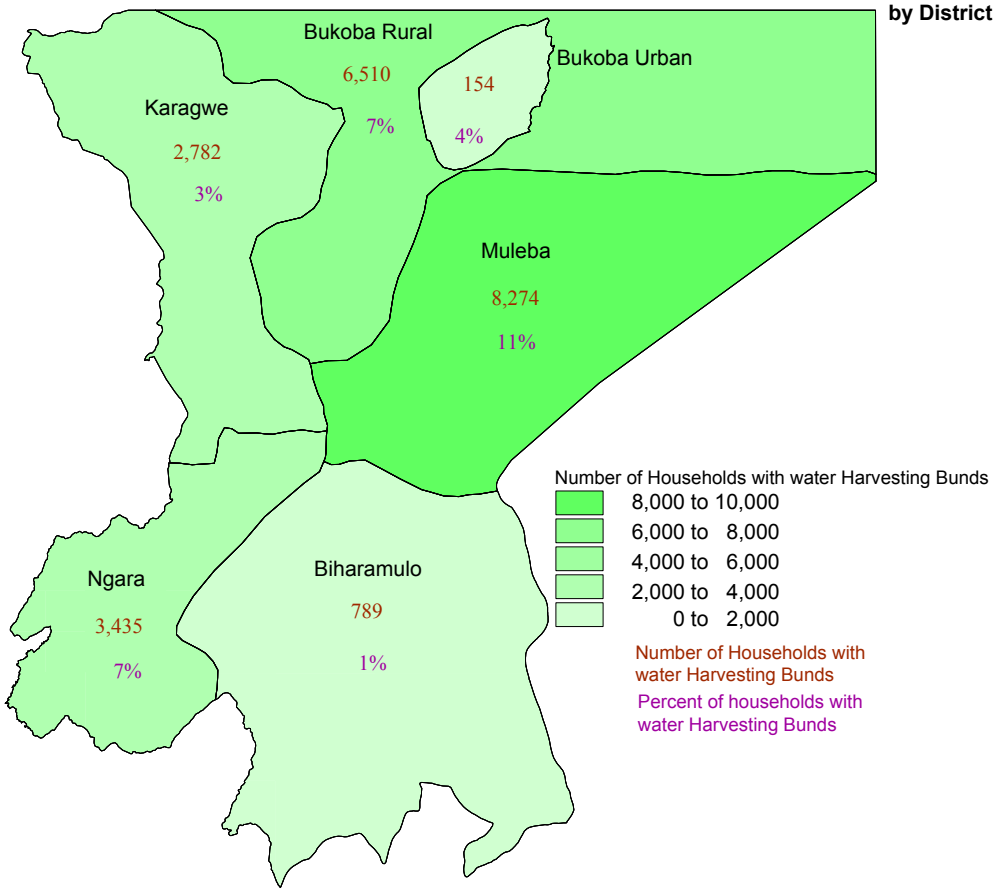
Map 3.44 KAGERA
Number and Percent of Crop Growing Households using Improved Seed by District

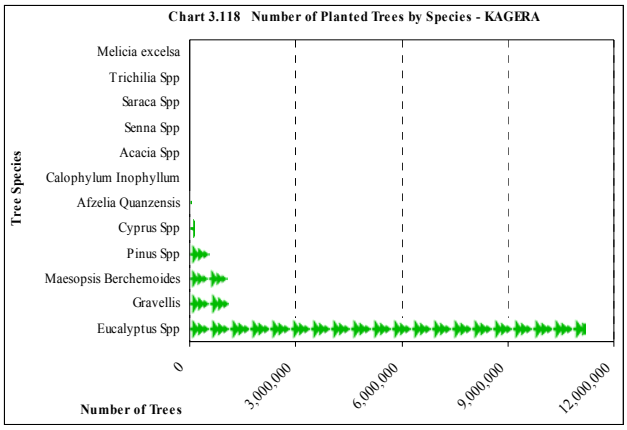


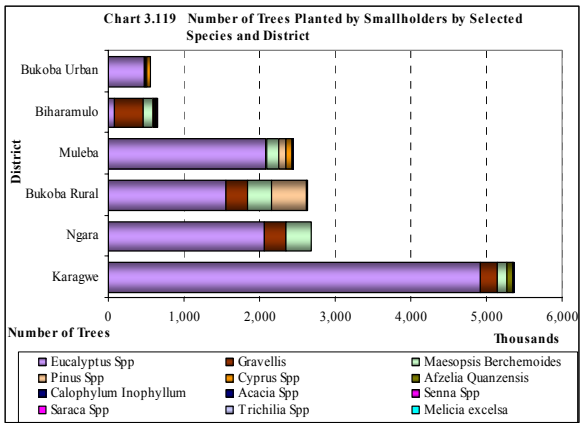
Map 3.45 KAGERA
Number and percent of smallholder planted trees by district



Map 3.46 KAGERA
Number and Percent of Households with water Harvesting Bunds by District



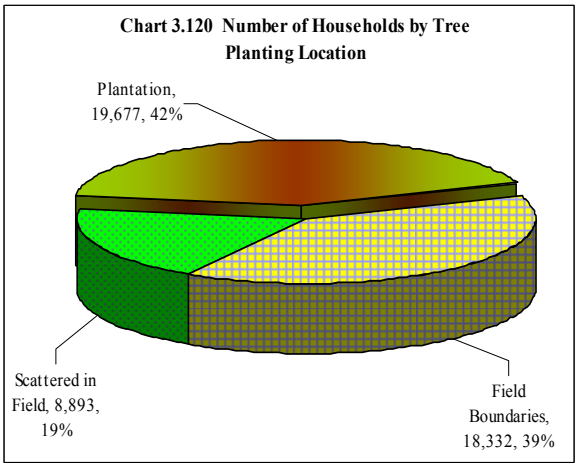


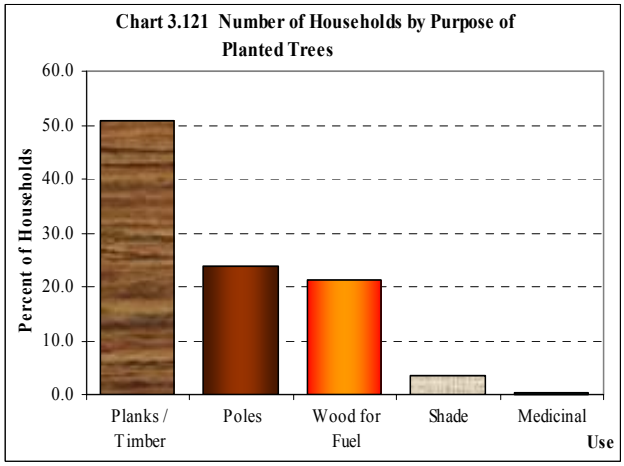


The main species planted by smallholders was Eucalyptus spp (11,195,348 trees, 78.1%), followed by Gravellis spp (1,187,979, 8.3%), then Maesopsis spp (1,063,430, 7.4%) and Pinus spp (588,060 trees, 4.1%). The remaining trees species are planted in comparatively small numbers and together accounted for 2.0% of the trees (Chart 3.118.). Karagwe has the largest number of smallholders with planted trees than any other district (37.4%) and was dominated by Eucalyptus species. This was followed by Ngara (18.9%), Bukoba Rural (18.4%), Muleba (17.0%), Biharamulo (4.5%) and Bukoba Urban (3.9%). With exception of Biharamulo district which was dominated by Gravellis spp, the rest of the districts were dominated by Eucalyptus spp (Chart 3.119 and Map 3.45.).

Smallholders mostly plant trees in plantations or coppice. The proportion of households that plant in plantations or coppice was 42 percent, followed by those who planted on field boundaries (39%) and then those with trees scattered in fields (19%) (Chart 3.120).

The main purpose of planting trees was to obtain planks/timber (50.8%). This is followed by poles (23.9%), wood for fuel (21.3%), shade (3.6%) and medicinal (0.4%) (Chart 3.121).

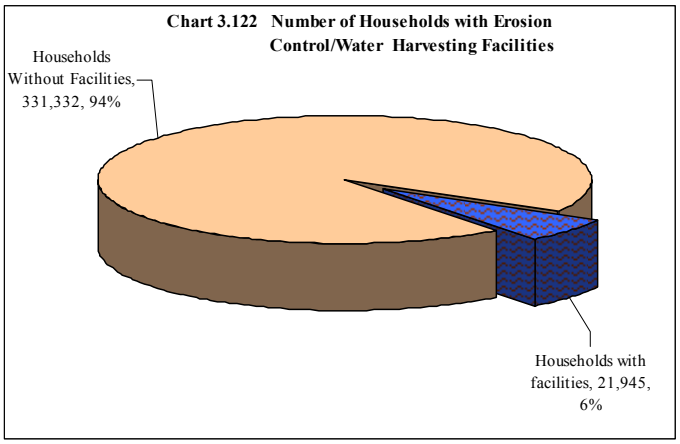




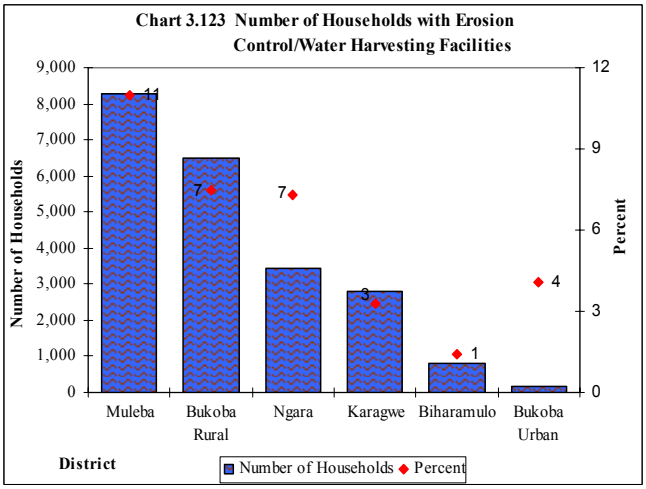
3.11 Irrigation and Erosion Control Facilities

Erosion control and water harvesting facilities are grouped together as they normally have dual purposes of reducing erosion and increasing the amount of water available for crop production.

The number of agricultural households that had soil erosion and water harvesting facilities on their farms was 21,945 which represented 6 percent of the total number of agricultural households in the region (Chart 3.122).

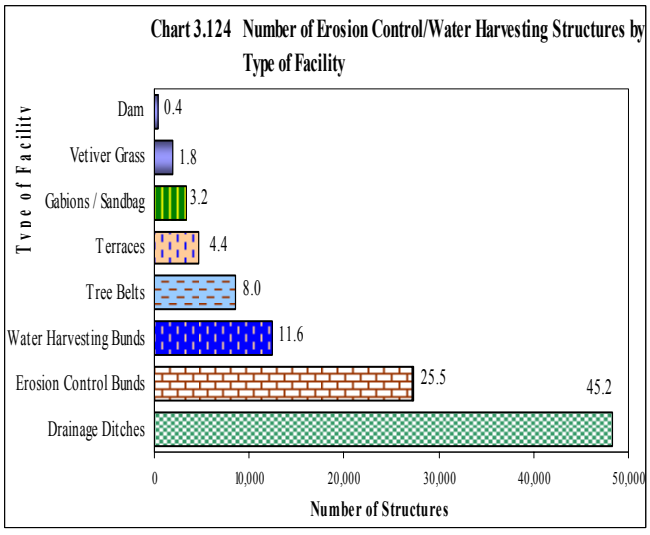


The proportion of households with soil erosion control and water harvesting facilities was highest in Muleba district (11.0%) followed by Bukoba Rural (7.5%), Ngara (7.3%), Karagwe (3.3%), Bukoba Urban (4.1%) and Biharamulo (1.4%) (Chart 3.123 and Map 3.46). Ditches accounted for 45.2 percent of the total number of structures, followed by erosion control bunds (25.5%), water harvesting bunds (11.6%), tree belts (8.0%), terraces (4.4%), gabions/sandbags (3.2%), vetiver grass (1.8%) and dams (0.4%) (Chart 3.124).



Erosion control by drainage ditches, erosion control bunds and water harvesting bunds together had 87,977 structures. This represented 82 percent of the total structures in the region. The remaining 18 percentages were shared among the rest of the erosion control methods mentioned above.

Bukoba Rural and Muleba districts had 66,215 erosion control structures (62 percent of the total erosion structures in the region).



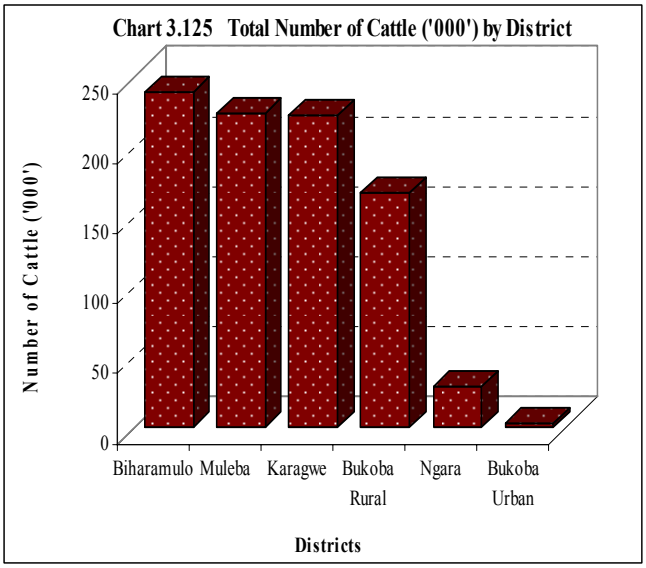
3.12 LIVESTOCK RESULTS

3.12.1 Cattle Production

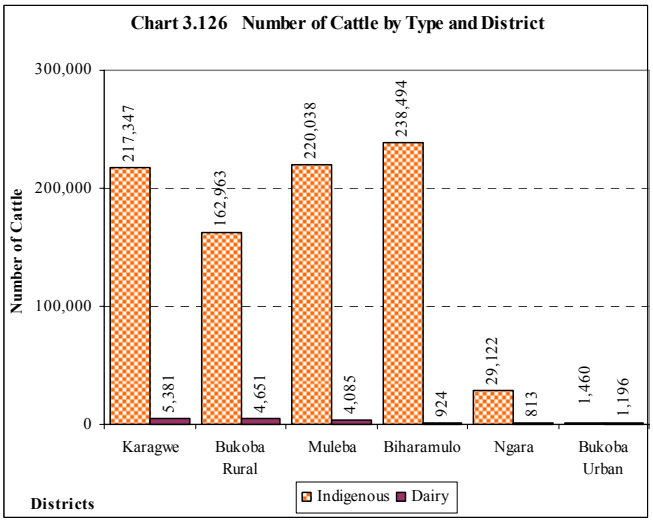
The total number of cattle in the region was 886,474. Cattle are the dominant livestock type in the region followed by goats, sheep and pigs. The region had 5.3 percent of the total cattle population on Tanzania Mainland.

3.12.1.1 Cattle Population

The number of indigenous cattle in Kagera Region was 869,424 (98.1 % of the total number of cattle in the region) and 17,050 cattle (1.9%) were dairy breeds. There were no small holder improved beef cattle in the region.



The census results show that 49,079 agricultural households in the region (14% of total agricultural households) kept 869,474 cattle. This was equivalent to an average of 18 heads of cattle per cattle-keeping-household. The district with the largest number of cattle was Biharamulo which had about 239,417 cattle (27.0% of the total cattle in the region). This was followed by Muleba (224,123 cattle, 25.3%), Karagwe (222,728 cattle, 25.1%), Bukoba Rural (167,614 cattle, 18.9%) and Ngara (29,935 cattle, 3.4%). Bukoba Urban district had the least number of cattle (2,656 cattle, 0.3%) (Chart 3.125 and Map 3.47). However Karagwe district had the highest density of cattle (93 head per km^2) (Map 3.48).

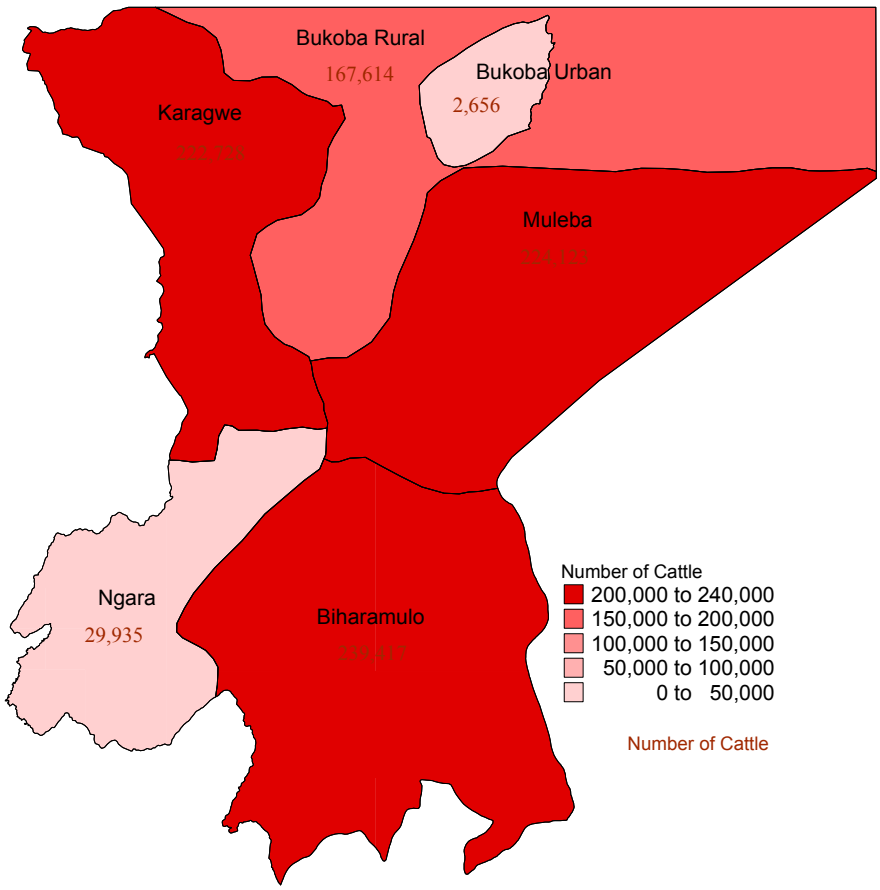


Although Biharamulo district had the largest number of cattle in the region, most of it was indigenous. The number of dairy cattle was was insignificant. Karagwe district had the largest number of diary cattle in the region. In general, the number of dairy cattle in the region was small (Chart 3.126).

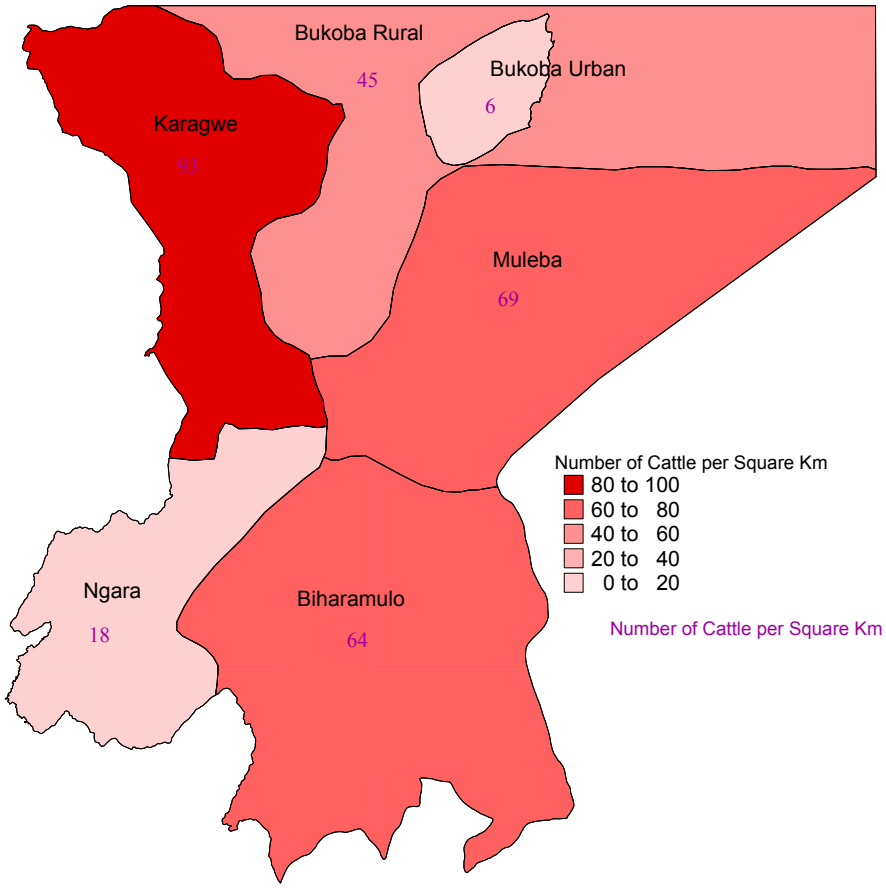
3.12.1.2 Herd Size

Forty eight percent of the cattle-rearing households had herds of size 1-5 cattle with an average of three cattle per household. Herd sizes of 6-30 accounted for about 39 percent of all cattle-rearing household in the region. Only 10 percent of the cattle rearing households had herd sizes of 31-100 cattle and 3 percent had herd size of more than 100. About 80 percent of total cattle rearing households had herds of size 1-30 cattle and owned 34 percent of total cattle in the region, resulting in an average of 7 cattle per cattle rearing household. There were about 608 households with a herd size of more than 151 cattle each (204,454 cattle in total) resulting in an average of 336 cattle per household.

Map 3.47 KAGERA
Cattle population by District
as of 1st Octobers 2003

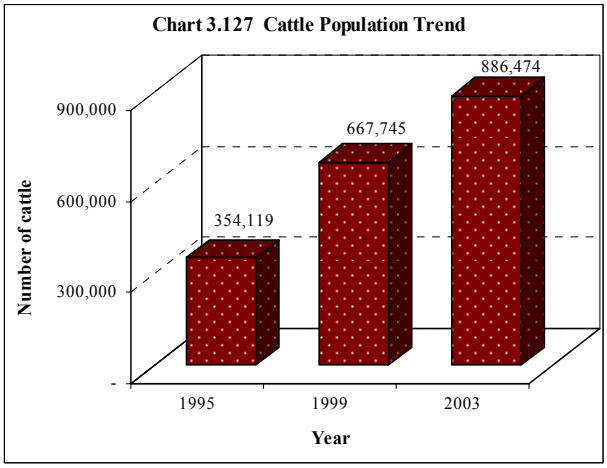


Map 3.48 KAGERA
Cattle Density by District
as of 1st October 2003



3.12.1.3 CattlePopulation Trend

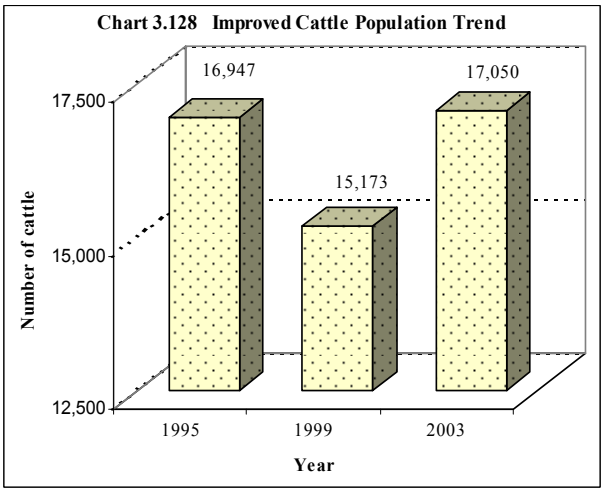
Cattle population in Kagera grew at the average annual rate of 12.2 during the eight-year period from 354,119 in 1995 to 886,474 cattle in 2003. (Chart 3.127).



However, there was a sharp increase in number of cattle during the period of four years from 354,119 in 1995 to 667,745 in 1999 at the rate of 17.2 percent. The number of cattle is estimated to have increased from 667,745 in 1999 to 886,474 in 2003 at the rate of 7.3 percent.

3.12.1.4 Improved Cattle Breeds

The total number of improved cattle in Kagera Region was 17,050 all of which were diary cattle. The diary cattle constituted 1.9 percent of the total cattle. The number of improved cattle increased from 16,947 in 1995 to 17,050 in 2003 at an annual growth rate of 0.1 percent. While cattle decreased at an annual rate of -2.7 from 16,947 in 1995 to 15,173 in 1999, the number increased at an annual rate of 3.0 percent over the period 1999 to 2003. (Chart 3.128).

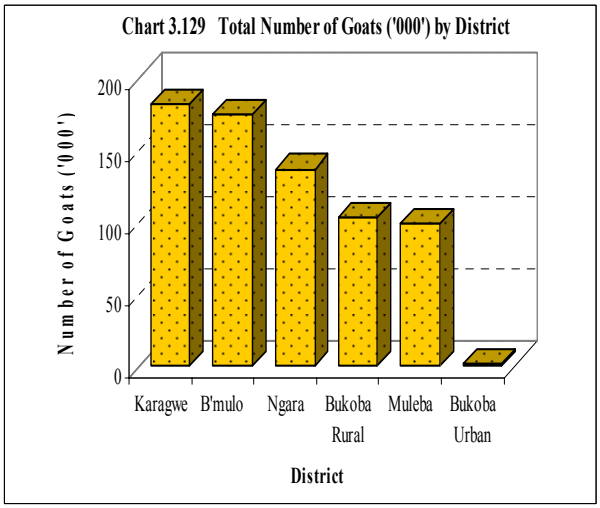


3.12.2. Goat Production

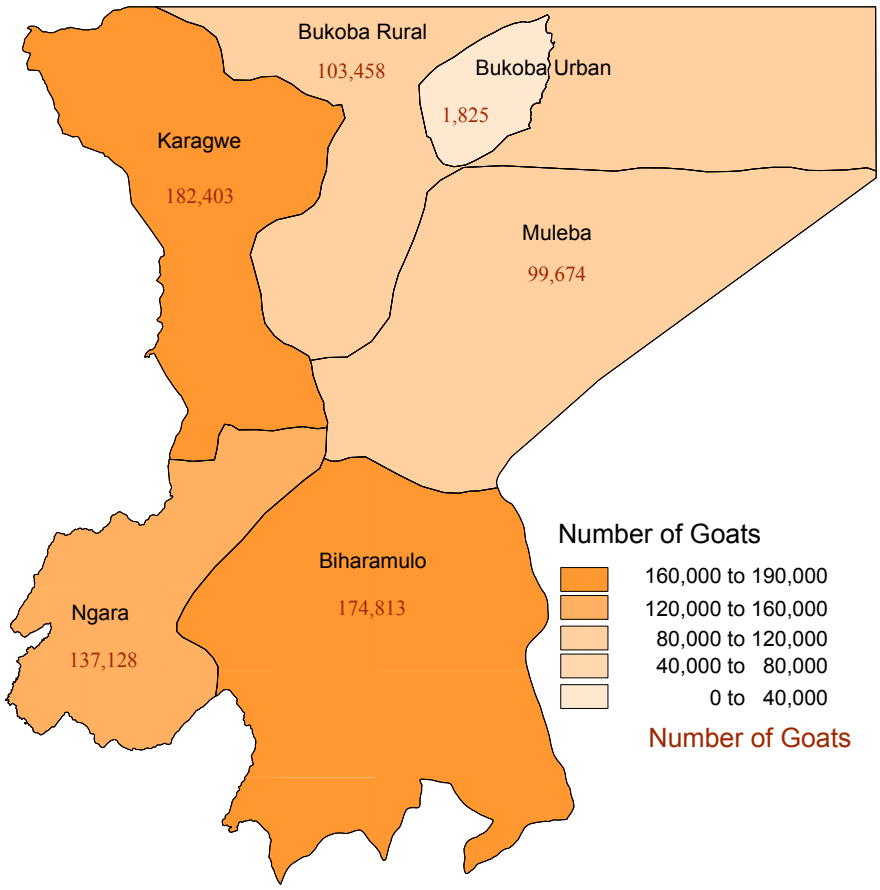
Goat rearing was the second most important livestock keeping activity in the region followed by sheep and pig rearing. In terms of total number of goats on the Mainland, Kagera Region ranked 7 out of the 21 regions with 5.9 percent of the total goats on the Mainland.

3.12.2.1 Goat Population

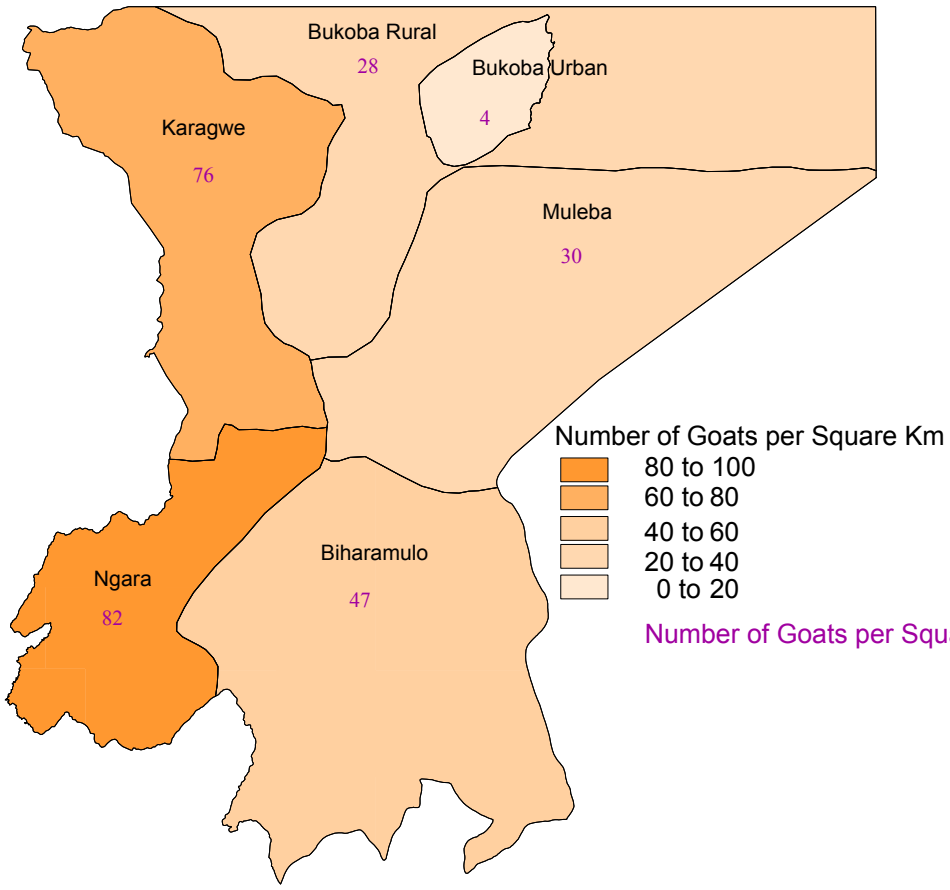
The number of goat-rearing-households in Kagera Region was 143,012 (40.5% of all agricultural households in the region) with a total of 699,301 goats giving an average of 5 head of goats per goat-rearing-household. Karagwe had the largest number of goats (182,403 goats, 26.1% of all goats in the region), followed by Biharamulo (174,813 goats, 25.0%), Ngara (137,128 goats, 19.6%), Bukoba Rural (103,458 goats, 14.8%) and Muleba (99,674 goats, 14.3%). Bukoba Urban district had the least number of goats (1,825 goats, 0.3%) (Chart 3.129 and Map 3.49). However Ngara district had the highest density (82 head per km^2) (Map 3.50).



Map 3.49 KAGERA
Goats population by District
as of 1st Octobers 2003



Map 3.50 KAGERA
Goats Density by District
as of 1st October 2003



3.12.2.2 Goat Herd Size

Sixty two percent of the goat-rearing households had herd sizes of 1-4 goats with an average of 3 goats per goat rearing household. Ninety seven percent of total goat-rearing households had herd sizes of 1-14 goats and owned 85 percent of the total goats in the region resulting in an average of 4 goats per goat-rearing households. The region had 325 households (0.2%) with herd sizes of 40 or more goats each (26,437 goats in total), resulting in an average of 81 goats per household.

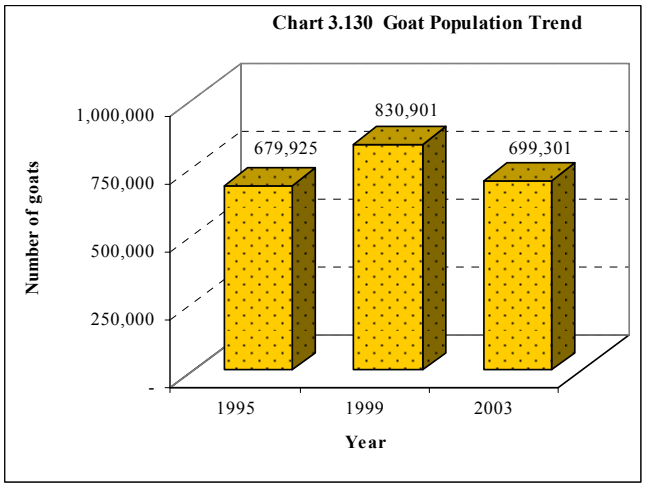
3.12.2.3 Goat Breeds

Goat husbandry in the region was dominated by the indigenous breeds that constituted 99.3 percent of the total goats in Kagera Region. Improved goats for meat and diary goats constituted 0.2 and 0.5 percent of total goats respectively.

3.12.2.4 Goat Population Trend

The overall annual growth rate of goat population from 1995 to 2003 was 0.4 percent. This positive average annual growth rate implies eight years of population increase from 679,925 in 1995 to 699,301 in 2003. The number of goats increased from 679,925 in 1995 at an estimated annual rate of 5.1 percent to 830,901 in 1999. From 1999 to 2003, the goat population decreased at an annual rate of -4.2 percent (Chart 3.130).

Chart 3.130 Goat Population Trend



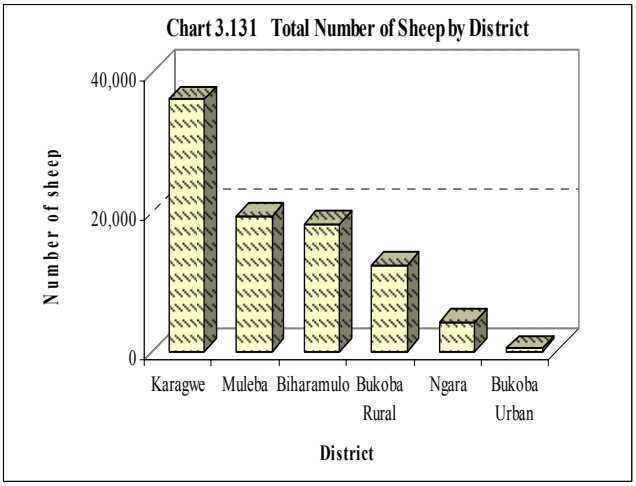
3.12.3. Sheep Production

Sheep rearing was the third most important livestock keeping activity in Kagera Region after cattle and goats. The region ranked 12 out of 21 Mainland regions and had 2.3 percent of all sheep on Tanzania Mainland.

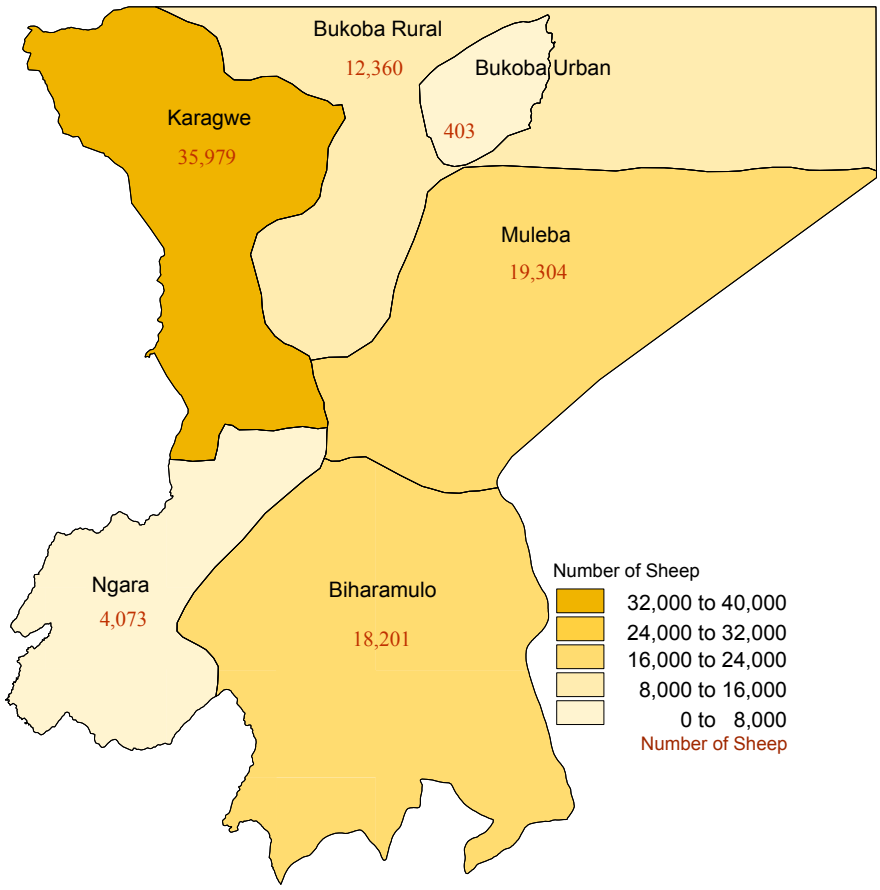
3.12.3.1 Sheep Population

The number of sheep-rearing households was 18,440 (5.2% of all agricultural households in Kagera Region) rearing 90,321 sheep, giving an average of 5 heads of sheep per sheep-rearing household. The district with the largest number of sheep was Karagwe with 35,979 sheep (39.8% of total sheep in Kagera Region) followed by Muleba (19,304 sheep, 21.4%), Biharamulo (18,201 sheep, 20.2%), Bukoba Rural (12,360 sheep, 13.7%) and Ngara (4,073 sheep, 4.5%). Bukoba Urban District had the least number of sheep (403 sheep, 0.4%) (Chart 3.131 and Map 3.51). Karagwe district also had the highest density of sheep (15 head per km^2) (Map 3.52).

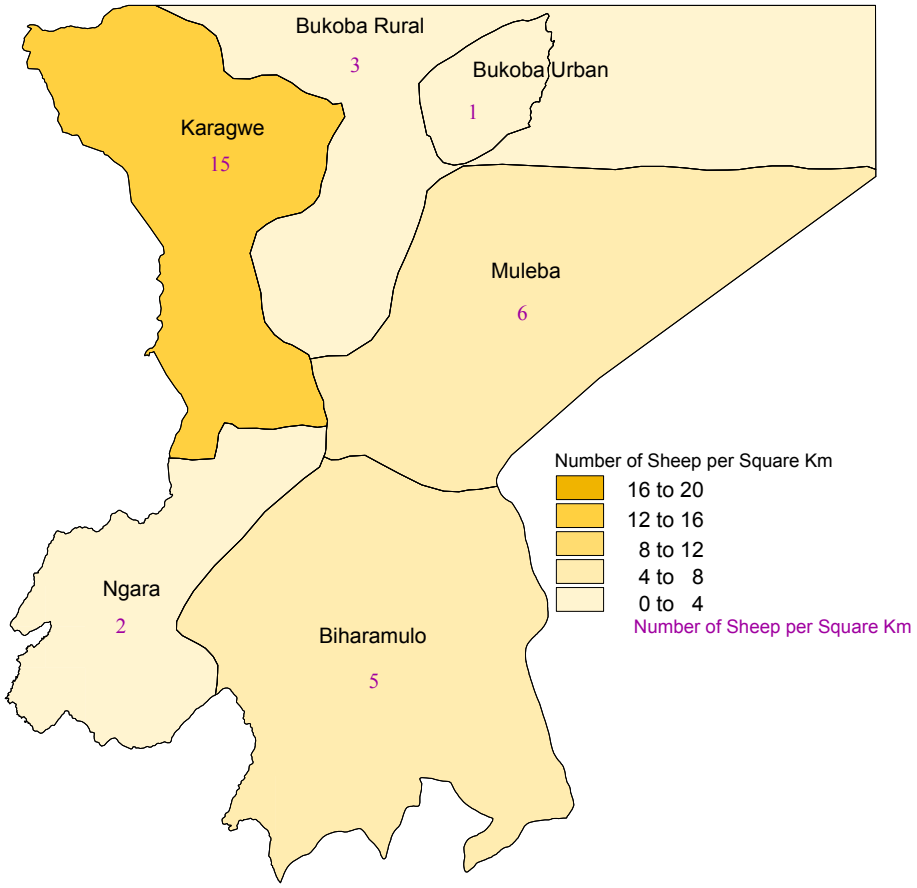
Chart 3.131 Total Number of Sheep by District



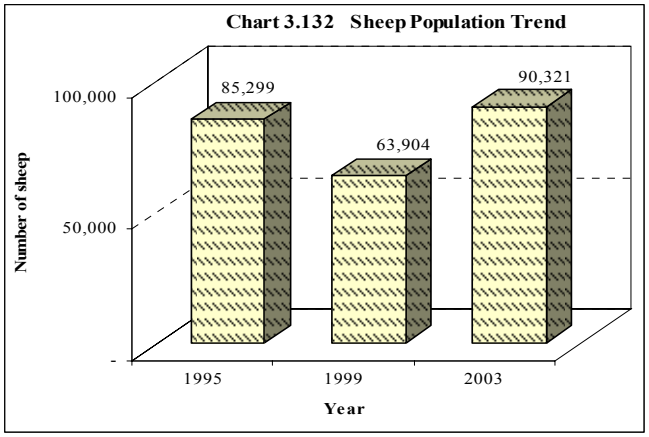
Map 3.51 KAGERA
Sheep population by District
as of 1st Octobers 2003



Map 3.52 KAGERA
Sheep Density by District
as of 1st October 2003



Sheep rearing was dominated by indigenous breeds that constituted 99.8 percent of all sheep kept in the region. Only 0.2 percent of the total sheep in the region were improved breeds.



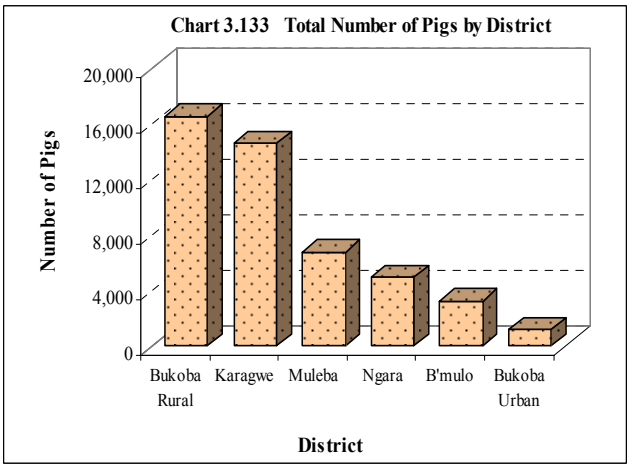
3.12.3.2 Sheep Population Trend

The overall annual growth rate of the sheep population for the eight-year period from 1995 to 2003 is estimated at 0.7 percent. The population decreased at an annual rate of -7.0 percent from 85,299 in 1995 to 63,904 in 1999. From 1999 to 2003, sheep population increased at an annual rate of 9.0 percent (Chart 3.132).

3.12.4. Pig Production

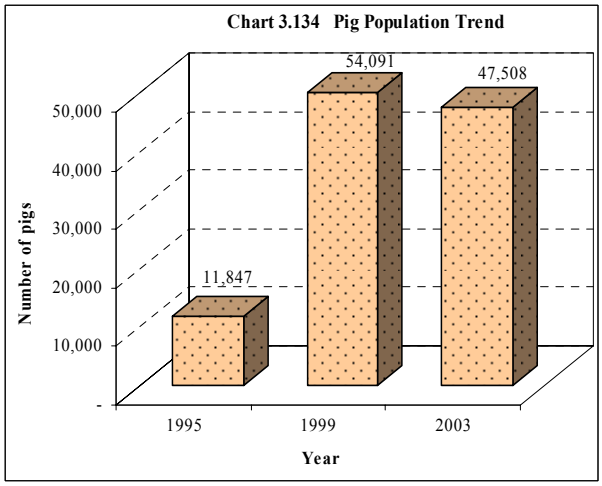
Piggery was the least important livestock keeping activity in the region after cattle, goats and sheep. The region ranked 3 out of 21 Mainland regions and had 5 percent of the Mainland total pigs.

The number of pig-rearing agricultural households in Kagera Region was 27,685 (7.8% of the total agricultural households in the region) rearing 47,508 pigs. This gives an average of 2 pigs per pig-rearing household. The district with the largest number of pigs was Bukoba Rural with 16,613 pigs (35.0% of the total pig population in the region) followed by Karagwe (14,674 pigs, 30.9%), Muleba (6,797 pigs, 14.3%), Ngara (4,980 pigs, 10.5%), Biharamulo (3,260 pigs, 6.9%) and Bukoba Urban (1,184 pigs, 2.5%) (Chart 3.133 and Map 3.53). Karagwe also had the highest density (6 head per km^2) (Map 3.54).

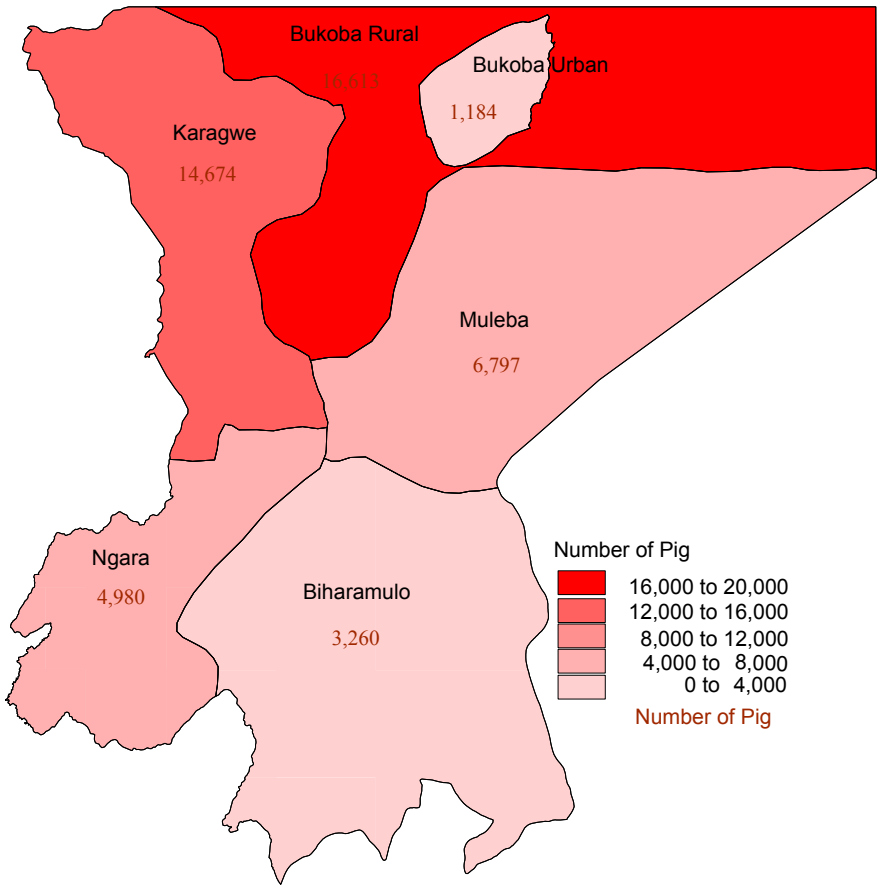


3.12.4.1 Pig Population Trend

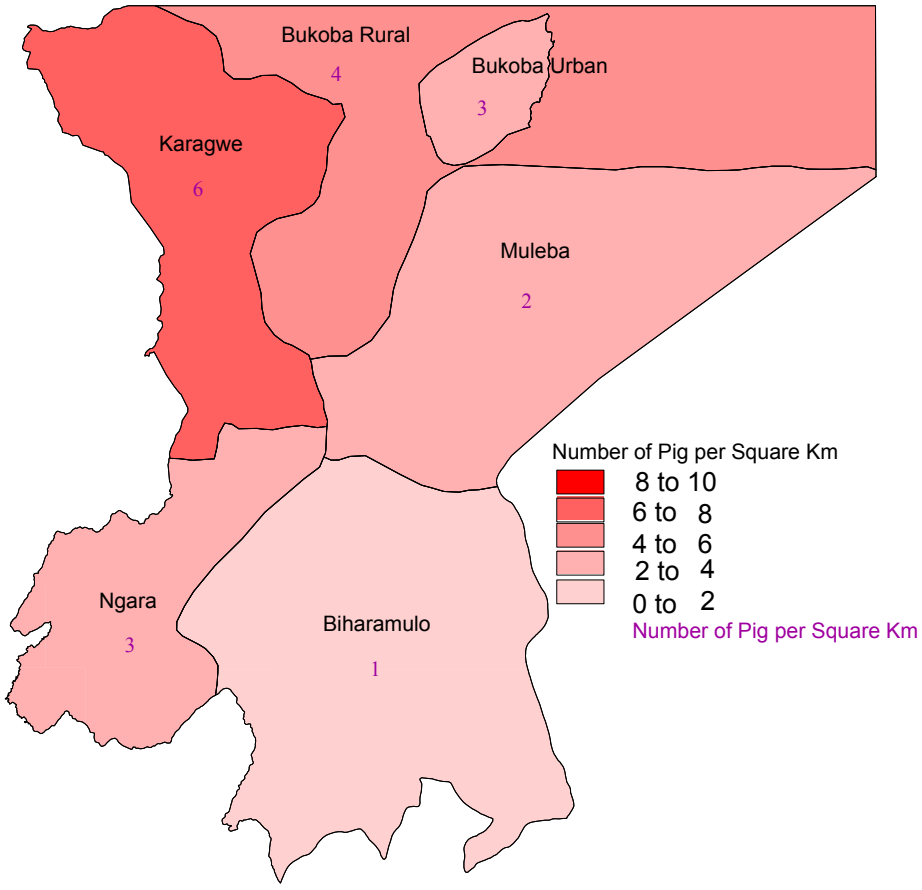
The overall annual growth rate of the pig population for the eight-year period from 1995 to 2003 was 19.0 percent. During this period the population grew from 11,847 to 47,508. The pig population increased from 11,847 in 1995 to 54,091 in 1995 at a higher rate of 46.2 percent. The growth rate dropped to -3.2 percent during the following four years from 1999 to 2003 in which pig population decreased from 54,091 to 47,508 (Chart 3.134).



Map 3.53 KAGERA
Pig population by District
as of 1st Octobers 2003



Map 3.54 KAGERA
Pig Density by District
as of 1st October 2003

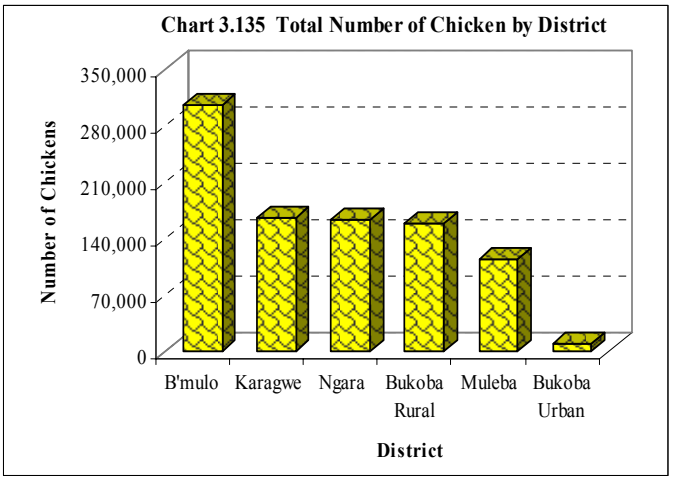


3.12.5 Chicken Production

The poultry sector in Kagera Region was dominated by chicken production. The region contributed 2.8 percent to the total chicken population on Tanzania Mainland.

3.12.5.1 Chicken Population

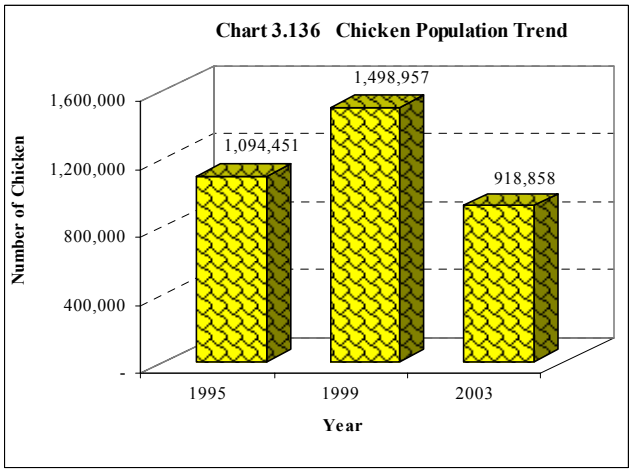
The number of households keeping chicken was 147,573 raising about 918,858 chickens. This gives an average of 6 chickens per chicken-rearing household. In terms of total number of chickens in the country, Kagera Region was ranked seventeenth out of the 21 Mainland regions.



The District with largest number of chickens was Biharamulo (306,352 chickens, 33.3% of the total number of chickens in the region) followed by Karagwe (166,117, 18.1%), Ngara (163,515, 17.8%), Bukoba Rural (159,209, 17.3%) and Muleba (114,981, 12.5%). Bukoba Urban district had the smallest number of chickens (8,684, 0.9%) (Chart 3.135 and Map 3.55). However Ngara district had the highest density (98 head per km^2) (Map 3.56).

3.12.5.2 Chicken Population Trend

The overall annual chicken population growth rate during the eight-year period from 1995 to 2003 was -2.2 percent. The population increased at an annual rate of 8.2 percent from 1995 to 1999 after which it decreased to -11.5 percent for the four-year period from 1999 to 2003 (Chart 3.136).



Ninety nine percent of all chicken in Kagera Region were of indigenous breed. The dominance of indigenous breed makes the population trend for the indigenous chicken more-or-less the same as that of the total chickens in the region.

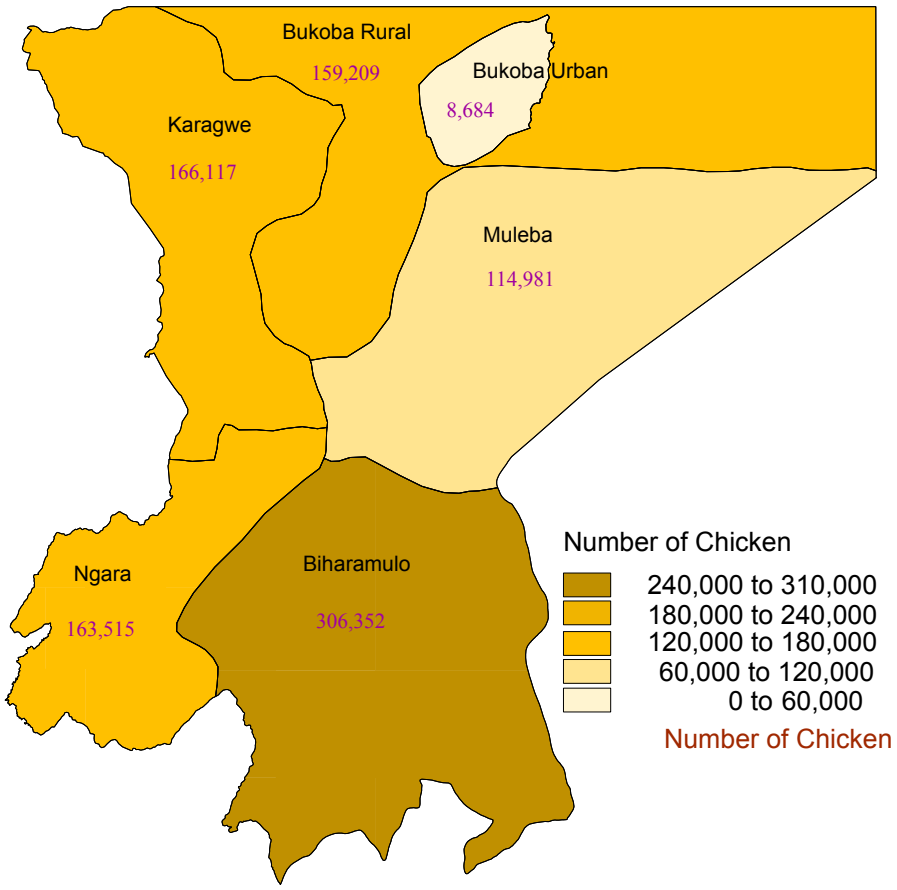
3.12.5.3 Chicken Flock Size

The results indicate that about 96 percent of all chicken-rearing households kept 1-19 chickens at an average of 5 chickens per holder. About 3 percent of holders were reported to be keeping the flock size of 20 to 99 chickens with an average of 29 chickens per holder. Only 0.1 percent of holders kept the flock sizes of more than 100 chickens at an average of 100 chickens per holder (Table 3.15).

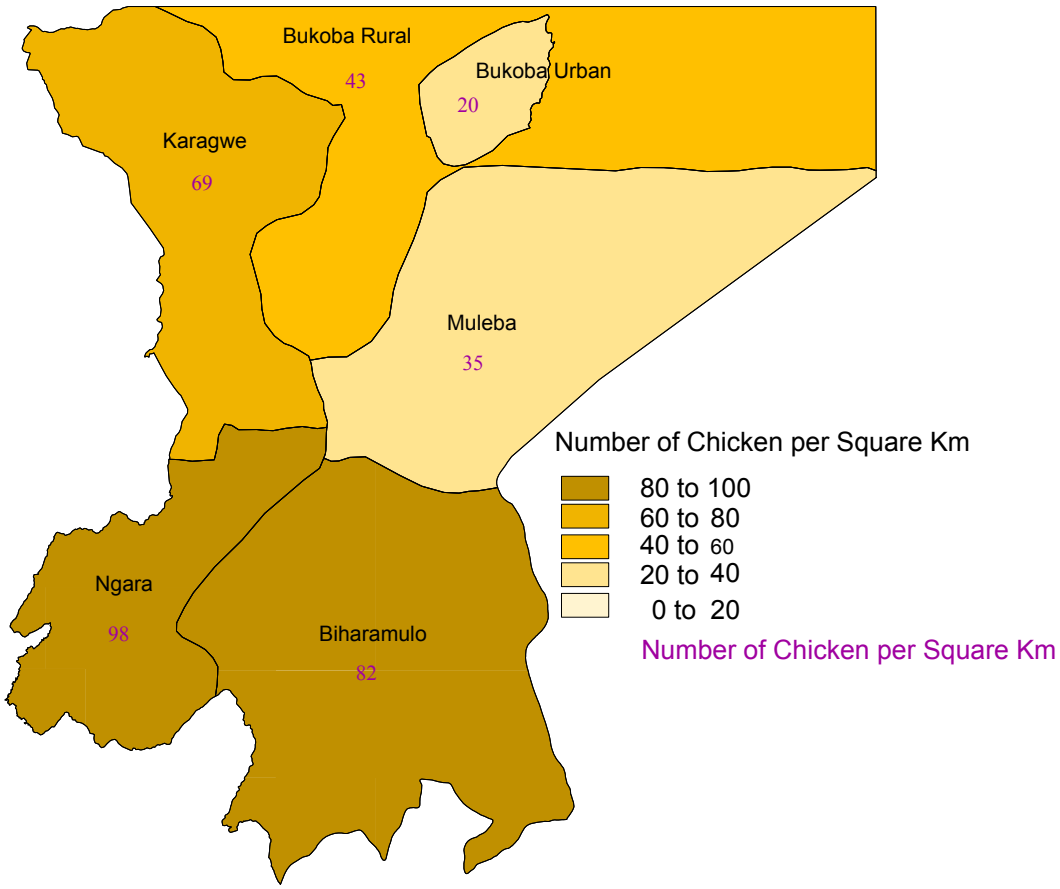
Table 3.15 Number of Households and Chickens Raised by Flock Size

Flock Size	Number of Households	%	Number of Chicken	Average Chicken by Households
1 - 4	75,712	51	203,149	3
5 - 9	47,240	32	297,784	6
10 - 19	18,415	12	227,631	12
20 - 29	3,257	2	71,691	22
30 - 39	2,046	1	65,659	32
40 - 49	149	0	7,022	47
50 - 99	621	0	32,729	53
100+	132	0	13,193	100
Total	**147,573**	100	**918,858**	6

Map 3.55 KAGERA Chicken Population by District as of 1st October 2003

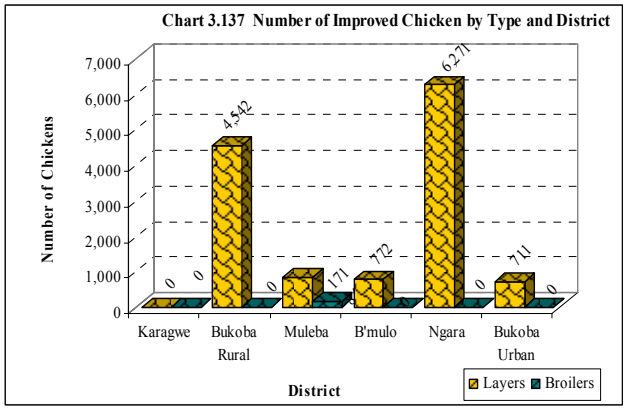


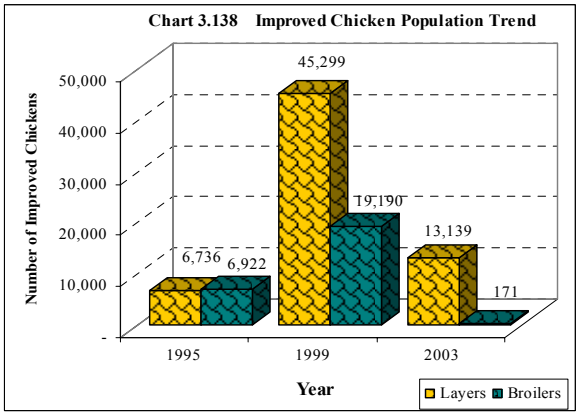
Map 3.56 KAGERA Density of Chicken by District as of 1st October 2003



3.12.5.4 Improved Chickens (layers and broilers)

Layers chicken population in Kagera Region increased at an overall annual rate of 8.7 percent for the period of eight years from 6,736 in 1995 to 13,139 in 2003. The number of improved chicken was most significant in Ngara District followed by Bukoba Rural District (Chart 3.137).





The annual growth rate for layers was highest (61.0%) during the four-year period from 1995 to 1999. The broiler population exhibited a decreasing trend at the rate of -37 percent per annum over the eight-year period resulting at a decrease from 6,922 in 1999 to 171 in 2003 (Chart 3.138).

3.12.6. Other Livestock

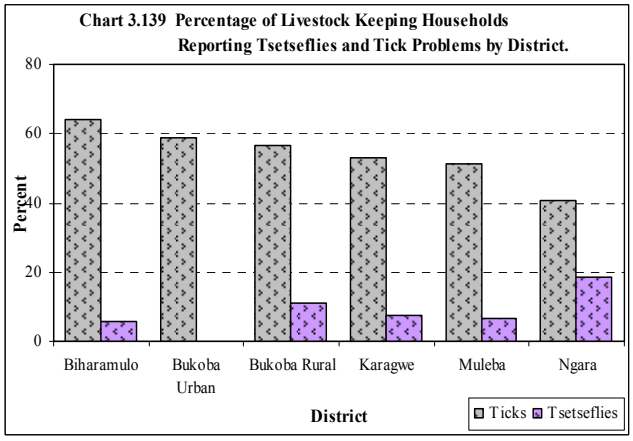
There were 67,632 ducks, 9,170 turkeys, 42,889 rabbits and 9,500 donkeys raised by rural agricultural households in Kagera Region. Table 3.16 indicates the number of livestock kept in each district. The biggest number of ducks in the region was found in Bukoba Rural District (41.1% of all ducks in the region), followed by Biharamulo (26.0%), Muleba (15.6%), Ngara (10.9%) and Karagwe (6.0%). Bukoba Urban district had the least number of ducks estimated at 0.4 percent of total ducks in the region. Turkeys were reported in Bukoba Rural and Ngara districts only (Table 3.16).

Table 3.16 Number of Other Livestock by Type of Livestock and District

District	Type of Livestock				
	Ducks	Turkeys	Rabbits	Donkeys	Other
Karagwe	4,042	0	0	0	0
Bukoba Rural	27,827	8,834	24,760	9,259	296
Muleba	10,576	0	16,303	0	0
Biharamulo	17,554	0	1,177	0	0
Ngara	7,369	336	578	0	0
Bukoba Urban	264	0	71	241	0
Total	**67,632**	**9,170**	**42,889**	**9,500**	**296**

3.12.7 Pest and Parasite Incidence and Control

The results indicate that 54 percent and 9 percent of the total livestock-keeping households reported to have encountered ticks and tsetse fly problems respectively. Chart 3.139 shows that there was a predominance of tick related diseases over tsetse related diseases. While incidences of ticks related problems were highest in Biharamulo district and lowest in Ngara district (Chart 3.139 and Map 3.57), tsetse related problems were highest in Ngara district and lowest in Muleba. There were no tsetse relates problems in Bukoba Urban district. The most practiced method of tick controlling was spraying with 62 percent of all livestock-rearing households in the region



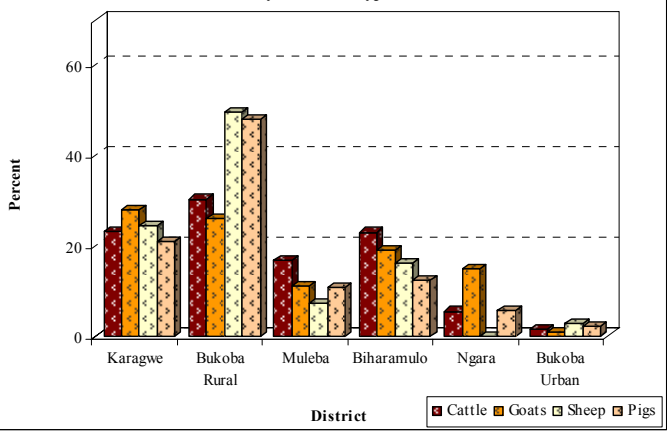
using the method. Other methods used were smearing (7%) and dipping (3%). Ten percent of the households used other unspecified methods; however, 17 percent of livestock-keeping households did not use any method.

The most common method used to control tsetse flies was spraying which was practiced by 57.3 percent of livestock-rearing households. This was followed by dipping (2.3%) and trapping (2.0%). However, 38.9 percent of the livestock rearing households did not use any of the three aforementioned methods.

3.12.7.1 Deworming

Livestock rearing households that dewormed their animals were 40,424 (41% of the total livestock rearing households in the region). The percentage of the households that dewormed cattle was 56 percent, pigs (22%), goats (14%) and sheep (13%) (Chart 3.140).

Chart 3.140 Percent of Livestock Rearing Households that Dewormed Livestock by Livestock Type and District



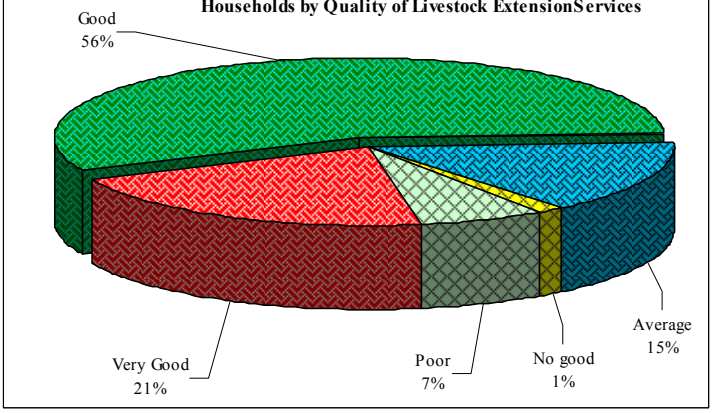
3.12.8. Access to Livestock Services

3.12.8.1 Access to Livestock Extension Services

The total number of households that received livestock advice was 30,308, representing 30 percent of the total livestock-rearing households and 8.6 percent of the agricultural households in the region. The main livestock extension agent was the government which provided service to about 38.2 percent of all households receiving livestock extension services. The rest of the households got services from NGOs/development projects (20.1%), cooperatives (14.5%) and large-scale farmers (14.4%).

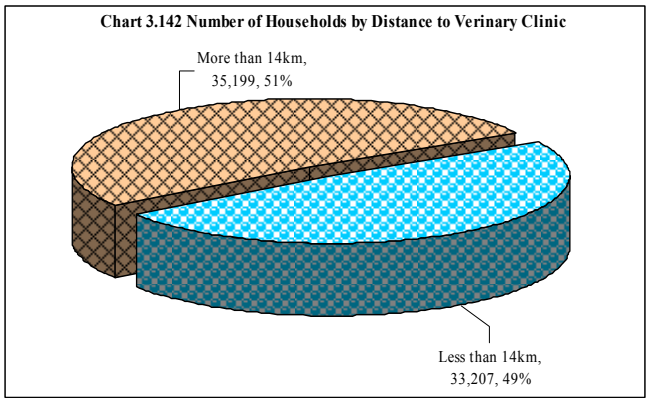
About 56 percent of livestock rearing households described the general quality of livestock extension services as being good, 15 percent said they were average and 21 percent said they were very good. However, 1 percent of the livestock rearing households said the quality was not good whilst 7 percent described them as poor (Chart 3.141).

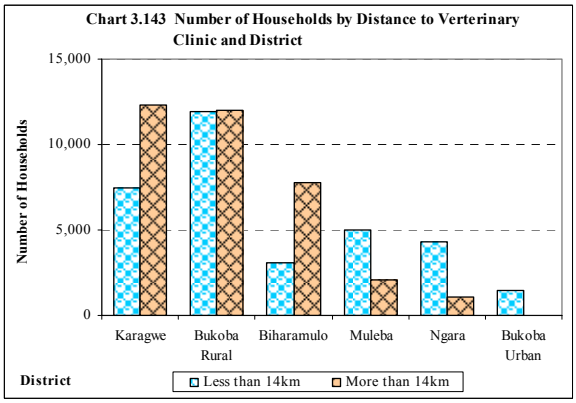
Chart 3.141 Percentage Distribution of Livestock Rearing Households by Quality of Livestock ExtensionServices



3.12.8.2 Access to Veterinary Clinic

Many veterinary clinics were located very far from livestock rearing households. About 51 percent of the livestock rearing households accessed the services, at a distance of more than 14 kms and 49 percent of them accessed the services within 14 kms from their dwellings (Chart 3.142). The most affected district was Biharamulo district with 72 percent of livestock rearing households accessing the services at a distance of more than 14 kms. Bukoba Urban District was the least affected because all households could access the service within a distance of 14 kilometres(Chart 3.143).

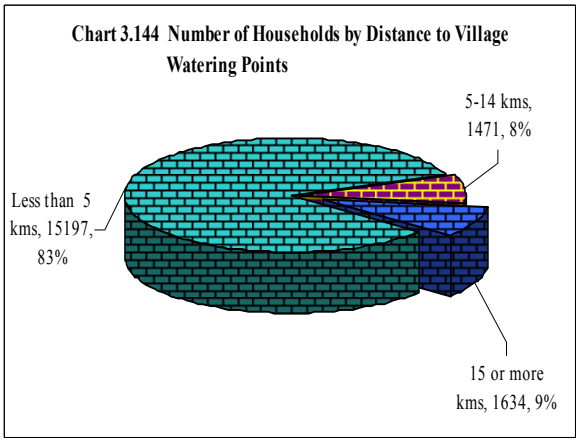


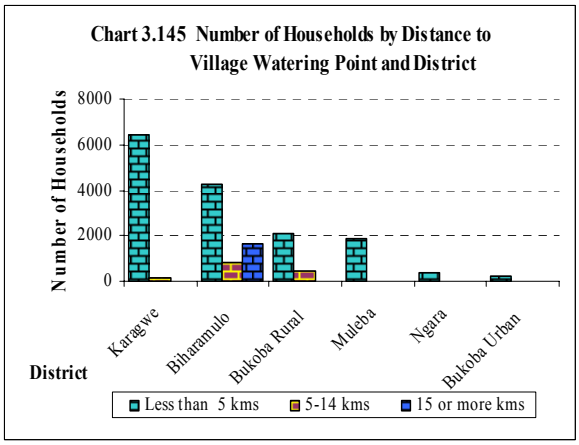


3.12.8.3 Access to Village Watering Points/dam

The number of livestock rearing households residing less than 5 kms from the nearest watering point was 15,197 (83% of livestock rearing households in Kagera Region) whilst 1,471 households (8%) resided between 5 and 14 kms. However, 1,634 households (9%) had to travel a distance of more than 15 kms to f the nearest watering point (Chart 3.144).

Muleba, Ngara and Bukoba districts had the best livestock water supply with all livestock rearing households residing within 5 kms from the nearest watering point. This is followed by Karagwe and Bukoba Rural districts. In Biharamulo district about 37 percent of the livestock rearing households had to travel a distance of more than five kilometers to the nearest watering point (Chart 3.145).

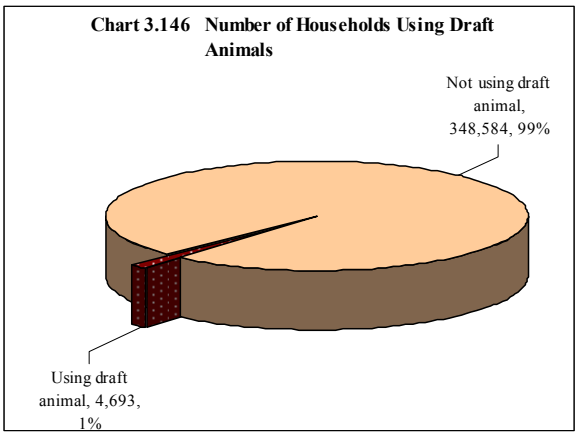


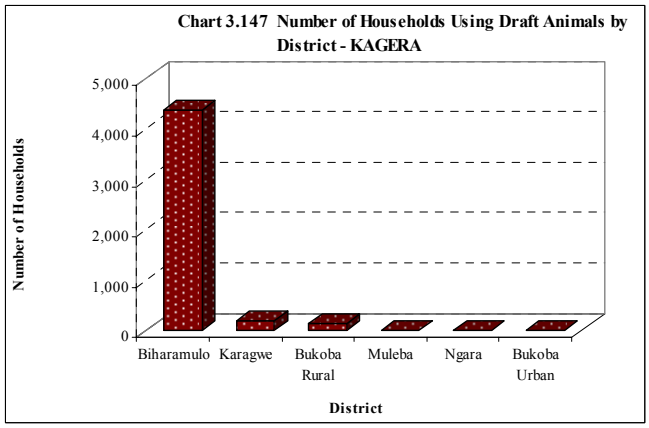


3.12.9.0 Animal Contribution to Crop Production

3.12.9.1 Use of Draft Power

Use of draft animals to cultivate land in Kagera Region is very limited with only 4,693 households (1% of the total households in the region) using them (Chart 3.146).



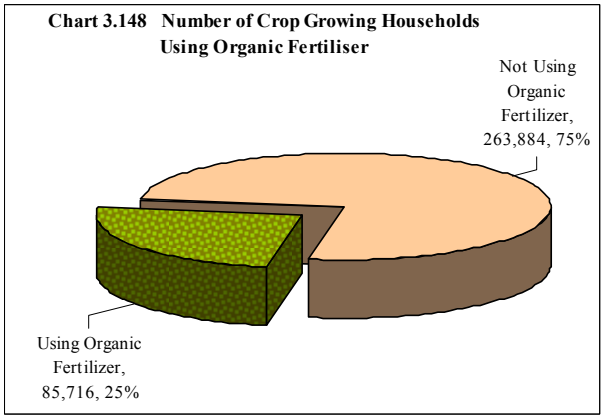


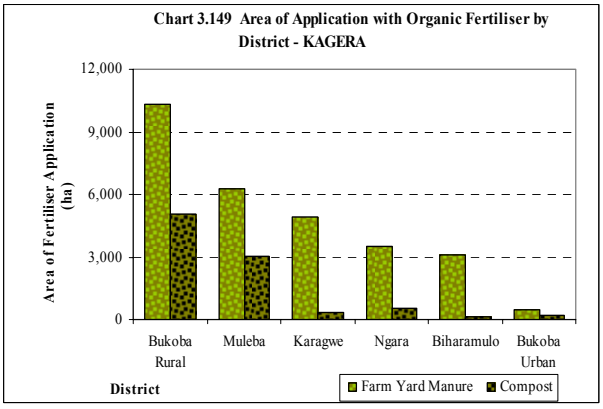
The number of households that used draft animals in Biharamulo was 4,361 representing 93 percent of the households using draft animals in the region. One hundred eighty three households (4%) were from Karagwe whilst in Bukoba Rural only 149 households (3%) used draft animals. Use of draft animals was not reported in the other districts (Chart 3.147 and Map 3.58).

The region had 11,932 oxen (all of them were found in Biharamulo District) which were used to cultivate 6,866 hectares of land. This represents only 0.53 percent of the total oxen found on the Mainland. The whole area cultivated using oxen was found in Biharamulo district.

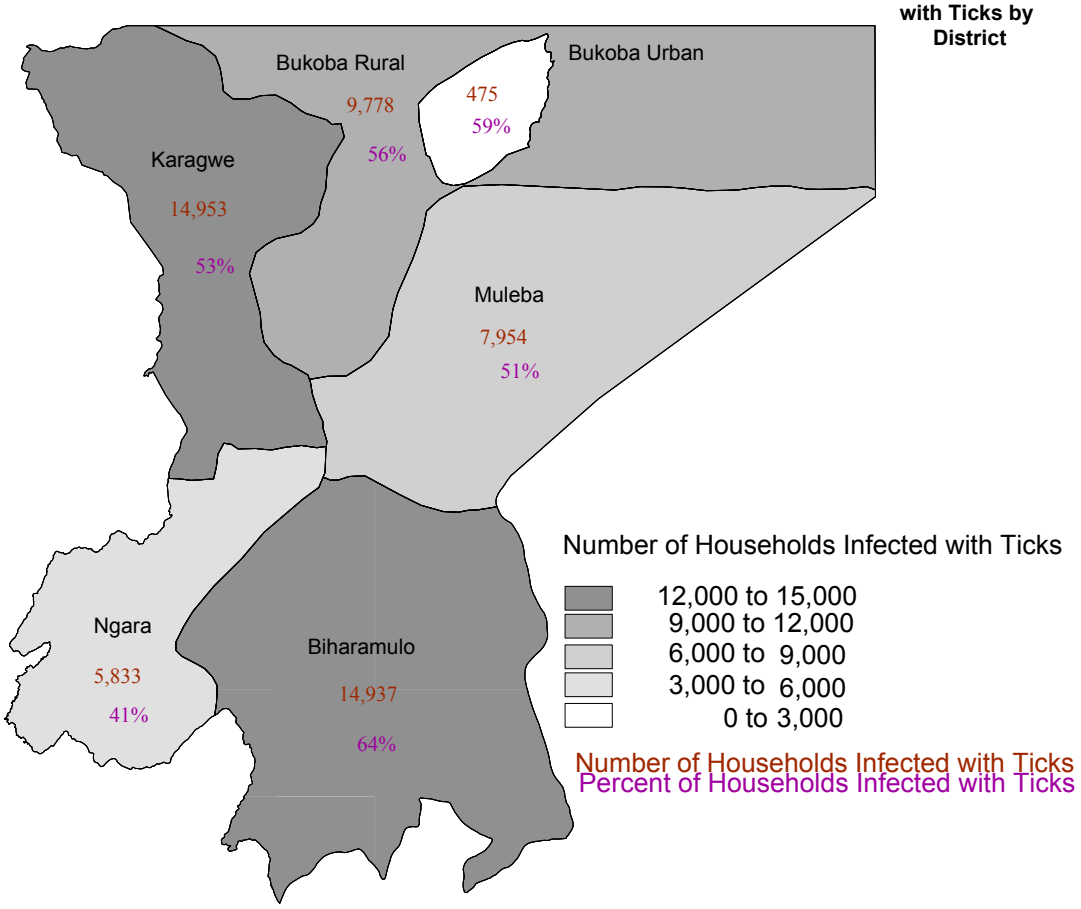
3.12.9.2 Use of Farm Yard Manure

The number of Households using organic fertilizer in Kagera Region was 85,716 (25% of total crop growing households in the region) (Chart 3.148). The total area applied with organic fertiliser was 37,877 ha of which 28,614 hectares (76% of the total area applied with organic fertiliser or 12% of the area planted with annual crops and vegetables in Kagera Region during the short rainy season) was applied with farm yard manure (Map 3.59).

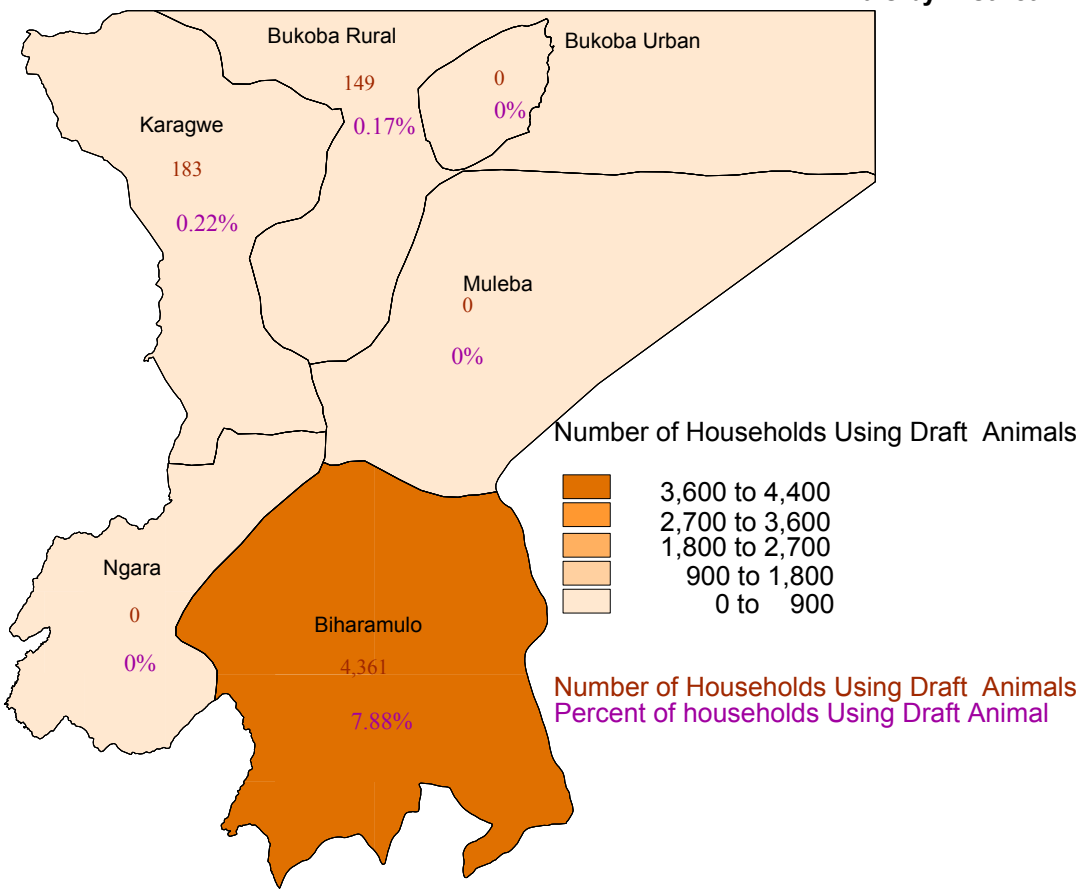




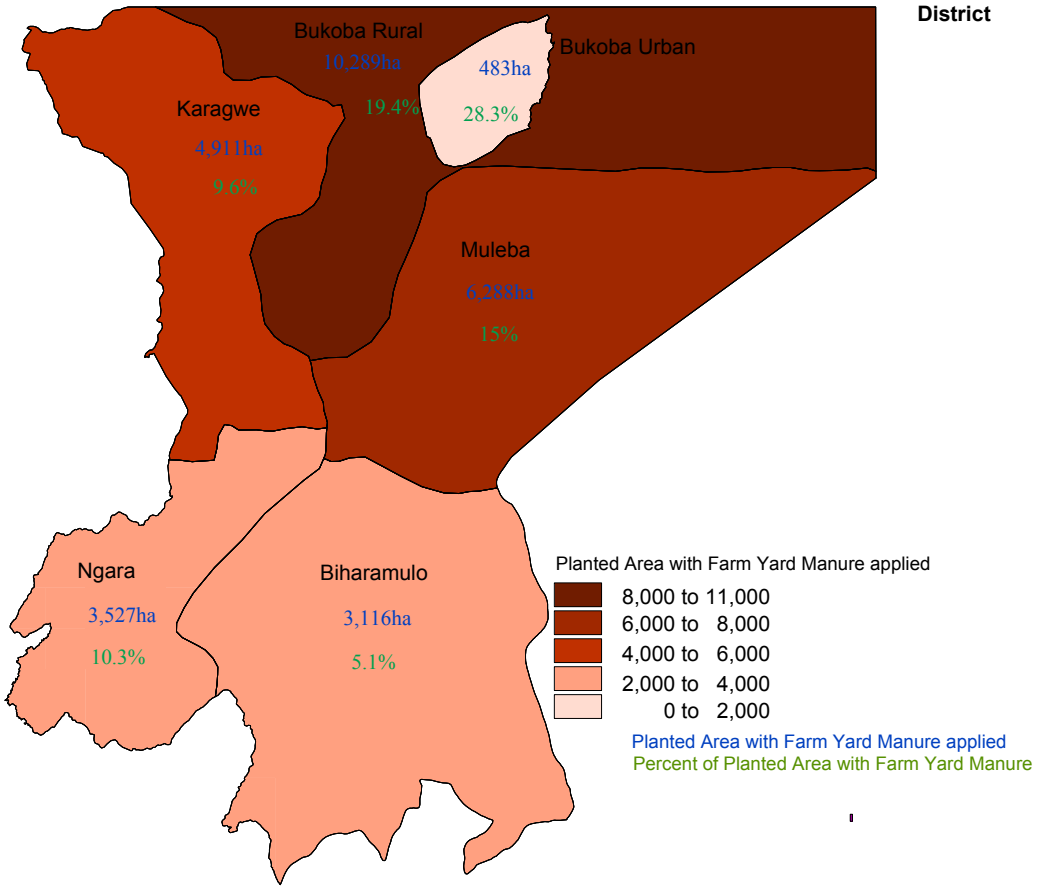
Map 3.57 KAGERA Number and Percent of Households Infected with Ticks by District



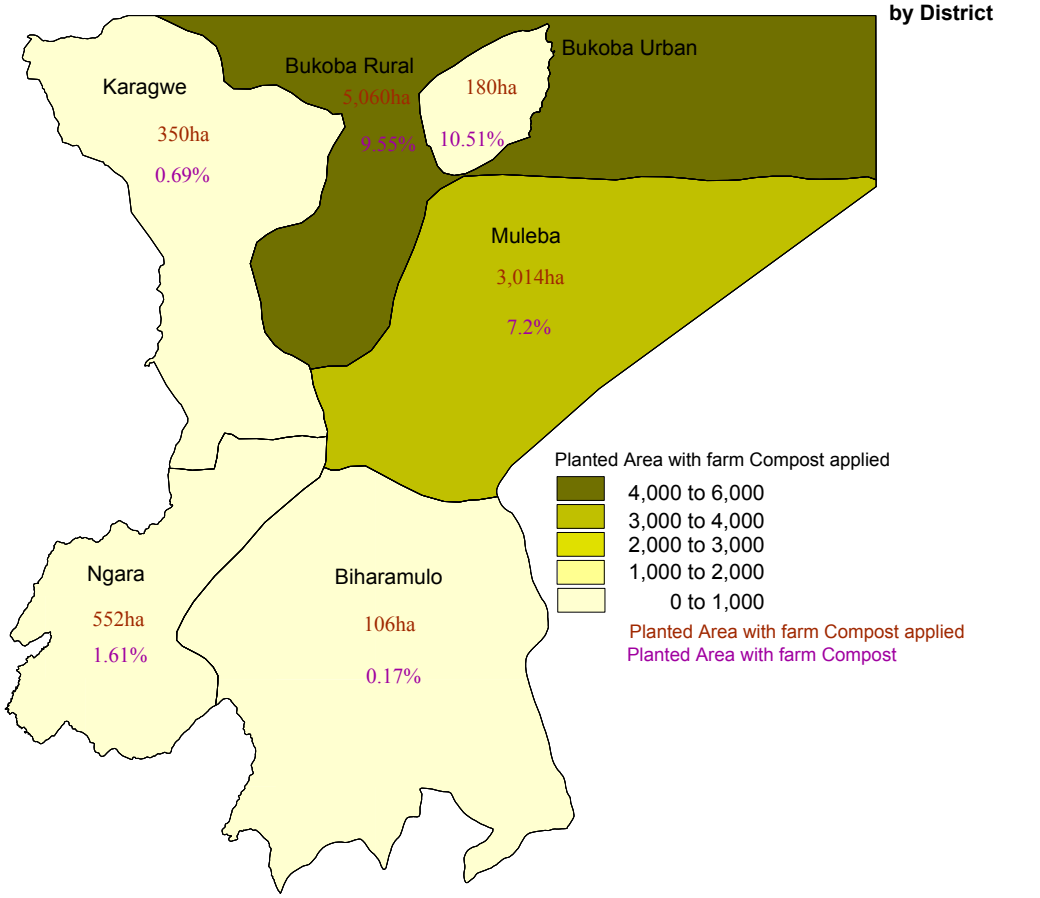
Map 3.58 KAGERA Number and Percent of Households Using Draft Animals by District



Map 3.59 KAGERA
Planted Area and Percent of Planted Area with Farm Yard Manure application by District



Map 3.60 KAGERA
Planted Area and Percent of Planted Area with farm Compost application by District

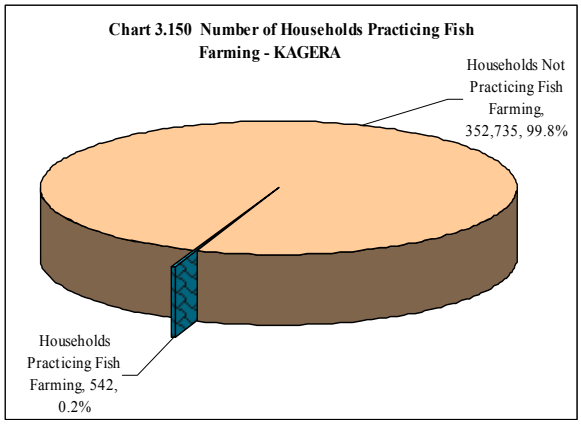


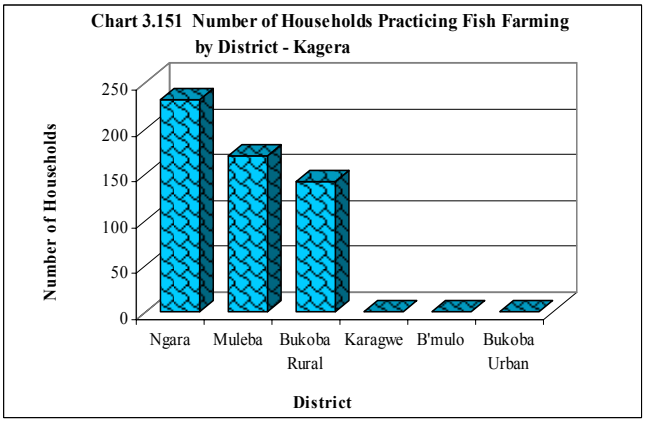
3.12.9.3 Use of Compost

Only 9,262 ha (24.4% of the area of organic fertilizer application) was applied with compost. The largest area applied with farm yard manure was found in Bukoba Rural district with 10,289 hectares (36% of the total area applied with farm yard manure) followed by Muleba (6,288 ha, 22%), Karagwe (4,911 ha, 17%), Ngara (3,527 ha, 12%), Biharamulo (3,116 ha, 11%) and Bukoba Urban (483 ha, 2%) (Chart 3.149 and Map 3.59).

3.12.10 Fish Farming

The number of households involved in fish farming in Kagera Region was 542 representing 0.2 percent of the total agricultural households in the region (Chart 3.150 and Map 3.61).

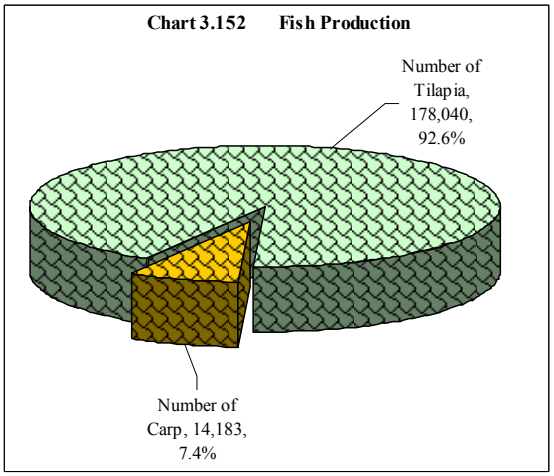




Ngara was the leading district with 230 households (0.5% of agricultural households) involved in fish farming. This was followed by Muleba (170 households, 0.2%) and Bukoba Rural (142 households, 0.2%). There was no fish farming in the rest of the districts (Chart 3.151).

The main source of fingerings was from own ponds which provided fingering to 54.6 percent of the fish farming households. About 13.4 percent of households practicing fish farming got fingerings from non governmental organization and projects and 12.7 percent got them from neighbors.

The highest number of fish production units were dug out ponds (48%) followed by natural ponds (39%) and water reservoir (13%). The number of fish harvested in Kagera Region was 192,223, of which 178,040 fish (92.6%) were tilapia and 14,183 (7.4%) were carp (Chart 3.152). All fish produced were for home consumption.



3.13.0 POVERTY INDICATORS

The agricultural census collected data on poverty for the purpose of providing a base for tracking progress in poverty reduction strategies undertaken by the government.

3.13.1 Access to Infrastructure and Other Services

The results indicate that among the evaluated services, regional capital was a service located very far from most of the household's dwellings than any other service. It was located at an average distance of 158 kilometers from the agricultural household's dwellings. Other services and their respective average distances in kilometers from the dwellings were tarmac road (63), district capital (50), tertiary markets (39), secondary markets (37), hospitals (36), secondary school (16), health clinics (8), primary markets (6), all weather roads (4), primary schools (3) and feeder road (2) (Table 3.17).

Table 3.17: Mean Distances from Household Dwellings to Infrastructures and Services by District

District	Mean Distance to											
	Secondary Schools	Primary Schools	All weather roads	Feeder Roads	Hospitals	Health Clinics	Regional Capital	Primary Markets	Secondary Market	Tertiary Market	Tarmac Roads	District Capital
Karagwe	19	3	4	2	35	11	174	9	31	44	129	58
Bukoba Rural	11	2	2	1	44	6	54	6	37	50	28	54
Muleba	13	2	4	2	24	7	81	5	39	31	40	33
Biharamulo	22	3	4	3	58	9	242	5	46	40	86	63
Ngara	18	3	4	1	23	4	360	5	32	25	22	43
Bukoba Urban	4	2	1	0	5	3	5	3	20	5	6	5
Total	**16**	**3**	**4**	**2**	**36**	**8**	**158**	**6**	**37**	**39**	**63**	**50**

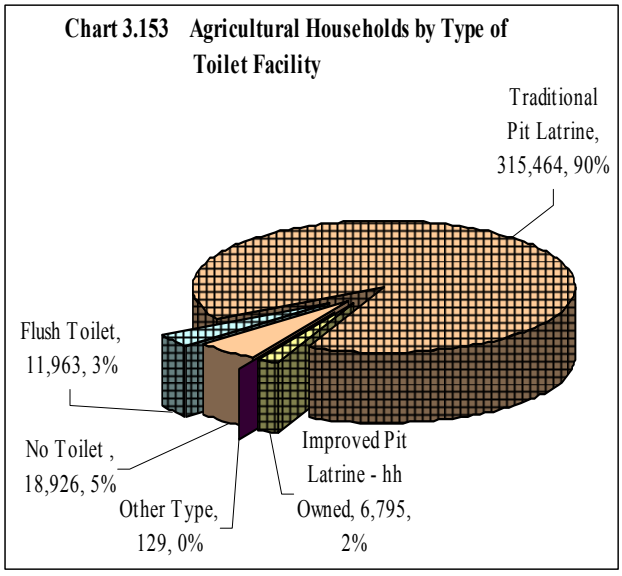
Only 7 percent of the agricultural households reported the available infrastructures and services as 'very good' whereas 20 percent reported them to be average. Thirty one percent of the agricultural households said the infrastructure and services were poor and 4 percent said they were 'no good'. Thirty eight percent said the infrastructure and services were good.

3.13.2 Type of Toilets

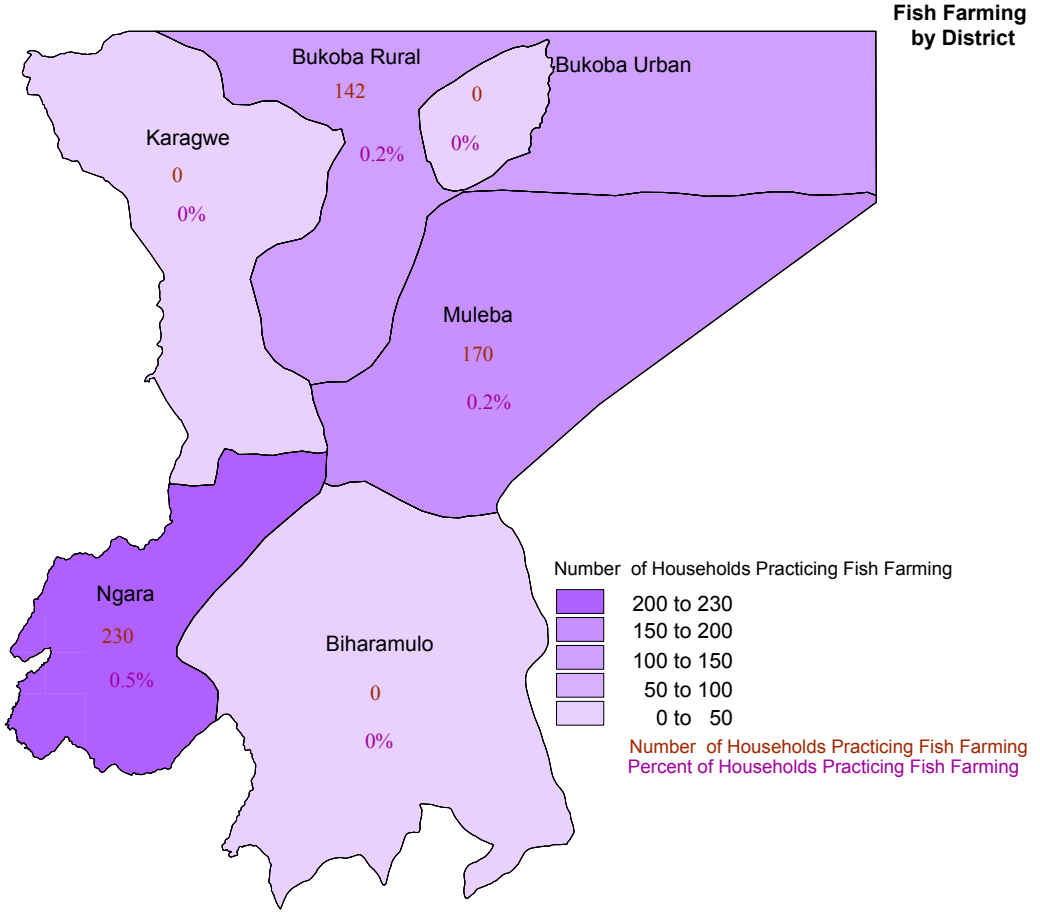
A large number of rural agricultural households use traditional pit latrines (315,464 households, 90% of all rural agricultural households) 6,795 households (2%) use improved pit latrine and 11,963 households (3%) use flush toilets. The remaining 129 household (0.04%) use other toilets facilities. However, 18,926 households (5%) in the region had no toilet facilities (Chart 3.153).

The distribution of the households without toilets within the region shows that 45 percent of them were in Karagwe District and 1 percent were in Bukoba Urban. The percentages of households without toilets in other districts were as follows Biharamulo (29%), Muleba (11%), Bukoba Rural (9%) and Ngara (6%) (Map 3.62).

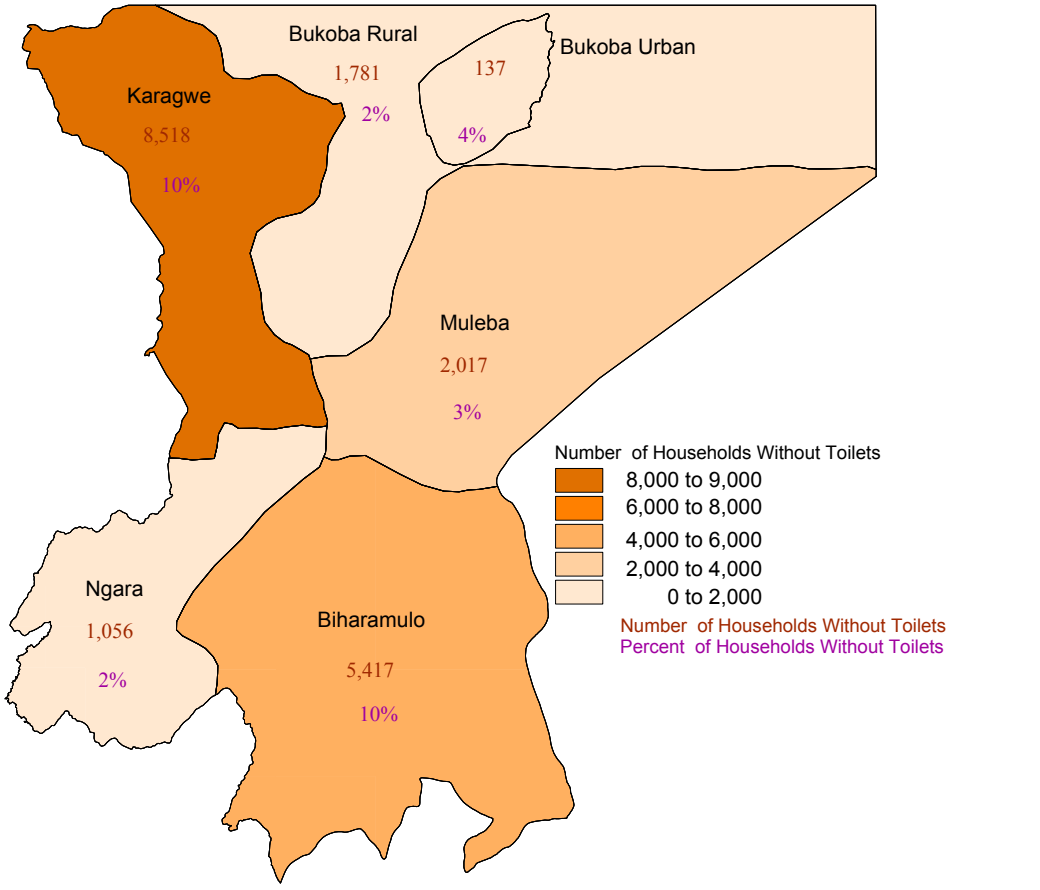
Chart 3.153 Agricultural Households by Type of Toilet Facility



Map 3.61 KAGERA
Number and Percent of Households Practicing Fish Farming by District



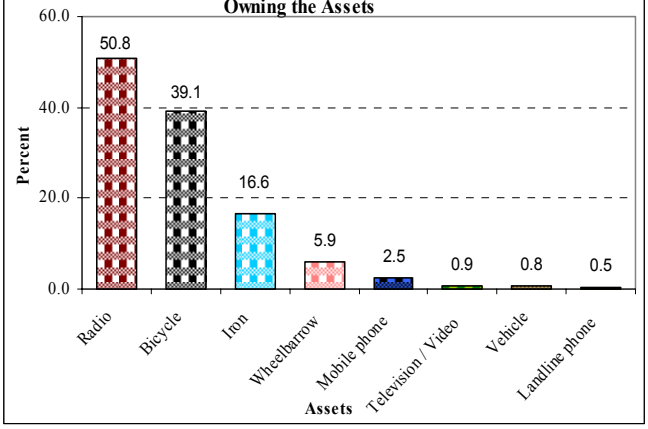
Map 3.62 KAGERA
Number and Percent of Households Without Toilets by District



3.13.3 Household's Assets

Radios were owned by most rural agricultural households in Kagera Region with 179,555 households (50.8% of the agriculture households in the region) owning the asset followed by bicycles (138,149 households, 39.1%), irons (58,577 households, 16.6%), wheelbarrows (20,775 households, 5.9%), mobile phones (8,724 households, 2.5%), televisions/videos (3,110 households, 0.9%), vehicles (2,883 households, 0.8%) and landline phones (1,705 households, 0.5%) (Chart 3.154).

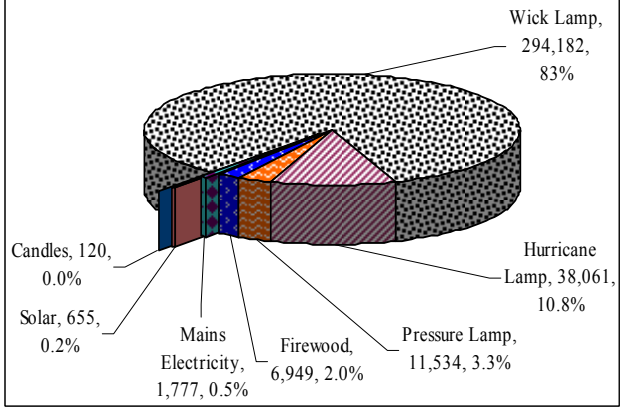
Chart 3.154 Percentage Distribution of Households Owning the Assets



3.13.4 Sources of Lighting Energy

Wick lamp was the most common source of lighting energy in the region. with 83.3 percent of the total rural households using this source of energy followed by hurricane lamp (10.8%), pressure lamp (3.3%), firewood (2.0%), mains electricity (0.5%), solar (0.2%), candle (0.1%) and gas or biogas (0.03%) (Chart 3.155).

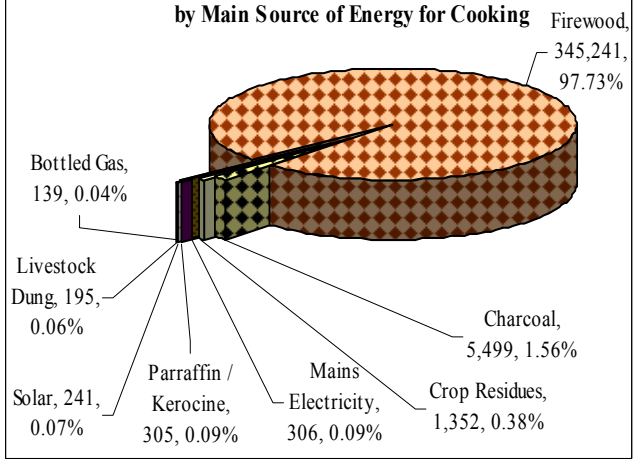
Chart 3.155 Percentage Distribution of Households by Main Source of Energy for Lighting



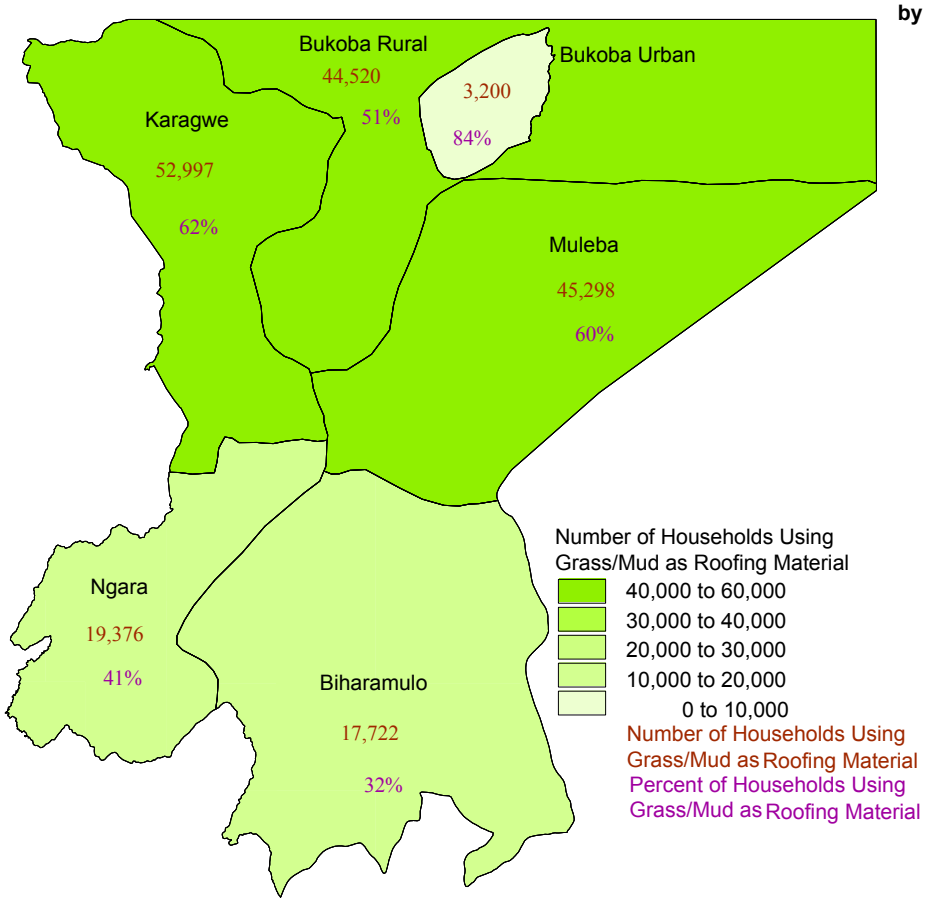
3.13.5 Sources of Energy for Cooking

The most prevalent source of energy for cooking was firewood, which was used by 97.73 percent of all rural agricultural households in Kagera Region. This is followed by charcoal (1.56%). The rest of energy sources accounted for 0.72 percent. These were crop residues (0.38%), mains electricity (0.09%), paraffin/kerocine (0.09%), solar (0.07%), livestock dung (0.06%) and bottled gas (0.04%) (Chart 3.156).

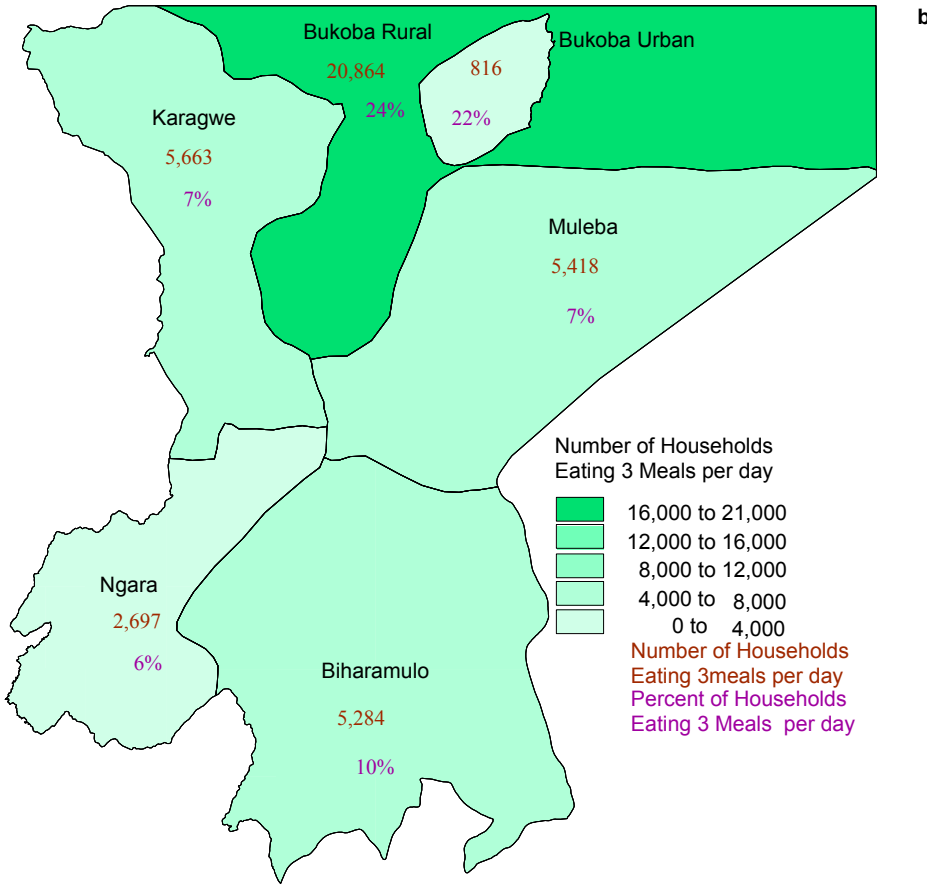
Chart 3.156 Percentage Distribution of Households by Main Source of Energy for Cooking



Map 3.63 KAGERA
Number and Percent of Households using Grass/ Mud as Roofing Material by District

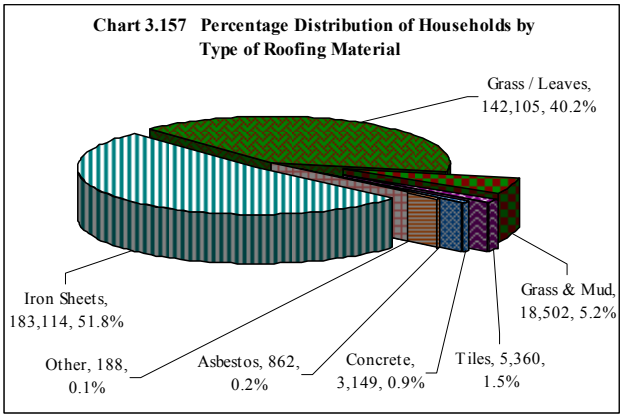


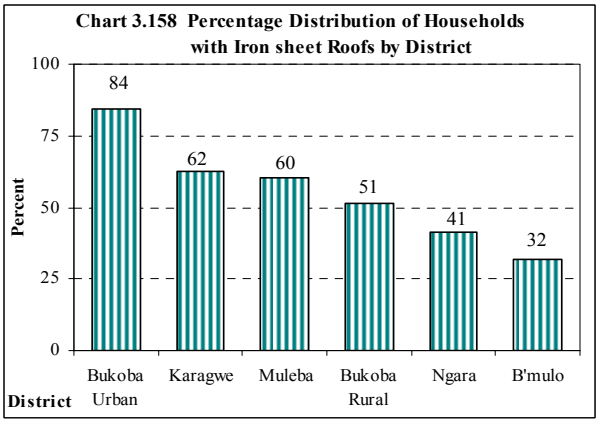
Map 3.64 KAGERA
Number and Percent of Households Eating 3 Meals per day by District



3.13.6 Roofing Materials

The most common roofing material for the main dwelling was iron sheets which were used by 51.8 percent of the rural agricultural households. This was closely followed by grass/leaves (40.2%), grass/mud (5.2%), tiles (1.5%), concrete (0.9%), asbestos (0.2%) and others (0.1%) (Chart 3.157).

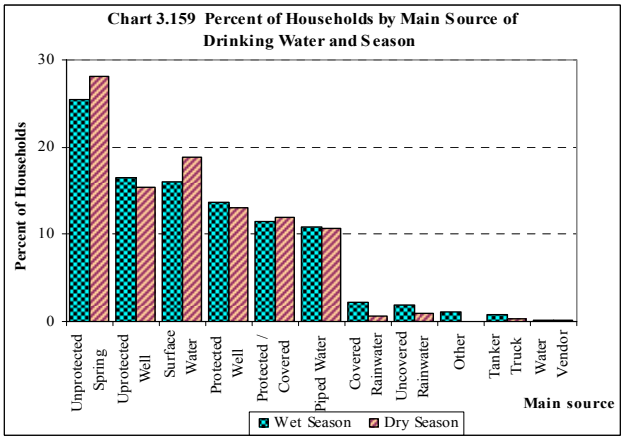


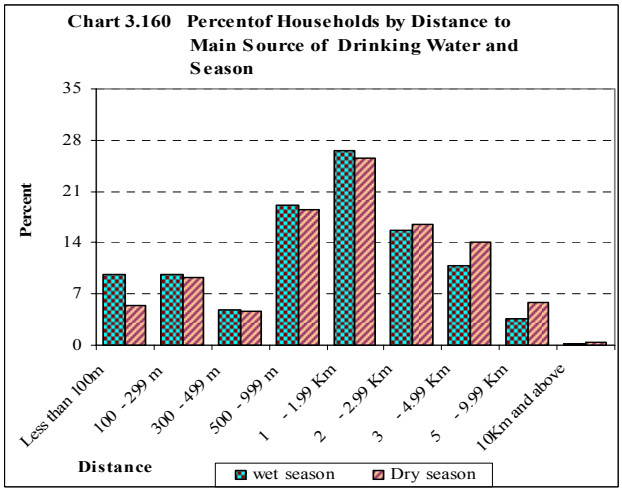


Bukoba Urban district had the highest percentage of households with iron sheet roofing (84%) followed by Karagwe district (62%), Muleba (60%), Bukoba Rural (51%), Ngara (41%) and Biharamulo (32%) (Chart 3.158 and Map 3.63).

3.13.7 Access to Drinking Water

The main source of drinking water for rural agricultural households in Kagera Region were unprotected springs (25 percent of households use unprotected wells during the wet season and 28 percent of the households during the dry seasons. This was followed by unprotected wells (16% of households in wet season and 15% in the dry season), surface water (16% of households during the wet season and 19% in the dry season), protected well (14% of households in the wet season and 13% during dry season), protected/covered spring (11% in wet season and 12% in dry season) and piped water (11% in both seasons). Covered and uncovered rainwater catchments each source was used as a main source by 2 percent of the households in the wet season and by 1 percent in the dry season (Chart 3.159)





About 43 percent of the rural agricultural households in Kagera Region obtained drinking water within a distance of less than one kilometer during wet season compared to 38 percent of the households during the dry season. However, 57 percent of the agricultural households obtained drinking water from a distance of one or more kilometers during wet compared to 62 percent of households in the dry season. The most common distance from the source of drinking water was between 1 and 2 km (Chart 3.160).

3.13.8 Food Consumption Pattern

3.13.8.1 Number of Meals per Day

The majority of households in Kagera Region normally have 2 meals per day (84.2 percent of the households in the region). This is followed by three meals per day (11.5 percent) and 1 meal per day (3.5 percent). Only 0.7 percent of the households have 4 meals per day (Chart 3.161).

Ngara district had the largest percent of households eating one meal per day whilst Bukoba Rural had the highest percent of households eating 3 meals per day. (Table 3.18 and Map 3.64).

Chart 3.161 Number of Agricultural Households by Number of Meals per Day

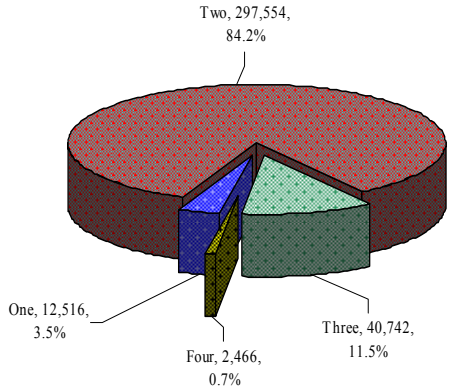


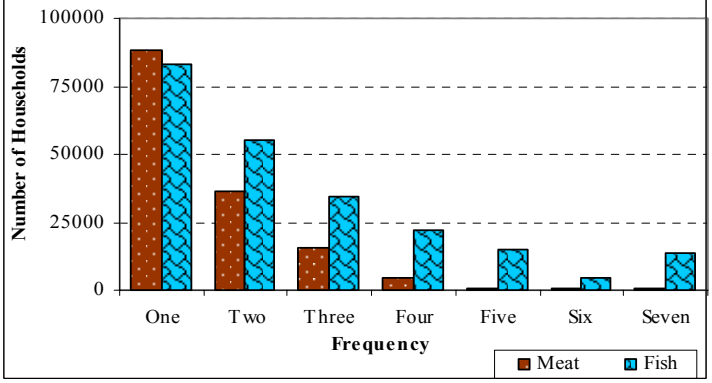
Table 3.18: Number of Households by Number of Meals the Household Normally Takes per Day and District

District	Number of meals per day								
	One	%	Two	%	Three	%	Four	%	Total
Karagwe	1906	2.2	76,766	90.4	5,663	6.7	579	0.7	84,914
Bukoba Rural	747	0.9	63,525	73.1	20,864	24.0	1755	2.0	86,891
Muleba	4255	5.7	65,506	87.1	5,418	7.2	0	0.0	75,179
Biharamulo	1696	3.1	48,207	87.1	5,284	9.6	132	0.2	55,319
Ngara	3857	8.2	40,633	86.1	2,697	5.7	0	0.0	47,187
Bukoba Urban	55	1.5	2,917	77.0	816	21.5	0	0.0	3,788
Total	**12,516**	**3.5**	**297,554**	**84.2**	**40,742**	**11.5**	**2466**	**0.7**	**353,277**

3.13.8.2 Meat Consumption Frequency

The number of agricultural households that consumed meat during the week preceding the census was 147,284 (42% of the agricultural households in Kagera Region) with 88,595 households (60.2 % of those who consumed meat) consuming meat only once during the respective week. This was followed by those who had meat twice during the week (24.9%). Very few households had meat three or more times during the respective week. About 58.3 percent of the agricultural households in Kagera Region did not eat meat during the week preceding the census (Chart 3.162 and Map 3.65).

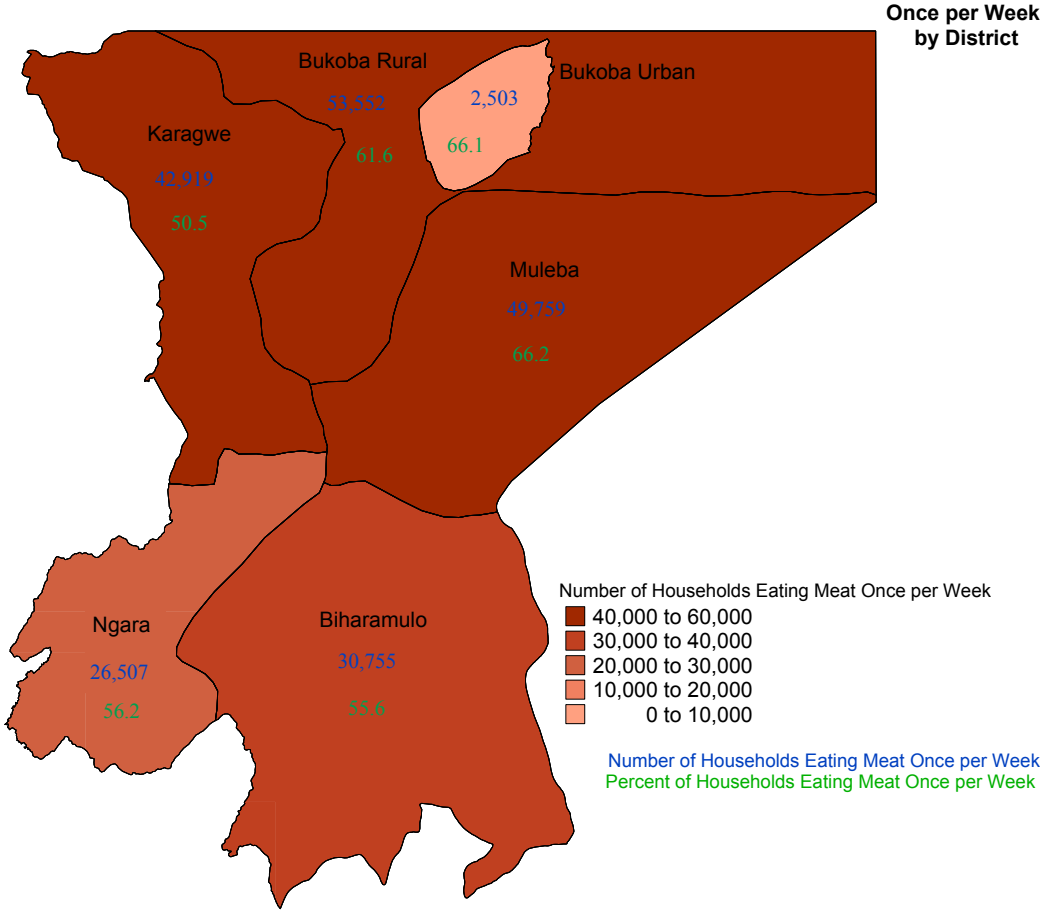
Chart 3.162 Number of Households by Frequency of Meat and Fish Cosumption



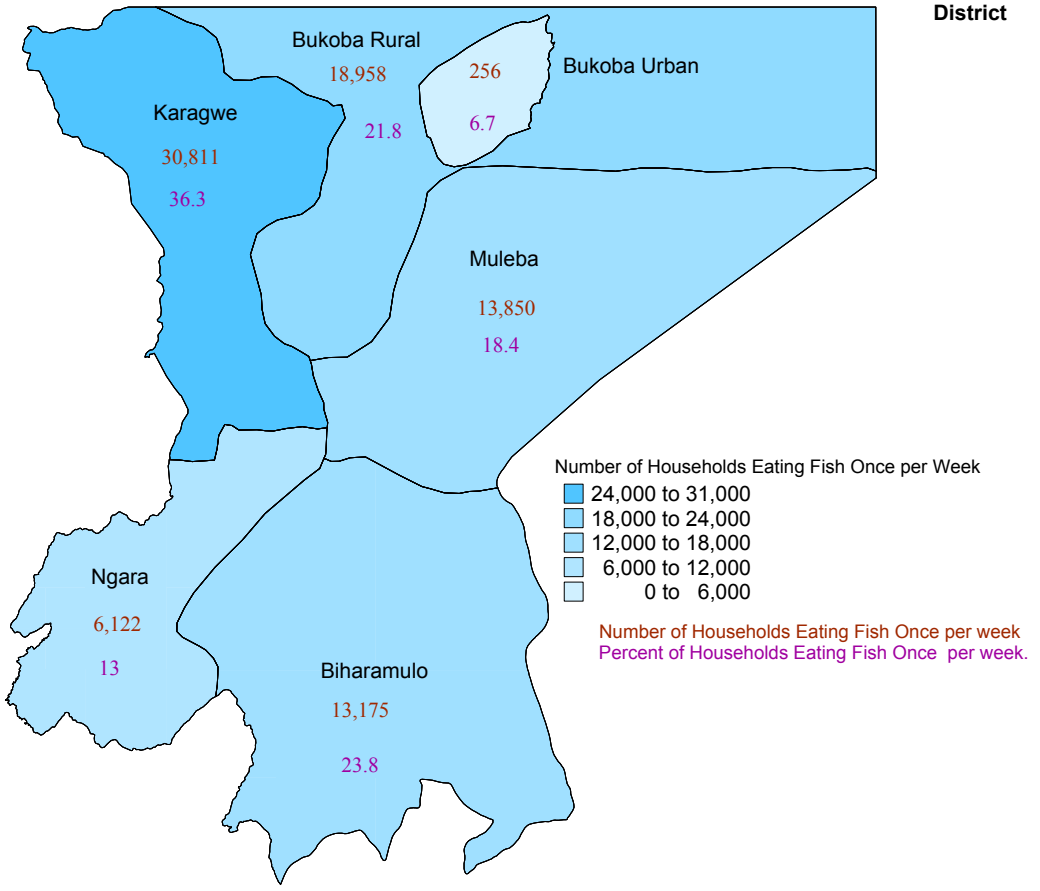
3.13.8.3 Fish Consumption Frequencies

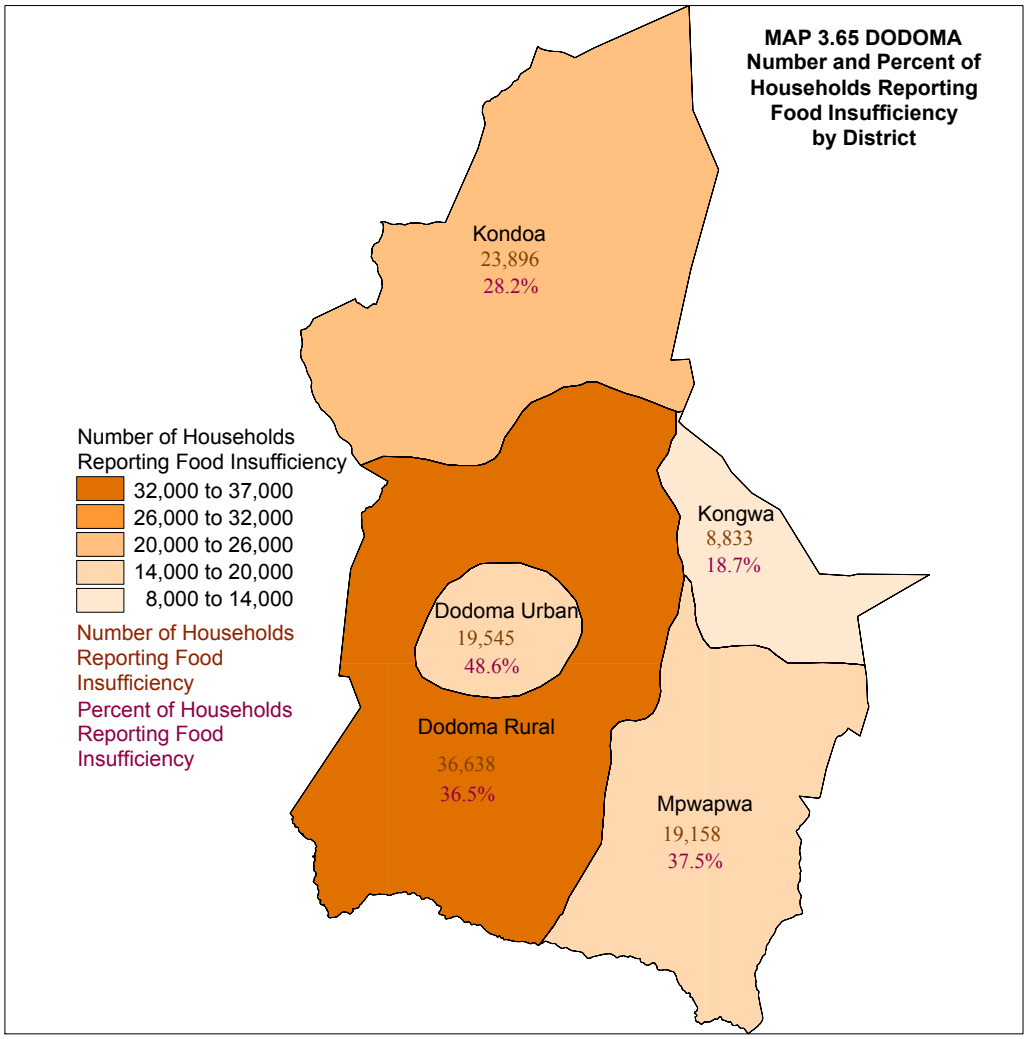
The number of agricultural households that consumed fish during the week preceding the census was 227,970 (64.5% of the total agricultural households in Kagera Region) with 83,172 households (36.5 % of those who consumed fish) consuming fish once during the respective week. This was followed by those who had fish two times (24.3%). In general, the number of households that consumed fish three times or more during the week in Kagera Region was 89,507 (39.3% of the agricultural households that ate fish in the region during the respective period). About 35.5 percent of the agricultural households in Kagera Region did not eat fish during the week preceding the census (Chart 3.162 and Map 3.66)

Map 3.65 KAGERA
Number and Percent of Households Eating Meat Once per Week by District



Map 3.66 KAGERA
Number and Percent of Households Eating Fish Once per Week by District




MAP 3.65 DODOMA
Number and Percent of Households Reporting Food Insufficiency by District
Kondoa
23,896
28.2%
Kongwa
8,833
18.7%
Dodoma Urban
19,545
48.6%
Dodoma Rural
36,638
36.5%
Mpwapwa
19,158
37.5%
Number of Households Reporting Food Insufficiency
32,000 to 37,000
26,000 to 32,000
20,000 to 26,000
14,000 to 20,000
8,000 to 14,000
Number of Households Reporting Food Insufficiency
Percent of Households Reporting Food Insufficiency

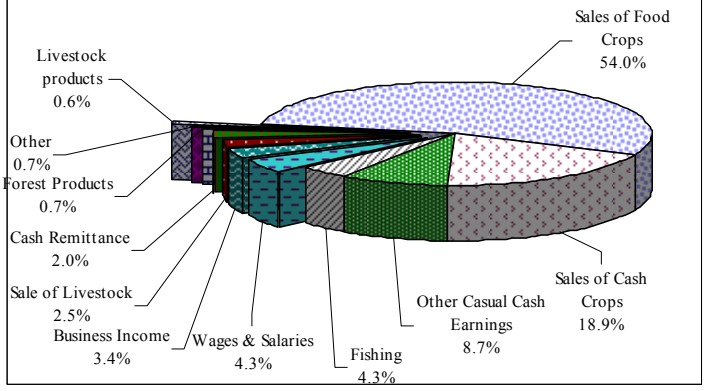
3.13.9 Food Security

In Kagera Region, 114,257 households (32% of the total agricultural households in the region) said they rarely experienced problems in satisfying the household food requirement. However 46,646 (13%) said they sometimes experience problems, 8 often experienced problems and 5 percent always had problems in satisfying the household food requirement. About 41 percent of the agricultural households said they did not experience any food sufficiency problems (Map 3.67).

3.13.10 Main Sources of Cash Income

The main cash income of the households in Kagera Region came from selling food crops (54.0 percent of smallholder households), followed by the selling of cash crops (18.9%), other casual earnings (8.7%), fishing (4.3%) and wages/salaries (4.3%). Only 3.4% of smallholder households reported petty businesses as their main source of income, followed by sale of livestock (2.5%), cash remittances (2.0%), sales of forest products (0.7%) and sales of livestock products (0.6%)(Chart 3.161).

Chart 3.163: Percentage Distribution of the Number of Households by Main Source of Income



4 KAGERA PROFILES

This section presents the status of crops and livestock production, access to natural resources and services, demography and poverty for both the region as a whole and for each district.

4.1 Kagera Region Profile

The region profile describes the status of the agriculture sector in the region and compares it with other regions in the country.

The land area under crop production in Kagera region was 490,000 hectares. The region had less than fifty percent of its land area under annual crops, whilst the remaining was either pure or mixed permanent crops or permanent –annual mix. Kagera had 1.0 hectares of land per household and almost all available land was utilized. The region has two seasons, with the short rainy season being more important

Cereal production was not important and the region had one of the smallest planted areas of maize, paddy, sorghum and cassava. It had the largest planted area of beans. Vegetable production was moderate and small amounts of cotton and tobacco were grown as cash crops. It had the highest production of coco yams and was the second highest producer of yams and sweet potatoes in the country.

Kagera had the second highest percent of planted area under permanent crops in the country and this was dominated by bananas (highest planted area in the country) and coffee (second highest). The region also had small areas of sugar cane.

The region had a small area under irrigation and the number of households with irrigation had remained unchanged over the last 10 years. Kagera had one of the smallest percent of planted area with fertilisers and virtually no inorganic fertilisers were applied. Similarly virtually no pesticides were used.

Kagera had the largest number and percent of households selling crops in the country. However, it had a moderate to high percent of households processing crops and most processing was done by neighbours machines. The region had the second highest percent of households processing crops by trader and the highest percent of households selling processed products to traders.

The percent of households receiving extension was one of the smallest in the country. Virtually all crop husbandry was done by hand and hand hoe.

Kagera region had the third highest number of trees planted by smallholders in the country, most of which were eucalyptus. Few households had erosion control or water harvesting structures; however it had the highest number of drainage ditches in the country.

4.2 District Profiles

The following district profiles highlights the characteristics of each district and compares them in relation to population, main crops and livestock, production and productivity, access to services and resources and levels of poverty.

4.2.1 Karagwe

Karagwe district had the second largest number of households and in the region and it had one of the highest percent of households involved in smallholder agriculture in the region. Most smallholders were involved in crop farming only, followed by crop and livestock, livestock only and pastoralist.

The most important livelihood activity for smallholder households in Karagwe district was permanent crop farming followed by annual crop farming then livestock keeping/herding. However, the district had the second highest percent of households with no off-farm activities and the lowest percent of households with more than one member with off-farm income. Compared to other districts in the region, Karagwe had second lowest percent of female headed households (15.6%) and it had one of the lowest average age of the household head. Its an average household size of 5.1 members per household was slightly higher than the regional average. Karagwe had moderate literacy rate among smallholder household members and this was reflected by the concomitant moderate level of school attendance in the region. The literacy rate for the heads of household was also moderate.

It had the third largest utilized land area per household (1.6ha) and the allocated area was almost fully utilized indicating a high level of land pressure. The total planted area was second largest in the region, however it had moderate area per household (1.4ha).

The district was moderately important for maize production in the region with a planted area of over 21,000 ha; however the planted area per household was the third highest in the region. The district was the third largest producer of sorghum. Paddy was not produced in the district and the production of finger millet was very small. Cassava production was not important accounting for only 2.8 percent of the quantity harvested in the region. The district had the largest planted area of Irish potatoes (788 ha) and beans (52,054ha). Karagwe district had the second largest area planted with groundnuts. Vegetable production was important in the district. It had the largest planted area with tomatoes and onions (648 ha and 375 ha respectively) than other districts in the region and accounted for 18 percent of the tomato production and 22 percent of the onions production in the region. Traditional cash crops (e.g. tobacco and cotton) were not grown in the district.

Compared to other districts in the region, Karagwe had a moderate area planted with permanent crops and this was dominated by banana (16,835 ha) and coffee (8,660 ha). Other permanent crops were either not grown or their planted areas were very small.

As with other districts in the region, most land clearing and preparation were done by hand, however the district had the largest land area prepared by oxen.

Karagwe had the third largest planted area with improved seed in Kagera Region. The district had the third largest area planted applied with fertilizers (Farm yard manure, compost and inorganic fertiliser), however most of this was farm yard manure. Compared to other districts in the region, Karagwe district had a high level of insecticide use. Karagwe was among the districts that had a low level of fungicide use and moderate herbicide use. With 122 hectares it had the smallest area under irrigation. The most common source of water for irrigation was piped water using hand bucket. Bucket and/or watering cans were the most common means of irrigation water application and neither sprinkler nor flood irrigation were used.

The most common method of crop storage was in sacks and open drums, however the proportion of households not storing crops in the district was moderate compared to other districts in the region. The district had the second largest number of households selling crops, and for those who did not sell, the main reason for not selling was insufficient production. The smallest percent of households processing crops in Kagera Region was found in Karagwe district and most of it was done by neighbors' machines. The district also had a higher percent of households selling processed crops to traders at farm than other districts and no sales of processed products were made to marketing cooperatives and farmers associations. In Karagwe district no households accessed agricultural credit.

A comparatively smaller number of households received extension services in Karagwe and most of this was from the government. The quality of extension services was rated between good and average by the majority of the households.

Tree farming was important in Karagwe (with 5,361,219 planted trees) and most of these were Eucalyptus spp with some Gravellis spp and Maesopsis spp. Karagwe was among the districts in the region with lowest proportion of households that had erosion control and water harvesting structures; however it also had the highest number of drainage ditches than other districts.

The district had the third largest number of cattle in the region and most of them were indigenous, however it had the largest goats and sheep populations. It had the second largest number of pigs and chickens in the region. All chickens kept were of indigenous. A small number of ducks was also found in the district. Moderate proportions of households reported tsetse flies and tick problems and the district had also moderate numbers of households de-worming livestock. The use of draft animals in the district was very small and there was no fish farming.

It had amongst the best access to secondary markets compared to other districts. However, it had one of the worst access to all weather roads, secondary schools, health clinics, tarmac roads and district capital.

Karagwe district had the highest percent of households with no toilet facilities. It had the third largest number of households using mains electricity in the region. The most common source of energy for lighting was the wick lamp and practically all households used firewood for cooking. The district had the second largest percent of households with iron sheet roofs with 62 percent of households having iron sheets. The most common source of drinking water was from surface water (rivers, dams and streams). It had the highest percent of households having two meals per day. The district had the lowest percent of households that did not eat meat during the week prior to enumeration, however most households seldomly had problems with food satisfaction.

4.2.2 Bukoba Rural

Bukoba Rural district had the largest number of households in the region and the second highest percentage of households involved in smallholder agriculture. Most smallholders were involved in crop farming only, followed by crop then livestock and livestock only. It had a small number of pastoralists.

The most important livelihood activity for smallholder households in Bukoba Rural district was permanent crop farming, followed by annual crop farming and off farm income generating activities. The district had the third highest percent of households with no off-farm activities although it had the second lowest percent of households with more than one member with off-farm income. Compared to other districts in the region, Bukoba Rural had a relatively high percent of female

headed households (25%) and it had the second highest average age of the household heads in the region. Its household size of 4.4 members per household was the lowest in the region. Bukoba Rural had the second highest literacy rate among smallholder households and this was reflected by the district having relatively high level of school attendance in the region.

It had the second lowest utilized land area per household (1.0ha) and 98 percent of the allocated area was being utilized. The district had the third largest planted area in the region and the smallest planted area per household (0.5ha in the long rainy season and 0.7ha in the short rainy season).

The district was second important for maize production in the region with a planted area of over 21,300 ha, and the planted area per maize growing was moderate for the region. With 116 hectares, the district had the lowest planted area of sorghum in the region. Paddy was not grown in the district. Cassava production was high to moderate, accounting for 17.6 percent of the quantity harvested in the region. The district had the largest planted area of sweet potatoes (8,129 ha) and the second largest area planted with Irish potatoes. The production of beans in Bukoba Rural, district was moderate to low with a planted area of 29,393ha. Bukoba Rural district had moderate groundnut planted area in Kagera Region with a planted area per groundnut growing household of 0.12 ha. Vegetable production was very important in the district. It had the largest area planted with, ginger (44 ha), spinach (77 ha), carrots (134 ha), eggplant (320 ha), chillies (30 ha), amaranths (89 ha) and cucumber (10 ha). Bukoba Rural had the second largest areas planted with cabbages and tomatoes.(10,412 ha and 494 ha respectively). Traditional cash crops (e.g. tobacco and pyrethrum) were grown in very small quantities.

Compared to other districts in the region, Bukoba Rural had the largest areas planted with permanent crops which were dominated by bananas (44,566 ha), coffee (14,704 ha), jack fruits (8,259 ha) and mango (1,022 ha). Paw paw, pineapple, avocado, sour soup, tea, plums, palm oil and sugar cane were also grown in smaller quantities.

As with other districts in the region, most land clearing was done by hand slashing, however the area not cleared was substantial indicating the predominance of annual/permanent crop mixtures. Practically all land preparation was done by hand, however a very small amount of land preparation was done by oxen.

Bukoba Rural had the largest area planted with improved seeds in the region as well as the highest proportion of households using improved seeds. Though small, the district had the largest planted area applied with fertilizers (farm yard manure, compost and inorganic fertiliser), and most of this were applied under farm yard manure. Compared to other districts in the region, Bukoba Rural district had a moderate level of insecticide use. The use of fungicides and herbicides was also moderate. It had the largest area with irrigation compared to other districts with 1,999 ha of irrigated land. The most common source of water for irrigation was from rivers using hand bucket method. Bucket/watering cans was the common method of water application followed by sprinkler and flood methods.

The most common method of crop storage in Bukoba Rural district was in locally made traditional structures; however the proportion of households not storing crops was average for the region. Bukoba Rural had the largest number of households selling crops, and for those who did not sell, the main reason for not selling was insufficient production. Bukoba Rural was among the districts with the highest percent of households processing crops in Kagera Region and most of this was done on neighbours machines. The district also had the second lowest percent of households selling processed crops to

neighbours and no sales were made to secondary markets and marketing cooperatives. There was no access to agricultural credits in the district.

The largest number of households received extension services in Bukoba Rural district compared to other district and most of these were from the government. The quality of extension services was rated between good and average by the majority of the households.

Tree farming was important in Bukoba Rural which had 2,642,671 planted trees most of which were Eucalyptus and Gravellis. It also had the second highest proportion of households with erosion control and water harvesting structures and these were mostly drainage ditches and erosion control bunds, however it also had the a number of water harvesting bunds and terraces.

The district had a moderate number of cattle in the region and they were almost all indigenous. Goat and sheep production was also moderate compared to other districts. It had the largest number of pigs in the region and a moderate number of chickens. Some ducks and rabbits were also found in the district. A number of households reported tsetse flies and tick problems and it had the second largest number of households de-worming livestock. A very small number of households used draft animals; however the number of households using draft animals was the third highest in the region. A small number of households practiced fish farming; however the district had the smallest number of such households in the region.

It had amongst the best access to secondary schools, feeder roads, regional capital and tarmac roads compared to other districts. However, it had one of the worst accesses to tertiary markets.

The percentage of households without toilet facilities in Bukoba Rural district was the lowest in the region. It was amongst the districts with the highest percent of households owning landline phones, wheel barrows and bicycles. It had the largest proportion of households using pressure lamps in the region. The most common source of energy for lighting was the wick lamp and practically all households used firewood for cooking. The roofing material for most of the households' dwellings was iron sheet (51%), however it had a high percent of households with grass/leaves roofs (41%) compared to most other districts. The most common source of drinking water was from unprotected springs. It was one of the districts with the highest percent of households having three meals per day. The district had one of the highest percent of households that did not eat meat or fish during the week prior to enumeration and most households never had problems with food satisfaction.

4.2.3 Muleba

Muleba district had the third largest number of households in the region and it had one of the highest percent of households involved in smallholder agriculture in the region. Most smallholders were involved in crop farming only, followed by crop and livestock farming then livestock only. It had a very small number of pastoralists.

The most important livelihood activity for smallholder households in Muleba district was annual crop farming, followed by permanent crop farming and off farm income generating activities. The district had the second lowest percent of households with no off-farm income generating activities and the third highest percent of households with more than one member with off-farm income. Compared to other districts in the region, Muleba had a relatively high percent of female

headed households (20.5%) and it had one of the highest average ages of the household heasd in the region. Its average household size of 4.5 members per household was slightly below the average for the region. Muleba had a comparatively high literacy rate among smallholder households.

The land area utilized per household (1.2ha) was below the average for the region and 93 percent of the allocated area was being utilized which was high for the region. The district had the second lowest planted area in the region and the second lowest planted area per household (0.7 ha in the long rainy season and 0.6 ha in the short rainy season). The planted area in the short rainy season was far greater than that of the long rainy season.

The district was the second least important for maize production in the region and had a planted area of 14,068 ha. The planted area per household was 0.2 ha which was below the average for the region. Sorghum production was not important with a planted area of only 1,602 hectares but it was the fourth highest in the region. While the production of finger millet was small, bulrush millet and paddy were not produced in the district. The district had the third largest planted area of cassava accounting for 20.8 percent of the cassava planted area in the region. It was the second largest producer of sweet potatoes and yams. The production of beans in Muleba was moderate compared to other districts in the region with a planted area of 22,403 ha. Oilseed crops were less important in Muleba with only 7 percent of the total groundnuts' planted area in the region. Vegetable production was not important and no traditional annual cash crops were grown in the district.

Permanent crops were very important in Muleba district and it had 24 percent of the total area under permanent crops in the region. The most prominent permanent crops in the district include banana (28,723 ha), coffee (9,968 ha), pineapple (369 ha) and mango (100 ha). Other permanent crops grown in small quantities include lemon, guava, pession, sugarcane, star fruit and tangerine.

As with other districts in the region, most land clearing was done by hand slashing, however it had the largest area planted without land clearing indicating the presence of a large area of bare land before cultivation. Practically all land preparation was done by hand, however a very small amount of land preparation was done by oxen and tractor.

Muleba had the third smallest area planted with improved seeds in Kagera Region and this was due to the dominance of permanent crops which do not need frequent planting. The district had the second largest planted area applied with fertilizers (farm yard manure, compost and inorganic fertiliser), and most of these were farm yard manure and compost. Compared to other districts in the region, Muleba district had the third smallest area of insecticide use and the third largest area with fungicide use. The use of herbicides was relatively small. With 484 ha of irrigated land, it had the second smallest area under irrigation. The most common source of water for irrigation was from rivers and almost all water application was by hand bucket.

The most common method of crop storage in Muleba was in sacks/open drums, and the proportion of households not storing crops in the district was the smallest in the region. The district had moderate to low percent of households selling crops, however and those who did not sell, the main reason for not selling was insufficient production. Muleba district had a high percent of households processing crops in the region and most of it was done by neighbors' machines. Small quantities of processed crops were sold and very few households had access to credit.

A larger number of households received extension services in Muleba district and a large number of this was from the government. The quality of extension services was rated between good and average by the majority of the households.

Tree farming was important in Muleba district which had 2,438,158 planted trees mostly Eucalyptus spp with some Maesopsis spp and Pinus spp. Muleba district had the highest number of erosion control bunds and second highest number of drainage ditches in the region.

The district had the second largest number of cattle and sheep in the region and they were almost all indigenous. Goat production was low compared to other districts. It had the third largest number of pigs in the region and the second lowest number of chickens. Chickens kept in the district were mainly indigenous with very few improved breeds. The district had the third largest number of ducks, and a small number of rabbits were found. A small number of households reported tsetse flies and tick problems. A moderate amount of de-worming of livestock was practiced in the district. No draft animals were used. Fish farming was practiced by a small number of households but the district had the second largest number in the region.

It had amongst the best access to secondary markets compared to other districts. However, it had one of the worst accesses to the district capital.

The percentage of households without toilet facilities in Muleba district was lower for the region; however it had the third lowest percent of households with no toilet facilities. It had the fourth largest percent of households owning radios and mobile phones. It had the second largest proportion of households using mains electricity in the region and the most common source of energy for lighting was the wick lamp and practically all households used firewood for cooking. The district had a high percent of households with iron sheet (60%) and 37 percent of households had grass/leaves roofing. The most common source of drinking water was from unprotected springs. Eighty seven percent of the households in the district reported having two meals per day and no household reported having more than three meals per day. The district had the second highest percent of households that did not eat meat and lowest percent of household that did not eat fish during the week prior to enumeration and most households seldom had problems with food satisfaction.

4.2.4 Biharamulo

Biharamulo district had the third lowest number of households in the region and the second smallest percent of households involved in smallholder agriculture in the region. Most smallholders were involved in crop farming only, followed by crop and livestock farming. It had a very small number of livestock only households and pastoralists.

The most important livelihood activity for smallholder households in Biharamulo district was annual crop farming followed by permanent crop farming. It had the third lowest percent of households with no off-farm activities and the second highest percent of households with more than one member with off-farm income. Compared to other districts in the region, Biharamulo district had the lowest percent of female headed households (10.6%) and it had one of the moderate ages of the household heads. Its average household size of 6.3 members per household was the highest in the region. Biharamulo district had the lowest literacy rate among smallholder household members and this was reflected by the concomitant lowest level of school attendance in the region.

It had the largest utilized land area per household (2.1 ha) and only 86 percent of the allocated land area was utilized. The total planted area was the largest in the region and had the largest planted area per household (1.5 ha in the long rainy season and 1.1 ha in the short rainy season).

Biharamulo district was important for maize production in the region with a planted area of 28,288 ha, and the planted area per household was also the highest in the region. Paddy, sorghum, finger millet and bulrush millet production were also very important compared to other district with planted areas of 5,187 ha, 3,132 ha, 1,232 ha and 287 ha respectively.

Cassava production was very important in Biharamulo district as it had about 50 percent of the total area planted with maize in the region. Sweet potato production was also important in the district. The district had the second least planted area of beans. Oilseed crops were important in the district and had the largest areas planted areas for groundnuts and sunflower. Vegetable production was not important in the district and it had the second lowest area planted with tomatoes in the region. Traditional cash crops (e.g. tobacco and cotton) were very important in the district. Biharamulo was the only district in the region that produced cotton.

Compared to other districts in the region, Biharamulo district had the second smallest area planted with permanent crops (1.7% of total area under permanent crops which were dominated by banana (1,932 ha), coffee (454 ha), sugar cane (141 ha) and sour soup (104 ha). Small areas of pigeon peas, mango, pineapples and pawpaw were found.

As with other districts in the region, most land clearing and preparation was done by hand, but also had the smallest land preparation done by oxen.

Biharamulo district had the smallest proportion of the area planted with improved seed. The district had the second smallest percent of planted area applied with fertilizers (farm yard manure, compost and inorganic fertiliser), and most of these were farm yard manure followed by inorganic fertilizers. Compared to other districts in the region, Biharamulo district had the largest planted area applied with insecticides. The percent of planted area with fungicides was the highest in the region and the percent of planted area with herbicides was the second highest. It had the second largest area under irrigation (1,991 ha). The most common source of water for irrigation was from rivers by gravity. Flood irrigation was the most common means of water application.

The most common method of crop storage was in sacks/open drums; however the proportion of households not storing crops in Biharamulo district was the highest in the region. The number of households selling crops in the district was the third smallest in the region, and for those who did not sell, the main reason for not selling was insufficient production. The second smallest percent of households processing crops in the region was found in Biharamulo district and processing was mostly done by neighbor's machines. The district had the second smallest number of households processing crops by neighbors' machines. It also had the second lowest number of households processing crops on farm by hand. Most households that sold processed crops, sold them to neighbors. Access to credit was the largest in the region.

A small number of households received extension services in Biharamulo district and a large percent of these were from the government. The quality of extension services was rated between good and average by the majority of the households.

Tree farming was not important in Biharamulo district which had 643,721 planted trees most of which wereGravellis spp with some Maesopsis spp and Eucalyptus Spp. The largest proportion of households in Biharamulo district used drainage ditches for erosion control.

Biharamulo district had the largest number of cattle in the region and most of them were indigenous. It was one of the districts with the largest number of goats in the region. Biharamulo had moderate number of sheep, the second lowest number of pigs and the highest number of chickens. Small numbers of ducks and rabbits were also found in the district. While the highest proportion of households reported ticks problems in Biharamulo district, it had the smallest number of households reporting tsetse flies problems and had moderate numbers of households de-worming livestock. The use of draft animals in the district was the highest and there was no fish farming.

It was amongst the districts with the best access to primary markets, compared to other districts. However, it had the worst access to secondary schools, feeder roads, hospitals, regional capital, secondary markets, tarmac roads and district capital.

Biharamulo district had the second largest number of households with no toilet facilities. The district had the highest percent of households owning bicycles and lowest percent of households owning mobile phones and landline phones. It had the second lowest proportion of households using mains electricity and largest proportion of households using hurricane lamps in the region. The most common source of energy for lighting was the wick lamp and most households used firewood for cooking. The district had the second largest percent of households with grass roofs and 32 percent of households had iron sheet roofs. The most common source of drinking water was unprotected wells and it had the third highest percent of households having two or three meals per day compared to other districts. The district had the highest percent of households that ate meat once during the week prior to enumeration but had the third lowest percent of households that did not eat fish. Most households never had problems with food satisfaction.

4.2.5 Ngara

Ngara district had the second smallest number of households in the region but had the highest percent of households involved in smallholder agriculture in the region. Most smallholders were involved in crop farming only, followed by crop and livestock farming. Livestock only households and pastoralists were not found in the district.

The most important livelihood activity for smallholder households in the district was annual crop farming followed by permanent crop farming, livestock keeping/herding, off farm income, tree/forest resources, remittances and fishing. The district had the largest percent of households with no off-farm activities and the lowest percent of households with more than one member with off-farm income. Compared to other districts in the region, Ngara had a moderate percent of female headed households (18.3%) and it had one of the lowest average ages of the household heads. Its average household size of 4.7 members per household was slightly lower than the regional average. Ngara had the second lowest literacy rate among smallholder households in the region and this was reflected by the concomitant relatively low level of school attendance. The rate of "Never Attended" was among the highest in the region.

It had one of the largest utilized land area per household (1.6 ha) and it was slightly higher than the regional average of 1.4 ha per household. The district had moderate planted area in the region and moderate planted area per household (0.6 ha in the long rainy season and 0.8 ha in the short rainy season).

The district was important for maize production with a planted area of 16,908 ha and the planted area per household was the second largest in the region. With a planted area of 84 hectares, paddy production was not important but the production of sorghum was very important. The production of finger millet was small.The district had among the lowest percentages of cassava, sweet potatoes and Irish potatoes planted areas in the region. The production of beans was the second largest in the region with a planted area of 29,959 ha and oil crops were moderately important in the district. Vegetable production was not important in the district. Cotton was not grown in the district but tobacco was grown in a very small amount.

Compared to other districts in the region, Ngara had a small planted area of permanent crops (18,148 ha) which were dominated by banana (13,817 ha) and coffee (3,600 ha). Other permanent crops were either not grown or had very planted areas.

As with other districts in the region, most land clearing was done by hand slashing and a small land area was cleared by tractor. Practically all land preparation was done by hand, however a very small amount of land preparation was done by oxen and tractor.
Ngara had one of the smallest areas planted with improved seed in Kagera Region and one of the lowest percent of planted area using improved seeds. The district had the second smallest planted area applied with fertilizers and most of these were farm yard manure and no inorganic fertilizers were used. Compared to other districts in the region, Ngara district had the second lowest percent of the planted area applied with insecticides in the region. The use of fungicides was the one of the lowest in the region but it had the second largest percent of planted area applied with herbicides. The district had the third largest planted area under irrigation in the region with 1,039 ha of irrigated land. Canals and rivers were used as the source of irrigation water and hand bucket was mainly used. Flood irrigation and buckets/water cans were the most common means of irrigation water application.

The most common method of crop storage was in sacks/open drum; however the proportion of households not storing crops in the district was the second highest in the region. The district had the second smallest proportion of households selling crops and the main reason for not selling was insufficient production. Ngara district had the highest percent of households processing crops on farm by machines and the highest percent of households selling processed crops mainly to local market/trade store. No sales were made to secondary markets, marketing cooperatives, farmers associations and large scale farms. Very few households accessed agricultural credits.

A comparatively small number of households received extension services in Ngara district and most these were from the government. The quality of extension services was rated between good and average by most of the households.

Tree farming was very important in Ngara which had 2,685,052 planted trees most of which were Ecalyptus spp with some Maesopsis Spp, Gravellis spp, Acacia spp and Pinus spp. Moderate number of erosion control and water harvesting structures were found in Ngara district and most of them were erosion control bunds followed by drainage ditches.

The district had the second smallest number of cattle in the region and these were mostly indigenous. It had the third largest number of goats, second lowest number of sheep in the region and a moderate number of pigs. It had a comparatively large number of chickens. Small numbers of ducks, turkeys and rabbits were also found in the district. The highest proportion of households reported tsetse flies problems and the lowest proportion of households reported tick

problems in Ngara district. There was a smallest proportion of household de-worming livestock. Draft animals were not used in the district but fish farming was mostly practiced there.

It was amongst the districts with the best access to hospitals, health clinics, primary markets, secondary markets, tertiary markets and tarmac roads; however it had one of the worst accesses to the regional capital.

Ngara district had a low percent of households with no toilet facilities. The district had the lowest percent of households owning radios, bicycles, wheel barrows, iron and television/video. It had the lowest proportion of households using mains electricity in the region. The most common source of energy for lighting was the wick lamp and practically all households used firewood for cooking. The district had the largest percent of households with grass roofs and 41 percent of households had iron sheet roofs. The most common source of drinking water was from unprotected spring and unprotected wells. It had the highest percent of households having one meal per day compared to other districts and was among the districts with a low percent of households having 3 meals per day. The district had the second lowest percent of households that did not eat meat during the week prior to enumeration; however it was the district with the highest percent of households that did not eat fish during the week. Most households in the district never had problems with food satisfaction.

4.2.6 Bukoba Urban

Bukoba Urban district had the lowest number of households in the region and it had the lowest percent of households involved in smallholder agriculture in the region. Most smallholders were involved in crop farming only, followed by crop and livestock. It had a very small number of livestock only households and no pastoralists were found in the district.

The most important livelihood activity for smallholder households in Bukoba Urban district was annual crop farming, followed by permanent crop farming, off farm income and livestock keeping/herding. The district had the lowest percent of households with no off-farm income generating activities but had the highest percent of households with more than one member with off-farm income. Compared to other districts in the region, Bukoba Urban had the highest percent of female headed households (27.1%) and it had the highest average ages of the household heads. Its average household size of 4.9 members per household was moderate compared to other district in the region. The literacy rate among smallholder households members was the highest in the region and associated with this was the highest number of household members who were attending schools.

It had the lowest utilized land area per household (0.9 ha) in Kagera Region. The total planted area was the lowest in the region. However the planted area per household in the long rainy season was the highest in the region.

The district had the smallest area planted with maize (611 ha) and smallest area planted per household. Paddy, sorghum, bulrush millet and finger millet production were not important. The district had the smallest planted area of cassava (323 ha) and sweet potatoes (347 ha), however it had the second largest area planted with coco yams (252 ha). Oilseed crops were not important in Bukoba Urban and it had the smallest planted area of sunflower in the region (4 ha) and there was no planted areas for groundnuts and soya beans. Vegetable production was not important in the district; however tomatoes, cucumber, onions and cabbages were produced in very small quantities.

Compared to other districts in the region, Bukoba Urban had the smallest area planted with permanent crops and these were dominated by banana (1,171 ha), Coffee (373 ha), mango (21 ha) and passion (904 ha). Other permanent crops were either not grown or had very small planted areas.

Most land clearing was done by hand slashing, however it had the second largest area planted without land clearing indicating the presence of a large area of bare land before cultivation. Most land preparation was done by hand, however it had the smallest planted area cultivated by oxen. A very small amount of land preparation was done by tractor.

Bukoba Urban had the smallest area planted with improved seed in Kagera Region. The use of fertilizer was very small and most of these were farm yard manure and compost. Compared to other districts in the region, Bukoba Urban district had the third smallest percentage of the planted area applied with fungicides; however it had the highest percent of planted area applied with herbicides. It had the smallest area under irrigation only of 23 hectares. The most common source of water for irrigation was rivers using hand buckets and gravity. Buckets/watering cans and flood were the common means of water application in the district.

The most common method of crop storage was in sacks/open drums; however the proportion of households not storing crops in the district was the second highest in the region. The district had the smallest number of households selling crops, and for those who did not sell, the main reason for not selling was insufficient production. Bukoba Urban had the highest percent of households processing crops and that was mostly done using traders machines, however the processed crop products were not sold. There was no access to agricultural credit in the district.

The district had the largest number of households receiving extension services and most of these were from the government. The quality of extension services was rated between good and average by the majority of the households.

Tree farming was not important in Bukoba Urban which had 555,512 planted trees mostly Eucalyptus Spp with some Maesopsis spp and Cyprus spp. The district had the third smallest proportion of households with erosion control and water harvesting structures and these were drainage ditches and erosion control bunds.

The district had the smallest number of cattle, goats, sheep, pigs and chickens in the region and they were almost all indigenous. The lowest numbers of ducks, donkeys and rabbits were also found in the district. It had the second highest proportion of households reporting tick problems in the region, however there was no tsetse flies problems in the district. It had the highest proportion of households de-worming livestock compared to other districts. Draft animals were not used and fish farming was not practiced.

It was a district with the best access to secondary schools, primary schools, all weather roads, feeder roads, hospitals, health clinics, regional capital, primary market, secondary market, tertiary markets, tarmac roads and district capital.

Bukoba Urban district had the lowest percent of households with no toilet facilities. It had the highest percent of households with radios, landline phones, mobile phones, irons, vehicles and television/video. It had the highest proportion of households using mains electricity. The most common source of energy for lighting was the wick lamp and the largest percent of households used firewood for cooking. The district had the highest percent of households with iron sheet roofs but 11 percent of the households had grass/leaves roofs. The most common sources of drinking water were from unprotected springs and surface water. It had the second highest percent of households having three meals per day compared to other districts and moderate percent had two meals per day. The district had the second highest percent of households that did not eat meat and second lowest percent of household that did not eat fish during the week prior to enumeration; however most households never had problems with food satisfaction.

TYPE OF AGRICULTURE HOUSEHOLD

2.1 TYPE OF AGRICULTURE HOUSEHOLD: Number of Agricultural Households by type of household and District during 2002/03 Agriculture Year

District	Agriculture, Non Agriculture and Urban Households								
	Rural households involved in Agriculture	% of Total rural households	Rural households NOT involved in Agriculture	% of Total Rural households	Total Rural Households	% of Total households	Urban Households	% of Total households	Total Number of Households (from 2002 Pop. Census)
	Number	%	Number	%	Number	%	Number	%	Number
Karagwe	84,914	97	2,985	3.4	87,899	99	1,148	1.3	89,047
Bukoba Rural	86,891	97	2,752	3.0	89,643	99	859	0.9	90,502
Muleba	75,179	97	1,993	2.5	77,172	98	1,935	2.4	79,107
Biharamulo	55,319	93	4,051	6.0	59,370	88	7,761	11.6	67,131
Ngara	47,187	98	1,169	2.4	48,356	99	726	1.5	49,082
Bukoba Urban	3,788	87	550	2.9	4,338	23	14,921	77.5	19,259
Total	353,277	96	13,501	3.4	366,778	93	27,350	6.9	**394,128**

2.2 TYPE OF AGRICULTURE HOUSEHOLD:Number of Agriculture Households By Type of Holding and District, 2002/03 Agricultural Year

District	Type of Agriculture Household										Total Number of Agricultural Households	Total Number of Households Growing Crops	Total Number of Agricultural Households Rearing Livestock
	Crops Only		Livestock Only		Pastoralists		Crops & Livestock		Total				
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent			
Karagwe	56,771	22	1,834	60	193	31	26,115	27	84,914	24	84,914	82,886	28,143
Bukoba Rural	69,545	27	408	13	143	23	16,795	18	86,891	25	86,891	86,340	17,346
Muleba	59,731	24	510	17	163	26	14,775	15	75,179	21	75,179	74,506	15,448
Biharamulo	31,952	13	257	8	129	21	22,981	24	55,319	16	55,319	54,932	23,367
Ngara	32,838	13	0	0	0	0	14,349	15	47,187	13	47,187	47,187	14,349
Bukoba Urban	2,981	1	40	1	0	0	767	1	3,788	1	3,788	3,748	807
Total	253,817	100	3,049	100	628	100	95,783	100	353,277	100	353,277	349,600	99,460

NUMBER OF AGRICULTURE HOUSEHOLDS

3.0: HOUSEHOLDS DEMOGRAPHS: Number of Agricultural Households and Average Household Size By Sex of the Head of Household and District, 2002/03 Agricultural Year

District	Male			Female			Total		
	Number of Househod Members	Number of Households	Average Household Size	Number of Househod Members	Number of Households	Average Household Size	Number of Househod Members	Number of Households	Average Household Size
Karagwe	371,931	71,674	5.2	58,682	13,240	4.4	430,613	84,914	5.1
Bukoba Rural	302,281	65,387	4.6	81,713	21,504	3.8	383,994	86,891	4.4
Muleba	283,810	59,769	4.7	56,562	15,409	3.7	340,372	75,179	4.5
Biharamulo	323,894	49,482	6.5	22,762	5,837	3.9	346,655	55,319	6.3
Ngara	186,315	38,564	4.8	33,162	8,623	3.8	219,478	47,187	4.7
Bukoba Urban	14,712	2,762	5.3	3,994	1,026	3.9	18,706	3,788	4.9
Total	1,482,943	287,638	5.2	256,875	65,639	3.9	1,739,818	353,277	4.9

RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES

3.1 The livelyhood Activities/Source of Income of the Households Ranked in Order of Importance by District

District	livelihood activity						
	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Karagwe	2	1	3	4	6	7	5
Bukoba Rural	2	1	4	3	5	7	6
Muleba	1	2	4	3	7	6	5
Biharamulo	1	2	3	4	7	5	6
Ngara	1	2	3	4	6	7	5
Bukoba Urban	1	2	4	3	5	7	6
Total	1	2	3	4	6	7	5

3.1a RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: First Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Karagwe	24,387	47,471	3,755	7,444	1,097	381	360
Bukoba Rural	18,435	48,765	1,168	14,805	2,162	968	296
Muleba	25,815	24,047	1,528	17,502	1,539	4,188	890
Biharamulo	39,066	6,158	2,927	5,381	132	1,382	131
Ngara	34,722	7,166	1,654	3,525	119	0	0
Bukoba Urban	1,456	846	87	1,046	208	106	103
Total	143,881	134,453	11,119	49,702	5,258	7,025	1,779

3.1b RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Second Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Karagwe	46,200	29,861	3,247	3,015	166	193	189
Bukoba Rural	51,033	25,827	2,164	3,953	1,263	998	813
Muleba	27,420	37,479	1,861	4,760	1,134	1,525	511
Biharamulo	13,342	15,293	10,523	10,747	722	933	1,061
Ngara	10,346	25,134	5,368	4,634	222	356	108
Bukoba Urban	1,431	1,408	218	540	185	35	32
Total	149,772	135,002	23,381	27,651	3,691	4,041	2,714

3.1c RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Third Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Karagwe	9,059	3,269	29,009	10,775	1,886	742	2,646
Bukoba Rural	13,674	9,595	18,744	13,090	3,939	1,187	3,308
Muleba	19,117	9,243	15,064	7,817	3,704	2,528	5,052
Biharamulo	2,402	9,648	14,832	6,853	1,175	506	1,207
Ngara	1,057	7,603	18,986	3,848	694	351	1,061
Bukoba Urban	600	1,328	400	563	349	69	67
Total	45,910	40,686	97,036	42,947	11,747	5,384	13,341

3.1d RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Fourth Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Karagwe	969	568	7,562	3,998	331	193	2,814
Bukoba Rur	2,300	862	12,412	5,418	1,909	1,162	1,888
Muleba	1,814	1,699	15,053	5,558	2,480	512	4,705
Biharamulo	0	2,856	4,549	3,601	753	411	1,206
Ngara	235	824	4,306	2,594	812	0	1,192
Bukoba Urb	158	91	791	386	199	0	236
Total	5,477	6,900	44,673	21,554	6,484	2,278	12,042

3.1e RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Fifth Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Karagwe	189	0	353	378	568	0	951
Bukoba Rur	297	0	743	1,633	735	0	1,605
Muleba	0	0	3,128	2,201	683	338	1,347
Biharamulo	0	120	453	742	132	262	255
Ngara	0	0	239	239	234	0	597
Bukoba Urb	0	0	69	67	34	0	0
Total	486	120	4,985	5,260	2,385	600	4,754

3.1f RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Sixth Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Karagwe	0	0	0	0	0	0	188
Bukoba Rural	0	0	149	0	0	0	0
Muleba	0	0	453	170	171	170	341
Biharamulo	0	0	85	0	131	0	0
Ngara	0	0	0	0	0	114	0
Bukoba Urban	0	0	0	0	0	0	0
Total	0	0	688	170	303	284	529

3.1g RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Seventh Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Karagwe	0	0	0	0	0	0	0
Bukoba Rural	0	0	0	0	0	0	0
Muleba	168	171	170	0	170	0	170
Biharamulo	0	110	0	129	0	0	0
Ngara	0	118	0	0	0	0	0
Bukoba Urban	0	0	0	0	0	0	0
Total	168	400	170	129	170	0	170

HOUSEHOLDS DEMOGRAPHS

3.2 HOUSEHOLDS DEMOGRAPHS: Number of Agricultural Household Members By Sex and Age Group for the 2002/03 Agricultural Year (row %)

	Sex					
	Male		Female		Total	
Age Group	Number	%	Number	%	Number	%
Less than 4	128,334	48	137,840	52	266,175	100
05 - 09	140,865	50	138,496	50	279,361	100
10 - 14	135,190	51	128,087	49	263,277	100
15 - 19	96,036	53	84,988	47	181,024	100
20 - 24	69,202	47	79,182	53	148,384	100
25 - 29	58,243	46	67,994	54	126,237	100
30 - 34	51,998	50	52,692	50	104,690	100
35 - 39	38,618	48	41,406	52	80,023	100
40 - 44	37,879	53	33,500	47	71,379	100
45 - 49	22,928	46	26,631	54	49,559	100
50 - 54	20,496	49	20,959	51	41,454	100
55 - 59	12,799	50	12,711	50	25,511	100
60 - 64	14,767	52	13,660	48	28,427	100
65 - 69	13,361	57	9,888	43	23,249	100
70 - 74	11,426	54	9,638	46	21,063	100
75 - 79	7,098	50	7,165	50	14,263	100
80 - 84	3,769	45	4,552	55	8,321	100
Above 85	3,022	41	4,398	59	7,420	100
Total	866,030	50	873,788	50	1,739,818	100

3.3 HOUSEHOLDS DEMOGRAPHS: Number of Agricultural Household Members By Sex and Age Group for the 2002/03 Agricultural Year (column %)

	Sex					
	Male		Female		Total	
Age Group	Number	%	Number	%	Number	%
Less than 4	128,334	15	137,840	16	266,175	15
05 - 09	140,865	16	138,496	16	279,361	16
10 - 14	135,190	16	128,087	15	263,277	15
15 - 19	96,036	11	84,988	10	181,024	10
20 - 24	69,202	8	79,182	9	148,384	9
25 - 29	58,243	7	67,994	8	126,237	7
30 - 34	51,998	6	52,692	6	104,690	6
35 - 39	38,618	4	41,406	5	80,023	5
40 - 44	37,879	4	33,500	4	71,379	4
45 - 49	22,928	3	26,631	3	49,559	3
50 - 54	20,496	2	20,959	2	41,454	2
55 - 59	12,799	1	12,711	1	25,511	1
60 - 64	14,767	2	13,660	2	28,427	2
65 - 69	13,361	2	9,888	1	23,249	1
70 - 74	11,426	1	9,638	1	21,063	1
75 - 79	7,098	1	7,165	1	14,263	1
80 - 84	3,769	0	4,552	1	8,321	0
Above 85	3,022	0	4,398	1	7,420	0
Total	866,030	100	873,788	100	1,739,818	100

3.4 HOUSEHOLDS DEMOGRAPHS: Number of Agricultural Household Members by Sex and District for the 2002/03 Agricultural Year

	Sex					
	Male		Female		Total	
District	Number	%	Number	%	Number	%
Karagwe	213,051	49	217,562	51	430,613	100
Bukoba Rural	186,397	49	197,596	51	383,994	100
Muleba	169,111	50	171,261	50	340,372	100
Biharamulo	178,878	52	167,777	48	346,655	100
Ngara	109,276	50	110,201	50	219,478	100
Bukoba Urban	9,316	50	9,390	50	18,706	100
Total	866,030	50	873,788	50	1,739,818	100

3.5A HOUSEHOLDS DEMOGRAPHS: Number of Agriculture Household Members 5 years and above Who Can Read and Write Languages by Type of Language and District, 2002/03 Agricultural Year

	Read & Write									
	Swahili		Swahili & English		Any Other Language		Don't Read / Write		Total	
District	Number	%	Number	%	Number	%	Number	%	Number	%
Karagwe	219,374	61.5	19,105	5.4	1,868	0.5	116,572	32.7	356,919	100
Bukoba Rural	240,831	71.5	19,378	5.8	2,085	0.6	74,395	22.1	336,690	100
Muleba	189,312	64.5	12,031	4.1	514	0.2	91,699	31.2	293,555	100
Biharamulo	141,734	50.1	14,935	5.3	0	0.0	126,297	44.6	282,966	100
Ngara	107,480	57.5	7,905	4.2	0	0.0	71,589	38.3	186,975	100
Bukoba Urban	12,147	73.5	1,723	10.4	20	0.1	2,648	16.0	16,538	100
Total	910,879	61.8	75,076	5.1	4,487	0.3	483,201	32.8	1,473,643	100

3.5B HOUSEHOLDS DEMOGRAPHS: Number of Agriculture Household Members 5 years by literacy levels and District, 2002/03 Agricultural Year

	Literacy				
District	Know	%	Don't know	%	Total
Karagwe	240,347	67	116,572	33	356,919
Bukoba Rural	262,294	78	74,395	22	336,690
Muleba	201,856	69	91,699	31	293,555
Biharamulo	156,669	55	126,297	45	282,966
Ngara	115,385	62	71,589	38	186,975
Bukoba Urban	13,891	84	2,648	16	16,538
Total	990,442	67	483,201	33	1,473,643

3.6 HOUSEHOLDS DEMOGRAPHS: Number of Agricultural Household Members 5 years and above By School Attendance and District , 2002/03 Agricultural Year

	School Attendancy							
	Attending School		Completed		Never Attended to School		Total	
District	Number	%	Number	%	Number	%	Number	%
Karagwe	110,017	31	150,656	42	96,246	27	356,919	100
Bukoba Rural	115,627	34	162,889	48	58,174	17	336,690	100
Muleba	90,508	31	119,145	41	83,902	29	293,555	100
Biharamulo	79,030	28	96,069	34	107,866	38	282,966	100
Ngara	58,351	31	67,698	36	60,925	33	186,975	100
Bukoba Urban	5,911	36	8,612	52	2,015	12	16,538	100
Total	459,445	31	605,070	41	409,128	28	1,473,643	100

3.7 HOUSEHOLDS DEMOGRAPHS: Number of Agricultural Household Members by Main Activity and District, 2002/03 Agricultural Year

	Main Activity									
	Crop/Seaweed Farming		Livestock Keeping / Herding		Livestock Pastoralist		Fishing		Government / Parastatal	
District	Number	%	Number	%	Number	%	Number	%	Number	%
Karagwe	187,450	53	10,193	3	762	0	186	0	3,239	1
Bukoba Rural	154,676	46	3,986	1	735	0	2,535	1	4,217	1
Muleba	139,886	48	2,296	1	2,892	1	5,255	2	2,690	1
Biharamulo	137,884	49	7,018	2	774	0	2,963	1	1,497	1
Ngara	100,967	54	1,161	1	330	0	934	0	1,636	1
Bukoba Urban	6,218	38	231	1	69	0	141	1	578	3
Total	727,081	49	24,883	2	5,562	0	12,015	1	13,857	1

cont… Number of Agricultural Household Members By Main Activity and District, 2002/03 Agricultural Year

District	Main Activity									
	Private - NGO / Mission / etc		Self Employed (Non Farmimg) with Employees		Self Employed (Non Farmimg) without Employees		Unpaid Family Helper (Non Agriculture)		Not Working & Available	
	Number	%	Number	%	Number	%	Number	%	Number	%
Karagwe	5,041	1	2,451	1	4,925	1	552	0	0	0
Bukoba Rural	17,890	5	4,934	1	5,975	2	2,154	1	1,676	0
Muleba	3,907	1	3,698	1	7,926	3	1,687	1	0	0
Biharamulo	5,118	2	252	0	4,317	2	0	0	239	0
Ngara	4,041	2	1,042	1	475	0	352	0	227	0
Bukoba Urban	736	4	416	3	880	5	138	1	34	0
Total	36,732	2	12,793	1	24,497	2	4,883	0	2,176	0

cont… Number of Agricultural Household Members By Main Activity and District, 2002/03 Agricultural Year

District	Main Activity											
	Not Working & Unavailable		Housemaker / Housewife		Student		Unable to Work / Too Old / Retired / Sick /		Other		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Karagwe	379	0	925	0	103,660	29	35,038	10	2,120	1	356,919	100
Bukoba Rural	135	0	1,670	0	110,796	33	24,564	7	747	0	336,690	100
Muleba	171	0	2,508	1	83,411	28	35,085	12	2,144	1	293,555	100
Biharamulo	0	0	566	0	77,158	27	44,544	16	637	0	282,966	100
Ngara	347	0	665	0	56,755	30	16,941	9	1,104	1	186,975	100
Bukoba Urban	48	0	258	2	5,518	33	860	5	412	2	16,538	100
Total	1,080	0	6,592	0	437,298	30	157,032	11	7,162	0	1,473,643	100

3.8 HOUSEHOLDS DEMOGRAPHS: Number of Agricultural Household Members By Level of involvement in Farming Activivty and District, 2002/03 Agricultural Year

District	Involvement in Farming									
	Works Full-time on Farm		Works Part-time on Farm		Rarely Works on Farm		Never Works on Farm		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
Karagwe	189,726	53	17,617	5	68,044	19	81,533	23	356,919	100
Bukoba Rural	148,571	44	22,312	7	94,400	28	71,407	21	336,690	100
Muleba	137,288	47	11,298	4	73,642	25	71,326	24	293,555	100
Biharamulo	116,313	41	9,916	4	80,353	28	76,385	27	282,966	100
Ngara	99,851	53	4,352	2	27,792	15	54,979	29	186,975	100
Bukoba Urban	6,171	37	939	6	4,285	26	5,143	31	16,538	100
Total	697,920	47	66,434	5	348,516	24	360,772	24	1,473,643	100

3.9 HOUSEHOLDS DEMOGRAPHS: Number of Agricultural Household Members By Level of Formal Education Completion and District, 2002/03 Agricultural Year

	Education Level									
	Under Standard One		Standard One		Standard Two		Standard Three		Standard Four	
District	Number	%	Number	%	Number	%	Number	%	Number	%
Karagwe	0	0	1,516	1	3,632	2	4,955	3	16,453	11
Bukoba Rural	1,770	1	1,313	1	2,215	1	5,608	3	20,787	13
Muleba	1,022	1	171	0	2,647	2	2,947	2	17,489	15
Biharamulo	0	0	523	1	4,368	5	3,932	4	10,098	11
Ngara	231	0	116	0	331	0	1,391	2	4,556	7
Bukoba Urban	32	0	0	0	133	2	120	1	1,011	12
Total	3,056	1	3,639	1	13,326	2	18,953	3	70,393	12

cont... HOUSEHOLDS DEMOGRAPHS: Number of Agricultural Household Members By Level of Formal Education Completion and District, 2002/03 Agricultural Year

	Education Level									
	Standard Seven		Standard Eight		Training After Primary Education		Pre Form One		Form One	
District	Number	%	Number	%	Number	%	Number	%	Number	%
Karagwe	107,108	71	711	0	382	0	0	0	377	0
Bukoba Rural	105,427	65	3,754	2	1,273	1	876	1	296	0
Muleba	80,671	68	1,512	1	493	0	155	0	155	0
Biharamulo	65,012	68	1,746	2	367	0	122	0	118	0
Ngara	53,713	79	1,429	2	702	1	116	0	0	0
Bukoba Urban	5,919	69	192	2	33	0	0	0	0	0
Total	417,850	69	9,344	2	3,249	1	1,270	0	946	0

cont... HOUSEHOLDS DEMOGRAPHS: Number of Agricultural Household Members By Level of Formal Education Completion and District, 2002/03 Agricultural Year

	Education Level									
	Form Two		Form Three		Form Four		Form Six		Training After Secondary Education	
District	Number	%	Number	%	Number	%	Number	%	Number	%
Karagwe	576	0	761	1	4,517	3	387	0	1,524	1
Bukoba Rural	3,600	2	294	0	4,359	3	592	0	1,344	1
Muleba	964	1	0	0	3,715	3	171	0	340	0
Biharamulo	873	1	78	0	1,382	1	264	0	0	0
Ngara	0	0	0	0	1,514	2	0	0	353	1
Bukoba Urban	87	1	35	0	516	6	20	0	173	2
Total	6,100	1	1,169	0	16,003	3	1,434	0	3,734	1

cont... HOUSEHOLDS DEMOGRAPHS: Number of Agricultural Household Members By Level of Formal Education Completion and District, 2002/03

	Education Level					
	University & Other Tertiary Education		Adult Education		Total	
District	Number	%	Number	%	Number	%
Karagwe	183	0	1,577	1	150,656	100
Bukoba Rural	420	0	3,090	2	162,889	100
Muleba	170	0	1,749	1	119,145	100
Biharamulo	0	0	1,196	1	96,069	100
Ngara	116	0	799	1	67,698	100
Bukoba Urban	75	1	0	0	8,612	100
Total	965	0	8,412	1	605,070	100

3.10 HOUSEHOLDS DEMOGRAPHS: Number of Agricultural Households and Average Household Size By Sex of the Head of Household and District, 2002/03 Agricultural Year

District	Male			Female			Total		
	Number	%	Average Household Size	Number	%	Average Household Size	Number	%	Average Household Size
Karagwe	71,674	84.4	5.2	13,240	15.6	4.4	84,914	100	5.1
Bukoba Rural	65,387	75.3	4.6	21,504	24.7	3.8	86,891	100	4.4
Muleba	59,769	79.5	4.7	15,409	20.5	3.7	75,179	100	4.5
Biharamulo	49,482	89.4	6.5	5,837	10.6	3.9	55,319	100	6.3
Ngara	38,564	81.7	4.8	8,623	18.3	3.8	47,187	100	4.7
Bukoba Urban	2,762	72.9	5.3	1,026	27.1	3.9	3,788	100	4.9
Total	287,638	81.4	5.2	65,639	18.6	3.9	353,277	100	4.9

3.11 HOUSEHOLD DEMOGRAPHS: Number of Agricultural Households By Number of Household Members with Off-farm Income Generating Activities and District, 2002/03 Agricultural Year

District	Number of household members with Off farm income							
	One		Two		More than Two		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Karagwe	23,616	83	3,543	12	1,219	4	28,379	100
Bukoba Rural	35,169	82	6,089	14	1,559	4	42,817	100
Muleba	41,063	84	6,412	13	1,686	3	49,160	100
Biharamulo	20,600	68	6,657	22	2,944	10	30,200	100
Ngara	9,652	71	3,088	23	944	7	13,684	100
Bukoba Urban	1,802	62	781	27	311	11	2,894	100
Total	131,902	79	26,570	16	8,663	5	167,135	100

3.12 HOUSEHOLDS DEMOGRAPHS: Number of Heads of Agricultural Households By Maximum Education Level Attained and District, 2002/03 Agricultural Year

District	Maximum Education Level Attained							
	No Education	Primary Education	Post Primary Education	Secondary Education	Post Secondary Education	University & Equivalent Education	Adult Education	Total
Karagwe	22,651	56,263	382	3,772	946	183	717	84,914
Bukoba Rural	18,261	59,267	1,125	5,116	950	420	1,751	86,891
Muleba	21,776	48,616	155	3,557	171	0	902	75,179
Biharamulo	17,087	36,027	118	1,443	0	0	645	55,319
Ngara	15,369	29,732	234	816	119	116	799	47,187
Bukoba Urban	644	2,663	33	312	80	55	0	3,788
Total	95,788	232,568	2,047	15,017	2,267	775	4,814	353,277

3.13 HOUSEHOLDS DEMOGRAPHS: Mean, Median, Mode of Age of Head of Agricultural Household and District

District	Male			Female			Total		
	Mean	Median	Mode	Mean	Median	Mode	Mean	Median	Mode
Karagwe	40	37	30	49	48	42	41.7	39	30
Bukoba Rural	43	40	40	54	52	70	46.1	43	40
Muleba	42	38	30	54	54	63	44.6	40	30
Biharamulo	44	41	40	47	48	48	44.0	41	40
Ngara	41	38	24	46	42	35	41.8	38	30
Bukoba Urban	47	45	48	59	56	75	50.2	48	45
Total	42	38	30	52	50	70	43.8	40	30

3.14 Time Series of Male and Female Headed Households

	NSCA 1994/95	EAS 1995/96	EAS 1996/97	IAS 1997/98	DIAS 1998/99	NSCA 2002/03
Male Heads	210,881	135,180	138,250	148,765	148,981	145,187
Female Heads	43,259	34,646	45,301	48,677	42,537	43,016
Total	254,140	169,826	183,551	197,442	191,518	188,203
Male headed (percentage)	83	80	75	75	78	77
Female headed (percentage)	17	20	25	25	22	23
Total	100	100	100	100	100	100

3.15 Literacy Rate of Heads of Households by Sex and District

	Literacy								
	Know			Don't know			Total		
District	Male	Female	Total	Male	Female	Total	Male	Female	Total
Karagwe	55,505	5,231	60,736	16,169	8,009	24,178	71,674	13,240	84,914
Bukoba Rural	54,958	12,782	67,740	10,429	8,722	19,152	65,387	21,504	86,891
Muleba	46,431	7,652	54,083	13,338	7,757	21,095	59,769	15,409	75,179
Biharamulo	35,028	2,042	37,069	14,454	3,795	18,250	49,482	5,837	55,319
Ngara	27,635	3,373	31,008	10,929	5,250	16,179	38,564	8,623	47,187
Bukoba Urban	2,512	660	3,172	250	366	616	2,762	1,026	3,788
Total	222,068	31,739	253,807	65,570	33,899	99,470	287,638	65,639	353,277

3.16 Number of Agricultural Households by Number of Household Members Involved in Off Farm Income Generating Activities and District, 2002/03 Agricultural Year

	Number of Household Members Involved in Off-farm Income Generating Activities							
	One Person		Two Persons		More than Two Persons		Total	
District	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Karagwe	23,616	83	3,543	12	1,219	4	28,379	100
Bukoba Rural	35,169	82	6,089	14	1,559	4	42,817	100
Muleba	41,063	84	6,412	13	1,686	3	49,160	100
Biharamulo	20,600	68	6,657	22	2,944	10	30,200	100
Ngara	9,652	71	3,088	23	944	7	13,684	100
Bukoba Urban	1,802	62	781	27	311	11	2,894	100
Total	131,902	79	26,570	16	8,663	5	167,135	100

LAND ACCESS/OWNERSHIP

4.1 LAND ACCESS/OWNERSHIP: Number of Farming Households by Type of Land Ownership/Tenure and District for the 2002/03 Agricultural Year

District	Land Access														Total Number of Households
	Leased/Certificate of Ownwership		Owned under Customary Law		Bought		Rented		Borrowed		Households with Area Shared Cropped		Households with Area under Other Forms of Tenure		
	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	
Karagwe	1,850	2	52,674	62	45,992	54	1,143	1	4,598	5	529	1	1,869	2	84,914
Bukoba Rural	1,622	2	65,113	75	29,535	34	1,769	2	24,283	28	1,159	1	3,216	4	86,891
Muleba	4,015	5	59,188	79	34,036	45	3,163	4	23,744	32	673	1	2,187	3	75,179
Biharamulo	2,159	4	33,227	60	22,693	41	5,040	9	4,343	8	0	0	1,930	3	55,319
Ngara	2,306	5	40,152	85	21,159	45	5,145	11	3,888	8	462	1	2,193	5	47,187
Bukoba Urban	103	3	2,940	78	1,209	32	103	3	954	25	195	5	36	1	3,788
Total	12,054	3	253,294	72	154,624	44	16,362	5	61,810	17	3,018	1	11,430	3	353,277

4.2 LAND ACCESS/OWNERSHIP: Area of Land (ha) by Ownership/Tenure (Hectare) and District for the 2002/03 Agricultural Year

District	Land Access/ Ownership (Hectare)							
	Area Leased/Certificate of Ownership	Area Owned Under Customary Law	Area Bought	Area Rented	Area Borrowed	Area Shared Cropped	Area under Other Forms of Tenure	Total
Karagwe	3,605	59,447	59,951	746	1,484	127	4,584	129,945
Bukoba Rural	844	57,271	34,153	962	6,261	360	4,381	104,232
Muleba	2,961	43,311	34,518	1,294	7,756	203	5,223	95,266
Biharamulo	2,668	73,321	54,525	3,748	2,412	.	4,114	140,789
Ngara	2,424	51,658	23,360	2,530	1,468	186	1,734	83,359
Bukoba Urban	61	2,145	875	17	259	65	7	3,429
Total	12,563	287,153	207,382	9,299	19,640	941	20,042	557,020
%	2	52	37	2	4	0	4	100

LAND USE

5.1 LAND USE: Number of Agricultural Households By Type of Land Use and District for the 2002/03 Agricultural Year

Districts	Type of Land Use													
	Households with Temporary Mono Crops	Households with Temporary Mixed Crops	Households with Permanent Mono Crops	Households with Permanent Mixed Crops	Households with Permanent / Annual Mix	Households with Pasture	Households with Fallow	Households with Natural Bush	Households with Planted Trees	Households Rented to Others	Households Unusable	Households of Uncultivated Usable Land	Area of land Utilized by household	Total Number of Households
Karagwe	18,959	20,318	6,849	21,791	64,002	1,325	8,710	1,505	12,664	195	6,055	18,954	181,326	84,914
Bukoba Rural	40,530	25,236	11,275	18,497	65,641	1,592	4,960	1,608	10,718	735	3,631	16,918	201,340	86,891
Muleba	32,200	22,209	15,209	6,545	66,088	1,188	3,553	171	4,155	842	2,380	12,292	166,831	75,179
Biharamulo	35,642	38,722	19,805	2,130	14,817	3,302	16,580	2,800	3,961	2,009	4,395	11,172	155,336	55,319
Ngara	19,833	36,638	18,154	6,232	17,995	4,607	12,937	2,490	6,030	1,127	2,710	7,183	135,936	47,187
Bukoba Urban	691	1,116	293	418	3,244	20	103	20	762	0	0	267	6,935	3,788
Total	147,855	144,239	71,585	55,614	231,786	12,034	46,843	8,593	38,289	4,908	19,170	66,786	847,704	353,277

5.2 LAND USE: Area of Land (Ha) by type of Land Use and District for the 2002/03 Agricultural Year

District	**Land use area**												
	Area under Temporary Mono Crops	Area under Temporary Mixed Crops	Area under Permanent Mono Crops	Area under Permanent Mixed Crops	Area under Permanent / Annual Mix	Area under Pasture	Area under Fallow	Area under Natural Bush	Area under Planted Trees	Area Rented to Others	Area Unusable	Area of Uncultivated Usable Land	Total
Karagwe	8,937	9,971	3,250	20,171	56,911	995	6,192	671	4,300	40	5,979	12,734	130,151
Bukoba Rural	11,605	11,372	2,840	10,564	45,463	2,509	2,816	648	2,493	344	1,840	11,739	104,232
Muleba	10,602	8,870	3,980	5,021	49,900	4,678	1,917	69	2,109	205	1,175	6,740	95,266
Biharamulo	26,510	34,175	12,278	748	15,829	3,792	20,373	5,168	682	4,188	2,367	14,678	140,789
Ngara	9,625	28,526	8,587	3,780	12,202	2,655	6,819	1,158	2,064	436	2,414	5,092	83,359
Bukoba Urban	227	343	46	227	2,250	2	32	4	235	.	.	63	3,429
Total	67,506	93,256	30,980	40,512	182,555	14,631	38,150	7,718	11,883	5,213	13,775	51,046	557,226

5.3: Number of Agricultural Households by Whether All Land Available to the Household Was Used and District, 2002/03 Agricultural Year

	Was all Land Available to the Hh Used During 2002/03?					
	Yes		No		Total	
District	Number	Percent	Number	Percent	Number	Percent
Karagwe	46,880	57	36,007	43	82,886	100
Bukoba Rural	56,579	66	29,761	34	86,340	100
Muleba	53,029	71	21,477	29	74,506	100
Biharamulo	23,292	42	31,640	58	54,932	100
Ngara	23,000	49	24,187	51	47,187	100
Bukoba Urban	3,405	91	343	9	3,748	100
Total	206,185	59	143,415	41	349,600	100

5.4: Number of Agricultural Households by Whether they Consider Having Sufficient Land for the Household and District, 2002/03 Agricultural Year

	Do you Consider that you have sufficient land for the Hh?					
	Yes		No		Total	
District	Number	Percent	Number	Percent	Number	Percent
Karagwe	40,966	49	41,920	51	82,886	100
Bukoba Rural	42,300	49	44,041	51	86,340	100
Muleba	33,282	45	41,223	55	74,506	100
Biharamulo	33,894	62	21,039	38	54,932	100
Ngara	26,095	55	21,092	45	47,187	100
Bukoba Urban	1,340	36	2,408	64	3,748	100
Total	177,877	51	171,723	49	349,600	100

5.5: Number of Agricultural Households by whether Female Members of the Household Own or Have Customary Right to Land and District, 2002/03 Agricultural Year

	Do any Female Members of the Hh own or have customary right					
	Yes		No		Total	
District	Number	Percent	Number	Percent	Number	Percent
Karagwe	15,392	19	67,494	81	82,886	100
Bukoba Rural	17,154	20	69,187	80	86,340	100
Muleba	8,955	12	65,550	88	74,506	100
Biharamulo	5,396	10	49,536	90	54,932	100
Ngara	4,916	10	42,271	90	47,187	100
Bukoba Urban	1,341	36	2,407	64	3,748	100
Total	53,155	15	296,445	85	349,600	100

TOTAL ANNUAL CROP & VEGETABLES PRODUCTION SHORT & LONG RAINY SEASONS

7.1 & 7.2a TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Area Planted (ha) by Season and District.

District	Short Rainy Season		Long Rainy Season		Total Area Planted (Hectare)	% Area planted in Short Rainy Season
	Number of household	Planted area (hectare)	Number of household	Planted Area (hectare)		
Karagwe	64,982	50,986	52,810	32,632	83,618	61
Bukoba Rural	82,838	52,967	32,561	21,844	74,811	71
Muleba	72,645	41,847	17,157	11,799	53,646	78
Biharamulo	54,386	61,041	19,320	28,692	89,733	68
Ngara	44,024	34,262	34,335	21,921	56,183	61
Bukoba Urban	3,609	1,709	657	487	2,196	78
Total	322,485	242,812	156,840	117,377	360,188	67

7.1 & 7.2b TOTAL ANNUAL CROPS AND VEGETABLE PRODUCTION: Number of Crop Growing Households Planting Crops by Season and District.

District	Short Rainy Season		Long Rainy Season		Total Number of Crop Growing Households
	Number of households Growing Crops	Number of households NOT Growing Crops	Number of households Growing Crops	Number of households NOT Growing Crops	
Karagwe	64,982	17,904	52,810	30,076	82,886
Bukoba Rural	82,838	3,502	32,561	53,779	86,340
Muleba	72,645	1,861	17,157	57,349	74,506
Biharamulo	54,386	546	19,320	35,612	54,932
Ngara	44,024	3,163	34,335	12,852	47,187
Bukoba Urban	3,609	139	657	3,091	3,748
Total	322,485	27,115	156,840	192,759	349,600

7.1 and 7.2c TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Area planted (ha) and Quantity Harvested by Season and Crop for the 2002/03 agriculture year, Kagera Region

Crop	Short Rainy Season			Long Rainy Season			Total		
	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)	Area Planted (ha)	Quantity harvested (tons)	Yield (Kg/ha)	Area Planted (ha)	Quantity Harvested (tons)	Yield (Kg/ha)
Maize	89,757	90,368	1,007	12,585	9,945	790	102,342	100,313	980
Paddy	2,347	3,488	1,486	2,932	6,972	2,378	5,279	10,459	1,981
Sorghum	3,227	2,604	807	6,370	5,142	807	9,597	7,746	807
Bulrush Millet	0	0		287	435	1,515	287	435	1,515
Finger Millet	2,087	980	470	632	369	583	2,719	1,349	496
CEREALS	**97,418**	**97,440**		**22,806**	**22,863**		**120,225**	**120,303**	
Cassava	946	1,083	1,145	39,720	53,388	1,344	40,666	54,471	1,339
Sweet Potatoes	12,202	23,052	1,889	6,590	10,951	1,662	18,792	34,003	1,809
Irish Potatoes	1,062	1,710	1,610	385	569	1,477	1,447	2,279	1,574
Yams	414	597	1,441	503	1,120	2,226	917	1,717	1,872
Cocoyam	1,234	1,567	1,271	1,204	3,149	2,615	2,438	4,716	1,935
ROOTS & TUBERS	**15,858**	**28,010**		**48,403**	**69,177**		**64,261**	**97,186**	
Mung Beans	17	28	1,611	0	0	-	17	28	1,611
Beans	110,315	57,433	521	40,632	23,327	574	150,947	80,760	535
Cowpeas	317	143	452	58	31	534	375	174	465
Green Gram	10	3	247	60	26	445	70	29	415
Chich Peas	209	59	284	0	0	-	209	59	284
Bambaranuts	379	322	849	295	187	634	675	509	755
Field Peas	1,129	364	322	571	187	327	1,700	551	324
PULSES	**112,377**	**58,352**		**41,616**	**23,758**		**153,993**	**82,110**	
Sunflower	243	102	420	0	0	0	243	102	420
Groundnuts	7,649	4,050	529	2,483	1,330	535	10,132	5,380	531
Soya Beans	5	1	124	36	22	622	41	23	563
OIL SEEDS & OIL NUTS	**7,897**	**4,153**		**2,519**	**1,352**		**10,416**	**5,505**	
Bitter Aubergine	0	0	-	15	15	988	15	15	988
Onions	249	408	1,637	314	153	487	563	561	995
Ginger	78	107	1,373	0	0	-	78	107	1,373
Cabbage	252	413	1,638	268	2,087	7,798	520	2,500	4,811
Tomatoes	787	2,173	2,761	825	2,295	2,783	1,612	4,468	2,772
Spinnach	87	25	284	0	0	-	87	25	284
Carrot	104	536	5,143	30	96	3,211	134	631	4,713
Chillies	30	13	437	18	16	930	48	30	619
Amaranths	81	33	406	28	129	4,602	109	162	1,490
Pumpkins	0	3	-	24	0	-	24	3	124
Cucumber	12	13	1,079	0	0	-	12	13	1,079
Egg Plant	146	320	2,197	187	106	566	333	426	1,280
Water Mellon	24	106	4,446	0	0	-	24	106	4,446
FRUITS & VEGETABLES	**1,850**	**4,149**		**1,708**	**4,897**		**3,558**	**9,046**	
Cotton	6,062	4,416	728	325	290	893	6,387	4,706	737
Tobacco	1,243	792	637	0	0	-	1,243	792	637
Pyrethrum	107	92	862	0	0	-	107	92	862
CASH CROPS	**7,412**	**5,300**		**325**	**290**		**7,737**	**5,590**	
Total	**242,812**			**117,377**			**360,188**		

*The total area planted include the sum of the planted area for both Short and Long Rainy Seasons and it is an overestimation of the actual area due to being produced on the same land during the two seasons. Previous surveys have used the Long Rainy Season

7.1 & 7.2d TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Agriculture Households by Area Planted (ha) and crop for the Agriculture Year 2002/03 - Short and Long Rainy Seasons, Kagera Region

Crop	Short Rainy Season		Long Rainy Season		Total Area Planted Short & Long Rainy Season	% Area Planted in Short Rainy Season
	Number of Households	Planted area (ha)	Number of Households	Planted area (ha)		
CEREALS	***325,505***	***97,418***	***74,822***	***22,806***	***120,225***	***81.0***
Maize	302,529	89,757	48,101	12,585	102,342	87.7
Paddy	4,727	2,347	6,183	2,932	5,279	44.5
Sorghum	10,713	3,227	16,869	6,370	9,597	33.6
Bulrush Millet	0	0	118	287	287	0.0
Finger Millet	7,536	2,087	3,551	632	2,719	76.8
ROOTS & TUBERS	***103,808***	***15,858***	***163,755***	***48,403***	***64,261***	***24.7***
Cassava	6,226	946	115,319	39,720	40,666	2.3
Sweet Potatoes	78,206	12,202	39,122	6,590	18,792	64.9
Irish Potatoes	5,668	1,062	2,540	385	1,447	73.4
Yams	3,870	414	2,609	503	917	45.1
Cocoyam	9,838	1,234	4,165	1,204	2,438	50.6
PULSES	***315,379***	***112,377***	***103,793***	***41,616***	***153,993***	***73.0***
Mung Beans	188	17	0	0	17	100.0
Beans	304,932	110,315	98,964	40,632	150,947	73.1
Cowpeas	1,787	317	241	58	375	84.5
Green Gram	171	10	147	60	70	14.9
Chich Peas	129	209	0	0	209	100.0
Bambaranuts	3,320	379	2,561	295	675	56.2
Field Peas	4,852	1,129	1,880	571	1,700	66.4
OIL SEEDS & OIL NUTS	***32,404***	***7,897***	***13,011***	***2,519***	***10,416***	***75.8***
Sunflower	425	243	0	0	243	100.0
Groundnuts	31,860	7,649	12,742	2,483	10,132	75.5
Soya Beans	119	5	269	36	41	11.8
FRUITS & VEGETABLES	***11,374***	***1,850***	***8,703***	***1,708***	***3,558***	***52.0***
Bitter Aubergine	0	0	147	15	15	0.0
Onions	1,442	249	1,129	314	563	44.2
Ginger	463	78	0	0	78	100.0
Cabbage	1,759	252	1,811	268	520	48.5
Tomatoes	5,131	787	4,201	825	1,612	48.8
Spinnach	412	87	0	0	87	100.0
Carrot	441	104	147	30	134	77.8
Chillies	465	30	318	18	48	63.0
Amaranths	561	81	278	28	109	74.2
Pumpkins	119	0	239	24	24	0.0
Cucumber	168	12	0	0	12	100.0
Egg Plant	295	146	435	187	333	43.8
Water Mellon	118	24	0	0	24	100.0
CASH CROPS	***11,412***	***7,412***	***347***	***325***	***7,737***	***95.8***
Cotton	7,019	6,062	347	325	6,387	94.9
Tobacco	4,050	1,243	0	0	1,243	100.0
Pyrethrum	343	107	0	0	107	100.0
Total		***242,812***		***117,377***	***360,188***	***67.4***

7.1 & 7.2e TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area (ha) By Means of Soil Preparation and District Short and Long Rainy Season, Kagera

	Soil Preparation							
	Mostly Tractor Ploughing		Mostly Oxen Ploughing		Mostly Hand Cultivation		Total	
District	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
Karagwe	571	133	7,158	3,819	220,738	79,298	228,467	83,250
Bukoba Rural	563	128	9,135	2,599	271,759	63,140	281,458	65,868
Muleba	1,223	132	839	139	202,315	45,242	204,378	45,514
Biharamulo	1,819	483	5,760	3,649	159,992	66,505	167,571	70,637
Ngara	119	48	3,266	1,036	156,254	52,983	159,639	54,067
Bukoba Urban	20	8	646	125	10,297	1,772	10,963	1,905
Total	4,315	934	26,804	11,366	1,021,356	308,941	1,052,475	321,241
%		0		4		96		100

7.1 & 7.2f TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Fertilizer Use and District for the 2002/03 Agriculture Year - Short and Long Rainy , Kagera

	Fertilizer Use									
	Mostly Farm Yard Manure		Mostly Compost		Mostly Inorganic Fertilizer		No Fertilizer Applied		Total	
District	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area
Karagwe	15,949	6,741	1,281	678	576	58	214,062	76,141	231,867	83,618
Bukoba Rural	29,607	7,862	31,940	6,716	1,036	382	252,482	59,851	315,066	74,811
Muleba	17,882	4,459	16,864	3,047	342	24	206,109	46,116	241,197	53,646
Biharamulo	9,280	4,433	790	261	2,901	949	183,353	84,091	196,324	89,733
Ngara	11,134	4,201	2,565	755	0	0	153,328	51,227	167,028	56,183
Bukoba Urban	1,132	266	808	135	370	71	10,520	1,725	12,830	2,196
Total	84,983	27,962	54,249	11,592	5,226	1,484	1,019,854	319,150	1,164,313	360,188

7.1 & 7.2g TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION:Total Number of Agriculture Households and Planted Area by Irrigation Use and District during Short and Long Rainy Season, 2002/03 Agriculture Year

	Irrigation Use						% of Area Planted Under Irrigation
	Households Using Irrigation		Households not Using Irrigation		Total		
District	Number of Household	Planted Area (Ha)	Number of Household	Planted Area (Ha)	Number of Household	Planted Area (Ha)	
Karagwe	2,290	769	229,577	82,849	231,867	83,618	0.9
Bukoba Rural	8,531	1,999	306,534	72,812	315,066	74,811	2.7
Muleba	4,265	484	236,932	53,162	241,197	53,646	0.9
Biharamulo	5,600	1,991	190,725	87,742	196,324	89,733	2.2
Ngara	4,707	1,039	162,321	55,144	167,028	56,183	1.9
Bukoba Urban	245	23	12,585	2,173	12,830	2,196	1.1
Total	25,639	6,305	1,138,674	353,883	1,164,313	360,188	1.8

7.1 & 7.2h TOTAL ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Insecticide Use and District for the 2002/03 Agriculture Year - Short & Long Rainy Season.

District	Insecticide Use						% of Planted Area Using Insecticides
	Households Using Insecticides		Households Not Using Insecticides		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Karagwe	7,287	3,480	224,580	80,138	231,867	83,618	4.2
Bukoba Rural	9,126	2,530	305,940	72,281	315,066	74,811	3.4
Muleba	6,308	1,490	234,889	52,156	241,197	53,646	2.8
Biharamulo	11,023	6,349	185,302	83,385	196,324	89,733	7.1
Ngara	6,275	1,391	160,753	54,792	167,028	56,183	2.5
Bukoba Urban	230	33	12,600	2,163	12,830	2,196	1.5
Total	40,249	15,274	1,124,064	344,915	1,164,313	360,188	4.2

7.1 & 7.2i TOTAL ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Herbicide Use and District for the 2002/03 Agriculture Year - Short & Long Rainy Season.

District	Herbicide Use						% of Planted Area Using Herbicides
	Households Using Herbicide		Households Not Using Herbicide		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Karagwe	1,159	684	230,709	82,935	231,867	83,618	0.8
Bukoba Rural	2,748	629	312,318	74,182	315,066	74,811	0.8
Muleba	1,358	292	239,839	53,354	241,197	53,646	0.5
Biharamulo	1,592	852	194,732	88,882	196,324	89,733	0.9
Ngara	1,852	478	165,176	55,705	167,028	56,183	0.9
Bukoba Urban	223	29	12,607	2,168	12,830	2,196	1.3
Total	8,932	2,964	1,155,381	357,225	1,164,313	360,188	0.8
%	1.8	0.8	98.2	99.2	100	100	

7.1 & 7.2j TOTAL ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Fungicides Use and District for the 2002/03 Agriculture Year - Short & Long Rainy Season.

District	Fungicide Use						% of Planted Area Using Fungicides
	Households Using Fungicide		Households Not Using Fungicide		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Karagwe	1,535	622	230,332	82,996	231,867	83,618	0.7
Bukoba Rural	4,065	927	311,001	73,884	315,066	74,811	1.2
Muleba	3,915	809	237,282	52,837	241,197	53,646	1.5
Biharamulo	3,211	1,609	193,114	88,125	196,324	89,733	1.8
Ngara	1,520	343	165,508	55,840	167,028	56,183	0.6
Bukoba Urban	162	21	12,668	2,175	12,830	2,196	1.0
Total	14,408	4,331	1,149,905	355,857	1,164,313	360,188	1.2

7.1 & 7.2k TOTAL ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Improved Seed Use and District for the 2002/03 Agriculture Year - Short & Long Rainy Season.

District	Improved Seed Use						% of Planted Area Using Improved Seeds
	Households Using Improved Seed		Households Not Using Improved Seed		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Karagwe	16,750	8,433	211,717	75,185	228,467	83,618	10.1
Bukoba Rural	91,141	23,307	190,317	51,504	281,458	74,811	31.2
Muleba	17,341	4,043	187,037	49,603	204,378	53,646	7.5
Biharamulo	13,684	9,318	153,887	80,415	167,571	89,733	10.4
Ngara	10,700	3,640	148,938	52,543	159,639	56,183	6.5
Bukoba Urban	812	142	10,151	2,054	10,963	2,196	6.5
Total	150,429	48,885	902,047	311,304	1,052,475	360,188	13.6

ANNUAL CROP & VEGETABLES PRODUCTION
SHORT RAINY SEASON

7.1a ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Households and Planted Area by Means Used for Soil Preparation and District - SHORT RAINY SEASON, Kagera Region.

	Soil Preparation							
	Mostly Tractor Ploughing		Mostly Oxen Ploughing		Mostly Hand Cultivation		Total	
District	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
Karagwe	571	133	4,339	2,303	138,015	48,550	142,925	50,986
Bukoba Rural	437	124	5,920	1,756	215,826	51,087	222,183	52,967
Muleba	712	63	668	120	177,835	41,664	179,216	41,847
Biharamulo	1,688	457	4,607	2,706	137,693	57,878	143,989	61,041
Ngara	0	.	1,520	536	100,100	33,725	101,620	34,262
Bukoba Urban	20	8	611	116	9,319	1,585	9,950	1,709
Total	3,429	786	17,665	7,538	778,788	234,489	799,882	242,812
%		0		3		97		100

7.1b ANNUAL CROP AND VEGETABLE PRODUCTION: Total Number of Crop Growing Households and Planted Area by Fertilizer Use and District during 2002/03 Agriculture Year - SHORT RAINY SEASON, Kagera Region

	Fertilizer Use									
	Mostly Farm Yard Manure		Mostly Compost		Mostly Inorganic Fertilizer		No Fertilizer Applied		Total	
District	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area
Karagwe	7,544	3,586	384	143	576	58	134,421	47,199	142,925	50,986
Bukoba Rural	24,459	6,080	25,044	5,757	889	367	171,790	40,763	222,183	52,967
Muleba	16,001	4,234	15,388	2,846	170	7	147,656	34,761	179,216	41,847
Biharamulo	8,489	4,331	790	261	2,901	949	131,808	55,500	143,989	61,041
Ngara	7,361	3,118	1,505	400	0	.	92,754	30,744	101,620	34,262
Bukoba Urban	1,063	257	613	104	275	52	7,998	1,296	9,950	1,709
Total	64,918	21,606	43,725	9,511	4,812	1,433	686,427	210,262	799,882	242,812
%	8	9	5	4	1	1	86	87	100	100

7.1c ANNUAL CROP AND VEGETABLE PRODUCTION:Total Number of Crop Growing Households and Planted Area by Irrigation Use and District during Short Rainy Season, 2002/03 Agriculture Year, Kagera Region

	Irrigation Use						% of Area Planted Under Irrigation
	Households Using Irrigation		Households not Using Irrigation		Total		
District	Number of Household	Planted Area (Ha)	Number of Household	Planted Area (Ha)	Number of Household	Planted Area (Ha)	
Karagwe	1,715	462	141,210	50,524	142,925	50,986	0.9
Bukoba Rural	5,925	1,410	216,258	51,557	222,183	52,967	2.7
Muleba	1,359	159	177,857	41,688	179,216	41,847	0.4
Biharamulo	3,095	968	140,894	60,073	143,989	61,041	1.6
Ngara	2,827	757	98,793	33,505	101,620	34,262	2.2
Bukoba Urban	245	23	9,705	1,686	9,950	1,709	1.4
Total	15,166	3,779	784,717	239,033	799,882	242,812	1.6
%	2	2	98	98	100	100	

7.1d ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Insecticide Use and District for the 2002/03 Agriculture Year - Short Rainy Season.

District	Insecticide Use						% of Planted Area Using Insecticides
	Households Using Insecticides		Households Not Using Insecticides		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Karagwe	5,801	2,849	137,124	48,137	142,925	50,986	5.6
Bukoba Rural	6,960	2,144	215,223	50,822	222,183	52,967	4.0
Muleba	5,108	1,272	174,107	40,575	179,216	41,847	3.0
Biharamulo	10,172	5,582	133,817	55,459	143,989	61,041	9.1
Ngara	3,735	821	97,885	33,440	101,620	34,262	2.4
Bukoba Urban	230	33	9,720	1,676	9,950	1,709	2.0
Total	32,006	12,702	767,876	230,110	799,882	242,812	5.2

7.1e ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Herbicides Use and District for the 2002/03 Agriculture Year - Short Rainy Season.

District	Herbicide Use						% of Planted Area Using Herbicides
	Households Using Herbicide		Households Not Using Herbicide		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Karagwe	965	519	141,960	50,467	142,925	50,986	1.0
Bukoba Rural	2,006	565	220,177	52,402	222,183	52,967	1.1
Muleba	1,015	258	178,200	41,589	179,216	41,847	0.6
Biharamulo	1,461	825	142,528	60,216	143,989	61,041	1.4
Ngara	944	290	100,677	33,972	101,620	34,262	0.8
Bukoba Urban	223	29	9,726	1,681	9,950	1,709	1.7
Total	6,614	2,485	793,268	240,327	799,882	242,812	1.0
%	1.8	1.0	98.2	99.0	100	100	

7.1f ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Fungicide Use and District for the 2002/03 Agriculture Year - Short Rainy Season.

	Fungicide Use						% of Planted Area Using Fungicides
	Household Using Fungicides		Households Not Using Fungicides		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Karagwe	1,152	551	141,773	50,435	142,925	50,986	1.1
Bukoba Rural	2,630	679	219,553	52,287	222,183	52,967	1.3
Muleba	1,869	412	177,346	41,434	179,216	41,847	1.0
Biharamulo	1,959	657	142,030	60,384	143,989	61,041	1.1
Ngara	702	189	100,919	34,073	101,620	34,262	0.6
Bukoba Urban	162	21	9,788	1,688	9,950	1,709	1.2
Total	8,473	2,510	791,409	240,302	799,882	242,812	1.0
		1.0		99.0		100	

7.1g ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area By Improved Seed Use and District During 2002/03 Crop Year - Short Rainy Season

District	Improved Seed Use						% of Planted Area Using Improved Seed
	Households Using Improved Seed		Households Not Using Improved Seed		Total		
	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	
Karagwe	10,530	5,274	132,395	45,712	142,925	50,986	10.3
Bukoba Rural	74,234	19,242	147,949	33,725	222,183	52,967	36.3
Muleba	13,174	3,548	166,042	38,299	179,216	41,847	8.5
Biharamulo	12,479	8,503	131,510	52,538	143,989	61,041	13.9
Ngara	6,528	2,387	95,092	31,875	101,620	34,262	7.0
Bukoba Urban	665	96	9,285	1,614	9,950	1,709	5.6
Total	117,610	39,050	682,273	203,762	799,882	242,812	16.1
%	15	16	85	84	100	100	

ANNUAL CROP & VEGETABLES PRODUCTION
LONG RAINY SEASON

7.2a ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Households and Planted Area by Means Used for Soil Preparation and District - LONG RAINY SEASON, Kagera Region.

	Soil Preparation							
	Mostly Tractor Ploughing		Mostly Oxen Ploughing		Mostly Hand Cultivation		Total	
District	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
Karagwe	0	0	2,818	1,515	82,723	30,749	85,542	32,264
Bukoba Rural	126	5	3,216	843	55,934	12,053	59,275	12,901
Muleba	511	69	171	19	24,480	3,579	25,163	3,667
Biharamulo	130	26	1,153	942	22,298	8,627	23,582	9,596
Ngara	119	48	1,745	499	56,154	19,257	58,019	19,805
Bukoba Urban	0	0	36	9	978	187	1,014	196
Total	886	148	9,139	3,828	242,567	74,453	252,593	78,429
%		0		5		95		100

7.2b ANNUAL CROP AND VEGETABLE PRODUCTION: Total Number of Crop Growing Households and Planted Area by Fertilizer Use and District during 2002/03 Agriculture Year - LONG RAINY SEASON, Kagera Region

	Fertilizer Use									
	Mostly Farm Yard Manure		Mostly Compost		Mostly Inorganic Fertilizer		No Fertilizer Applied		Total	
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
Karagwe	8,404	3,155	897	535	0	0	79,641	28,942	88,942	32,632
Bukoba Rural	5,148	1,782	6,896	959	147	15	80,692	19,088	92,883	21,844
Muleba	1,881	225	1,477	201	171	17	58,453	11,356	61,982	11,799
Biharamulo	790	102	0	0	0	0	51,546	28,591	52,336	28,692
Ngara	3,773	1,084	1,060	355	0	0	60,574	20,483	65,408	21,921
Bukoba Urban	68	9	195	31	96	19	2,521	429	2,880	487
Total	20,065	6,357	10,524	2,081	415	51	333,427	108,888	364,430	117,377
%		0		3		63		33		100

7.2c ANNUAL CROP AND VEGETABLE PRODUCTION:Total Number of Crop Growing Households and Planted Area by Irrigation Use and District during Long Rainy Season, 2002/03 Agriculture Year, Kagera Region

	Irrigation Use						% of planted area under irrigation in long rainy season
	Households Using Irrigation		Households Not Using Irrigation		Total		
District	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Karagwe	575	307	88,367	32,326	88,942	32,632	0.9
Bukoba Rural	2,606	589	90,277	21,255	92,883	21,844	2.7
Muleba	2,907	325	59,075	11,474	61,982	11,799	2.8
Biharamulo	2,505	1,023	49,830	27,669	52,336	28,692	3.6
Ngara	1,880	283	63,528	21,639	65,408	21,921	1.3
Bukoba Urban	0	0	2,880	487	2,880	487	0.0
Total	10,473	2,526	353,957	114,850	364,430	117,377	2.2
%	3	2	97	98	100	100	

7.2d ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Insecticide Use and District for the 2002/03 Agriculture Year - Long Rainy Season.

District	Insecticide Use						% of Planted Area Using Insecticides
	Households Using Insecticides		Households Not Using Insecticides		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Karagwe	1,487	631	87,456	32,001	88,942	32,632	1.9
Bukoba Rural	2,165	386	90,717	21,458	92,883	21,844	1.8
Muleba	1,200	218	60,782	11,581	61,982	11,799	1.8
Biharamulo	851	767	51,485	27,925	52,336	28,692	2.7
Ngara	2,541	570	62,867	21,352	65,408	21,921	2.6
Bukoba Urban	0	0	2,880	487	2,880	487	0.0
Total	8,243	2,572	356,187	114,805	364,430	117,377	2.2

7.2e ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Herbicide Use and District for the 2002/03 Agriculture Year - Long Rainy Season.

District	Herbicide Use						% of Planted Area Using Herbicides
	Households Using Herbicide		Households Not Using Herbicide		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Karagwe	193	165	88,749	32,467	88,942	32,632	0.5
Bukoba Rural	741	64	92,141	21,780	92,883	21,844	0.3
Muleba	343	35	61,639	11,765	61,982	11,799	0.3
Biharamulo	132	27	52,204	28,666	52,336	28,692	0.1
Ngara	908	188	64,500	21,733	65,408	21,921	0.9
Bukoba Urban	0	0	2,880	487	2,880	487	0.0
Total	2,318	478	362,113	116,898	364,430	117,377	0.4
%	1.8	0.4	98.2	99.6	100	100	

7.2f ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Fungicide Use and District for the 2002/03 Agriculture Year - LONG RAINY SEASON

District	Fungicide Use						% of Planted Area Using Fungicides
	Households Using Fungicide		Households Not Using Fungicide		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Karagwe	383	71	88,559	32,561	88,942	32,632	0.2
Bukoba Rural	1,435	247	91,447	21,597	92,883	21,844	1.1
Muleba	2,046	397	59,936	11,402	61,982	11,799	3.4
Biharamulo	1,252	952	51,084	27,740	52,336	28,692	3.3
Ngara	818	154	64,589	21,767	65,408	21,921	0.7
Bukoba Urban	0	0	2,880	487	2,880	487	0.0
Total	5,934	1,822	358,496	115,555	364,430	117,377	1.6

7.2g ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area By Improved Seed Use and District During 2002/03 Crop Year - LONG RAINY SEASON

District	Improved Seed Use						% of planted area under improved seeds
	Households Using Improved Seed		Households Not Using Improved Seed		Total		
	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	
Karagwe	6,220	3,160	79,322	29,473	85,542	32,632	9.7
Bukoba Rural	16,907	4,065	42,368	17,779	59,275	21,844	18.6
Muleba	4,168	495	20,995	11,304	25,163	11,799	4.2
Biharamulo	1,206	815	22,376	27,877	23,582	28,692	2.8
Ngara	4,173	1,253	53,846	20,668	58,019	21,921	5.7
Bukoba Urban	147	47	867	440	1,014	487	9.6
Total	32,819	9,835	219,774	107,541	252,593	117,377	8.4
%	13	8	87	92	100	100	

Table 7.2h: Planted Area and Number of Crop Growing Households During Long Rainy Season by Method of Land Clearing and Crops; 2002/03 Agriculture Year

Crop	Land Clearing											
	Mostly Bush Clearance		Mostly Hand Slashing		Mostly Tractor Slashing		Mostly Burning		Not cleared		Total	
	Number of House-holds	Planted Area	Number of House-holds	Planted Area	Number of House-holds	Planted Area	Number of House-holds	Planted Area	Number of House-holds	Planted Area	Number of House-holds	Planted Area
CEREALS		**298**		**19,181**		**143**		**26**		**3,146**		**22,793**
Maize	706	116	37,750	10,397	148	36	318	26	9,030	1,998	47,951	12,572
Paddy	108	131	4,517	1,816	0	.	0	.	1,559	985	6,183	2,932
Sorghum	341	52	16,143	6,182	193	78	0	.	193	59	16,869	6,370
Bulrush Millet	0	.	118	287	0	.	0	.	0	.	118	287
Finger Millet	0	.	2,829	499	143	29	0	.	578	104	3,551	632
ROOTS & TUBERS		**343**		**8,712**		**3**		**122**		**266**		**9,447**
Cassava	0	.	3,332	764	0	.	0	.	0	.	3,332	764
Sweet Potatoes	687	195	35,995	6,128	149	3	494	94	1,797	170	39,122	6,590
Irish Potatoes	0	.	1,767	307	0	.	0	.	773	78	2,540	385
Yams	0	.	2,405	487	0	.	35	4	168	12	2,609	503
Cocoyam	291	148	3,586	1,026	0	.	139	25	149	6	4,165	1,204
PULSES		**1,249**		**31,333**		**221**		**101**		**8,405**		**41,310**
Beans	2,766	1,225	73,208	30,491	256	158	475	101	21,992	8,350	98,697	40,326
Cowpeas	0	.	122	10	119	48	0	.	0	.	241	58
Green Gram	0	.	147	60	0	.	0	.	0	.	147	60
Bambaranuts	0	.	2,262	265	149	15	0	.	149	15	2,561	295
Field Peas	119	24	1,568	508	0	.	0	.	193	39	1,880	571
OIL SEEDS & OIL NUTS		**35**		**2,320**		**0**		**0**		**164**		**2,519**
Groundnuts	318	35	11,056	2,284	0	.	0	.	1,369	164	12,742	2,483
Soya Beans	0	.	269	36	0	.	0	.	0	.	269	36
FRUITS & VEGETABLES		**19**		**1,575**		**24**		**0**		**90**		**1,708**
Bitter Aubergine	0	.	147	15	0	.	0	.	0	.	147	15
Onions	0	.	1,129	314	0	.	0	.	0	.	1,129	314
Cabbage	142	14	1,351	219	0	.	0	.	318	35	1,811	268
Tomatoes	126	5	3,757	788	148	24	0	.	170	8	4,201	825
Carrot	0	.	0	.	0	.	0	.	147	30	147	30
Chillies	0	.	147	15	0	.	0	.	170	3	318	18
Amaranths	0	.	147	15	0	.	0	.	130	13	278	28
Pumpkins	0	.	239	24	0	.	0	.	0	.	239	24
Egg Plant	0	.	264	186	0	.	0	.	170	1	435	187
CASH CROPS		**218**		**107**		**0**		**0**		**0**		**325**
Cotton	215	218	132	107	0	.	0	.	0	.	347	325
Total		**2,162**		**63,228**		**391**		**249**		**12,070**		**78,101**
%		**3**		**81**		**1**		**0**		**15**		**100**

Table 7.2.1: Number of Agricultural Households, Area Planted (ha) and Quantity of Maize Harvested (tons) by Season and District;2002/03 Agricultural Year

Maize											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	52,979	16,154	16,000	0.991	19,827	5,014	3,623	0.723	21,167	19,624	0.927
Bukoba Rural	79,552	18,738	18,693	0.998	11,073	2,561	2,201	0.859	21,300	20,894	0.981
Muleba	71,509	14,034	14,132	1.007	334	34	33	0.964	14,068	14,164	1.007
Biharamulo	53,756	27,809	30,137	1.084	500	480	389	0.811	28,288	30,526	1.079
Ngara	41,215	12,443	10,850	0.872	16,220	4,465	3,673	0.823	16,908	14,524	0.859
Bukoba Urban	3,519	579	556	0.960	147	32	26	0.816	611	582	0.953
Total	302,529	89,757	90,368	1.007	48,101	12,585	9,945	0.790	102,342	100,313	0.980

Table 7.2.2: Number of Agricultural Households, Area Planted (ha) and Quantity of Paddy Harvested (tons) by Season and District;2002/03 Agricultural Year

Paddy											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba Rural	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Muleba	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Biharamulo	4,473	2,256	3,413	1.513	6,183	2,932	6,972	2.378	5,187	10,384	2.002
Ngara	234	84	66	0.790	0	0	0	0.000	84	66	0.790
Bukoba Urban	20	8	9	1.112	0	0	0	0.000	8	9	1.112
Total	4,727	2,347	3,488	1.486	6,183	2,932	6,972	2.378	5,279	10,459	1.981

Table 7.2.3: Number of Agricultural Households, Area Planted (ha) and Quantity of Sorghum Harvested (tons) by Season and District;2002/03 Agricultural Year

Sorghum											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	4,426	1,507	1,666	1.106	2,280	802	1,059	1.321	2,309	2,725	1.180
Bukoba Rural	439	87	60	0.693	143	29	23	0.790	116	83	0.717
Muleba	2,391	544	353	0.648	5,123	1,058	788	0.745	1,602	1,142	0.712
Biharamulo	380	138	105	0.760	5,932	2,994	2,223	0.742	3,132	2,328	0.743
Ngara	3,078	951	420	0.442	3,391	1,487	1,049	0.705	2,438	1,469	0.602
Bukoba Urban	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	10,713	3,227	2,604	0.807	16,869	6,370	5,142	0.807	9,597	7,746	0.807

Table 7.2.4: Number of Agricultural Households, Area Planted (ha) and Quantity of Burlush Millet Harvested (tons) by Season and District;2002/03 Agricultural Year

Burlush Millet											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba Rural	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Muleba	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Biharamulo	0	0	0	0.000	118	287	435	1.515	287	435	1.515
Ngara	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba Urban	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	0	0	0	0.000	118	287	435	1.515	287	435	1.515

Table 7.2.5: Number of Agricultural Households, Area Planted (ha) and Quantity of Finger millet Harvested (tons) by Season and District;2002/03 Agricultural Year

Finger millet											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	2,701	693	415	0.598	958	158	67	0.426	851	482	0.566
Bukoba Rural	295	21	33	1.556	143	29	10	0.346	50	43	0.854
Muleba	1,195	138	78	0.568	1,362	173	134	0.778	311	213	0.685
Biharamulo	2,157	1,037	398	0.384	386	195	45	0.232	1,232	443	0.360
Ngara	1,187	198	57	0.286	701	77	112	1.451	275	168	0.612
Bukoba Urban	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	7,536	2,087	980	0.470	3,551	632	369	0.583	2,719	1,349	0.496

Table 7.2.6: Number of Agricultural Households, Area Planted (ha) and Quantity of Cassava Harvested (tons) by Season and District;2002/03 Agricultural Year

Cassava											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	1,143	139	191	1.376	4,550	693	1,347	1.945	831	1,538	1.850
Bukoba Rural	1,731	208	258	1.243	34,496	9,053	9,324	1.030	9,261	9,582	1.035
Muleba	1,021	141	224	1.581	37,676	8,304	13,635	1.642	8,445	13,859	1.641
Biharamulo	722	90	140	1.564	28,754	19,097	26,858	1.406	19,186	26,998	1.407
Ngara	1,412	336	259	0.772	7,977	2,283	1,929	0.845	2,619	2,188	0.836
Bukoba Urban	197	32	10	0.314	1,867	291	295	1.013	323	305	0.944
Total	6,226	946	1,083	1.145	115,319	39,720	53,388	1.344	40,666	54,471	1.339

Table 7.2.7: Number of Agricultural Households, Area Planted (ha) and Quantity of Sweet Potatoes Harvested (tons) by Season and District;2002/03 Agricultural Year

Sweet Potatoes											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	3,696	550	598	1.086	899	168	299	1.780	718	897	1.249
Bukoba Rural	32,575	4,591	11,396	2.482	18,687	3,538	4,684	1.324	8,129	16,080	1.978
Muleba	27,029	4,294	5,192	1.209	8,974	1,047	1,957	1.869	5,341	7,149	1.338
Biharamulo	9,834	1,879	4,623	2.460	7,413	1,389	3,542	2.551	3,268	8,165	2.499
Ngara	3,303	658	1,005	1.529	2,602	331	418	1.264	988	1,424	1.440
Bukoba Urban	1,770	229	239	1.042	546	118	51	0.431	347	290	0.834
Total	78,206	12,202	23,052	1.889	39,122	6,590	10,951	1.662	18,792	34,003	1.809

Table 7.2.8: Number of Agricultural Households, Area Planted (ha) and Quantity of Irish Potatoes Harvested (tons) by Season and District;2002/03 Agricultural Year

Irish Potatoes											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	2,742	561	776	1.383	2,005	227	510	2.245	788	1,286	1.631
Bukoba Rural	1,918	297	569	1.914	298	101	30	0.295	398	598	1.504
Muleba	343	52	46	0.889	0	0	0	0.000	52	46	0.889
Biharamulo	129	13	111	8.497	0	0	0	0.000	13	111	8.497
Ngara	468	107	180	1.687	237	57	29	0.509	164	209	1.276
Bukoba Urban	68	32	29	0.890	0	0	0	0.000	32	29	0.890
Total	5,668	1,062	1,710	1.610	2,540	385	569	1.477	1,447	2,279	1.574

Table 7.2.9: Number of Agricultural Households, Area Planted (ha) and Quantity of Yams Harvested (tons) by Season and District;2002/03 Agricultural Year

Yams											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba(R)	3,057	344	505	1.465	2,405	487	1,060	2.175	832	1,565	1.881
Muleba	683	55	78	1.420	168	12	46	3.774	68	125	1.847
Biharamulo	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngara	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba(U)	130	15	14	0.956	35	4	14	3.804	18	27	1.518
Total	3,870	414	597	1.441	2,609	503	1,120	2.226	917	1,717	1.872

Table 7.2.10: Number of Agricultural Households, Area Planted (ha) and Quantity of Cocoyams Harvested (tons) by Season and District;2002/03 Agricultural Year

Cocoyams											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba(R)	7,506	972	1,284	1.321	3,343	1,118	3,059	2.735	2,090	4,342	2.077
Muleba	684	42	44	1.047	171	12	0	0.000	53	44	0.816
Biharamulo	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngara	716	96	84	0.873	478	46	31	0.676	142	115	0.809
Bukoba(U)	932	124	156	1.260	174	28	59	2.107	152	215	1.416
Total	9,838	1,234	1,567	1.271	4,165	1,204	3,149	2.615	2,438	4,716	1.935

Table 7.2.11: Number of Agricultural Households, Area Planted (ha) and Quantity of Mung Beans Harvested (tons) by Season and District;2002/03 Agricultural Year

Mung Beans											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	188	17	28	1.611	0	0	0	0.000	17	28	1.611
Bukoba(R)	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Muleba	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Biharamulo	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngara	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba(U)	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	188	17	28	1.611	0	.	.	0.000	17	28	1.611

Table 7.2.12: Number of Agricultural Households, Area Planted (ha) and Quantity of Beans Harvested (tons) by Season and District;2002/03 Agricultural Year

Beans											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	62,737	28,838	19,255	0.668	50,812	23,216	16,788	0.723	52,054	36,044	0.692
Bukoba(R)	81,260	25,712	13,860	0.539	14,478	3,681	1,351	0.367	29,393	15,211	0.518
Muleba	70,371	21,921	9,722	0.443	2,210	481	121	0.252	22,403	9,843	0.439
Biharamulo	46,703	15,924	7,092	0.445	1,791	896	366	0.408	16,821	7,458	0.443
Ngara	40,783	17,251	7,274	0.422	29,560	12,344	4,696	0.380	29,595	11,971	0.404
Bukoba(U)	3,077	668	229	0.343	111	14	4	0.278	682	233	0.342
Total	304,932	110,315	57,433	0.521	98,964	40,632	23,327	0.574	150,947	80,760	0.535

Table 7.2.13: Number of Agricultural Households, Area Planted (ha) and Quantity of Cowpeas Harvested (tons) by Season and District;2002/03 Agricultural Year

Cowpeas											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	334	87	14	0.164	0	0	0	0.000	87	14	0.164
Bukoba(R)	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Muleba	167	80	10	0.126	0	0	0	0.000	80	10	0.126
Biharamulo	1,286	150	119	0.792	122	10	2	0.247	160	121	0.758
Ngara	0	0	0	0.000	119	48	29	0.593	48	29	0.593
Bukoba(U)	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	1,787	317	143	0.452	241	58	31	0.534	375	174	0.465

Table 7.2.14: Number of Agricultural Households, Area Planted (ha) and Quantity of Green gram Harvested (tons) by Season and District;2002/03 Agricultural Year

Green Gram											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba(R)	0	0	0	0.000	147	60	26	0.445	60	26	0.445
Muleba	171	10	3	0.247	0	0	0	0.000	10	3	0.247
Biharamulo	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngara	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba(U)	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	171	10	3	0.247	147	60	26	0.445	70	29	0.415

Table 7.2.15: Number of Agricultural Households, Area Planted (ha) and Quantity of Chick Peas Harvested (tons) by Season and District;2002/03 Agricultural Year

Chick Peas											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba(R)	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Muleba	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Biharamulo	129	209	59	0.284	0	0	0	0.000	209	59	0.284
Ngara	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba(U)	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	129	209	59	0.284	0	0	0	0.000	209	59	0.284

Table 7.2.16: Number of Agricultural Households, Area Planted (ha) and Quantity of Bambaranuts Harvested (tons) by Season and District;2002/03 Agricultural Year

Bambaranuts											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	386	59	13	0.214	0	0	0	0.000	59	13	0.214
Bukoba(R)	2,340	229	197	0.862	2,389	278	179	0.642	507	376	0.741
Muleba	442	66	76	1.142	171	17	9	0.494	84	84	1.007
Biharamulo	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngara	119	24	36	1.482	0	0	0	0.000	24	36	1.482
Bukoba(U)	33	1	1	0.445	0	0	0	0.000	1	1	0.445
Total	3,320	379	322	0.849	2,561	295	187	0.634	675	509	0.755

Table 7.2.17: Number of Agricultural Households, Area Planted (ha) and Quantity of Field Peas Harvested (tons) by Season and District;2002/03 Agricultural Year

Field Peas											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	3,143	612	220	0.359	1,287	462	157	0.339	1,075	376	0.350
Bukoba (R)	147	30	3	0.099	0	0	0	0.000	30	3	0.099
Muleba	171	0	0	0.000	0	0	0	0.000	0	0	0.000
Biharamulo	109	66	11	0.165	0	0	0	0.000	66	11	0.165
Ngara	1,282	421	131	0.310	593	108	30	0.275	529	160	0.303
Bukoba (U)	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	4,852	1,129	364	0.322	1,880	571	187	0.327	1,700	551	0.324

Table 7.2.18: Number of Agricultural Households, Area Planted (ha) and Quantity of Sunflower Harvested (tons) by Season and District;2002/03 Agricultural Year

Sunflower											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba (R)	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Muleba	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Biharamulo	391	239	99	0.416	0	0	0	0.000	239	99	0.416
Ngara	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba (U)	34	4	3	0.598	0	0	0	0.000	4	3	0.598
Total	425	243	102	0.420	0	0	0	0.000	243	102	0.420

Table 7.2.19: Number of Agricultural Households, Area Planted (ha) and Quantity of Groundnuts Harvested (tons) by Season and District;2002/03 Agricultural Year

Groundnuts											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	5,307	1,109	612	0.552	4,703	1,324	522	0.394	2,433	1,134	0.466
Bukoba (R)	6,084	772	422	0.547	2,508	264	105	0.399	1,036	528	0.509
Muleba	2,203	349	190	0.543	3,399	385	303	0.787	734	492	0.671
Biharamulo	12,109	3,887	2,273	0.585	132	5	26	4.940	3,893	2,299	0.591
Ngara	6,157	1,532	553	0.361	2,001	505	373	0.739	2,036	926	0.455
Bukoba (U)	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	31,860	7,649	4,050	0.529	12,742	2,483	1,330	0.535	10,132	5,380	0.531

Table 7.2.20: Number of Agricultural Households, Area Planted (ha) and Quantity of Soya Beans Harvested (tons) by Season and District;2002/03 Agricultural Year

Soya Beans											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0	0	0	0.000
Bukoba (R)	0	0	0	0.000	149	30	22	1	30	22	0.741
Muleba	0	0	0	0.000	0	0	0	0	0	0	0.000
Biharamulo	0	0	0	0.000	0	0	0	0	0	0	0.000
Ngara	119	5	1	0.124	119	6	0	0	11	1	0.056
Bukoba (U)	0	0	0	0.000	0	0	0	0	0	0	0.000
Total	119	5	1	0.124	269	36	22	1	41	23	0.563

Table 7.2.21: Number of Agricultural Households, Area Planted (ha) and Quantity of Bitter Aubergine Harvested (tons) by Season and District;2002/03 Agricultural Year

Bitter Aubergine											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba Rural	0	0	0	0.000	147	15	15	0.988	15	15	0.988
Muleba	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Biharamulo	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngara	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba Urban	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	0	0	0	0.000	147	15	15	0.988	15	15	0.988

Table 7.2.22: Number of Agricultural Households, Area Planted (ha) and Quantity of Onions Harvested (tons) by Season and District;2002/03 Agricultural Year

Onions											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	807	155	97	0.626	520	220	28	0.128	375	125	0.334
Bukoba Rural	147	30	250	8.398	147	30	59	1.976	60	309	5.187
Muleba	341	52	36	0.693	342	52	48	0.922	104	84	0.807
Biharamulo	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngara	119	8	24	2.906	119	12	18	1.482	20	42	2.057
Bukoba Urban	28	5	1	0.247	0	0	0	0.000	5	1	0.247
Total	1,442	249	408	1.637	1,129	314	153	0.487	563	561	0.995

Table 7.2.23: Number of Agricultural Households, Area Planted (ha) and Quantity of Ginger Harvested (tons) by Season and District;2002/03 Agricultural Year

Ginger											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba Rural	296	44	84	1.891	0	0	0	0.000	44	84	1.891
Muleba	167	34	23	0.692	0	0	0	0.000	34	23	0.692
Biharamulo	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngara	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba Urban	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	463	78	107	1.373	0	0	0	0.000	78	107	1.373

Table 7.2.24: Number of Agricultural Households, Area Planted (ha) and Quantity of Cabbage Harvested (tons) by Season and District;2002/03 Agricultural Year

Cabbage											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	383	67	35	0.518	383	42	209	4.957	109	244	2.239
Bukoba Rural	588	101	239	2.363	437	101	1,051	10.412	202	1,290	6.384
Muleba	0	0	0	0.000	513	39	50	1.278	39	50	1.278
Biharamulo	396	51	65	1.274	131	27	35	1.324	77	100	1.291
Ngara	358	30	71	2.385	347	58	741	12.684	88	812	9.194
Bukoba Urban	34	3	3	0.899	0	0	0	0.000	3	3	0.899
Total	1,759	252	413	1.638	1,811	268	2,087	7.798	520	2,500	4.811

Table 7.2.25: Number of Agricultural Households, Area Planted (ha) and Quantity of Tomatoes Harvested (tons) by Season and District;2002/03 Agricultural Year

Tomatoes											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	1,572	342	485	1.420	718	306	308	1.007	648	793	1.225
Bukoba (R)	2,036	258	1,035	4.008	1,301	235	508	2.161	493	1,542	3.128
Muleba	329	33	108	3.249	1,197	181	1,189	6.554	215	1,297	6.041
Biharamulo	514	49	176	3.594	395	43	180	4.177	92	357	3.867
Ngara	593	97	355	3.650	589	59	110	1.858	156	465	2.973
Bukoba (U)	88	8	14	1.839	0	0	0	0.000	8	14	1.839
Total	5,131	787	2,173	2.761	4,201	825	2,295	2.783	1,612	4,468	2.772

Table 7.2.26: Number of Agricultural Households, Area Planted (ha) and Quantity of Spinach Harvested (tons) by Season and District;2002/03 Agricultural Year

Spinach											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba (R)	294	77	15	0.198	0	0	0	0.000	77	15	0.198
Muleba	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Biharamulo	118	10	9	0.988	0	0	0	0.000	10	9	0.988
Ngara	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba (U)	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	412	87	25	0.284	0	0	0	0.000	87	25	0.284

Table 7.2.27: Number of Agricultural Households, Area Planted (ha) and Quantity of Carrot Harvested (tons) by Season and District;2002/03 Agricultural Year

Carrot											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba (R)	441	104	536	5.143	147	30	96	3.211	134	631	4.713
Muleba	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Biharamulo	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngara	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba (U)	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	441	104	536	5.143	147	30	96	3.211	134	631	4.713

Table 7.2.28: Number of Agricultural Households, Area Planted (ha) and Quantity of Chillies Harvested (tons) by Season and District;2002/03 Agricultural Year

Chillies											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	186	10	4	0.380	0	0	0	0.000	10	4	0.380
Bukoba (R)	147	15	1	0.099	147	15	15	0.988	30	16	0.543
Muleba	0	0	0	0.000	170	3	2	0.618	3	2	0.618
Biharamulo	132	5	8	1.482	0	0	0	0.000	5	8	1.482
Ngara	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba (U)	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	465	30	13	0.437	318	18	16	0.930	48	30	0.619

Table 7.2.29: Number of Agricultural Households, Area Planted (ha) and Quantity of Amaranths Harvested (tons) by Season and District;2002/03 Agricultural Year

Amaranths											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba (R)	442	74	15	0.200	147	15	122	8.151	89	136	1.526
Muleba	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Biharamulo	0	0	0	0.000	130	13	8	0.593	13	8	0.593
Ngara	119	6	18	2.850	0	0	0	0.000	6	18	2.850
Bukoba (U)	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	561	81	33	0.406	278	28	129	4.602	109	162	1.490

Table 7.2.30: Number of Agricultural Households, Area Planted (ha) and Quantity of Pumpkins Harvested (tons) by Season and District;2002/03 Agricultural Year

Pumpkins											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba (R)	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Muleba	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Biharamulo	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngara	119	0	3	0.000	239	24	0	0.000	24	3	0.124
Bukoba (U)	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	119	0	3	0.000	239	24	0	0.000	24	3	0.124

Table 7.2.31: Number of Agricultural Households, Area Planted (ha) and Quantity of Cucumber Harvested (tons) by Season and District;2002/03 Agricultural Year

Cucumber											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba (R)	148	10	12	1.162	0	0	0	0.000	10	12	1.162
Muleba	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Biharamulo	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngara	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba (U)	20	2	1	0.556	0	0	0	0.000	2	1	0.556
Total	168	12	13	1.079	0	0	0	0.000	12	13	1.079

Table 7.2.32: Number of Agricultural Households, Area Planted (ha) and Quantity of Egg Plant Harvested (tons) by Season and District;2002/03 Agricultural Year

Egg Plant											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba (R)	295	146	320	2.197	148	174	83	0.477	320	403	1.261
Muleba	0	0	0	0.000	170	1	2	1.482	1	2	1.482
Biharamulo	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngara	0	0	0	0.000	116	12	21	1.778	12	21	1.778
Bukoba (U)	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	295	146	320	2.197	435	187	106	0.566	333	426	1.280

Table 7.2.33: Number of Agricultural Households, Area Planted (ha) and Quantity of Water Mellon Harvested (tons) by Season and District;2002/03 Agricultural Year

Water Mellon											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba Rural	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Muleba	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Biharamulo	118	24	106	4.446	0	0	0	0.000	24	106	4.446
Ngara	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba Urban	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	118	24	106	4.446	0	0	0	0.000	24	106	4.446

Table 7.2.34: Number of Agricultural Households, Area Planted (ha) and Quantity of Cotton Harvested (tons) by Season and District;2002/03 Agricultural Year

Cotton											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba Rural	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Muleba	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Biharamulo	7,019	6,062	4,416	0.728	347	325	290	0.893	6,387	4,706	0.737
Ngara	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba Urban	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	7,019	6,062	4,416	0.728	347	325	290	0.893	6,387	4,706	0.737

Table 7.2.35: Number of Agricultural Households, Area Planted (ha) and Quantity of Tobacco Harvested (tons) by Season and District;2002/03 Agricultural Year

Tobacco											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba Rural	297	84	32	0.383	0	0	0	0.000	84	32	0.383
Muleba	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Biharamulo	3,515	1,144	751	0.656	0	0	0	0.000	1,144	751	0.656
Ngara	239	15	9	0.590	0	0	0	0.000	15	9	0.590
Bukoba Urban	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	4,050	1,243	792	0.637	0	0	0	0.000	1,243	792	0.637

Table 7.2.36: Number of Agricultural Households, Area Planted (ha) and Quantity of Pyrethrum Harvested (tons) by Season and District;2002/03 Agricultural Year

Pyrethrum											
	Short Rainy Season				Long Rainy Season				Total		
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Karagwe	195	87	70	0.808	0	0	0	0.000	87	70	0.808
Bukoba Rural	148	20	22	1.090	0	0	0	0.000	20	22	1.090
Muleba	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Biharamulo	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngara	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Bukoba Urban	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	343	107	92	0.862	0	0	0	0.000	107	92	0.862

PERMANENT CROPS

7.3.1 PERMANENT CROPS: Production of Permanent Crops by Crop Type and District - Kagera

District/Crop		Area planted (ha)	Area Harvested (ha)	Quantity Harvested (tons)	Yield (Kgs/ha)
Karagwe	Pigeon Pea	.	.	1,571	
	Coffee	8,660	6,550	49,524	7,561
	Sugarcane	.	0	397	
	Jack Fruit	.	.	256	
	Mpesheni	.	.	986	
	Banana	16,835	15,878	764,778	48,167
	Avocado	780	8	1,062	134,555
	Mango	29	8	4,896	620,040
	Pawpaw	8	76	2,361	31,045
	Pineapple	150	131	2,530	19,298
	Orange	0	0	642	
	Mandarine/Tangerine	.	.	111	
	Guava	.	.	634	
	Plums	.	.	78	
	Lime/Lemon	.	.	2	
	Rambutan	.	.	61	
	Total	**26,462**	**22,650**	**829,888**	
Bukoba Rural	Sour Soup	175	29	.	
	Palm Oil	181	3,629	407	112
	Coconut	60	30	9	308
	Coffee	14,704	5,770	13,311	2,307
	Tea	117	117	237	2,027
	Sugarcane	67	0	340	
	Cinamon	0	0	3	
	Jack Fruit	8,259	6	959	161,487
	Mpesheni	53	36	321	9,000
	Banana	44,566	21,228	246,535	11,614
	Avocado	613	6	1,563	263,360
	Mango	3,349	5,965	4,259	714
	Pawpaw	1,022	169	587	3,464
	Pineapple	751	39	2,900	74,590
	Orange	52	0	426	
	Mandarine/Tangerine	29	302	207	684
	Guava	26	0	244	
	Plums	80	18	51	2,831
	Lime/Lemon	4	0	408	
	Total	**74,108**	**37,345**	**272,765**	
Muleba	Star Fruit	10	10	.	
	Palm Oil	1	0	14	
	Coffee	9,968	9,522	7,332	770
	Sugarcane	17	17	57	3,267
	Mpesheni	46	46	342	7,381
	Banana	28,723	21,434	124,092	5,789
	Mango	100	430	6,434	14,956
	Pawpaw	0	486	459	944
	Pineapple	369	291	2,424	8,328
	Orange	.	.	1,325	
	Mandarine/Tangerine	10	10	374	36,441
	Guava	68	.	261	
	Plums	.	.	21	
	Lime/Lemon	70	0	676	
	Total	**39,383**	**32,247**	**143,845**	

cont...7.3.1 PERMANENT CROPS: Production of Permanent Crops by Crop Type and District - Kagera

District/Crop		Area planted (ha)	Area Harvested (ha)	Quantity Harvested (tons)	Yield (Kgs/ha)
Biharamulo	Sour Soup	104	.	.	
	Pigeon Pea	35	23	13	549
	Coffee	454	813	536	659
	Sugarcane	141	98	445	4,539
	Jack Fruit	.	.	8	
	Mpesheni	.	0	7	
	Banana	1,932	1,587	9,037	5,695
	Avocado	.	.	22	
	Mango	25	69	4,707	67,930
	Pawpaw	5	5	214	40,372
	Pineapple	13	0	.	
	Orange	.	0	212	
	Mandarine/Tangerine	.	2	100	62,227
	Guava	.	.	154	
	Plums	.	.	8	
	Lime/Lemon	.	.	26	
	Bilimbi	.	.	1	
	Total	**2,711**	**2,597**	**15,487**	
Ngara	Pigeon Pea	5	5	21	4,446
	Coffee	3,600	516	769	1,491
	Sugarcane	5	5	1	204
	Jack Fruit	137	0	101	
	Mpesheni	1	0	1	
	Banana	13,817	11,096	91,234	8,222
	Avocado	166	15	1,320	91,041
	Mango	205	19	1,681	88,727
	Pawpaw	115	12	43	3,581
	Orange	0	0	2	
	Guava	1	0	16	
	Plums	95	.	3	
	Lime/Lemon	.	.	10	
	Total	**18,148**	**11,667**	**95,203**	
Bukoba Urban	Palm Oil	3	0	7	
	Coffee	373	689	389	565
	Sugarcane	0	0	3	
	Mpesheni	11	1	28	19,743
	Banana	1,171	3,571	3,543	992
	Avocado	3	0	97	
	Mango	21	1	86	60,012
	Pawpaw	0	0	21	
	Orange	0	0	5	
	Mandarine/Tangerine	0	0	14	
	Guava	1	4	15	4,135
	Plums	1	0	13	
	Lime/Lemon	0	0	7	
	Total	**1,584**	**4,266**	**4,227**	

7.3.2 PERMANENT CROP: Area Planted by Crop Type - Kagera Region

Crop	Area Planted	%
Banana	107,042	65.91
Coffee	37,759	23.25
Jack Fruit	8,396	5.17
Mango	3,729	2.30
Avocado	1,562	0.96
Pineapple	1,284	0.79
Pawpaw	1,151	0.71
Sour Soup	279	0.17
Sugarcane	230	0.14
Palm Oil	185	0.11
Plums	176	0.11
Tea	117	0.07
Mpesheni	111	0.07
Guava	96	0.06
Lime/Lemon	74	0.05
Coconut	60	0.04
Orange	53	0.03
Pigeon Pea	40	0.02
Mandarine/Tangerine	40	0.02
Star Fruit	10	0.01
Total	162,395	100.00

7.3.3 PERMANENT CROPS: Area Planted with Banana by District

Banana					
District	Area Planted with Banana	Total Area Planted (Ha)	% of Total Area Planted	Households with Banana	Average Planted Area per Household
Karagwe	16,835	83,618	20.1	34,330	0.5
Bukoba Rural	44,566	74,811	59.6	81,432	0.5
Muleba	28,723	53,646	53.5	65,438	0.4
Biharamulo	1,932	89,733	2.2	6,330	0.3
Ngara	13,817	56,183	24.6	28,144	0.5
Bukoba Urban	1,171	2,196	53.3	3,673	0.3
Total	107,042	360,188	29.7	219,347	0.5

7.3.4 PERMANENT CROPS: Area planted with Coffee by District

Coffee					
District	Area Planted with Coffee	Total Area Planted (Ha)	% of Total Area Planted	Households with Coffee	Average Planted Area per Household
Karagwe	8,660	83,618	10.4	27,465	0.32
Bukoba Rural	14,704	74,811	19.7	70,982	0.21
Muleba	9,968	53,646	18.6	46,495	0.21
Biharamulo	454	89,733	0.5	2,055	0.22
Ngara	3,600	56,183	6.4	2,918	1.23
Bukoba Urban	373	2,196	17.0	2,122	0.18
Total	37,759	360,188	10.5	152,036	0.25

7.3.5 PERMANENT CROPS: Area planted with Jack Fruits by District

Jack Fruits					
District	Area Planted with Jack Fruits	Total Area Planted (Ha)	% of Total Area Planted	Households with Jack Fruits	Average Planted Area per Household
Karagwe	0	83,618	0.0	0	-
Bukoba Rural	8,259	74,811	11.0	9,483	0.9
Muleba	0	53,646	0.0	0	-
Biharamulo	0	89,733	0.0	0	-
Ngara	137	56,183	0.2	1,187	0.1
Bukoba Urban	0	2,196	0.0	0	-
Total	8,396	360,188	2.3	10,670	0.8

7.3.6 PERMANENT CROPS: Area Planted with Mango by District

Mango					
District	Area Planted with Mango	Total Area Planted (Ha)	% of Total Area Planted	Households with Mango	Average Planted Area per Household
Karagwe	29	83,618	0.0	573	0.1
Bukoba Rural	3,349	74,811	4.5	26,130	0.1
Muleba	100	53,646	0.2	506	0.2
Biharamulo	25	89,733	0.0	248	0.1
Ngara	205	56,183	0.4	3,809	0.1
Bukoba Urban	21	2,196	0.9	830	0.0
Total	3,729	360,188	1.0	32,097	0.1

7.3.7 PERMANENT CROPS: Planted Area with Fertilizer by Fertilizer Type and Crop

Crop	Fertilizer Use				
	Mostly Farm Yard Manure	Mostly Compost	Mostly Inorganic Fertilizer	No Fertilizer Applied	Total
Sour Soup	.	29	.	146	175
Pigeon Pea	.	.	.	40	40
Star Fruit	.	.	.	10	10
Palm Oil	23	.	.	123	146
Coconut	.	.	.	60	60
Coffee	6,693	918	628	28,990	37,228
Tea	.	.	.	117	117
Sugarcane	.	60	.	171	230
Jack Fruit	.	26	8	2,904	2,938
Mpesheni	.	1	.	110	111
Banana	26,050	10,157	.	69,577	105,783
Avocado	2	19	0	1,540	1,561
Mango	12	92	6	3,613	3,723
Pawpaw	6	1	0	744	752
Pineapple	42	1	.	1,241	1,284
Orange	.	.	.	52	52
Mandarine/Tangerine	.	0	18	21	40
Guava	.	.	.	96	96
Plums	2	.	.	174	176
Lime/Lemon	.	0	0	74	74
Total	32,830	11,304	660	109,803	154,596

cont… Planted Area with Fertilizer by Fertilizer Type and Crop

Crop	Mostly Farm Yard Manure	Total	%
Sour Soup	.	175	-
Pigeon Pea	.	40	-
Star Fruit	.	10	-
Palm Oil	23	146	15.6
Coconut	.	60	-
Coffee	6,693	37,228	18.0
Tea	.	117	-
Sugarcane	.	230	-
Jack Fruit	.	2,938	-
Mpesheni	.	111	-
Banana	26,050	105,783	24.6
Avocado	2	1,561	0.1
Mango	12	3,723	0.3
Pawpaw	6	752	0.8
Pineapple	42	1,284	3.3
Orange	.	52	-
Mandarine/Tangerine	.	40	-
Guava	.	96	-
Plums	2	176	1.0
Lime/Lemon	.	74	-
Total	32,830	154,596	21.2

cont… Planted Area with Fertilizer by Fertilizer Type and Crop

Crop	Mostly Compost	Total	%
Sour Soup	29	175	16.67
Pigeon Pea	.	40	-
Star Fruit	.	10	-
Palm Oil	.	146	-
Coconut	.	60	-
Coffee	918	37,228	2.47
Tea	.	117	-
Sugarcane	60	230	25.93
Jack Fruit	26	2,938	0.90
Mpesheni	1	111	0.79
Banana	10,157	105,783	9.60
Avocado	19	1,561	1.20
Mango	92	3,723	2.47
Pawpaw	1	752	0.16
Pineapple	1	1,284	0.05
Orange	.	52	-
Mandarine/Tangerine	0	40	1.13
Guava	.	96	-
Plums	.	176	-
Lime/Lemon	0	74	0.20
Total	11,304	154,596	7.31

AGROPROCESSING

8.1.1a: Number of Crop Growing Households Reported to have Processed Products by District; 2002/03 Agriculture Year

District	Households That Processed Crops		Households That did not Process Crops		Total	
	Number	%	Number	%	Number	%
Karagwe	62,936	75.9	19,951	24.1	82,886	100
Bukoba Rural	78,517	90.9	7,824	9.1	86,340	100
Muleba	65,366	87.7	9,140	12.3	74,506	100
Biharamulo	47,530	86.5	7,402	13.5	54,932	100
Ngara	40,714	86.3	6,473	13.7	47,187	100
Bukoba Urban	3,436	91.7	312	8.3	3,748	100
Total	298,500	85.4	51,100	14.6	349,600	100

8.1.1b Number of Crop Growing Households by Method of Processing and District; 2002/03 Agricultural Year

District	Method of Processing								
	On Farm by Hand	On Farm by Machine	By Neighbour Machine	By Trader	By Farmers Association	By Co-operative Union	By Factory	Other	Total
Karagwe	19,162	1,539	36,765	5,141	188	141	0	0	62,936
Bukoba Rural	3,786	3,180	49,458	16,288	2,388	0	3,120	297	78,517
Muleba	2,986	169	41,245	20,623	0	343	0	0	65,366
Biharamulo	1,006	131	31,149	15,243	0	0	0	0	47,530
Ngara	4,005	2,586	33,176	831	0	0	0	116	40,714
Bukoba Urban	35	0	1,404	1,965	0	32	0	0	3,436
Total	30,982	7,606	193,197	60,090	2,576	517	3,120	413	298,500

8.1.1d AGRO PROCESSING: Number of Crop Growing Households Reporting Processing of Farm Products Produced During 2002/03 Agricultural Year by Use of Product and Crop, Kagera Region

	Product Use						
Crop	Household / Human Consumption	Fuel for Cooking	Sale Only	Animal Consumption	Did Not Use	Other	Total
Maize	107,200	129	665	129	247	135	108,504
Paddy	8,001	0	450	0	0	66	8,518
Sorghum	83,619	0	129	0	199	0	83,947
Finger Millet	17,627	0	617	0	177	0	18,422
Cassava	94,590	0	456	0	232	0	95,279
Sweet Potatoes	1,907	0	116	0	0	0	2,023
Beans	1,586	0	135	0	0	0	1,721
Cowpeas	69	0	0	0	0	0	69
Chick Peas	234	0	0	0	0	0	234
Simsim	201	0	135	0	0	0	336
Groundnut	135	0	0	0	0	0	135
Cotton	75	0	0	0	70	0	144
Coffee	0	0	268	0	0	0	268
Sugarcane	0	0	0	0	0	115	115
Banana	402	0	0	0	0	0	402
Orange	79	0	0	0	0	0	79
Total	315,726	129	2,972	129	924	316	320,196

8.1.1e AGRO PROCESSING: Number of Crop Growing Households Reporting Processing of Farm Products Produced During 2002/03 Agricultural Year by Location of Sale of Product and Crop, Kagera Region

	Where Sold									
Crop	Neighbours	Local Market / Trade Store	Secondary Market	Marketing Co-operative	Farmers Association	Large Scale Farm	Trader at Farm	Other	Did not Sell	Total
Maize	9,622	4,998	0	0	149	634	807	15,136	243,648	274,994
Paddy	114	1,400	0	0	0	0	78	264	7,212	9,068
Sorghum	0	119	0	0	0	0	0	0	8,555	8,675
Bulrush Millet	0	0	0	0	0	0	0	0	118	118
Finger Millet	0	0	0	0	0	0	0	0	4,320	4,320
Cassava	1,701	813	0	0	132	300	0	2,353	41,891	47,190
Sweet Potatoes	171	0	0	0	0	0	0	0	1,425	1,597
Beans	279	0	0	0	0	0	119	297	4,093	4,789
Chick Peas	0	0	0	0	0	0	0	0	129	129
Groundnut	0	238	0	0	0	0	0	0	2,129	2,367
Coffee	170	0	0	171	0	0	0	0	147	489
Banana	15,901	2,079	188	0	0	193	13,477	0	3,202	35,040
Pineapple	170	0	0	0	0	0	0	0	0	170
Total	28,129	9,647	188	171	281	1,127	14,482	18,050	316,871	388,947

8.1.1f AGRO PROCESSING: Number of Crop Growing Households By Main Product and District During 2002/03 Agriculture Year, Kagera Region

	Main Product					
District	Flour / Meal	Grain	Oil	Juice	Other	Total
Karagwe	45,895	775	0	16,266	0	62,936
Bukoba Rural	77,793	575	0	0	149	78,517
Muleba	64,528	171	0	667	0	65,366
Biharamulo	46,075	1,371	0	85	0	47,530
Ngara	38,006	1,041	119	1,547	0	40,714
Bukoba Urban	3,436	0	0	0	0	3,436
Total	275,732	3,933	119	18,566	149	298,500

8.1.1g AGRO PROCESSING: Number of Crop Growing Households By Use of Primary Processed Product and District During 2002/03 Agriculture Year, Kagera Region

	Product Use					
District	Household / Human Consumption	Fuel for Cooking	Sale Only	Animal Consumption	Did Not Use	Total
Karagwe	47,556	0	15,193	0	186	62,936
Bukoba Rural	78,223	0	147	147	0	78,517
Muleba	64,696	0	670	0	0	65,366
Biharamulo	47,144	0	386	0	0	47,530
Ngara	39,055	114	1,544	0	0	40,714
Bukoba Urban	3,436	0	0	0	0	3,436
Total	280,111	114	17,941	147	186	298,500

8.1.1h AGRO PROCESSING: Number of Crop Growing Households By Where Product Sold and District During 2002/03 Agriculture Year, Kagera Region

District	Where Sold									
	Neighbours	Local Market / Trade Store	Secondary Market	Marketing Co-operative	Farmers Association	Large Scale Farm	Trader at Farm	Other	Did not Sell	Total
Karagwe	10,559	1,661	188	0	0	193	5,779	0	44,556	62,936
Bukoba Rural	3,239	741	0	0	149	295	445	11,398	62,249	78,517
Muleba	1,344	0	0	171	0	338	170	0	63,343	65,366
Biharamulo	1,530	624	0	0	132	0	0	3,896	41,349	47,530
Ngara	2,790	3,162	0	0	0	0	119	116	34,526	40,714
Bukoba Urban	0	0	0	0	0	0	0	0	3,436	3,436
Total	19,461	6,188	188	171	281	827	6,514	15,410	249,459	298,500

8.1.1i AGRO PROCESSING: Number of Crop Growing Households By type of By-Product and District During 2002/03 Agriculture Year, Kagera Region

District	By Product										
	Bran	Cake	Husk	Juice	Fiber	Pulp	Oil	Shell	No by-product	Other	Total
Karagwe	0		0	0	0	2,120	0	0	58,327	2,488	62,936
Bukoba Rural	6,994		0	149	149	0	0	282	68,861	2,081	78,517
Muleba	1,528		0	505	0	171	170	822	62,170	0	65,366
Biharamulo	1,782		5,242	0	132	0	0	129	40,246	0	47,530
Ngara	580		0	116	0	114	0	4,159	35,745	0	40,714
Bukoba Urban	203		0	0	0	0	0	0	3,234	0	3,436
Total	11,087		5,242	770	281	2,406	170	5,392	268,582	4,569	298,500

MARKETING

10.1: Number of Crop Producing Households Reported to have Sold Agricultural Produce by District During 2002/03; Kagera Region

	Households that Sold		Households that Did not Sell		Total Number of households
	Number	%	Number	%	
Karagwe	78,514	92.5	6,400	7.5	84,914
Bukoba Rural	80,341	92.5	6,550	7.5	86,891
Muleba	64,727	86.1	10,451	13.9	75,179
Biharamulo	47,994	86.8	7,325	13.2	55,319
Ngara	38,782	82.2	8,405	17.8	47,187
Bukoba Urban	2,312	61.0	1,476	39.0	3,788
Total	312,670	88.5	40,608	11.5	353,277

10.2: Number of Households who Reported Main Reasons for Not Selling their Crops by District During 2002/03Agriccultural Year, Kagera Region

	Main Reasons for Not Selling Crops								
District	Price Too Low	Production Insufficient to Sell	Market Too Far	Co-operative Problems	Trade Union Problems	Government Regulatory Board Problems	Other	Not applicable	Total
Karagwe	191	6511	381	0	141	0	2028	73749	83001
Bukoba Rural	3194	15618	147	135	0	0	1146	65780	86021
Muleba	340	15138	170	0	850	0	684	56649	73832
Biharamulo	0	9006	0	0	262	129	386	45327	55112
Ngara	1167	10976	112	0	227	0	119	34228	46829
Bukoba Urban	93	2159	32	0	0	0	70	1258	3612
Total	4985	59407	843	135	1481	129	4435	276991	348407

10.3 Proportion of Households who Reported Main Reason for Not Selling Their Crops by District during 2002/03 Agricultural Year, Kagera Region

	Main Reasons for Not Selling Crops								
District	Price Too Low	Production Insufficient to Sell	Market Too Far	Co-operative Problems	Trade Union Problems	Government Regulatory Board Problems	Other	Not applicable	Total
Karagwe	0.23	7.84	0.46	0.00	0.17	0.00	2.44	88.85	100.00
Bukoba Rural	3.71	18.16	0.17	0.16	0.00	0.00	1.33	76.47	100.00
Muleba	0.46	20.50	0.23	0.00	1.15	0.00	0.93	76.73	100.00
Biharamulo	0.00	16.34	0.00	0.00	0.48	0.23	0.70	82.25	100.00
Ngara	2.49	23.44	0.24	0.00	0.49	0.00	0.25	73.09	100.00
Bukoba Urban	2.56	59.75	0.90	0.00	0.00	0.00	1.95	34.83	100.00
Total	1.43	17.05	0.24	0.04	0.43	0.04	1.27	79.50	100.00

IRRIGATION/EROSION CONTROL

11.1 Number and Percent of Households Reporting use of irrigation during 2002/03 Agricultural year by District

	Households Practicing Irrigation		Households not Practicing Irrigation		Total	
	Number of Household	%	Number of Household	%	Number of Household	%
Karagwe	1,039	1	83,874	99	84,914	100
Bukoba Rural	2,634	3	84,257	97	86,891	100
Muleba	2,194	3	72,984	97	75,179	100
Biharamulo	4,327	8	50,992	92	55,319	100
Ngara	3,563	8	43,624	92	47,187	100
Bukoba Urban	0	0	3,788	100	3,788	100
Total	13,757	4	339,520	96	353,277	100

11.2 IRRIGATION: Area (ha) of Irrigatable and NON irrigated land by district during 2002/03 agriculture year

District	Irrigatable Area (ha)	Irrigated Land (ha)	%
Karagwe	189	121	63.9
Bukoba Rural	807	562	69.7
Muleba	592	405	68.4
Biharamulo	3,237	1,645	50.8
Ngara	757	451	59.5
Bukoba Urban	0	0	-
Total	5,583	3,184	57.0

11.3: IRRIGATION: Number of Agriculture Households using irrigation by Source of Irrigation Water by districts during the 2002/03 agricultural Year

	Source of Irrigation Water						
District	River	Lake	Dam	Well	Canal	Pipe water	Total
Karagwe	188	0	141	329	0	381	1,039
Bukoba Rural	1,458	0	587	590	0	0	2,634
Muleba	1,169	513	171	342	0	0	2,194
Biharamulo	2,110	131	0	777	1,308	0	4,327
Ngara	237	0	0	0	3,326	0	3,563
Bukoba Urban	0	0	0	0	0	0	0
Total	5,161	644	899	2,038	4,634	381	13,757

11.4: IRRIGATION: Number of Agriculture Households by Method used to obtain water and District during 2002/03 Agricultural Year

	Method of Obtaining Water				
District	Gravity	Hand Bucket	Hand Pump	Other	Total
Karagwe	188	852	0	0	1,039
Bukoba Rural	0	2,512	0	122	2,634
Muleba	339	1,855	0	0	2,194
Biharamulo	2,891	1,303	132	0	4,327
Ngara	3,094	469	0	0	3,563
Bukoba Urban	0	0	0	0	0
Total	6,512	6,991	132	122	13,757

11.5 IRRIGATION: Number of Agricultulture Households by Method of Field Application of Irrigation Water and District for the 2002/03 Agricultural Year

District	Method of Application			
	Flood	Sprinkler	Bucket / Watering Can	Total
Karagwe	0	0	1,039	1,039
Bukoba Rural	148	149	2,336	2,634
Muleba	0	0	2,194	2,194
Biharamulo	2,891	132	1,303	4,327
Ngara	2,976	0	587	3,563
Bukoba Urban	0	0	0	0
Total	6,016	281	7,460	13,757

11.6: Number of Households with Erosion Control/Water Harvesting Facilities on their Land By District

District	Presence of Erosion Control/Water Harvesting Facilities				
	Have Facility		Does Not Have Facility		Number of Households
	Number	%	Number	%	
Karagwe	2,782	3	82,132	97	84,914
Bukoba Rural	6,510	7	80,381	93	86,891
Muleba	8,274	11	66,904	89	75,179
Biharamulo	789	1	54,530	99	55,319
Ngara	3,435	7	43,752	93	47,187
Bukoba Urban	154	4	3,634	96	3,788
Total	21,945	6	331,332	94	353,277

11.7 EROSION CONTROL: Number of Erosion Control/Water Harvesting Structures By Type and District as of 2002/03 Agricultural Year

District	Type of Erosion Control								
	Terraces	Erosion Control Bunds	Gabions / Sandbag	Vetiver Grass	Tree Belts	Water Harvesting Bunds	Drainage Ditches	Dam	Total
Karagwe	375	2,892	.	.	.	384	17,074	.	20,725
Bukoba Rural	1,622	5,354	.	1,474	298	2,311	11,587	429	23,074
Muleba	1,009	10,501	3,395	.	4,761	9,466	14,009	.	43,140
Biharamulo	.	528	.	.	651	.	2,111	.	3,290
Ngara	1,653	7,706	.	463	2,865	231	3,049	.	15,968
Bukoba Urban	.	273	.	.	.	.	502	.	775
Total	4,659	27,254	3,395	1,937	8,575	12,392	48,331	429	106,972

ACCESS TO FARM INPUTS

Table 12.1.1 ACCESS TO INPUTS: Number of Crop Growing Households Using Chemical Fertilizer by District, 2002/03 Agricultural Year

District	Using Chemical Fertilizer		NOT Using Chemical Fertilizer		Total Number of Crop growing households
	No of households	%	No of households	%	
Karagwe	381	0.5	82,505	99.5	82,886
Bukoba Rural	889	1.0	85,452	99.0	86,340
Muleba	512	0.7	73,994	99.3	74,506
Biharamulo	2,053	3.7	52,880	96.3	54,932
Ngara	0	0.0	47,187	100.0	47,187
Bukoba Urban	196	5.2	3,552	94.8	3,748
Total	4,031	1.2	345,568	98.8	349,600

Table 12.1.2 ACCESS TO INPUTS: Number of Crop Growing Households Using Farm Yard Manure by District during 2002/03 Agricultural Year

District	Using Farm Yard Manure		Not Using Farm Yard Manure		Total Number of Crop growing households
	No of households	%	No of households	%	
Karagwe	8,864	11	74,022	89	82,886
Bukoba Rural	29,391	34	56,950	66	86,340
Muleba	20,960	28	53,546	72	74,506
Biharamulo	5,154	9	49,778	91	54,932
Ngara	6,801	14	40,385	86	47,187
Bukoba Urban	1,356	36	2,392	64	3,748
Total	72,527	21	277,073	79	349,600

Table 12.1.3 ACCESS TO INPUTS: Number of Crop Growing Households Using COMPOST Manure by District during 2002/03 Agricultural Year

District	Using Compost		Not Using Compost		Total Number of Crop growing households
	No of households	%	No of households	%	
Karagwe	1,281	1.5	81,605	98.5	82,886
Bukoba Rural	25,888	30.0	60,453	70.0	86,340
Muleba	15,749	21.1	58,757	78.9	74,506
Biharamulo	525	1.0	54,407	99.0	54,932
Ngara	2,919	6.2	44,268	93.8	47,187
Bukoba Urban	831	22.2	2,917	77.8	3,748
Total	47,193	13.5	302,407	86.5	349,600

Table 12.1.4 ACCESS TO INPUTS: Number of Crop Growing Households Using Insecticide/Fungicides by District during 2002/03 Agricultural Year

District	Using Insecticides/Fungicide		Not Using Insecticide/Fungi		Total Number of Crop growing households
	No of households	%	No of households	%	
Karagwe	3,979	4.8	78,907	95.2	82,886
Bukoba Rural	4,699	5.4	81,642	94.6	86,340
Muleba	7,838	10.5	66,668	89.5	74,506
Biharamulo	8,545	15.6	46,388	84.4	54,932
Ngara	2,787	5.9	44,400	94.1	47,187
Bukoba Urban	34	0.9	3,714	99.1	3,748
Total	27,881	8.0	321,719	92.0	349,600

Table 12.1.5 ACCESS TO INPUTS: Number of Crop Growing Households Using Herbicides by District during 2002/03 Agricultural Year

District	Using Herbicides		Not Using Herbicides		Total Number of Crop growing households
	No of households	%	No of households	%	
Karagwe	188	0.2	82,698	99.8	82,886
Bukoba Rural	296	0.3	86,044	99.7	86,340
Muleba	167	0.2	74,339	99.8	74,506
Biharamulo	0	0.0	54,932	100.0	54,932
Ngara	0	0.0	47,187	100.0	47,187
Bukoba Urban	0	0.0	3,748	100.0	3,748
Total	651	0.2	348,949	99.8	349,600

Table 12.1.6 ACCESS TO INPUTS: Number of Crop Growing Households using Improved Seeds by District during 2002/03 Agricultural Year

District	Using Improved Seeds		Not Using Improved Seeds		Total Number of Crop growing households
	No of households	%	No of households	%	
Karagwe	570	0.7	82,316	99.3	82,886
Bukoba Rural	21,533	24.9	64,808	75.1	86,340
Muleba	5,692	7.6	68,814	92.4	74,506
Biharamulo	11,036	20.1	43,896	79.9	54,932
Ngara	1,066	2.3	46,121	97.7	47,187
Bukoba Urban	236	6.3	3,512	93.7	3,748
Total	40,133	11.5	309,467	88.5	349,600

Table 12.1.7 ACCESS TO INPUTS: Number of Agricultural Households by Source of Chemical Fertilizer and District, 2002/03 Agricultural Year

District	Co-operative		Local Farmers Group		Local Market / Trade Store		Crop Buyers		Neighbour		Not applicable		Total
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	
Karagwe	0	0.0	0	0.0	186	0.2	0	0.0	195	0.2	84,532	99.6	84,914
Bukoba Rural	0	0.0	0	0.0	889	1.0	0	0.0	0	0.0	86,003	99.0	86,891
Muleba	0	0.0	170	0.2	342	0.5	0	0.0	0	0.0	74,666	99.3	75,179
Biharamulo	250	0.5	1,159	2.1	514	0.9	131	0.2	0	0.0	53,266	96.3	55,319
Ngara	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	47,187	100.0	47,187
Bukoba Urban	0	0.0	0	0.0	196	5.2	0	0.0	0	0.0	3,592	94.8	3,788
Total	250	0.1	1,329	0.4	2,127	0.6	131	0.0	195	0.1	349,246	98.9	353,277

Table 12.1.8 ACCESS TO INPUTS: Number of Agricultural Households by Source of Farm Yard Manure and District, 2002/03 Agricultural Year

	Co-operative		Local Farmers Group		Local Market / Trade Store		Development Project		Crop Buyers		Large Scale Farm		Locally Produced by Household	
District	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Karagwe	0	0	195	0	0	0	0	0	0	0	0	0	6,522	8
Bukoba Rural	589	1	135	0	874	1	0	0	0	0	1,911	2	19,313	22
Muleba	0	0	0	0	0	0	0	0	168	0	0	0	16,485	22
Biharamulo	0	0	0	0	0	0	0	0	0	0	0	0	3,321	6
Ngara	0	0	0	0	472	1	0	0	0	0	0	0	4,693	10
Bukoba Urban	20	1	0	0	0	0	97	3	0	0	0	0	1,088	29
Total	609	0	331	0	1,346	0	97	0	168	0	1,911	1	51,421	15

cont…..Table 12.1.8 ACCESS TO INPUTS: Number of Agricultural Households by Source of Farm Yard Manure and District, 2002/03 Agricultural Year

	Locally Produced by Household		Neighbour		Other		Total
District	Number	%	Number	%	Number	%	
Karagwe	2,147	3	0	0	76,243	90	
Bukoba Rural	6,425	7	144	0	57,500	66	
Muleba	4,137	6	170	0	54,219	72	
Biharamulo	1,833	3	0	0	50,165	91	
Ngara	1,637	3	0	0	40,385	86	
Bukoba Urban	115	3	35	1	2,432	64	
Total	16,294	5	349	0	280,944	79	

Table 12.1.9 ACCESS TO INPUTS: Number of Agricultural Households and Source of COMPOST Manure by District, 2002/03 Agricultural Year

District	Co-operative		Local Farmers Group		Local Market / Trade Store		Secondary Market		Development Project	
	Number	%	Number	%	Number	%	Number	%	Number	%
Karagwe	0	0.0	0	0.0	0	0.0	0	0.0	1,281	1.5
Bukoba Rural	149	0.2	0	0.0	0	0.0	892	1.0	24,016	27.6
Muleba	0	0.0	0	0.0	0	0.0	0	0.0	15,579	20.7
Biharamulo	0	0.0	0	0.0	0	0.0	0	0.0	525	0.9
Ngara	0	0.0	0	0.0	0	0.0	0	0.0	2,570	5.4
Bukoba Urban	0	0.0	33	0.9	33	0.9	0	0.0	732	19.3
Total	149	0.0	33	0.0	33	0.0	892	0.3	44,703	12.7

cont... Table 12.1.9 ACCESS TO INPUTS: Number of Agricultural Households and Source of COMPOST Manure by District, 2002/03 Agricultural Year

District	Locally Produced by Household		Neighbour		Not applicable		Total
	Number	%	Number	%	Number	%	
Karagwe	0	0.0	0	0.0	83,439	98.5	84,720
Bukoba Rural	831	1.0	0	0.0	61,003	70.2	86,891
Muleba	170	0.2	0	0.0	59,429	79.1	75,179
Biharamulo	0	0.0	0	0.0	54,794	99.1	55,319
Ngara	118	0.2	232	0.5	44,268	93.8	47,187
Bukoba Urban	33	0.9	0	0.0	2,957	78.1	3,788
Total	1,151	0.3	232	0.1	305,890	86.6	353,083

Table 12.1.10 ACCESS TO INPUTS: Number of Agricultural Households and Source of Insecticides/Fungicides by District, 2002/03 Agricultural Year

District	Co-operative		Local Farmers Group		Local Market / Trade Store		Development Project		Crop Buyers		Large Scale Farm	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Karagwe	0	0.0	0	0.0	3,979	4.7	0	0.0	0	0.0	0	0.0
Bukoba Rural	0	0.0	0	0.0	3,295	3.8	502	0.6	0	0.0	126	0.1
Muleba	0	0.0	0	0.0	2,891	3.8	0	0.0	0	0.0	0	0.0
Biharamulo	2,669	4.8	634	1.1	4,274	7.7	0	0.0	594	1.1	0	0.0
Ngara	0	0.0	117	0.2	2,555	5.4	114	0.2	0	0.0	0	0.0
Bukoba Urban	0	0.0	0	0.0	34	0.9	0	0.0	0	0.0	0	0.0
Total	2,669	0.8	751	0.2	17,028	4.8	617	0.2	594	0.2	126	0.0

cont...Table 12.1.10 ACCESS TO INPUTS: Number of Agricultural Households and Source of Insecticides/Fungicides by District, 2002/03 Agricultural Year

District	Locally Produced by Household		Neighbour		Not applicable		Total
	Number	%	Number	%	Number	%	
Karagwe	0	0.0	0	0.0	80,935	95.3	84,914
Bukoba Rural	628	0.7	148	0.2	82,192	94.6	86,891
Muleba	3,583	4.8	1,364	1.8	67,341	89.6	75,179
Biharamulo	0	0.0	374	0.7	46,774	84.6	55,319
Ngara	0	0.0	0	0.0	44,400	94.1	47,187
Bukoba Urban	0	0.0	0	0.0	3,754	99.1	3,788
Total	4,211	1.2	1,885	0.5	325,396	92.1	353,277

Table 12.1.11 ACCESS TO INPUTS: Number of Agricultural Households by Source of Herbicides and District, 2002/03 Agricultural Year

District	Co-operative		Local Market / Trade Store		Not applicable		Total
	Number	%	Number	%	Number	%	
Karagwe	0	0.0	188	0.2	84,726	99.8	84,914
Bukoba Rural	296	0.3	0	0.0	86,595	99.7	86,891
Muleba	0	0.0	167	0.2	75,012	99.8	75,179
Biharamulo	0	0.0	0	0.0	55,319	100.0	55,319
Ngara	0	0.0	0	0.0	47,187	100.0	47,187
Bukoba Urban	0	0.0	0	0.0	3,788	100.0	3,788
Total	296	0.1	354	0.1	352,627	99.8	353,277

12.1.12 ACCESS TO INPUTS: Number of Agricultural Households by Source of Improved Seeds and District, 2002/03 Agricultural Year

District	Co-operative		Local Farmers Group		Local Market / Trade Store		Secondary Market		Development Project		Crop Buyers		Locally Produced by Household		Neighbour		Not applicable		Total
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	
Karagwe	0	0.0	0	0.0	570	0.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	84,344	99.3	84,914
Bukoba Rural	0	0.0	709	0.8	7,252	8.3	140	0.2	409	0.5	298	0.3	8,254	9.5	4,470	5.1	65,359	75.2	86,891
Muleba	0	0.0	170	0.2	683	0.9	0	0.0	168	0.2	0	0.0	4,331	5.8	340	0.5	69,486	92.4	75,179
Biharamulo	5,042	9.1	2,056	3.7	1,348	2.4	0	0.0	236	0.4	2,222	4.0	0	0.0	130	0.2	44,283	80.1	55,319
Ngara	0	0.0	0	0.0	947	2.0	0	0.0	0	0.0	0	0.0	119	0.3	0	0.0	46,121	97.7	47,187
Bukoba Urban	0	0.0	0	0.0	176	4.6	0	0.0	0	0.0	0	0.0	60	1.6	0	0.0	3,552	93.8	3,788
Total	5,042	1.4	2,935	0.8	10,976	3.1	140	0.0	813	0.2	2,520	0.7	12,764	3.6	4,941	1.4	313,144	88.6	353,277

12.1.13 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of Chemical Fertilizer by District, 2002/03 Agricultural Year

District	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		20 km and Above		Total
	Number	%	Number	%	Number	%	Number	%	Number	%	
Karagwe	195	51	0	0	186	49	0	0	0	0	381
Bukoba Rural	297	33	0	0	296	33	148	17	148	17	889
Muleba	0	0	341	67	171	33	0	0	0	0	512
Biharamulo	499	24	900	44	654	32	0	0	0	0	2,053
Ngara	0	0	0	0	0	0	0	0	0	0	0
Bukoba Urban	36	18	0	0	161	82	0	0	0	0	196
Total	1,027	25	1,241	31	1,469	36	148	4	148	4	4,031

12.1.14 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of Farm Yard Manure by District, 2002/03 Agricultural Year

District	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		Total
	Number	%	Number	%	Number	%	Number	%	
Karagwe	7,228	82	1,054	12	192	2	390	4	8,864
Bukoba Rural	27,061	92	2,032	7	298	1	0	0	29,391
Muleba	17,930	86	2,518	12	511	2	0	0	20,960
Biharamulo	4,664	90	358	7	132	3	0	0	5,154
Ngara	6,450	95	351	5	0	0	0	0	6,801
Bukoba Urban	1,253	92	68	5	35	3	0	0	1,356
Total	64,585	89	6,382	9	1,169	2	390	1	72,527

12.1.15 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of COMPOST Manure by District, 2002/03 Agricultural Year

District	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		Total Number
	Number	%	Number	%	Number	%	Number	%	
Karagwe	1,281	100	0	0	0	0	0	0	1,281
Bukoba Rural	25,441	98	299	1	0	0	148	1	25,888
Muleba	15,467	98	282	2	0	0	0	0	15,749
Biharamulo	525	100	0	0	0	0	0	0	525
Ngara	2,919	100	0	0	0	0	0	0	2,919
Bukoba Urban	487	59	276	33	68	8	0	0	831
Total	46,120	98	856	2	68	0	148	0	47,193

12.1.16 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of Improved Seeds by District, 2002/03 Agricultural Year

District	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		20 km and Above		Total Number
	Number	%	Number	%	Number	%	Number	%	Number	%	
Karagwe	188	33	0	0	195	34	0	0	188	33	570
Bukoba Rural	13,013	60	2,704	13	2,887	13	2,043	9	885	4	21,533
Muleba	4,329	76	511	9	511	9	0	0	341	6	5,692
Biharamulo	2,153	20	4,599	42	2,499	23	648	6	1,138	10	11,036
Ngara	119	11	117	11	119	11	475	45	236	22	1,066
Bukoba Urban	60	25	0	0	176	75	0	0	0	0	236
Total	19,863	49	7,931	20	6,385	16	3,166	8	2,788	7	40,133

12.1.17 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of Insecticide/Fungicides by District, 2002/03 Agricultural Year

District	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		20 km and Above		Total Number
	Number	%	Number	%	Number	%	Number	%	Number	%	
Karagwe	577	15	283	7	2,206	55	913	23	0	0	3,979
Bukoba Rural	1,841	39	126	3	1,285	27	1,157	25	290	6	4,699
Muleba	3,242	41	2,727	35	1,029	13	840	11	0	0	7,838
Biharamulo	2,310	27	2,274	27	1,338	16	762	9	1,860	22	8,545
Ngara	347	12	348	12	1,621	58	116	4	354	13	2,787
Bukoba Urban	0	0	0	0	34	100	0	0	0	0	34
Total	8,317	30	5,757	21	7,514	27	3,788	14	2,504	9	27,881

12.1.18 ACCESS TO INPUTS: Number of Agricultural Households and Reason for NOT using Chemical Fertilizer by District, 2002/03 Agricultural Year

District	Not Available		Price Too High		No Money to Buy		Too Much Labour Required		Do not Know How to Use		Total
	Number	%	Number	%	Number	%	Number	%	Number	%	
Karagwe	195	51	0	0	186	49	0	0	0	0	381
Bukoba Rural	297	33	0	0	296	33	148	17	148	17	889
Muleba	0	0	341	67	171	33	0	0	0	0	512
Biharamulo	499	24	900	44	654	32	0	0	0	0	2,053
Ngara	0	0	0	0	0	0	0	0	0	0	0
Bukoba Urban	36	18	0	0	161	82	0	0	0	0	196
Total	1,027	25	1,241	31	1,469	36	148	4	148	4	4,031

12.1.19 ACCESS TO INPUTS: Number of Agricultural Households and Reason for NOT using Farm Yard Manure by District, 2002/03 Agricultural Year

	Not Available		Price Too High		No Money to Buy		Too Much Labour Required		Do not Know How to Use		Input is of No Use		Locally Produced by Household		Other		
District	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Total
Karagwe	23,308	31	22,195	29	18,530	24	3,452	5	3,214	4	2,080	3	0	0	3,465	5	76,243
Bukoba Rural	19,457	34	26,497	46	7,175	12	1,325	2	430	1	1,611	3	0	0	1,006	2	57,500
Muleba	30,785	57	20,209	37	1,186	2	0	0	508	1	1,188	2	0	0	343	1	54,219
Biharamulo	12,922	26	5,274	11	21,889	44	1,925	4	2,245	4	5,261	10	0	0	647	1	50,165
Ngara	16,974	42	10,639	26	3,569	9	1,313	3	6,715	17	119	0	116	0	940	2	40,385
Bukoba Urban	1,735	71	478	20	54	2	0	0	34	1	95	4	0	0	35	1	2,432
Total	105,180	37	85,292	30	52,404	19	8,016	3	13,146	5	10,354	4	116	0	6,436	2	280,944

12.1.20 ACCESS TO INPUTS: Number of Agricultural Households and Reason for NOT using COMPOST Manure by District, 2002/03 Agricultural Year

	Not Available		Price Too High		No Money to Buy		Too Much Labour Required		Do not Know How to Use		Input is of No Use		Locally Produced by Household		Other		
District	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Total
Karagwe	12,321	15	11,442	14	32,267	39	4,547	5	16,720	20	2,476	3	0	0	3,666	4	83,439
Bukoba Rural	5,170	8	11,588	19	25,144	41	1,850	3	11,095	18	1,873	3	2,678	4	1,606	3	61,003
Muleba	5,929	10	4,325	7	32,477	55	327	1	12,964	22	2,039	3	171	0	1,197	2	59,429
Biharamulo	6,158	11	3,823	7	22,449	41	2,560	5	13,157	24	5,398	10	254	0	995	2	54,794
Ngara	2,917	7	6,215	14	20,879	47	2,854	6	10,223	23	119	0	0	0	1,060	2	44,268
Bukoba Urban	360	12	281	9	1,013	34	28	1	1,107	37	136	5	0	0	34	1	2,957
Total	32,854	11	37,674	12	134,230	44	12,165	4	65,267	21	12,040	4	3,102	1	8,558	3	305,890

12.1.21 ACCESS TO INPUTS: Number of Agricultural Households and Reason for NOT using Insecticides/Fungicides by District, 2002/03 Agricultural Year

	Not Available		Price Too High		No Money to Buy		Too Much Labour Required		Do not Know How to Use		Input is of No Use		Locally Produced by Household		Other		Total
District	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	
Karagwe	24,185	30	44,453	55	2,298	3	560	1	3,881	5	2,275	3	0	0	3,282	4	80,935
Bukoba Rural	6,624	8	58,267	71	2,337	3	271	0	6,136	7	6,944	8	133	0	1,481	2	82,192
Muleba	5,508	8	31,176	46	1,023	2	0	0	2,138	3	26,828	40	338	1	329	0	67,341
Biharamulo	6,543	14	29,221	62	1,616	3	0	0	1,896	4	6,870	15	0	0	629	1	46,774
Ngara	6,276	14	31,179	70	355	1	236	1	4,820	11	472	1	0	0	1,062	2	44,400
Bukoba Urban	203	5	2,324	62	53	1	0	0	413	11	761	20	0	0	0	0	3,754
Total	49,338	15	196,620	60	7,683	2	1,067	0	19,285	6	44,150	14	471	0	6,783	2	325,396

12.1.22 ACCESS TO INPUTS: Number of Agricultural Households and Reason for NOT using Herbicides by District, 2002/03 Agricultural Year

	Not Available		Price Too High		No Money to Buy		Too Much Labour Required		Do not Know How to Use		Input is of No Use		Locally Produced by Household		Other		
District	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Total
Karagwe	23,633	28	44,429	52	564	1	523	1	7,035	8	5,068	6	0	0	3,474	4	84,726
Bukoba Rural	4,413	5	62,090	72	2,189	3	149	0	8,517	10	7,327	8	133	0	1,779	2	86,595
Muleba	8,667	12	26,730	36	1,307	2	0	0	4,687	6	33,281	44	0	0	341	0	75,012
Biharamulo	13,088	24	24,631	45	1,883	3	129	0	5,271	10	9,799	18	0	0	518	1	55,319
Ngara	7,787	17	29,065	62	466	1	119	0	8,096	17	591	1	0	0	1,062	2	47,187
Bukoba Urban	203	5	2,210	58	53	1	0	0	446	12	876	23	0	0	0	0	3,788
Total	57,791	16	189,155	54	6,462	2	919	0	34,051	10	56,942	16	133	0	7,174	2	352,627

12.1.23 ACCESS TO INPUTS: Number of Agricultural Households and Reason for NOT using Improved Seeds by District, 2002/03 Agricultural Year

	Not Available		Price Too High		No Money to Buy		Too Much Labour Required		Do not Know How to Use		Input is of No Use		Locally Produced by Household		Other		
District	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Total
Karagwe	34,616	41	41,203	49	564	1	0	0	581	1	3,383	4	331	0	3,666	4	84,344
Bukoba Rural	14,118	22	46,993	72	1,334	2	0	0	864	1	866	1	291	0	893	1	65,359
Muleba	32,263	46	30,574	44	398	1	0	0	678	1	4,743	7	487	1	343	0	69,486
Biharamulo	13,416	30	27,524	62	808	2	247	1	471	1	1,063	2	0	0	754	2	44,283
Ngara	9,436	20	30,679	67	590	1	119	0	4,006	9	119	0	0	0	1,172	3	46,121
Bukoba Urban	605	17	2,030	57	0	0	0	0	660	19	257	7	0	0	0	0	3,552
Total	104,455	33	179,002	57	3,695	1	365	0	7,260	2	10,431	3	1,108	0	6,828	2	313,144

Table 12.1.24 ACCESS TO INPUTS: Number of Agricultural Households and Quality of Chemical Fertilizer by District, 2002/03 Agricultural Year

District	Excellent		Good		Average		Poor		Total
	Number	%	Number	%	Number	%	Number	%	
Karagwe	195	51	186	49	0	0	0	0	381
Bukoba Rural	0	0	593	67	148	17	148	17	889
Muleba	170	33	342	67	0	0	0	0	512
Biharamulo	526	26	1,526	74	0	0	0	0	2,053
Bukoba Urban	69	35	128	65	0	0	0	0	196
Total	960	24	2,776	69	148	4	148	4	4,031

12.1.25 ACCESS TO INPUTS: Number of Agricultural Households and Quality of Farm Yard Manure by District, 2002/03 Agricultural Year

District	Excellent		Good		Average		Total
	Number	%	Number	%	Number	%	
Karagwe	3,986	45	3,776	43	1,103	12	8,864
Bukoba Rural	11,447	39	17,647	60	297	1	29,391
Muleba	8,281	40	12,170	58	508	2	20,960
Biharamulo	2,066	40	2,837	55	251	5	5,154
Ngara	2,918	43	2,944	43	939	14	6,801
Bukoba Urban	680	50	611	45	65	5	1,356
Total	29,378	41	39,985	55	3,164	4	72,527

12.1.26 ACCESS TO INPUTS: Number of Agricultural Households and Quality of COMPOST Manure by District, 2002/03 Agricultural Year

District	Excellent		Good		Average		Total
	Number	%	Number	%	Number	%	
Karagwe	377	29	709	55	195	15	1,281
Bukoba Rural	8,542	33	13,426	52	3,920	15	25,888
Muleba	2,014	13	10,870	69	2,865	18	15,749
Biharamulo	0	0	263	50	263	50	525
Ngara	564	19	2,008	69	348	12	2,919
Bukoba Urban	107	13	451	54	273	33	831
Total	11,603	25	27,727	59	7,863	17	47,193

12.1.27 ACCESS TO INPUTS: Number of Agricultural Households and Quality of Insecticides/Fungicides by District, 2002/03 Agricultural Year

District	Excellent		Good		Average		Poor		Total
	Number	%	Number	%	Number	%	Number	%	
Karagwe	1,249	31	1,816	46	722	18	193	5	3,979
Bukoba Rural	1,255	27	1,653	35	1,791	38	0	0	4,699
Muleba	4,256	54	3,413	44	170	2	0	0	7,838
Biharamulo	1,903	22	5,661	66	584	7	396	5	8,545
Ngara	119	4	2,553	92	114	4	0	0	2,787
Bukoba Urban	34	100	0	0	0	0	0	0	34
Total	8,816	32	15,095	54	3,381	12	589	2	27,881

12.1.28 ACCESS TO INPUTS: Number of Agricultural Households and Quality of Herbicides by District, 2002/03 Agricultural Year

District	Excellent		Good		Total
	Number	%	Number	%	
Karagwe	188	100	0	0	188
Bukoba Rural	149	50	147	50	296
Muleba	167	100	0	0	167
Biharamulo	503	77	147	23	651
Ngara	0	0	0	0	0
Bukoba Urban	0	0	0	0	0
Total	503	77	147	23	651

12.1.29 ACCESS TO INPUTS: Number of Agricultural Households and Quality of Improved Seeds by District, 2002/03 Agricultural Year

District	Excellent		Good		Average		Poor		Total
	Number	%	Number	%	Number	%	Number	%	
Karagwe	382	67	188	33	0	0	0	0	570
Bukoba Rural	3,898	18	16,012	74	1,622	8	0	0	21,533
Muleba	513	9	1,176	21	4,004	70	0	0	5,692
Biharamulo	1,662	15	7,812	71	1,563	14	0	0	11,036
Ngara	119	11	947	89	0	0	0	0	1,066
Bukoba Urban	101	43	100	42	0	0	35	15	236
Total	6,675	17	26,234	65	7,188	18	35	0	40,133

12.1.30 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use Chemical Fertilizer Next Year by District, 2002/03 Agricultural Year

District	Agricultural Households With Plan to use Chemical Fertilizers Next Year		Agricultural Households With NO Plan to use Next Year Chemical Fertilizers		Total
	Number	%	Number	%	
Karagwe	2,032	2	82,881	98	84,914
Bukoba Rural	5,156	6	81,735	94	86,891
Muleba	4,245	6	70,933	94	75,179
Biharamulo	8,070	15	47,249	85	55,319
Ngara	1,175	2	46,012	98	47,187
Bukoba Urban	883	23	2,905	77	3,788
Total	21,562	6	331,715	94	353,277

12.1.31 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use Farm Yard Manure Next Year by District, 2002/03 Agricultural Year

District	Agricultural Households With Plan to use Next Year Farm Yard Manure		Agricultural Households With NO Plan to use Next Year Farm Yard Manure		Total
	Number	%	Number	%	
Karagwe	11,080	13	74,027	87	85,108
Bukoba Rural	40,790	47	46,101	53	86,891
Muleba	40,267	54	34,911	46	75,179
Biharamulo	19,621	35	35,698	65	55,319
Ngara	13,602	29	33,585	71	47,187
Bukoba Urban	2,531	67	1,257	33	3,788
Total	127,891	36	225,580	64	353,471

12.1.32 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use COMPOST Manure Next Year by District, 2002/03 Agricultural Year

District	Agricultural Households With Plan to use COMPOST ManureNext Year		Agricultural Households With NO Plan to use COMPOST Manure Next Year		Total
	Number	%	Number	%	
Karagwe	2,677	3	82,042	97	84,720
Bukoba Rural	37,727	43	49,164	57	86,891
Muleba	30,285	40	44,894	60	75,179
Biharamulo	7,384	13	47,935	87	55,319
Ngara	10,899	23	36,288	77	47,187
Bukoba Urban	2,101	55	1,687	45	3,788
Total	91,074	26	262,009	74	353,083

12.1.33 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use Insecticides/Fungicides Next Year by District, 2002/03 Agricultural Year

District	Agricultural Households With Plan to use Pesticides/Fungicides Next Year		Agricultural Households With NO Plan to use Pesticides/FungicidesNext Year		Total
	Number	%	Number	%	
Karagwe	4,558	5	80,356	95	84,914
Bukoba Rural	12,248	14	74,643	86	86,891
Muleba	10,025	13	65,153	87	75,179
Biharamulo	16,261	29	39,058	71	55,319
Ngara	4,902	10	42,285	90	47,187
Bukoba Urban	822	22	2,966	78	3,788
Total	48,815	14	304,462	86	353,277

12.1.34 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use Herbicides Next Year by District, 2002/03 Agricultural Year

District	Agricultural Households With Plan to use Herbicides Next Year		Agricultural Households With NO Plan to use Herbicides Next Year		Total
	Number	%	Number	%	
Karagwe	961	1	83,953	99	84,914
Bukoba Rural	2,700	3	84,191	97	86,891
Muleba	659	1	74,520	99	75,179
Biharamulo	1,498	3	53,821	97	55,319
Ngara	1,052	2	46,135	98	47,187
Bukoba Urban	145	4	3,643	96	3,788
Total	7,015	2	346,262	98	353,277

Table 12.1.35 ACCESS TO INPUTS: Number of Agricultural Households with Plan to Use Improved Seeds Next Year by District, 2002/03 Agricultural Year

District	Agricultural Households With Plan to use Improved Seeds Next Year		Agricultural Households With NO Plan to use Improved Seeds Next Year		Total
	Number	%	Number	%	
Karagwe	3,755	4	81,158	96	84,914
Bukoba Rural	34,016	39	52,875	61	86,891
Muleba	24,706	33	50,473	67	75,179
Biharamulo	23,308	42	32,011	58	55,319
Ngara	6,098	13	41,089	87	47,187
Bukoba Urban	1,513	40	2,275	60	3,788
Total	93,397	26	259,881	74	353,277

AGRICULTURE CREDIT

13.1a AGRICULTURE CREDIT: Number of Agriculture Households receiving Credit by sex of household head and District During the 2002/03 Agriculture Year

District	Male		Female		Total
	Number	%	Number	%	
Karagwe	0	0	0	0	0
Bukoba Rural	0	0	0	0	0
Muleba	0	0	169	100	169
Biharamulo	396	82	85	18	481
Ngara	355	100	0	0	355
Bukoba Urban	0	0	0	0	0
Total	750	75	254	25	1,004

13.1b AGRICULTURE CREDIT: Number of Households Receiving Credit By Main Source of Credit and District; 2002/03 Agriculture Year.

District	Source of Credit				Total
	Family, Friend and Relative	Co-operative	Saving & Credit Society	Religious Organisation / NGO / Project	
Karagwe	0	0	0	0	0
Bukoba Rural	0	0	0	0	0
Muleba	0	0	0	169	169
Biharamulo	132	264	0	85	481
Ngara	119	0	116	119	355
Bukoba Urban	0	0	0	0	0
Total	251	264	116	373	1,004

13.2a AGRICULTURE CREDIT: Number of Households Reporting the Main reasons for Not Using Credit by District During the 2002/03 Agriculture Year

District	Not needed	Not available	Did not want to go into debt	Interest rate/cost too high	Did not know how to get credit	Difficult bureaucracy procedure	Credit granted too late	Other	Don't know about credit	Total
Karagwe	3,192	14,740	2,792	1,353	38,095	1,882	389	193	22,277	84,914
Bukoba Rural	3,627	3,393	11,399	4,536	40,261	1,827	1,328	1,287	19,233	86,891
Muleba	3,002	4,234	9,860	1,725	36,983	1,800	853	670	15,883	75,010
Biharamulo	2,557	14,656	4,857	657	17,833	1,234	122	0	12,923	54,838
Ngara	472	7,478	936	319	16,451	358	0	0	20,818	46,832
Bukoba Urban	336	262	752	20	1,866	102	0	0	451	3,788
Total	13,185	44,763	30,596	8,611	151,489	7,202	2,692	2,150	91,584	352,273

13.2b AGRICULTURE CREDIT: Number of Credits Received by Main Purpose of Credit and District During the 2002/03 Agriculture Year

District	Labour	Seeds	Fertilizers	Livestock	Other	Total Credits
Karagwe	0	0	0	0	0	0
Bukoba Rural	0	0	0	0	0	0
Muleba	0	0	0	169	0	169
Biharamulo	0	132	264	0	85	481
Ngara	119	119	0	119	116	474
Bukoba Urban	0	0	0	0	0	0
Total	119	251	264	288	201	1,124

TREE FARMING AND AGROFORESTRY

14.1 ON FARM TREE PLANTING: Number of Planted Trees By Species and District During the 2002/03 Agriculture Year, Kagera Region

District	Senna Spp	Gravellis	Afzelia Quanzensis	Acacia Spp	Pinus Spp	Eucalyptus Spp	Cyprus Spp	Calophylum Inophyllum	Melicia excelsa	Casurina Equisetfilia	Maesopsis Berchemoides	Azadritachta Spp
Karagwe	973	223,938	83,434	1,950	7,073	4,925,932	2,829	.	.	.	113,546	.
Bukoba Rural	.	284,732	149	.	470,446	1,562,560	16,964	.	.	288	305,447	.
Muleba	.	7,365	.	.	98,464	2,081,222	85,136	2,565	.	.	163,407	171
Biharamulo	1,977	386,518	.	.	9,052	78,042	12,993	26,017	643	.	128,479	.
Ngara	.	282,654	.	3,469	2,365	2,063,748	.	.	.	.	332,528	.
Bukoba Urban	.	2,772	.	.	660	483,845	48,212	.	.	.	20,023	36
Total	2,950	1,187,979	83,583	5,419	588,060	11,195,348	166,135	28,582	643	288	1,063,430	206
%	0.0	8.3	0.6	0.0	4.1	78.1	1.2	0.2	0.0	0.0	7.4	0.0

cont… ON FARM TREE PLANTING: Number of Planted Trees By Species and District During the 2002/03 Agriculture Year, Kagera Region

District	Moringa Spp	Saraca Spp	Trichilia Spp	Total
Karagwe	193	.	1,352	5,361,219
Bukoba Rural	.	2,201	.	2,642,788
Muleba	.	.	.	2,438,329
Biharamulo	.	.	.	643,721
Ngara	.	.	.	2,684,764
Bukoba Urban	.	.	.	555,548
Total	193	2,201	1,352	14,326,368
%	0.0	0.0	0.0	100

14.2 TREE FARMING: Number of Households with planted trees on their land and Number of Trees by Planting Location and District During the 2002/03 Agriculture Year, Kagera Region

District	Mostly on Field / Plot Boundaries		Mostly Scattered in Field		Mostly in Plantation / Coppice		Total	
	Number of Households	Number of Trees	Number of Households	Number of Trees	Number of Households	Number of Trees	Number of Households	Number of Trees
Karagwe	4,511	309,622	715	13,275	8,043	5,038,322	13,269	5,361,219
Bukoba Rural	6,898	517,468	2,652	84,725	4,988	2,040,595	14,537	2,642,788
Muleba	2,134	52,555	2,213	385,709	2,190	2,000,066	6,537	2,438,329
Biharamulo	2,257	279,793	2,807	239,288	383	124,640	5,447	643,721
Ngara	2,020	241,076	473	28,354	3,548	2,415,334	6,041	2,684,764
Bukoba Urban	513	11,671	33	2,310	525	541,567	1,071	555,548
Total	18,332	1,412,184	8,893	753,661	19,677	12,160,523	46,901	14,326,368

14.3 ON FARM TREE PLANTING: Number of responses by main use of planted trees and District for the 2002/03 agriculture year, Kagera Region

District	Main Use					
	Planks / Timber	Poles	Fuel for Wood	Shade	Medicinal	Total
Karagwe	7,048	5,143	4,775	959	193	18,117
Bukoba Rural	9,128	2,908	4,102	1,304	0	17,443
Muleba	4,982	1,359	2,179	0	0	8,520
Biharamulo	6,435	1,776	1,165	0	0	9,376
Ngara	3,437	3,424	592	0	0	7,454
Bukoba Urban	640	255	443	0	36	1,374
Total	31,671	14,866	13,255	2,263	228	62,284

14.4TREE FARMING: Number of Agriculture Households Classified by Distance to Community Planted Forest (Km) By District During the 2002/03 Agriculture Year, Kagera Region

	Distance to Community Planted Forest (km)						
District	0-9	1-19	18-29	30-39	40-49	60+	Total
Karagwe	3,211	2,259	1,509	567	377	1,512	9,435
Bukoba Rural	5,162	2,219	2,217	1,333	148	598	11,676
Muleba	6,104	168	0	0	0	0	6,272
Biharamulo							
Ngara	1,551	2,367	1,547	946	955	716	8,082
Bukoba Urban	36	237	341	68	0	0	681
Total	16,064	7,250	5,613	2,914	1,480	2,826	36,147
%	44	20	16	8	4	8	100

14.5 ON FARM TREE PLANTING: Number of responses by Second use of planted trees and District for the 2002/03 agriculture year, Kagera Region

	Second Use							
District	Planks / Timber	Poles	Charcoal	Wood for Fuel	Shade	Medicinal	Other	Total
Karagwe	1,919	5,290	0	10,136	579	0	193	18,117
Bukoba Rural	2,895	3,491	0	10,171	887	0	0	17,443
Muleba	1,682	1,454	0	5,213	0	171	0	8,520
Biharamulo	1,255	1,798	132	5,809	382	0	0	9,376
Ngara	716	1,188	0	5,202	347	0	0	7,454
Bukoba Urban	70	303	0	930	36	0	0	1,339
Total	8,538	13,524	132	37,461	2,231	171	193	62,249

CROP EXTENSION

15.1 CROP EXTENSION: Number of Agriculture Households Receiving Extension Messages by District During the 2002/03 Agriculture Year, Kagera Region

	Households Receiving Extension Advice		Households Not Receiving Extension Advice		Total Number of Households
	Number	%	Number	%	
Karagwe	2,416	3	80,470	97	82,886
Bukoba Rural	29,712	34	56,629	66	86,340
Muleba	21,710	29	52,796	71	74,506
Biharamulo	8,173	15	46,759	85	54,932
Ngara	5,370	11	41,817	89	47,187
Bukoba Urban	1,700	45	2,048	55	3,748
Total	69,081	20	280,519	80	349,600

15.2 CROP EXTENSION: Number of Households By Quality of Extension Services and District During the 2002/03 Agricultural Year, Kagera Region

	Very Good		Good		Average		Poor		Total
	Number	%	Number	%	Number	%	Number	%	
Karagwe	517	21	1,138	47	762	32	0	0	2,416
Bukoba Rural	2,961	10	21,474	72	4,978	17	298	1	29,712
Muleba	1,849	9	13,293	61	6,398	29	171	1	21,710
Biharamulo	474	6	5,276	65	2,423	30	0	0	8,173
Ngara	932	17	3,146	59	1,060	20	231	4	5,370
Bukoba Urban	239	15	1,195	75	131	8	34	2	1,599
Total	6,971	10	45,522	66	15,752	23	734	1	68,980

15.3 EXTENSION MESSAGES: Number of Agriculture Households By Source of Crop Extension Messages and District During the 2002/03 Agriculture Year, Kagera Region

	Government		NGO / Development Project		Cooperative		Large Scale Farm		Other		Not applicable		Total
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	
Karagwe	2,041	84	375	16	0	0	0	0	0	0	0	0	2,416
Bukoba Rural	26,099	89	1,747	6	296	1	578	2	148	1	297	1	29,165
Muleba	18,292	85	2,223	10	170	1	0	0	853	4	0	0	21,538
Biharamulo	7,407	91	396	5	131	2	129	2	110	1	0	0	8,173
Ngara	4,198	78	1,172	22	0	0	0	0	0	0	0	0	5,370
Bukoba Urban	1,558	92	71	4	0	0	0	0	36	2	35	2	1,700
Total	59,595	87	5,984	9	597	1	707	1	1,147	2	332	0	68,362

15.4 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Plant Spacing by Source of Extension Messages and District During the 2002/03 Agriculture Year, Kagera Region

District	Spacing							Total Number of Agriculture Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Not applicable	Total		
Karagwe	1,659	188	0	0	0	0	1,847	84,914	2
Bukoba Rural	24,622	1,159	148	446	148	149	26,672	86,891	31
Muleba	14,067	854	170	0	853	0	15,944	75,179	21
Biharamulo	7,034	264	131	129	110	0	7,668	55,319	14
Ngara	3,959	581	0	0	0	0	4,540	47,187	10
Bukoba Urban	1,390	0	0	0	36	0	1,426	3,788	38
Total	52,731	3,045	450	575	1,147	149	58,097	353,277	16

15.5 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Agrochemicals by Source of Extension Messages and District During the 2002/03 Agriculture Year, Kagera Region

District	Use of Agrochemicals					Total Number of Agriculture Households	% of total number of households
	Government	NGO / Development Project	Large Scale Farm	Not applicable	Total		
Karagwe	765	377	0	0	0	84,914	0
Bukoba Rural	8,801	887	0	148	147	86,891	0
Muleba	3,167	511	0	341	170	75,179	0
Biharamulo	5,185	342	129	110	0	55,319	0
Ngara	926	119	0	0	0	47,187	0
Bukoba Urban	239	0	0	0	0	3,788	0
Total	19,083	2,237	129	600	318	353,277	0

15.6 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Erosion Control by Source of Extension Messages and District During the 2002/03 Agriculture Year, Kagera Region

District	Erosion Control						Total Number of Agriculture Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale	Other	Total		
Karagwe	525	188	0	0	0	712	84,914	1
Bukoba Rural	13,178	1,305	0	133	0	14,616	86,891	17
Muleba	6,706	1,540	171	0	683	9,100	75,179	12
Biharamulo	3,420	0	0	129	0	3,549	55,319	6
Ngara	1,853	941	0	0	0	2,794	47,187	6
Bukoba Urban	313	0	0	0	0	313	3,788	8
Total	25,995	3,974	171	261	683	31,083	353,277	9

15.7 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Organic Fertilizer Use by Source of Extension Messages and District During the 2002/03 Agriculture Year, Kagera Region

District	Organic Fertilizer Use							Total Number of Agriculture Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Not applicable	Total		
Karagwe	714	751	0	0	0	0	1,465	84,914	2
Bukoba Rural	20,792	2,047	148	578	0	282	23,846	86,891	27
Muleba	11,548	1,525	0	0	682	0	13,755	75,179	18
Biharamulo	5,738	264	131	129	0	0	6,262	55,319	11
Ngara	3,728	231	0	0	0	0	3,959	47,187	8
Bukoba Urban	1,236	104	0	0	0	35	1,374	3,788	36
Total	43,756	4,921	279	707	682	317	50,661	353,277	14

15.8 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Inorganic Fertilizer Use by Source of Extension Messages and District During the 2002/03 Agriculture Year, Kagera Region

District	Inorganic Fertilizer Use						Total Number of Agriculture Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Not applicable	Total		
Karagwe	525	0	0	0	0	525	84,914	1
Bukoba Rural	8,400	1,187	0	0	0	9,587	86,891	11
Muleba	499	171	0	0	171	840	75,179	1
Biharamulo	4,748	210	131	129	0	5,219	55,319	9
Ngara	469	0	0	0	0	469	47,187	1
Bukoba Urban	120	0	0	0	0	120	3,788	3
Total	14,761	1,568	131	129	171	16,760	353,277	5

15.9 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Improved Seeds by Source of Extension Messages and District During the 2002/03 Agriculture Year, Kagera Region

District	Use of Improved Seed							Total Number of Agriculture Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Not applicable	Total		
Karagwe	1,099	563	0	0	0	0	1,662	84,914	2
Bukoba Rural	19,104	2,041	0	297	147	580	22,170	86,891	26
Muleba	5,633	839	0	0	0	0	6,473	75,179	9
Biharamulo	5,892	396	263	129	110	0	6,790	55,319	12
Ngara	3,012	0	0	0	0	0	3,012	47,187	6
Bukoba Urban	1,048	0	0	0	0	28	1,076	3,788	28
Total	35,789	3,839	263	425	258	609	41,183	353,277	12

15.10 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Mechanization/LST by Source of Extension Messages and District During the 2002/03 Agriculture Year, Kagera Region

District	Mechanisation / LST				Total Number of Agriculture Households	% of total number of households
	Government	NGO / Development Project	Not applicable	Total		
Karagwe	0	0	0	0	84,914	0.0
Bukoba Rural	1,484	446	0	1,930	86,891	2.2
Muleba	169	0	171	339	75,179	0.5
Biharamulo	1,086	132	0	1,218	55,319	2.2
Ngara	0	0	0	0	47,187	0.0
Bukoba Urban	20	0	0	20	3,788	0.5
Total	2,759	578	171	3,507	353,277	1.0

15.11 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Irrigation Technology by Source of Extension Messages and District During the 2002/03 Agriculture Year, Kagera Region

District	Irrigation Technology					Total Number of Agriculture Households	% of total number of households
	Government	NGO / Development Project	Other	Not applicable	Total		
Karagwe	383	188	0	0	571	84,914	0.7
Bukoba Rural	6,071	443	0	149	6,664	86,891	7.7
Muleba	1,143	171	171	171	1,656	75,179	2.2
Biharamulo	983	0	0	0	983	55,319	1.8
Ngara	582	0	0	0	582	47,187	1.2
Bukoba Urban	133	0	0	0	133	3,788	3.5
Total	9,296	802	171	320	10,589	353,277	3.0

15.12 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Crop Storage by Source of Extension Messages and District During the 2002/03 Agriculture Year, Kagera Region

District	Crop Storage						Total Number of Agriculture Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Total		
Karagwe	896	188	0	0	0	1,084	84,914	1
Bukoba Rural	13,409	1,014	149	0	0	14,571	86,891	17
Muleba	4,528	342	0	170	341	5,382	75,179	7
Biharamulo	6,737	78	0	129	110	7,054	55,319	13
Ngara	1,501	0	0	0	0	1,501	47,187	3
Bukoba Urban	919	0	0	34	0	953	3,788	25
Total	27,989	1,622	149	333	452	30,545	353,277	9

15.13 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Vermin Control by Source of Extension Messages and District During the 2002/03 Agriculture Year, Kagera Region

District	Vermin Control							Total Number of Agriculture Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Not applicable	Total		
Karagwe	376	0	0	0	0	0	376	84,914	0.4
Bukoba Rural	10,020	1,018	0	149	0	0	11,187	86,891	12.9
Muleba	158	343	171	341	171	0	1,183	75,179	1.6
Biharamulo	2,046	78	0	0	0	118	2,242	55,319	4.1
Ngara	352	0	0	0	0	0	352	47,187	0.7
Bukoba Urban	658	0	0	0	0	0	658	3,788	17.4
Total	13,609	1,439	171	490	171	118	15,997	353,277	4.5

15.14 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Agro-processing by Source of Extension Messages and District During the 2002/03 Agriculture Year, Kagera Region

District	Agro-progressing					Total Number of Agriculture Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Total		
Karagwe	195	188	0	0	383	84,914	0.5
Bukoba Rural	5,789	1,030	446	149	7,415	86,891	8.5
Muleba	840	499	0	170	1,509	75,179	2.0
Biharamulo	3,961	78	0	0	4,040	55,319	7.3
Ngara	462	114	0	0	576	47,187	1.2
Bukoba Urban	90	0	0	0	90	3,788	2.4
Total	11,337	1,910	446	320	14,013	353,277	4.0

15.15 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Agro-forestry by Source of Extension Messages and District During the 2002/03 Agriculture Year, Kagera Region

District	Agro-forestry					Total Number of Agriculture Households	% of total number of households
	Government	NGO / Development Project	Large Scale Farm	Not applicable	Total		
Karagwe	337	942	0	0	1,279	84,914	1.5
Bukoba Rural	8,302	1,314	0	135	9,751	86,891	11.2
Muleba	1,838	170	170	170	2,349	75,179	3.1
Biharamulo	1,761	342	0	0	2,103	55,319	3.8
Ngara	1,017	114	0	230	1,361	47,187	2.9
Bukoba Urban	148	0	0	0	148	3,788	3.9
Total	13,402	2,883	170	536	16,991	353,277	4.8

15.16 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Bee keeping by Source of Extension Messages and District During the 2002/03 Agriculture Year, Kagera Region

District	Beekeeping			Total Number of Agriculture Households	% of total number of households
	Government	NGO / Development Project	Total		
Karagwe	0	0	0	84,914	0.0
Bukoba Rural	1,187	149	1,336	86,891	1.5
Muleba	170	0	170	75,179	0.2
Biharamulo	551	0	551	55,319	1.0
Ngara	350	0	350	47,187	0.7
Bukoba Urban	36	0	36	3,788	0.9
Total	2,294	149	2,442	353,277	0.7

15.17 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Fish Farming by Source of Extension Messages and District During the 2002/03 Agriculture Year, Kagera Region

District	Fish Farming				Total Number of Households	% of total number of households
	Government	NGO / Development Project	Not applicable	Total		
Karagwe	0	0	0	0	84,914	0.0
Bukoba Rural	1,041	297	0	1,339	86,891	1.5
Muleba	0	170	0	170	75,179	0.2
Biharamulo	472	0	0	472	55,319	0.9
Ngara	118	0	116	233	47,187	0.5
Bukoba Urban	0	0	0	0	3,788	0.0
Total	1,631	468	116	2,215	353,277	0.6

15.18 CROP EXTENSION: Number of Agriculture Households Receiving and Adopting Extension Messages by Type of Message and District (Part 1) During the 2002/03 Agriculture Year, Kagera Region

District	Spacing			Use of Agrochemicals			Erosion Control		
	Received	Adopted	%	Received	Adopted	%	Received	Adopted	%
Karagwe	1,847	1,516	82	1,142	757	66	712	383	54
Bukoba Rural	26,522	23,917	90	9,128	3,984	44	14,320	10,329	72
Muleba	15,946	11,084	70	3,336	3,177	95	8,929	7,055	79
Biharamulo	7,932	6,689	84	5,766	1,308	23	3,417	574	17
Ngara	4,540	4,190	92	1,045	695	66	2,794	2,095	75
Bukoba Urban	1,426	1,356	95	168	34	20	242	74	31
Total	58,213	48,753	84	20,586	9,954	48	30,413	20,509	67

15.19 CROP EXTENSION: Number of Agriculture Households Receiving and Adopting Extension Messages by Type of Message and District (Part 2) During the 2002/03 Agriculture Year, Kagera Region

	Organic Fertilizer Use			Inorganic Fertilizer Use			Use of Improved Seed		
District	Received	Adopted	%	Received	Adopted	%	Received	Adopted	%
Karagwe	1,465	712	49	525	0	0	1,852	567	31
Bukoba Rural	23,846	18,771	79	8,273	2,937	36	22,170	12,061	54
Muleba	13,418	8,683	65	499	342	69	6,473	2,766	43
Biharamulo	6,394	872	14	5,101	526	10	6,790	2,648	39
Ngara	3,959	3,609	91	350	0	0	3,242	1,501	46
Bukoba Urban	1,374	1,007	73	120	88	73	1,076	389	36
Total	50,456	33,653	67	14,867	3,893	26	41,602	19,932	48

15.20 CROP EXTENSION: Number of Agriculture Households Receiving and Adopting Extension Messages by Type of Message and District (Part 3) During the 2002/03 Agriculture Year, Kagera Region

	Mechanisation / LST			Irrigation Technology			Crop Storage		
District	Received	Adopted	%	Received	Adopted	%	Received	Adopted	%
Karagwe	0	0	-	571	375	66	1,084	1,084	100
Bukoba Rural	1,634	742	45	6,515	1,903	29	14,720	12,200	83
Muleba	0	169	-	1,485	1,157	78	5,382	4,729	88
Biharamulo	929	0	0	774	264	34	7,054	6,595	93
Ngara	0	0	-	582	468	80	1,501	1,152	77
Bukoba Urban	20	20	100	133	65	49	953	885	93
Total	2,583	931	36	10,060	4,232	42	30,693	26,644	87

15.21 CROP EXTENSION: Number of Agriculture Households Receiving and Adopting Extension Messages by Type of Message and District (Part 4) During the 2002/03 Agriculture Year, Kagera Region

	Vermin Control			Agro-progressing			Agro-forestry		
District	Received	Adopted	%	Received	Adopted	%	Received	Adopted	%
Karagwe	376	376	100	383	195	51	1,279	1,279	100
Bukoba Rural	11,055	5,730	52	7,270	6,528	90	9,898	7,522	76
Muleba	1,183	1,183	100	1,168	1,339	115	2,181	1,839	84
Biharamulo	2,046	1,572	77	3,961	3,383	85	2,103	1,183	56
Ngara	352	235	67	462	232	50	1,130	902	80
Bukoba Urban	658	532	81	54	54	100	113	60	53
Total	15,669	9,628	61	13,299	11,732	88	16,703	12,785	77

15.22 CROP EXTENSION: Number of Agriculture Households Receiving and Adopting Extension Messages by Type of Message and District (Part 5) During the 2002/03 Agriculture Year, Kagera Region

	Beekeeping			Fish Farming		
District	Received	Adopted	%	Received	Adopted	%
Karagwe	0	0	-	0	0	-
Bukoba Rural	1,483	149	10	1,634	0	0
Muleba	0	0	-	170	170	100
Biharamulo	210	0	0	78	0	0
Ngara	232	114	49	233	0	0
Bukoba Urban	0	0	-	0	0	-
Total	1,925	263	14	2,116	170	8

ANIMAL CONTRIBUTION TO CROP PRODUCTION

17.1 ANIMAL CONTRIBUTION TO CROP PRODUCTION: Number of agriculture households using draft animal to cultivate land by District during 2002/03 agriculture year, Kagera Region

	Households Using Draft Animals		Household Not Using Draft Animals		Total households
	Number	%	Number	%	
Karagwe	183	0.2	84,731	100	84,914
Bukoba Rural	149	0.2	86,742	100	86,891
Muleba	0	0.0	75,179	100	75,179
Biharamulo	4,361	7.9	50,958	92	55,319
Ngara	0	0.0	47,187	100	47,187
Bukoba Urban	0	0.0	3,788	100	3,788
Total	4,693	1	348,584	99	353,277

17.2 ANIMAL CONTRIBUTION TO CROP PRODUCTION: Type of Draft By Number Owned, Used and Area Cultivated (Hectares) By District during 2002/03 agriculture year, Kagera Region

	Type of Craft								
	Oxen			Bulls			Cows		
District	Number Owned	Number Used	Area Cultivated (Hectares)	Number Owned	Number Used	Area Cultivated (Hectares)	Number Owned	Number Used	Area Cultivated (Hectares)
Karagwe	0	0	0	0	0	0	0	0	0
Bukoba Rural	0	0	0	0	0	0	298	0	0
Muleba	0	0	0	0	0	0	0	0	0
Biharamulo	11,932	19,714	6,866	5,621	0	0	11,253	0	0
Ngara	0	0	0	0	0	0	0	0	0
Bukoba Urban	0	0	0	0	0	0	0	0	0
Total	11,932	19,714	6,866	5,621	0	0	11,551	0	0

cont...17.2 ANIMAL CONTRIBUTION TO CROP PRODUCTION: Type of Draft animals By Number Owned, Used and Area Cultivated (Hectares) By District during 2002/03 agriculture year, Kagera Region

	Type of Craft					
	Donkeys			Total		
District	Number Owned	Number Used	Area Cultivated (Hectares)	Number Owned	Number Used	Area Cultivated (Hectares)
Karagwe	0	0	0	0	0	0
Bukoba Rural	0	0	0	298	0	0
Muleba	0	0	0	0	0	0
Biharamulo	366	0	0	29,173	19,714	6,866
Ngara	0	0	0	0	0	0
Bukoba Urban	0	0	0	0	0	0
Total	366	0	0	29,471	19,714	6,866

17.3 ANIMAL CONTRIBUTION TO CROPS: Number of Crop Growing households using organic fertilizer by District during 2002/03 agriculture year, Kagera

	Did you apply organic fertilizer during 2002/03?					
	Using Organic Fertilizer		Not Using Organic Fertilizer		Total	
District	Number	%	Number	%	Number	%
Karagwe	7,909	9	76,617	29	84,526	24
Bukoba Rural	36,526	43	48,788	18	85,313	24
Muleba	27,975	33	47,203	18	75,179	21
Biharamulo	5,175	6	50,144	19	55,319	16
Ngara	6,430	8	40,757	15	47,187	13
Bukoba Urban	1,701	2	2,087	1	3,788	1
Total	85,716	100	265,596	100	351,312	100

17.4 ANIMAL CONTRIBUTION TO CROPS: Area of farm yard manure and Compost Application by District during 2002/03 agriculture year, Kagera Region

District	Farm Yard Manure Area Applied		Compost Area Applied		Total Area aplied with Organic Fertilizers	
	Area (Ha)	%	Area (Ha)	%	Area (Ha)	%
Karagwe	4,911	17	350	4	5,261	14
Bukoba Rural	10,289	36	5,060	55	15,350	41
Muleba	6,288	22	3,014	33	9,302	25
Biharamulo	3,116	11	106	1	3,223	9
Ngara	3,527	12	552	6	4,079	11
Bukoba Urban	483	2	180	2	663	2
Total	28,614	100	9,262	100	37,877	100

CATTLE PRODUCTION

18.1 CATTLE PRODUCTION: Total Number Households rearing Cattle by District during 2002/03 agriculture year, Kagera Region

Distcrict	Households Rearing Cattle		Households Not Rearing Cattle		Total Agriculture households	Total livestock keeping households
	Number	%	Number	%		
Karagwe	12,955	15	71,959	85	84,914	28,143
Bukoba Rural	9,021	10	77,870	90	86,891	17,346
Muleba	8,656	12	66,523	88	75,179	15,448
Biharamulo	13,877	25	41,442	75	55,319	23,367
Ngara	4,066	9	43,121	91	47,187	14,349
Bukoba Urban	505	13	3,283	87	3,788	807
Total	49,079	14	304,198	86	353,277	99,460

18.2 CATTLE PRODUCTION: Number of Cattle By Type and District as of 1st October, 2003

District	Indigenous			Improved Beef			Improved Dairy			Total Cattle		
	Number of Households	Number of Cattle	%	Number of Households	Number of Cattle	%	Number of Households	Number of Cattle	%	Number of Households	Number of Cattle	%
Karagwe	11,331	217,347	98	0	.	0	2,335	5,381	2	12,955	222,728	25
Bukoba Rural	7,270	162,963	97	0	.	0	2,193	4,651	3	9,021	167,614	19
Muleba	7,463	220,038	98	0	.	0	1,532	4,085	2	8,656	224,123	25
Biharamulo	13,613	238,494	100	0	.	0	264	924	0	13,877	239,417	27
Ngara	3,602	29,122	97	0	.	0	580	813	3	4,066	29,935	3
Bukoba Urban	205	1,460	55	0	.	0	300	1,196	45	505	2,656	0
Total	43,483	869,424	98	0	.	0	7,204	17,050	2	49,079	886,474	100

18.3 CATTLE PRODUCTION: Number of Households Rearing Cattle, Head of Cattle and Average Head per Household by Herd Size as of 1st October, 2003

Herd Size	Cattle Rearing Households		Heads of Cattle		Average Number Per Household
	Number	%	Number	%	
1-5	23,527	48	64,659	7	3
6-10	9,691	20	73,699	8	8
11-15	4,002	8	50,255	6	13
16-20	3,453	7	62,849	7	18
21-30	2,115	4	53,200	6	25
31-40	1,322	3	47,901	5	36
41-50	987	2	46,550	5	47
51-60	444	1	24,095	3	54
61-100	2,057	4	152,121	17	74
101-150	872	2	106,690	12	122
151+	608	1	204,454	23	336
Total	49,079	100	886,474	100	18

18.4 CATTLE PRODUCTION: Number of Cattle by Category and Type of Cattle; on 1st October 2003

Category of Cattle	Indigenous Cattle		Improved Beef Cattle		Improved Dairy Cattle		Total	
	Number	%	Number	%	Number	%	Number	%
Bulls	90,843	99.3	0	0.0	603	0.7	91,446	10.3
Cows	380,242	97.9	0	0.0	8,148	2.1	388,390	43.8
Steers	44,141	100.0	0	0.0	0	0.0	44,141	5.0
Heifers	169,836	98.4	0	0.0	2,832	1.6	172,668	19.5
Male Calves	83,466	97.7	0	0.0	1,926	2.3	85,393	9.6
Female Calves	100,895	96.6	0	0.0	3,542	3.4	104,437	11.8
Total	869,424	98.1	0	0.0	17,050	1.9	886,474	100.0

18.5 CATTLE PRODUCTION: Number of Indigenous Cattle By Category and District as on 1st October, 2003

	Category - Indigenous						
District	Bulls	Cows	Steers	Heifers	Male Calves	Female Calves	Total
Karagwe	22,981	90,009	7,428	55,955	18,450	22,524	217,347
Bukoba Rural	14,242	90,055	3,220	23,249	16,011	16,185	162,963
Muleba	24,032	98,709	5,999	41,297	23,959	26,041	220,038
Biharamulo	26,601	87,537	27,374	43,759	21,852	31,371	238,494
Ngara	2,849	13,289	119	5,372	2,954	4,539	29,122
Bukoba Urban	138	642	.	205	239	235	1,460
Total	90,843	380,242	44,141	169,836	83,466	100,895	869,424

18.6 CATTLE PRODUCTION: Number of Improved Beef Cattle By Category and District as on 1st October, 2003

	Category - Improved Beef Cattle						
District	Bulls	Cows	Steers	Heifers	Male Calves	Female Calves	Total
Karagwe	0	0	0	0	0	0	0
Bukoba Rural	0	0	0	0	0	0	0
Muleba	0	0	0	0	0	0	0
Biharamulo	0	0	0	0	0	0	0
Ngara	0	0	0	0	0	0	0
Bukoba Urban	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

18.7 CATTLE PRODUCTION: Number of Improved Dairy Cattle By Category and District as on 1st October, 2003

District	Category - Improved Dairy Cattle						
	Bulls	Cows	Steers	Heifers	Male Calves	Female Calves	Total
Karagwe	.	2,664	.	1,148	529	1,040	5,381
Bukoba Rural	294	2,314	.	1,037	442	564	4,651
Muleba	.	1,869	.	341	340	1,535	4,085
Biharamulo	132	264	.	132	396	.	924
Ngara	.	461	.	119	.	233	813
Bukoba Urban	176	577	.	54	219	169	1,196
Total	603	8,148	.	2,832	1,926	3,542	17,050

18.8 CATTLE PRODUCTION: Number of Cattle By Category and District as on 1st October, 2003

District	Total Cattle						
	Bulls	Cows	Steers	Heifers	Male Calves	Female Calves	Total
Karagwe	22,981	92,672	7,428	57,103	18,979	23,564	222,728
Bukoba Rural	14,536	92,369	3,220	24,286	16,453	16,749	167,614
Muleba	24,032	100,577	5,999	41,638	24,300	27,576	224,123
Biharamulo	26,733	87,801	27,374	43,890	22,248	31,371	239,417
Ngara	2,849	13,750	119	5,491	2,954	4,772	29,935
Bukoba Urban	315	1,220	.	258	459	404	2,656
Total	91,446	388,390	44,141	172,668	85,393	104,437	886,474

GOATS PRODUCTION

19.1 GOAT PRODUCTION: Total Number of Goats by Type and District as on 1st October, 2003

District	Indigenous			Improved for Meat			Improved Dairy			Total Goat		
	Number of Households	Number of Goats	%	Number of Households	Number of Goats	%	Number of Households	Number of Goats	%	Number of Households	Number of Goats	%
Karagwe	34,620	182,403	100.0	0	.	-	0	.	-	34,815	182,403	26.1
Bukoba Rural	23,855	102,571	99.1	445	592	0.6	296	296	0.3	24,298	103,458	14.8
Muleba	26,048	96,469	96.8	170	509	0.5	1,168	2,697	2.7	27,219	99,674	14.3
Biharamulo	27,726	174,462	99.8	132	132	0.1	109	219	0.1	28,253	174,813	25.0
Ngara	27,869	137,008	99.9	0	.	-	119	119	0.1	27,869	137,128	19.6
Bukoba Urban	523	1,622	88.9	0	.	-	69	203	11.1	558	1,825	0.3
Total	140,641	694,535	99.3	747	1,233	0.2	1,760	3,533	0.5	143,012	699,301	100.0

19.2 GOAT PRODUCTION: Number of Households Rearing Goats by Herd Size on 1st October, 2003

Herd Size	Goat Rearing Households		Head of Goats		Average Number Per Household
	Number	%	Number	%	
1-4	87,427	62	232,037	33	3
5-9	40,268	28	253,024	36	6
10-14	9,686	7	107,138	15	11
15-19	2,393	2	38,779	6	16
20-24	925	1	19,321	3	21
25-29	551	0	15,066	2	27
30-39	250	0	7,499	1	30
40+	325	0	26,437	4	81
Total	141,825	100	699,301	100	5

19.3 Total Number of Goats by Category and Type of Goat as of 1st October, 2003 and District

	Indigenous Goats		Improved Meat Goats		Improved Dairy Goats		Total	
Category of Goats	Number	%	Number	%	Number	%	Number	%
Billy Goat	93,973	99.1	170	0.2	704	0.7	94,846	13.6
Castrated Goat	22,448	100.0	.	-	.	-	22,448	3.2
She Goat	403,590	99.5	319	0.1	1,861	0.5	405,770	58.0
Male Kid	76,739	99.4	.	-	441	0.6	77,180	11.0
She Kid	97,785	98.7	744	0.8	528	0.5	99,057	14.2
Total	694,535	99.3	1,233	0.2	3,533	0.5	699,301	100.0

19.4 Total Number of Indigenous Goat by Category and District as on 1st October, 2003

	Number of Indigenous Goats					
District	Billy Goat	Castrated Goat	She Goat	Male Kid	She Kid	Total
Karagwe	13,083	8,698	101,748	25,460	33,414	182,403
Bukoba Rural	16,122	3,432	66,560	6,366	10,091	102,571
Muleba	15,463	1,020	57,993	10,004	11,989	96,469
Biharamulo	29,789	2,952	94,766	21,686	25,269	174,462
Ngara	19,232	6,345	81,487	13,121	16,823	137,008
Bukoba Urban	283	.	1,037	103	199	1,622
Total	93,973	22,448	403,590	76,739	97,785	694,535

19.5 GOAT PRODUCTION: Number of Improved Goat for Meat by Category and District as on 1st October, 2003

	Number of Improved Meat Goats					
District	Billy Goat	Castrated Goat	She Goat	Male Kid	She Kid	Total
Karagwe	.	.	.	.	.	.
Bukoba Rural	.	.	149	.	442	592
Muleba	170	.	170	.	170	509
Biharamulo	.	.	.	.	132	132
Ngara	.	.	.	.	.	.
Bukoba Urban	.	.	.	.	.	.
Total	170	.	319	.	744	1,233

19.6 Number of Improved Dairy Goat by Category and District on 1st October, 2003

District	Number of Improved Dairy Goats					
	Billy Goat	Castrated Goat	She Goat	Male Kid	She Kid	Total
Karagwe	.	.	.	.	.	.
Bukoba Rural	146	.	149	.	.	296
Muleba	339	.	1,676	339	342	2,697
Biharamulo	219	.	.	.	.	219
Ngara	.	.	.	.	119	119
Bukoba Urban	.	.	36	102	66	203
Total	704	.	1,861	441	528	3,533

19.7 Total Number of Goats by Category and District on 1st October, 2003

District	Total Goat					
	Billy Goat	Castrated Goat	She Goat	Male Kid	She Kid	Total
Karagwe	13,083	8,698	101,748	25,460	33,414	182,403
Bukoba Rural	16,268	3,432	66,859	6,366	10,533	103,458
Muleba	15,971	1,020	59,839	10,343	12,501	99,674
Biharamulo	30,008	2,952	94,766	21,686	25,401	174,813
Ngara	19,232	6,345	81,487	13,121	16,943	137,128
Bukoba Urban	283	.	1,072	204	265	1,825
Total	94,846	22,448	405,770	77,180	99,057	699,301

SHEEP PRODUCTION

20.1 Total Number of Sheep By Breed and on 1st October 2003

Breed	Number of Indigenous		Number of Improved for Mutton		Total Sheep	
	Number	%	Number	%	Number	%
Ram	12,326	14	.	-	12,326	14
Castrated Sheep	2,222	2	.	-	2,222	2
She Sheep	41,710	46	170	100	41,881	46
Male Lamb	16,591	18	.	-	16,591	18
She Lamb	17,301	19	.	-	17,301	19
Total	90,151	100	170	100	90,321	100

20.2 Number of Households Raising or Managing Sheep by District on 1st October, 2003

District	Households Raising Sheep		Households Not Raising Sheep		Number of Agricultural Households	Total Livestock keeping Households
	Number	%	Number	%		
Karagwe	7,453	9	77,461	91	84,914	28,143
Bukoba Rural	2,494	3	84,398	97	86,891	17,346
Muleba	3,342	4	71,837	96	75,179	15,448
Biharamulo	3,575	6	51,744	94	55,319	23,367
Ngara	1,478	3	45,708	97	47,187	14,349
Bukoba Urban	99	3	3,689	97	3,788	807
Total	18,440	5	334,837	95	353,277	99,460

20.3 Number of Sheep by Type of Sheep and District as 1st October, 2002/03

District	Number of Indigenous		Number of Improved for Mutton		Total Sheep	
	Number	%	Number	%	Number	%
Karagwe	35,979	100	.	-	35,979	40
Bukoba Rural	12,360	100	.	-	12,360	14
Muleba	19,134	99	170	1	19,304	21
Biharamulo	18,201	100	.	-	18,201	20
Ngara	4,073	100	.	-	4,073	5
Bukoba Urban	403	100	.	-	403	0
Total	90,151	100	170	0	90,321	100

20.4 Number of Households and Heads of Sheep by Herd Size on 1st October 2003

Herd Size	Number of Household	%	Number of Sheep	%	Average Number Per Household
1-4	12,322	67	26,917	30	2
5-9	3,585	20	21,138	23	6
10-14	1,580	9	17,844	20	11
15-19	149	1	2,233	2	15
20-24	131	1	2,624	3	20
25-29	0	0	0	0	0
30-39	355	2	11,736	13	33
40+	186	1	7,830	9	42
Total	18,308	100	90,321	100	5

20.6 Total Number of Indigenous Sheep by Sheep Type and District on 1st October 2003

District	Number of Indigenous Sheep					
	Ram	Castrated Sheep	She Sheep	Male Lamb	She Lamb	Total
Karagwe	4,312	945	15,340	4,317	11,065	35,979
Bukoba Rural	2,347	.	6,758	2,222	1,032	12,360
Muleba	1,980	.	7,644	7,413	2,097	19,134
Biharamulo	3,057	1,277	9,260	2,045	2,563	18,201
Ngara	563	.	2,507	527	477	4,073
Bukoba Urban	67	.	201	68	68	403
Total	12,326	2,222	41,710	16,591	17,301	90,151

20.7 Total Number of Improved Mutton Sheep by Type and District on 1st October 2003

District	Number of Improved for Mutton					
	Ram	Castrated Sheep	She Sheep	Male Lamb	She Lamb	Total
Karagwe	.	.	.	.	.	.
Bukoba Rural	.	.	.	.	.	.
Muleba	.	.	170	.	.	170
Biharamulo	.	.	.	.	.	.
Ngara	.	.	.	.	.	.
Bukoba Urban	.	.	.	.	.	.
Total	.	.	170	.	.	170

20.8 Total Number of Sheep by Sheep Type and District on 1st October 2003

District	Total Sheep					
	Ram	Castrated Sheep	She Sheep	Male Lamb	She Lamb	Total
Karagwe	4,312	945	15,340	4,317	11,065	35,979
Bukoba Rural	2,347	.	6,758	2,222	1,032	12,360
Muleba	1,980	.	7,814	7,413	2,097	19,304
Biharamulo	3,057	1,277	9,260	2,045	2,563	18,201
Ngara	563	.	2,507	527	477	4,073
Bukoba Urban	67	.	201	68	68	403
Total	12,326	2,222	41,881	16,591	17,301	90,321

PIGS PRODUCTION

21.1 Number of Households and Pigs by Herd Size on 1st October 2003

Herd Size	Pig Rearing Households		Heads of Pigs		Average Number Per Household
	Number	%	Number	%	
1-4	25,280	93	35,287	74	1
5-9	1,596	6	9,458	20	6
15-19	149	1	2,241	5	15
40+	227	1	521	1	2
Total	27,252	100	47,508	100	2

21.2 Number of Households and Pigs by District on 1st October 2003

District	Number of Household	Number of Pig	Average Number Per Household
Karagwe	8,826	14,674	2
Bukoba Rural	9,210	16,613	2
Muleba	4,648	6,797	1
Biharamulo	1,178	3,260	3
Ngara	2,844	4,980	2
Bukoba Urban	545	1,184	2
Total	27,252	47,508	2

21.3 Number of Pigs by Type and District on 1st October, 2003

District	Boar	Castrated Male	Sow / Gilt	Male Piglet	She Piglet	Total
Karagwe	3,591	553	7,086	2,403	1,042	14,674
Bukoba Rural	4,794	447	7,074	2,224	2,074	16,613
Muleba	2,656	0	3,483	0	658	6,797
Biharamulo	916	0	1,178	779	387	3,260
Ngara	709	119	2,609	1,067	475	4,980
Bukoba Urban	277	0	604	167	136	1,184
Total	12,942	1,120	22,034	6,639	4,772	47,508

LIVESTOCK PESTS AND PARASITE CONTROL

22.1 PESTS AND PARASITE: Number of Livestock Rearing households deworming Livestock by District during 2002/03 Agricultural Year

District	Deworming Livestock		Not Deworming Livestock		Total
	Number of Households	%	Number of Households	%	
Karagwe	9,770	35	18,373	65	28,143
Bukoba Rural	11,165	64	6,180	36	17,346
Muleba	5,964	39	9,484	61	15,448
Biharamulo	9,095	39	14,272	61	23,367
Ngara	3,890	27	10,459	73	14,349
Bukoba Urban	539	67	268	33	807
Total	40,424	41	59,036	59	99,460

22.2 PESTS AND PARASITE: Number of Livestock Rearing Households that dewormed Livestock by type of Livestock and District during the 2002/03 Agricultural Year

District	Goats		Cattle		Sheep		Pigs	
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%
Karagwe	5,573	28	6,303	23	570	24	1,284	21
Bukoba Rural	5,227	26	8,271	30	1,158	49	2,930	48
Muleba	2,238	11	4,563	17	170	7	668	11
Biharamulo	3,833	19	6,280	23	378	16	764	12
Ngara	2,967	15	1,512	6	0	0	350	6
Bukoba Urban	201	1	441	2	67	3	136	2
Total	20,039	100	27,370	100	2,342	100	6,132	100

22.3 LIVESTOCK PESTS AND PARASITE CONTROL: Number and Percent of Livestock Keeping households reporting to have encountered tick problems during 2002/03 Agriculture Year by District.

District	Ticks Problems		No Ticks Problems		Total
	Number of Households	%	Number of Households	%	
Karagwe	14,953	53	13,190	47	28,143
Bukoba Rural	9,778	56	7,567	44	17,346
Muleba	7,954	51	7,494	49	15,448
Biharamulo	14,937	64	8,431	36	23,367
Ngara	5,833	41	8,516	59	14,349
Bukoba Urban	475	59	332	41	807
Total	53,930	54	45,531	46	99,460

22.4 LIVESTOCK PESTS AND PARASITE CONTROL: Number of Livestock Rearing Households by Methods of Ticks Control Use and District During the 2002/03 Agricultural Year

District	Method of Tick Control										Total
	None		Spraying		Dipping		Smearing		Other		
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	
Karagwe	1,712	11	12,315	82	0	0	0	0	926	6	14,953
Bukoba Rural	1,641	17	6,265	64	0	0	1,007	10	865	9	9,778
Muleba	1,176	15	3,233	41	837	11	2,370	30	338	4	7,954
Biharamulo	1,803	12	10,285	69	498	3	250	2	2,100	14	14,937
Ngara	2,937	50	1,395	24	229	4	114	2	1,158	20	5,833
Bukoba Urban	137	29	89	19	32	7	216	45	0	0	475
Total	9,406	17	33,582	62	1,596	3	3,958	7	5,388	10	53,930

22.5 LIVESTOCK PESTS AND PARASITE CONTROL: Number and Percent of agricultural households reporting to have encountered Tsetse Flies problems during 2002/03 Agriculture Year by District

District	Tsetse Flies Problems		No Tsetse Flies Problems		Total
	Number of Households	%	Number of Households	%	
Karagwe	1,881	8	23,028	92	24,909
Bukoba Rural	1,727	11	13,879	89	15,606
Muleba	1,014	7	14,434	93	15,448
Biharamulo	1,359	6	21,638	94	22,997
Ngara	2,487	19	10,911	81	13,398
Bukoba Urban	0	0	772	100	772
Total	8,467	9	84,662	91	93,130

22.6 LIVESTOCK PESTS AND PARASITE CONTROL: Number of Livestock Rearing Households by Methods of Tsetse flies Control Use and District During the 2002/03 Agricultural Year

District	Method of Tsetse Flies Control										Total
	None		Spray		Dipping		Trapping		Other		
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	
Karagwe	569	30	1,118	59	194	10	0	0	0	0	1,881
Bukoba Rural	0	0	1,727	100	0	0	0	0	0	0	1,727
Muleba	341	34	673	66	0	0	0	0	0	0	1,014
Biharamulo	132	10	1,096	81	0	0	130	10	0	0	1,359
Ngara	2,248	90	239	10	0	0	0	0	0	0	2,487
Bukoba Urban	0	0	0	0	0	0	0	0	0	0	0
Total	3,291	38.9	4,852	57.3	194	2.3	130	2.0	0	0	8,467

OTHER LIVESTOCK

23a OTHER LIVESTOCK: Total Number of Other Livestock by Type on 1st October 2003

	Chicken		Others	
Type	Number	%	Type	Number
Indigenous	905,549	99	Ducks	67,632
Layer	13,139	1	Turkeys	9,170
Broiler	171	0	Rabbits	42,889
			Donkeys	9,500
Total	918,858	100		129,191

23b OTHER LIVESTOCK: Number of Chicken by Category of Chicken and District on 1st October 2003

	Number of Chicken			Total Number of Chicken
District	Indigenous Chicken	Layer	Broiler	
Karagwe	166,117	0	0	166,117
Bukoba Rural	154,668	4,542	0	159,209
Muleba	113,967	843	171	114,981
Biharamulo	305,579	772	0	306,352
Ngara	157,245	6,271	0	163,515
Bukoba Urban	7,973	711	0	8,684
Total	905,549	13,139	171	918,858

23c Head Number of Other Livestock by Type of Livestock and District

	Type of Livestock				
District	Ducks	Turkeys	Rabbit	Donkeys	Other
Karagwe	4,042	.	.	.	.
Bukoba Rural	27,827	8,834	24,760	9,259	296
Muleba	10,576	.	16,303	.	.
Biharamulo	17,554	.	1,177	.	.
Ngara	7,369	336	578	.	.
Bukoba Urban	264	.	71	241	.
Total	67,632	9,170	42,889	9,500	296

23d OTHER LIVESTOCK: Total Number of Households and Chicken Raised by Flock Size as of 1st October 2003

	Chicken Rearing Households		Number of Chicken	Average Chicken per Household
Flock Size	Number	%		
1 - 4	75,712	51.3	203,149	3
5 - 9	47,240	32.0	297,784	6
10 - 19	18,415	12.5	227,631	12
20 - 29	3,257	2.2	71,691	22
30 - 39	2,046	1.4	65,659	32
40 - 49	149	0.1	7,022	47
50 - 99	621	0.4	32,729	53
100+	132	0.1	13,193	100
Total	147,573	100	918,858	6

23e LIVESTOCK/POULTRY POPULATION TREND

Type of Livestock/Poultry	1995	1999	2003
Cattle	354,119	667,745	886,474
Improved Cattle	16,947	15,173	17,050
Goats	679,925	830,901	699,301
Sheep	85,299	63,904	90,321
Pigs	11,847	54,091	47,508
Indigenous Chicken	1,080,793	1,434,468	905,549
Layers	6,736	45,299	13,139
Broilers	6,922	19,190	171
Total Chickens	1,094,451	1,498,957	918,858

FISH FARMING

28.1 FISH FARMING: Number of Agricultural Households involved in Fish Farming and District, 2002/03 Agricultural Year

	Agricultural Households Doing Fish Farming		Agricultural Households NOT Doing Fish Farming		
District	Number	%	Number	%	Total
Karagwe	0	0.0	84,914	100.0	84,914
Bukoba Rural	142	0.2	86,749	99.8	86,891
Muleba	170	0.2	75,008	99.8	75,179
Biharamulo	0	0.0	55,319	100.0	55,319
Ngara	230	0.5	46,957	99.5	47,187
Bukoba Urban	0	0.0	3,788	100.0	3,788
Total	542	0.2	352,735	99.8	353,277

28.2 FISH FARMING: Number of Agricultural Households By System of Farming and District during the 2002/03 Agricultural Year

	Fish Farming System			
District	Natural Pond	Dug out Pond	Water Resevoir	Total
Bukoba Rural	0	142	0	142
Muleba	341	170	0	511
Ngara	0	112	118	230
Total	341	424	118	883

28.3 FISH FARMING: Number of Agricultural Households By Source of Fingerlings and District during the 2002/03 Agricultural Year

	Source of Fingerling				
	Own Pond	NGOs / Project	Neighbour	Other	Total
District	Number	Number	Number	Number	Number
Bukoba Rural	142	0	0	0	142
Muleba	341	0	0	170	511
Ngara	0	118	112	0	230
Total	482	118	112	170	883

28.4 FISH FARMING: Number of Agricultural Households By Location of Selling Fish and District during the 2002/03 Agricultural Year

	Did not Sell	
District	Number	Total
Bukoba Rural	142	142
Muleba	341	341
Ngara	230	230
Total	713	713

28.5 FISH FARMING: Total Number of Fish Harvested by Type and District, 2002/03 Agricultural Year

District	Number of Tilapia	Number of Carp	Number of Others
Bukoba Rural	0	14,183	0
Muleba	170,272	0	0
Ngara	7,768	0	0
Total	178,040	14,183	0

LIVESTOCK EXTENSION

29.1a LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension by District During the 2002/03 Agricultural Year

District	Received Livestock Advice		Did Not Receive Livestock Advice		Total	Total Number of households raising livestock	% receiving advice out of total
	Number	%	Number	%			
Karagwe	5,597	6.6	79,317	93.4	84,914	28,143	20
Bukoba Rural	10,348	11.9	76,543	88.1	86,891	17,346	60
Muleba	10,786	14.3	64,393	85.7	75,179	15,448	70
Biharamulo	2,210	4.0	53,109	96.0	55,319	23,367	9
Ngara	1,171	2.5	46,016	97.5	47,187	14,349	8
Bukoba Urban	197	5.2	3,591	94.8	3,788	807	24
Total	30,308	8.6	322,969	91.4	353,277	99,460	30

29.1b LIVESTOCK EXTENSION SERVICE PROVIDERS: Number of Agricultural Households By Source of Extension Services and District during the 2002/03 Agricultural Year

District	Source of extension advice									
	Government		NGO / Development Project		Co-operative		Large Scale Farmer		Other	
	Number	%	Number	%	Number	%	Number	%	Number	%
Karagwe	3,891	65.2	1,460	24.5	141	2.4	331	5.5	141	2.4
Bukoba Rural	9,314	39.2	4,925	20.7	3,611	15.2	3,463	14.6	2,433	10.2
Muleba	9,277	29.1	6,068	19.1	5,555	17.4	5,388	16.9	5,555	17.4
Biharamulo	1,495	62.4	396	16.5	132	5.5	132	5.5	242	10.1
Ngara	935	61.2	355	23.2	119	7.8	119	7.8	0	0.0
Bukoba Urban	197	90.8	20	9.2	0	0.0	0	0.0	0	0.0
Total	25,111	38.2	13,223	20.1	9,558	14.5	9,433	14.4	8,371	12.7

29.2 LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Feeds and Proper Feeding By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Feeds and Proper Feeding			Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Total		
Karagwe	1,236	934	2,170	28,143	7.7
Bukoba Rural	4,720	269	4,989	17,346	28.8
Muleba	3,893	685	4,578	15,448	29.6
Biharamulo	342	210	553	23,367	2.4
Ngara	463	119	583	14,349	4.1
Bukoba Urban	116	20	136	807	16.8
Total	10,770	2,237	13,008	99,460	13.1
%	82.8	17.2	100.0		

29.3 LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Housing By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Housing				Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Large Scale Farmer	Total		
Karagwe	2,737	567	189	3,493	28,143	12.4
Bukoba Rural	7,307	1,158	0	8,466	17,346	48.8
Muleba	4,210	509	0	4,719	15,448	30.5
Biharamulo	724	132	0	856	23,367	3.7
Ngara	463	119	0	583	14,349	4.1
Bukoba Urban	121	20	0	141	807	17.4
Total	15,562	2,506	189	18,257	99,460	18.4
%	85	14	1	100		

29.4 LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Proper Milking By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Proper Milking			Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Total		
Karagwe	1,960	191	2,151	28,143	7.6
Bukoba Rural	1,755	269	2,024	17,346	11.7
Muleba	1,684	343	2,027	15,448	13.1
Biharamulo	670	0	670	23,367	2.9
Ngara	351	0	351	14,349	2.4
Bukoba Urban	88	20	108	807	13.3
Total	6,508	823	7,331	99,460	7.4
%	88.8	11.2	100.0		

29.5 LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Milk Hygiene By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Milk Hygene			Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Total		
Karagwe	1,966	191	2,158	28,143	7.7
Bukoba Rural	1,605	269	1,875	17,346	10.8
Muleba	1,685	343	2,028	15,448	13.1
Biharamulo	460	0	460	23,367	2.0
Ngara	351	119	471	14,349	3.3
Bukoba Urban	143	20	163	807	20.2
Total	6,211	943	7,154	99,460	7.2
%	87	13	100		

29.6 LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Disease Control By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Disease Control				Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Other	Total		
Karagwe	3,700	746	0	4,446	28,143	16
Bukoba Rural	5,099	273	0	5,372	17,346	31
Muleba	4,894	685	0	5,580	15,448	36
Biharamulo	1,757	132	110	1,999	23,367	9
Ngara	704	0	0	704	14,349	5
Bukoba Urban	157	0	0	157	807	19
Total	16,312	1,836	110	18,258	99,460	18
%	89.3	10.1	0.6	100.0		

29.7 LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Herd /Flock Size and Selection By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Herd/Flock Size			Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Total		
Karagwe	1,048	939	1,987	28,143	7.1
Bukoba Rural	886	148	1,034	17,346	6.0
Muleba	2,183	341	2,524	15,448	16.3
Biharamulo	210	132	342	23,367	1.5
Ngara	351	0	351	14,349	2.4
Bukoba Urban	34	20	54	807	6.7
Total	4,713	1,580	6,293	99,460	6.3
%	74.9	25.1	100.0		

29.8 LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Pasture Establishment and Selection By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Pasture Establishment and Selection			Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Total		
Karagwe	707	555	1,262	28,143	4.5
Bukoba Rural	1,187	418	1,606	17,346	9.3
Muleba	838	171	1,010	15,448	6.5
Biharamulo	381	132	513	23,367	2.2
Ngara	347	0	347	14,349	2.4
Bukoba Urban	0	0	0	807	0.0
Total	3,462	1,277	4,738	99,460	4.8
%	73.1	26.9	100.0		

29.9 LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Group Formation and Strengthening By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Group Formation and Strenghthening				Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Other	Total		
Karagwe	857	566	183	1,606	28,143	5.7
Bukoba Rural	4,522	417	0	4,939	17,346	28.5
Muleba	2,189	514	0	2,703	15,448	17.5
Biharamulo	724	132	0	856	23,367	3.7
Ngara	467	0	0	467	14,349	3.3
Bukoba Urban	33	20	0	53	807	6.6
Total	8,792	1,649	183	10,624	99,460	10.7
%	82.8	15.5	1.7	100.0		

29.10 LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Calf Rearing By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Calf Rearing				Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	not applicable	Total		
Karagwe	1,753	753	0	2,506	28,143	9
Bukoba Rural	2,066	269	0	2,336	17,346	13
Muleba	2,369	343	0	2,711	15,448	18
Biharamulo	934	132	0	1,066	23,367	5
Ngara	351	0	0	351	14,349	2
Bukoba Urban	87	20	28	135	807	17
Total	7,560	1,517	28	9,105	99,460	9
%	83.0	16.7	0.3	100.0		

29.11 LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Use of Improved Bulls By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Improved Bulls						Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Large Scale Farmer	Other	not applicable	Total		
Karagwe	1,753	558	0	0	0	2,311	28,143	8.2
Bukoba Rural	2,640	713	148	0	148	3,648	17,346	21.0
Muleba	2,193	343	158	170	0	2,864	15,448	18.5
Biharamulo	777	0	0	0	0	777	23,367	3.3
Ngara	354	116	0	0	0	470	14,349	3.3
Bukoba Urban	54	0	0	0	0	54	807	6.7
Total	7,771	1,729	305	170	148	10,123	99,460	10.2
%	76.8	17.1	3.0	1.7	1.5	100.0		

29.12 LIVESTOCK EXTENSION: Number of Agricultural Households By Quality of Extension Services and District, 2002/03 Agricultural Year

	Quality of Service										
	Very Good		Good		Average		Poor		No Good		
District	Number	%	Number	%	Number	%	Number	%	Number	%	Total
Karagwe	2,964	50	2,429	41	519	9	0	0	0	0	5,912
Bukoba Rural	2,079	13	9,225	56	2,813	17	2,323	14	0	0	16,440
Muleba	3,540	18	12,052	63	2,863	15	167	1	632	3	19,253
Biharamulo	496	19	1,241	47	396	15	527	20	0	0	2,660
Ngara	345	27	708	55	234	18	0	0	0	0	1,287
Bukoba Urban	102	41	121	48	28	11	0	0	0	0	251
Total	9,527	21	25,776	56	6,852	15	3,016	7	632	1	45,803

ACCESS TO INFRASRUCTURE AND OTHER SERVICES

33.01a Mean Distances from Household Dwellings to Infrastructures and Services by Districts

District	Mean Distance to											
	Secondary Schools	Primary Schools	All weather roads	Feeder Roads	Hospitals	Health Clinics	Regional Capital	Primary Markets	Secondary Market	Tertiary Market	Tarmac Roads	District Capital
Karagwe	18.9	3.0	4.4	1.6	35.5	11.0	173.5	8.9	31.3	43.6	128.6	58.1
Bukoba Rural	10.6	2.3	2.5	1.4	43.5	5.6	53.9	5.8	37.1	49.8	28.2	54.0
Muleba	12.6	2.4	4.3	1.5	23.8	7.2	81.2	5.1	39.4	30.7	40.2	33.4
Biharamulo	22.1	2.8	4.2	2.8	58.1	8.8	241.8	4.8	46.4	39.7	86.2	62.5
Ngara	18.0	2.6	4.4	1.5	22.6	4.3	359.7	5.3	31.7	24.8	21.8	42.8
Bukoba Urban	3.9	1.6	0.6	0.4	4.9	2.9	5.1	3.3	19.7	4.8	5.6	5.1
Total	15.8	2.6	3.8	1.7	36.5	7.5	158.2	6.1	36.8	38.9	62.9	49.9

Regional Capital	158.2
Tarmac Roads	62.9
District Capital	49.9
Tertiary Market	38.9
Secondary Market	36.8
Hospitals	36.5
Secondary Schools	15.8
Health Clinics	7.5
Primary Markets	6.1
All weather roads	3.8
Primary Schools	2.6
Feeder Roads	1.7

33.01b: Number of Households By Distance to Secondary School by District for 2002/03 agriculture year

District	Distance to Secondary School										Total number of households	Mean Distance
	Less than 1 km		1-2.9 km		3.0-9.9		10.0-19.9		Above 20 km			
	No of households	%	No of households	%	No of households	%	No of households	%	No of households	%		
Karagwe	378	0.4	3,650	4.3	28,921	34.1	18,863	22.2	33,102	39.0	84,914	18.9
Bukoba Rural	2,314	2.7	19,673	22.6	37,333	43.0	17,837	20.5	9,734	11.2	86,891	10.6
Muleba	0	0.0	4,455	5.9	39,662	52.8	18,939	25.2	12,123	16.1	75,179	12.6
Biharamulo	132	0.2	5,099	9.2	13,150	23.8	15,453	27.9	21,485	38.8	55,319	22.1
Ngara	952	2.0	2,745	5.8	17,076	36.2	15,033	31.9	11,382	24.1	47,187	18.0
Bukoba Urban	281	7.4	1,223	32.3	2,229	58.8	20	0.5	36	0.9	3,788	3.9
Total	4,057	1.1	36,844	10.4	138,370	39.2	86,144	24.4	87,862	24.9	353,277	15.8

33.01c: Number of Households By Distance to All Weather Road by District for 2002/03 agriculture year

District	Distance to All Weather Road										Total number of households	Mean Distance
	Less than 1 km		1-2.9 km		3.0-9.9		10.0-19.9		Above 20 km			
	No of households	%	No of households	%	No of households	%	No of households	%	No of households	%		
Karagwe	25,120	29.6	19,072	22.5	29,660	34.9	8,362	9.8	2,699	3.2	84,914	4.4
Bukoba Rural	31,744	36.5	30,138	34.7	22,828	26.3	1,602	1.8	579	0.7	86,891	2.5
Muleba	18,749	24.9	27,271	36.3	22,228	29.6	6,593	8.8	337	0.4	75,179	4.3
Biharamulo	17,340	31.3	12,224	22.1	17,108	30.9	8,540	15.4	108	0.2	55,319	4.2
Ngara	15,691	33.3	15,873	33.6	11,476	24.3	3,558	7.5	589	1.2	47,187	4.4
Bukoba Urban	2,652	70.0	866	22.9	270	7.1	0	0.0	0	0.0	3,788	0.6
Total	111,296	31.5	105,444	29.8	103,569	29.3	28,655	8.1	4,312	1.2	353,277	3.8

33.01d: Number of Households by Distance to Feeder Road by District for 2002/03 agriculture year

District	Distance to Feeder Road										Total number of households	Mean Distance
	Less than 1 km		1-2.9 km		3.0-9.9		10.0-19.9		Above 20 km			
	No of households	%	No of households	%	No of households	%	No of households	%	No of households	%		
Karagwe	52,153	61.4	22,920	27.0	9,259	10.9	386	0.5	195	0.2	84,914	1.6
Bukoba Rural	49,910	57.4	27,947	32.2	8,300	9.6	296	0.3	439	0.5	86,891	1.4
Muleba	34,910	46.4	30,121	40.1	9,643	12.8	169	0.2	336	0.4	75,179	1.5
Biharamulo	24,506	44.3	14,941	27.0	13,237	23.9	2,371	4.3	264	0.5	55,319	2.8
Ngara	22,643	48.0	15,067	31.9	9,477	20.1	0	0.0	0	0.0	47,187	1.5
Bukoba Urban	3,137	82.8	577	15.2	74	2.0	0	0.0	0	0.0	3,788	0.4
Total	187,257	53.0	111,572	31.6	49,991	14.2	3,223	0.9	1,234	0.3	353,277	1.7

33.01e: Number of Households By Distance to Hospital by District for 2002/03 agriculture year

District	Distance to hospital										Total number of households	Mean Distance
	Less than 1 km		1-2.9 km		3.0-9.9		10.0-19.9		Above 20 km			
	No of households	%	No of households	%	No of households	%	No of households	%	No of households	%		
Karagwe	336	0.4	5,005	5.9	11,423	13.5	14,763	17.4	53,386	62.9	84,914	35.5
Bukoba Rural	1,007	1.2	6,925	8.0	5,619	6.5	15,184	17.5	58,155	66.9	86,891	43.5
Muleba	682	0.9	2,358	3.1	18,601	24.7	20,534	27.3	33,004	43.9	75,179	23.8
Biharamulo	251	0.5	1,055	1.9	5,162	9.3	2,921	5.3	45,929	83.0	55,319	58.1
Ngara	469	1.0	2,315	4.9	8,528	18.1	12,403	26.3	23,472	49.7	47,187	22.6
Bukoba Urban	28	0.7	201	5.3	3,559	94.0	0	0.0	0	0.0	3,788	4.9
Total	2,773	0.8	17,859	5.1	52,893	15.0	65,805	18.6	213,947	60.6	353,277	36.5

33.01f: Number of Households by Distance to Health Clinic by District for 2002/03 agricultural year

District	Health clinic										Total number of households	Mean Distance
	Less than 1 km		1-2.9 km		3.0-9.9		10.0-19.9		Above 20 km			
	No of households	%	No of households	%	No of households	%	No of households	%	No of households	%		
Karagwe	2,737	3.2	13,324	15.7	38,799	45.7	20,485	24.1	9,569	11.3	84,914	11.0
Bukoba Rural	5,657	6.5	28,037	32.3	37,426	43.1	14,608	16.8	1,164	1.3	86,891	5.6
Muleba	1,361	1.8	15,219	20.2	39,952	53.1	15,093	20.1	3,554	4.7	75,179	7.2
Biharamulo	3,305	6.0	8,859	16.0	25,851	46.7	10,711	19.4	6,592	11.9	55,319	8.8
Ngara	4,330	9.2	12,607	26.7	26,357	55.9	3,081	6.5	812	1.7	47,187	4.3
Bukoba Urban	491	13.0	1,261	33.3	2,036	53.8	0	0.0	0	0.0	3,788	2.9
Total	17,881	5.1	79,306	22.4	170,421	48.2	63,978	18.1	21,691	6.1	353,277	7.5

33.01g: Number of Households by distance to Primary School for 2002/03 agriculture year

District	Distance to Primary School										Total number of households	Mean Distance
	Less than 1 km		1-2.9 km		3.0-9.9		10.0-19.9		Above 20 km			
	No of households	%	No of households	%	No of households	%	No of households	%	No of households	%		
Karagwe	7,997	9.4	37,255	43.9	37,161	43.8	2,307	2.7	193	0.2	84,914	3.0
Bukoba Rural	14,575	16.8	44,177	50.8	27,401	31.5	738	0.8	0	0.0	86,891	2.3
Muleba	7,601	10.1	40,956	54.5	25,622	34.1	512	0.7	487	0.6	75,179	2.4
Biharamulo	8,154	14.7	22,025	39.8	24,364	44.0	776	1.4	0	0.0	55,319	2.8
Ngara	7,464	15.8	20,999	44.5	18,257	38.7	467	1.0	0	0.0	47,187	2.6
Bukoba Urban	680	18.0	2,513	66.3	595	15.7	0	0.0	0	0.0	3,788	1.6
Total	46,471	13.2	167,925	47.5	133,399	37.8	4,801	1.4	681	0.2	353,277	2.6

33.01h: Number of Households by Distance to Regional Capital by District for 2002/03 agriculture year

District	Distance to Regional Capital										Total number of households	Mean Distance
	Less than 1 km		1-2.9 km		3.0-9.9		10.0-19.9		Above 20 km			
	No of households	%	No of households	%	No of households	%	No of households	%	No of households	%		
Karagwe	0	0.0	0	0.0	195	0.2	195	0.2	84,524	99.5	84,914	173.5
Bukoba Rural	297	0.3	296	0.3	1,935	2.2	12,507	14.4	71,857	82.7	86,891	53.9
Muleba	171	0.2	171	0.2	795	1.1	0	0.0	74,041	98.5	75,179	81.2
Biharamulo	261	0.5	0	0.0	0	0.0	0	0.0	55,058	99.5	55,319	241.8
Ngara	0	0.0	215	0.5	0	0.0	112	0.2	46,859	99.3	47,187	359.7
Bukoba Urban	137	3.6	192	5.1	3,459	91.3	0	0.0	0	0.0	3,788	5.1
Total	866	0.2	875	0.2	6,383	1.8	12,814	3.6	332,339	94.1	353,277	158.2

33.01i: Number of Households by Distance to District Capital by District for 2002/03 agriculture year

District	Distance to District Capital										Total number of households	Mean Distance
	Less than 1 km		1-2.9 km		3.0-9.9		10.0-19.9		Above 20 km			
	No of households	%	No of households	%	No of households	%	No of households	%	No of households	%		
Karagwe	0	0.0	389	0.5	5,775	6.8	4,817	5.7	73,932	87.1	84,914	58.1
Bukoba Rural	295	0.3	122	0.1	1,487	1.7	13,400	15.4	71,587	82.4	86,891	54.0
Muleba	685	0.9	1,023	1.4	2,212	2.9	14,746	19.6	56,512	75.2	75,179	33.4
Biharamulo	0	0.0	1,451	2.6	3,915	7.1	523	0.9	49,430	89.4	55,319	62.5
Ngara	0	0.0	443	0.9	4,772	10.1	8,043	17.0	33,929	71.9	47,187	42.8
Bukoba Urban	36	0.9	172	4.5	3,580	94.5	0	0.0	0	0.0	3,788	5.1
Total	1,015	0.3	3,601	1.0	21,741	6.2	41,530	11.8	285,390	80.8	353,277	49.9

33.01j: Number of Households by Distance to Tarmac Road by District for 2002/03 agricultural year

District	Tarmac Road										Total number of households	Mean Distance
	Less than 1 km		1-2.9 km		3.0-9.9		10.0-19.9		Above 20 km			
	No of households	%	No of households	%	No of households	%	No of households	%	No of households	%		
Karagwe	5,280	6.2	0	0.0	379	0.4	336	0.4	78,918	92.9	84,914	128.6
Bukoba Rural	2,477	2.9	4,973	5.7	18,086	20.8	12,584	14.5	48,771	56.1	86,891	28.2
Muleba	170	0.2	1,825	2.4	8,395	11.2	5,248	7.0	59,540	79.2	75,179	40.2
Biharamulo	110	0.2	724	1.3	3,186	5.8	2,228	4.0	49,071	88.7	55,319	86.2
Ngara	2,221	4.7	4,430	9.4	13,191	28.0	7,956	16.9	19,389	41.1	47,187	21.8
Bukoba Urban	644	17.0	1,044	27.6	1,988	52.5	36	0.9	77	2.0	3,788	5.6
Total	10,903	3.1	12,996	3.7	45,226	12.8	28,388	8.0	255,765	72.4	353,277	62.9

33.01k: Number of Households by Distance to Primary Market by District for 2002/03 agricultural year

District	Primary Market										Total number of households	Mean Distance
	Less than 1 km		1-2.9 km		3.0-9.9		10.0-19.9		Above 20 km			
	No of households	%	No of households	%	No of households	%	No of households	%	No of households	%		
Karagwe	4,199	4.9	11,881	14.0	47,517	56.0	15,776	18.6	5,541	6.5	84,914	8.9
Bukoba Rural	6,083	7.0	21,182	24.4	43,425	50.0	13,973	16.1	2,228	2.6	86,891	5.8
Muleba	6,726	8.9	25,309	33.7	38,093	50.7	4,035	5.4	1,015	1.4	75,179	5.1
Biharamulo	7,369	13.3	11,551	20.9	29,906	54.1	6,493	11.7	0	0.0	55,319	4.8
Ngara	5,345	11.3	9,088	19.3	26,354	55.9	5,575	11.8	825	1.7	47,187	5.3
Bukoba Urban	599	15.8	740	19.5	2,449	64.6	0	0.0	0	0.0	3,788	3.3
Total	30,320	8.6	79,752	22.6	187,745	53.1	45,852	13.0	9,609	2.7	353,277	6.1

33.01l: Number of Households by Distance to Tertiary Market by District for 2002/03 agricultural year

District	Tertiary Market										Total number of households	Mean Distance
	Less than 1 km		1-2.9 km		3.0-9.9		10.0-19.9		Above 20 km			
	No of households	%	No of households	%	No of households	%	No of households	%	No of households	%		
Karagwe	0	0.0	1,571	1.8	13,431	15.8	8,608	10.1	61,304	72.2	84,914	43.6
Bukoba Rural	2,016	2.3	294	0.3	3,510	4.0	12,949	14.9	68,122	78.4	86,891	49.8
Muleba	285	0.4	6,412	8.5	9,554	12.7	12,248	16.3	46,679	62.1	75,179	30.7
Biharamulo	1,886	3.4	3,033	5.5	12,129	21.9	13,044	23.6	25,227	45.6	55,319	39.7
Ngara	331	0.7	330	0.7	14,282	30.3	13,373	28.3	18,870	40.0	47,187	24.8
Bukoba Urban	146	3.9	352	9.3	3,290	86.9	0	0.0	0	0.0	3,788	4.8
Total	4,664	1.3	11,992	3.4	56,196	15.9	60,223	17.0	220,202	62.3	353,277	38.9

33.01m: Number of Households by Distance to Secondary Market by District for 2002/03 agricultural year

District	Secondary Market										Total number of households	Mean Distance
	Less than 1 km		1-2.9 km		3.0-9.9		10.0-19.9		Above 20 km			
	No of households	%	No of households	%	No of households	%	No of households	%	No of households	%		
Karagwe	762	0.9	1,467	1.7	12,334	14.5	14,456	17.0	55,894	65.8	84,914	31.3
Bukoba Rural	17,920	20.6	122	0.1	2,198	2.5	2,728	3.1	63,923	73.6	86,891	37.1
Muleba	6,026	8.0	1,524	2.0	5,128	6.8	7,402	9.8	55,099	73.3	75,179	39.4
Biharamulo	248	0.4	364	0.7	4,001	7.2	8,414	15.2	42,292	76.5	55,319	46.4
Ngara	6,770	14.3	803	1.7	4,246	9.0	1,783	3.8	33,585	71.2	47,187	31.7
Bukoba Urban	386	10.2	279	7.4	1,221	32.2	0	0.0	1,902	50.2	3,788	19.7
Total	32,112	9.1	4,560	1.3	29,129	8.2	34,782	9.8	252,694	71.5	353,277	36.8

33.19a TYPE OF SERVICE: Number of Agricultural Households by Satisfaction of Using Veterinary Clinic and District, 2002/03 Agricultural Year

District	Satisfaction of Using Veterinary Clinic										Total number of households
	Very Good		Good		Average		Poor		No good		
	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	
Karagwe	2,378	6	11,176	29	2,905	7	19,444	50	3,252	8	39,156
Bukoba Rural	3,381	7	19,770	39	19,526	38	7,803	15	717	1	51,196
Muleba	2,534	13	11,689	59	2,134	11	2,718	14	825	4	19,900
Biharamulo	553	4	4,519	35	2,832	22	4,465	34	625	5	12,994
Ngara	832	6	10,687	74	1,183	8	1,192	8	478	3	14,372
Bukoba Urban	0	0	1,451	75	175	9	316	16	0	0	1,942
Total	9,677	7	59,292	42	28,756	21	35,937	26	5,897	4	139,560

33.19b TYPE OF SERVICE: Number of Agricultural Households by Satisfaction of Extension Centre and District, 2002/03 Agricultural Year

District	Extension Centre										Total number of households
	Very Good		Good		Average		Poor		No good		
	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	
Karagwe	712	7	4,919	45	666	6	3,744	35	777	7	10,817
Bukoba Rural	734	5	7,734	53	5,627	38	559	4	0	0	14,655
Muleba	998	11	5,090	57	1,469	17	502	6	825	9	8,884
Biharamulo	132	3	2,177	47	1,326	29	865	19	132	3	4,632
Ngara	239	5	3,756	71	476	9	358	7	478	9	5,306
Bukoba Urban	0	0	379	87	20	5	36	8	0	0	435
Total	2,815	6	24,055	54	9,583	21	6,064	14	2,212	5	44,729

33.19c TYPE OF SERVICE: Number of Agricultural Households by Satisfaction of Using Research Station and District, 2002/03 Agricultural Year

District	Research Station										Total number of households
	Very Good		Good		Average		Poor		No good		
	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	
Karagwe	386	8	0	0	0	0	4,117	84	389	8	4,893
Bukoba Rural	149	2	2,339	30	3,346	43	1,809	23	144	2	7,787
Muleba	171	34	168	33	0	0	168	33	0	0	507
Biharamulo	132	14	132	14	0	0	604	64	78	8	946
Ngara	0	0	119	50	0	0	119	50	0	0	238
Bukoba Urban	0	0	99	52	34	18	57	30	0	0	189
Total	838	6	2,857	20	3,380	23	6,874	47	611	4	14,561

33.19d TYPE OF SERVICE: Number of Agricultural Households by Satisfaction of Using Plant Protection Lab. and District, 2002/03 Agricultural Year

District	Plant Protection Lab										Total number of households
	Very Good		Good		Average		Poor		No good		
	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	
Karagwe	0	0	0	0	141	4	3,394	86	389	10	3,925
Bukoba Rural	578	15	1,477	38	1,007	26	868	22	0	0	3,930
Muleba	0	0	0	0	0	0	341	100	0	0	341
Biharamulo	78	7	242	21	0	0	733	65	78	7	1,132
Ngara	119	33	119	33	0	0	119	33	0	0	357
Bukoba Urban	0	0	65	26	34	13	154	61	0	0	253
Total	776	8	1,903	19	1,182	12	5,610	56	468	5	9,938

33.19e TYPE OF SERVICE: Number of Agricultural Households by Satisfaction of Using Land Registration Office and District, 2002/03 Agricultural Year

District	Land Registration Office										Total number of households
	Very Good		Good		Average		Poor		No good		
	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	
Karagwe	189	6	386	13	521	17	1,626	53	336	11	3,058
Bukoba Rural	887	12	882	12	3,332	46	2,079	29	0	0	7,180
Muleba	170	14	506	43	0	0	512	43	0	0	1,187
Biharamulo	78	6	0	0	380	31	658	53	129	10	1,245
Ngara	118	17	236	33	237	33	119	17	0	0	710
Bukoba Urban	0	0	321	82	34	9	36	9	0	0	390
Total	1,442	10	2,331	17	4,503	33	5,029	37	465	3	13,770

33.19f TYPE OF SERVICE: Number of Agricultural Households by Satisfaction of Using Livestock development Centre and District, 2002/03 Agricultural Year

District	Livestock Development Centre										Total number of households
	Very Good		Good		Average		Poor		No good		
	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	
Karagwe	376	5	2,681	35	333	4	3,590	46	777	10	7,756
Bukoba Rural	588	7	3,301	37	3,506	39	1,095	12	433	5	8,923
Muleba	341	7	3,392	67	497	10	854	17	0	0	5,085
Biharamulo	0	0	1,309	47	394	14	868	31	207	7	2,778
Ngara	119	3	2,933	80	236	6	356	10	0	0	3,645
Bukoba Urban	0	0	265	0	54	0	34	0	0	0	352
Total	1,424	5	13,881	49	5,020	18	6,797	24	1,417	5	28,540

HOUSEHOLD FACILITIES

Table 34.1 Number of Agriculture Households by Type of Toilet and District During the 2002/03 Agriculture Yea

District	Type of toilet					
	No Toilet	Flush Toilet	Traditional Pit Latrine	Improved Pit Latrine - hh Owned	Other Type	Total number of households
Karagwe	8,518	3,273	71,339	1,783	0	84,914
Bukoba Rural	1,781	3,417	78,715	2,978	0	86,891
Muleba	2,017	338	71,984	839	0	75,179
Biharamulo	5,417	2,854	46,274	645	129	55,319
Ngara	1,056	1,903	43,752	475	0	47,187
Bukoba Urban	137	178	3,399	74	0	3,788
Total	18,926	11,963	315,464	6,795	129	353,277
%	5.4	3.4	89.3	1.9	0.0	100.0

34.2 Number of hoseholds reporting average number of rooms and type of Roofing Materials by District, 2002/03 Agricultural

District	Average Number of rooms per Household	Iron Sheets	Tiles	Concrete	Asbestos	Grass / Leaves	Grass & Mud	Other	Total number of households
Karagwe	3	52,997	2,492	964	195	26,515	1,562	188	84,914
Bukoba Rural	3	44,520	1,493	747	144	35,235	4,752	0	86,891
Muleba	3	45,298	681	0	170	28,009	1,021	0	75,179
Biharamulo	2	17,722	653	1,438	261	27,416	7,829	0	55,319
Ngara	3	19,376	0	0	92	24,516	3,202	0	47,187
Bukoba Urban	4	3,200	40	0	0	413	135	0	3,788
Total	3	183,114	5,360	3,149	862	142,105	18,502	188	353,277
%		51.8	1.5	0.9	0.2	40.2	5.2	0.1	100

Table 34.3: Number of Agricultural Households by Type of Owned Assets and District during 2002/03 Agricultural Year

Type of Owned Asset	District												Total	
	Karagwe		Bukoba Rural		Muleba		Biharamulo		Ngara		Bukoba Urban			
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%
Radio	41,538	48.9	44,394	51.1	38,197	50.8	31,241	56.5	21,923	46.5	2,262	59.7	179,555	51
Landline phone	183	0.2	867	1.0	507	0.7	0	0.0	114	0.2	34	0.9	1,705	0
Mobile phone	2,563	3.0	3,000	3.5	1,812	2.4	380	0.7	593	1.3	375	9.9	8,724	2
Iron	14,914	17.6	16,724	19.2	11,382	15.1	9,011	16.3	5,602	11.9	945	24.9	58,577	17
Wheelbarrow	5,917	7.0	6,708	7.7	4,256	5.7	2,216	4.0	1,418	3.0	260	6.9	20,775	6
Bicycle	28,186	33.2	37,231	42.8	28,920	38.5	31,611	57.1	10,711	22.7	1,491	39.4	138,149	39
Vehicle	576	0.7	1,151	1.3	490	0.7	244	0.4	235	0.5	187	4.9	2,883	1
Television / Video	919	1.1	1,302	1.5	335	0.4	262	0.5	119	0.3	173	4.6	3,110	1
Households	84,914	100	86,891	100	75,179	100	55,319	100	47,187	100	3,788	100	353,277	100

34.4: Number of Agricultural Households by Main Source of Energy Used for Lighting during 2002/03 Agricultural Year

Main Source of Energy for Lighting	District												Total	
	Karagwe		Bukoba Rural		Muleba		Biharamulo		Ngara		Bukoba Urban			
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%
Mains Electricity	424	0	441	1	451	1	131	0	0	0	330	9	1,777	1
Solar	166	0	147	0	343	0	0	0	0	0	0	0	655	0
Hurricane Lamp	7,406	9	11,626	13	6,415	9	9,841	18	2,103	4	670	18	38,061	11
Pressure Lamp	1,690	2	5,967	7	2,836	4	691	1	350	1	0	0	11,534	3
Wick Lamp	73,513	87	68,563	79	64,464	86	43,234	78	41,688	88	2,719	72	294,182	83
Candles	0	0	0	0	0	0	120	0	0	0	0	0	120	0
Firewood	1,714	2	148	0	670	1	1,303	2	3,046	6	69	2	6,949	2
Total	84,914	100	86,891	100	75,179	100	55,319	100	47,187	100	3,788	100	353,277	100

34.5: Number of Agricultural Households by Main Source of Energy Used for Cooking during 2002/03 Agricultural Year

Main Source of Energy for Cooking	District												Total	
	Karagwe		Bukoba Rural		Muleba		Biharamulo		Ngara		Bukoba Urban			
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%
Mains Electricity	141	0	0	0	0	0	132	0	0	0	32	1	306	0
Solar	0	0	122	0	0	0	118	0	0	0	0	0	241	0
Bottled Gas	0	0	139	0	0	0	0	0	0	0	0	0	139	0
Parraffin / Kerocine	0	0	147	0	158	0	0	0	0	0	0	0	305	0
Charcoal	1,098	1	742	1	681	1	2,640	5	118	0	220	6	5,499	2
Firewood	83,288	98	85,592	99	74,340	99	51,564	93	46,950	99	3,507	93	345,241	98
Crop Residues	191	0	149	0	0	0	865	2	118	0	28	1	1,352	0
Livestock Dung	195	0	0	0	0	0	0	0	0	0	0	0	195	0
Total	84,914	100	86,891	100	75,179	100	55,319	100	47,187	100	3,788	100	353,277	100

34.6: Number of Agricultural Households by Main Source of Drinking Water by Season (wet and dry) and District during 2002/03 Agricultural Year

Source	Season	District						
		Karagwe	Bukoba Rural	Muleba	Biharamulo	Ngara	Bukoba Urban	Total
Piped Water	wet season	13,815	7,649	4,862	6,666	5,186	280	38,458
	dry season	12,679	7,989	4,748	6,797	5,067	204	37,485
Protected Well	wet season	12,231	13,768	7,302	8,693	6,349	159	48,502
	Dry season	8,830	13,784	7,302	9,309	6,588	195	46,007
Protected / Covered Spring	wet season	8,041	12,260	10,682	1,205	8,189	142	40,519
	Dry season	8,848	12,853	10,952	1,119	8,422	142	42,337
Uprotected Well	wet season	2,497	8,904	3,690	33,111	9,682	103	57,987
	Dry season	1,347	8,757	3,190	31,971	9,096	70	54,431
Unprotected Spring	wet season	14,624	24,342	34,317	2,698	11,617	2,022	89,620
	Dry season	15,932	28,777	35,330	2,829	14,107	2,148	99,122
Surface Water (Lake / Dam / River / Stream)	wet season	26,337	12,282	11,378	1,900	3,666	873	56,437
	Dry season	35,181	13,172	11,717	1,854	3,669	959	66,552
Covered Rainwater Catchment	wet season	1,312	5,343	673	0	119	104	7,551
	Dry season	954	693	171	262	119	71	2,270
Uncovered Rainwater Catchment	wet season	3,562	1,135	1,714	132	357	0	6,900
	Dry season	771	716	1,542	264	119	0	3,412
Water Vendor	wet season	188	0	227	0	0	0	415
	Dry season	371	0	227	0	0	0	598
Tanker Truck	wet season	0	149	0	914	1,664	0	2,728
	Dry season	0	149	0	914	0	0	1,063
Other	wet season	2,306	1,059	333	0	357	106	4,161
	dry season	0	0	0	0	0	0	0
Total Agricultural Households per District		84,914	86,891	75,179	55,319	47,187	3,788	353,277

34.7: Proportion of Agricultural Households by Main Source of Drinking Water by Season (wet and dry) and District during 2002/03 Agricultural Year

Source	Season	District						
		Karagwe	Bukoba Rural	Muleba	Biharamulo	Ngara	Bukoba Urban	Total
Piped Water	wet season	16	9	6	12	11	7	11
	dry season	15	9	6	12	11	5	11
Protected Well	wet season	14	16	10	16	13	4	14
	Dry season	10	16	10	17	14	5	13
Protected / Covered Spring	wet season	9	14	14	2	17	4	11
	Dry season	10	15	15	2	18	4	12
Uprotected Well	wet season	3	10	5	60	21	3	16
	Dry season	2	10	4	58	19	2	15
Unprotected Spring	wet season	17	28	46	5	25	53	25
	Dry season	19	33	47	5	30	57	28
Surface Water (Lake / Dam / River / Stream)	wet season	31	14	15	3	8	23	16
	Dry season	41	15	16	3	8	25	19
Covered Rainwater Catchment	wet season	2	6	1	0	0	3	2
	Dry season	1	1	0	0	0	2	1
Uncovered Rainwater Catchment	wet season	4	1	2	0	1	0	2
	Dry season	1	1	2	0	0	0	1
Water Vendor	wet season	0	0	0	0	0	0	0
	Dry season	0	0	0	0	0	0	0
Tanker Truck	wet season	0	0	0	2	4	0	1
	Dry season	0	0	0	2	0	0	0
Other	wet season	3	1	0	0	1	3	1
	dry season	0	0	0	0	0	0	0

34.8: Number of Households Reporting Time Spent to and from Main Source of Drinking Water by Season (Wet and Dry) by District for 2002/03 agriculture year

Time Spent to and from Main Source of Drinking Water	Season	District						
		Karagwe	Bukoba Rural	Muleba	Biharamulo	Ngara	Bukoba Urban	Total
Less than 10	wet season	10,256	5,836	2,938	1,309	1,309	495	22,142
	Dry season	3,449	863	1,822	1,441	713	333	8,621
10 - 19 Minutes	wet season	7,027	12,669	13,403	8,260	6,069	791	48,220
	Dry season	6,456	13,707	12,727	6,056	5,716	880	45,542
20 - 29 Minutes	wet season	4,388	9,040	7,622	6,322	4,343	346	32,061
	Dry season	4,382	8,863	7,456	5,805	3,630	310	30,448
30 - 39 Minutes	wet season	16,665	22,388	18,332	14,875	10,047	1,190	83,497
	Dry season	13,901	21,020	18,625	13,229	10,051	1,295	78,122
40 - 49 Minutes	wet season	3,593	5,156	5,426	6,021	2,720	270	23,186
	Dry season	3,385	5,137	5,424	3,615	2,956	270	20,787
50 - 59 Minutes	wet season	5,359	5,862	4,891	1,761	3,533	301	21,706
	Dry season	5,156	5,411	4,391	1,485	3,889	268	20,600
above one Hour	wet season	37,625	25,941	22,567	16,769	19,167	395	122,465
	Dry season	48,183	31,889	24,734	23,688	20,230	432	149,157
Total Agricultural Households		84,914	86,891	75,179	55,319	47,187	3,788	353,277

34.9: Proportion of Households Reporting Time Spent to and from Main Source of Drinking Water by Season (Wet and Dry) by District for 2002/03 agriculture year

Time Spent to and from Main Source of Drinking Water	Season	District						
		Karagwe	Bukoba Rural	Muleba	Biharamulo	Ngara	Bukoba Urban	Total
Less than 10	wet season	12	7	4	2	3	13	6
	Dry season	4	1	2	3	2	9	2
10 - 19 Minutes	wet season	8	15	18	15	13	21	14
	Dry season	8	16	17	11	12	23	13
20 - 29 Minutes	wet season	5	10	10	11	9	9	9
	Dry season	5	10	10	10	8	8	9
30 - 39 Minutes	wet season	20	26	24	27	21	31	24
	Dry season	16	24	25	24	21	34	22
40 - 49 Minutes	wet season	4	6	7	11	6	7	7
	Dry season	4	6	7	7	6	7	6
50 - 59 Minutes	wet season	6	7	7	3	7	8	6
	Dry season	6	6	6	3	8	7	6
above one Hour	wet season	44	30	30	30	41	10	35
	Dry season	57	37	33	43	43	11	42

34.10: Number of Agricultural Households by Number of Meals the Household Normally Took per Day by District

Number of Meals per Day	District												Total	
	Karagwe		Bukoba Rural		Muleba		Biharamulo		Ngara		Bukoba Urban			
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%
One	1,906	2	747	1	4,255	6	1,696	3	3,857	8	55	1	12,516	4
Two	76,766	90	63,525	73	65,506	87	48,207	87	40,633	86	2,917	77	297,554	84
Three	5,663	7	20,864	24	5,418	7	5,284	10	2,697	6	816	22	40,742	12
Four	579	1	1,755	2	0	0	132	0	0	0	0	0	2,466	1
Total	84,914	100	86,891	100	75,179	100	55,319	100	47,187	100	3,788	100	353,277	100

34.11: Number of Households by Number of Days the Household Consumed Meat during the Preceding Week by District

Number of Days	District												Total	
	Karagwe		Bukoba Rural		Muleba		Biharamulo		Ngara		Bukoba Urban			
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%
Not Eaten	42,919	51	53,552	62	49,759	66	30,755	56	26,507	56	2,503	66	205,994	58
One	24,250	29	19,783	23	14,128	19	17,083	31	12,835	27	516	14	88,595	25
Two	9,870	12	8,142	9	6,134	8	5,992	11	6,104	13	410	11	36,652	10
Three	5,662	7	3,804	4	3,810	5	832	2	1,382	3	95	3	15,585	4
Four	1,688	2	871	1	1,175	2	525	1	239	1	96	3	4,594	1
Five	331	0	299	0	171	0	0	0	0	0	134	4	935	0
Six	195	0	149	0	0	0	0	0	0	0	0	0	344	0
Seven	0	0	291	0	0	0	132	0	119	0	34	1	577	0
Total	84,914	100	86,891	100	75,179	100	55,319	100	47,187	100	3,788	100	353,277	100

34.12: Number of Households by Number of Days the Household Consumed Fish during the Preceding Week by District

Number of Days	District												Total	
	Karagwe		Bukoba Rural		Muleba		Biharamulo		Ngara		Bukoba Urban			
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%
Not Eaten	32,945	39	24,019	28	17,453	23	13,791	25	36,213	77	885	23	125,307	35
One	30,811	36	18,958	22	13,850	18	13,175	24	6,122	13	256	7	83,172	24
Two	9,485	11	16,673	19	13,400	18	11,640	21	3,430	7	663	18	55,291	16
Three	6,501	8	9,804	11	10,560	14	5,948	11	953	2	555	15	34,320	10
Four	3,078	4	6,504	7	8,450	11	3,268	6	469	1	513	14	22,282	6
Five	1,149	1	5,105	6	6,360	8	2,021	4	0	0	342	9	14,977	4
Six	0	0	1,176	1	2,266	3	859	2	0	0	137	4	4,439	1
Seven	944	1	4,650	5	2,839	4	4,617	8	0	0	438	12	13,489	4
Total	84,914	100	86,891	100	75,179	100	55,319	100	47,187	100	3,788	100	353,277	100

34.13: Number of Households Reporting the Status of Food Satisfaction of the Household during the Preceding Year by District

Status of Food Satisfaction	District												Total	
	Karagwe		Bukoba Rural		Muleba		Biharamulo		Ngara		Bukoba Urban			
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%
Never	24,507	29	49,187	57	21,007	28	29,923	54	19,177	41	2,348	62	146,149	41
Seldom	29,670	35	20,945	24	28,492	38	17,071	31	17,483	37	595	16	114,257	32
Sometimes	17,479	21	8,731	10	10,411	14	3,763	7	5,676	12	586	15	46,646	13
Often	7,207	8	3,946	5	11,696	16	2,129	4	2,121	4	56	1	27,155	8
Always	6,051	7	4,082	5	3,571	5	2,432	4	2,730	6	204	5	19,070	5
Total	84,914	100	86,891	100	75,179	100	55,319	100	47,187	100	3,788	100	353,277	100

34.14: Number of Households by Type of Roofing Materials and District during the 2002/03 Agricultural Year

Roofing Materials	District												Total	
	Karagwe		Bukoba Rural		Muleba		Biharamulo		Ngara		Bukoba Urban			
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%
Iron Sheets	52,997	62	44,520	51	45,298	60	17,722	32	19,376	41	3,200	84	183,114	52
Tiles	2,492	3	1,493	2	681	1	653	1	0	0	40	1	5,360	2
Concrete	964	1	747	1	0	0	1,438	3	0	0	0	0	3,149	1
Asbestos	195	0	144	0	170	0	261	0	92	0	0	0	862	0
Grass / Leaves	26,515	31	35,235	41	28,009	37	27,416	50	24,516	52	413	11	142,105	40
Grass & Mud	1,562	2	4,752	5	1,021	1	7,829	14	3,202	7	135	4	18,502	5
Other	188	0	0	0	0	0	0	0	0	0	0	0	188	0
Total	84,914	100	86,891	100	75,179	100	55,319	100	47,187	100	3,788	100	353,277	100

34.15: Number of Households by Main Source of Cash Income and District during 2002/03 Agriculture Year

Main Source of Energy for Cooking	District												Total	
	Karagwe		Bukoba Rural		Muleba		Biharamulo		Ngara		Bukoba Urban			
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%
Sales of Food Crops	51,013	60	40,685	47	26,632	35	32,816	59	38,781	82	684	18	190,612	54
Sale of Livestock	2,441	3	1,168	1	1,698	2	2,734	5	833	2	0	0	8,874	3
Sale of Livestock Products	1,127	1	0	0	171	0	783	1	0	0	101	3	2,183	1
Sales of Cash Crops	18,311	22	23,529	27	18,339	24	5,685	10	119	0	651	17	66,633	19
Sale of Forest Products	573	1	742	1	732	1	260	0	0	0	169	4	2,476	1
Business Income	709	1	3,637	4	4,669	6	2,097	4	454	1	277	7	11,842	3
Wages & Salaries in Cash	3,740	4	4,590	5	3,533	5	881	2	1,633	3	696	18	15,072	4
Other Casual Cash Earnings	3,593	4	6,764	8	10,307	14	6,250	11	3,125	7	731	19	30,771	9
Cash Remittance	904	1	2,728	3	1,880	3	471	1	575	1	373	10	6,931	2
Fishing	2,502	3	2,602	3	5,697	8	3,018	5	1,427	3	70	2	15,317	4
Other	0	0	446	1	1,365	2	325	1	239	1	0	0	2,375	1
Not applicable	0	0	0	0	155	0	0	0	0	0	36	1	191	0
Total	84,914	100	86,891	100	75,179	100	55,319	100	47,187	100	3,788	100	353,277	100

APPENDIX III QUESTIONNAIRES

UNITED REPUBLIC OF TANZANIA

Confidential

Page Number …………………

Agriculture Sample Census 2002/03

ACLF 1: Sub-village leader listing form

Region ________________ Code	☐☐	Ward ______________ Code	☐☐☐
District ____________________ Code	☐☐	Village ______________Code	☐☐

Name of Village Chairman:…………………………………………………………………………………………..

Sub-village leader number	Name of sub-village leader	Number of households		Comments
		From office register	After enumeration	
(1)	(2)	(3)	(4)	(5)
	Total			

Name of enumerator……………………………… Signature …………………………… Date…………….

Name of supervisor……………………………… Signature …………………………… Date…………….

UNITED REPUBLIC OF TANZANIA

Confidential

Interval ☐☐
Starting point ☐☐

Page Number……………….

Agriculture Sample Census 2002/03

ACLF: 2 Household listing form - form for listing household heads and their agriculture activities

Region ________	Code ☐☐	Name of Sub-village Leaader ________	
District ________	Code ☐		Subvillage leader code ☐☐
Ward ________	Code ☐☐☐		
Village ________	Code ☐☐	Name of Sub-village ________	

Household Number	Household head name	Number of										✓ if the respodent qualifies to be a farmer *	Farmer Serial Numbers
			Cattle										
		Fields +	Total Number	Adult male cattle	Adult female cattle	Calves	Goats	Sheep	Pigs	poultry/ducks	Rabbit		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
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	Totals												

* **NOTE:** (Column 13) Place a "✓" if the household has at least 1 field over 25m^2 and/or keeps at least 1 Cow, 5 Goats/Sheep/Pigs or 50 Chicken/poultry or ducks

+(Column 3) A field must be at least 25 m^2

Name of enumerator…………………………………….. Signature …………………………… Date……………………..….

Name of supervisor………………………………… Signature …………………………… Date……………….……….

UNITED REPUBLIC OF TANZANIA

Confidential

National Agriculture Sample Census 2002/03

ACLF: 3 Household listing of 15 selected farmers

Region _____ Code ☐☐

District _____ Code ☐☐

Ward _____ Code ☐☐☐

Village _____ Code ☐☐

S/N	Sub village leader number	Name of sub-village leader	Agriculture hh serial number	Name of selected head of household	Number of						
					Fields	Cattle	Goat	Sheep	Pig	Poultry /ducks	Rabbits
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(12)
01			☐☐☐								
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11			☐☐☐								
12			☐☐☐								
13			☐☐☐								
14			☐☐☐								
15			☐☐☐								

Name of Enumerator:_____Signature_____Date_____

Name of Supervisor_____Signature_____Date_____

Ministry of Agriculture and Food Security, Ministry of Water and Livestock Development, Ministry of Cooperatives and Marketing and the National Bureau of Statistics

United Republic of Tanzania

ACQ 1 **CONFIDENTIAL**

Small holder/Small Scale Farmer Questionnaire

Agriculture Sample Census

2002/2003

Enumerator Name ..... Signature .....

	Hour	Minutes
Start time	☐☐	☐☐
End time	☐☐	☐☐

Date Enumerated ☐☐ / ☐☐ / ☐☐ (d d / m m / y y)

Field level checking by:

District Supervisor:	Name	signature	Date ... / ... / ...	*To be completed by the supervisor **ONLY** after field/farm level checking of the enumeration process. This should be countersigned by the enumerator.*
Regional Supervisor:	Name	signature	Date ... / ... / ...	
National Supervisor:	Name	signature	Date ... / ... / ...	

District checking in Office:

District Supervisor	Name	signature	Date ... / ... / ...	*All questionnaires must be checked at the district office.*

For Use at National Level only:

Data Entered by	Name	signature	Date ... / ... / ...	*See back page for details of query*
Queried	Name	signature	Date ... / ... / ...	

Executed by the Ministry of Agriculture and Food Security, Ministry of Water and Livestock Development,
Ministry of Cooperatives and Marketing
and
National Bureau of Statistics

1.0 IDENTIFICATION DETAILS

1.1 Location

S/N	Location Name	Codes
1.1.1	Region ……	
1.1.2	District ……	
1.1.3	Ward ……	
1.1.4	Village ……	

1.2 Details of the **respondent** and **household head**

S/N		Codes
1.2.1	Name & number of **local leader** ……..	
1.2.2	Name & number of **household head** ……..	
1.2.3	**Sex** of household head (Male = 1, Female = 2)	
1.2.4	Name of **respondent** ……..	
1.2.5	**Relationship of Respondent** to Household Head	

Relationship to household head codes (Q 1.2.5)

Head of Household……1 Son/Daughter ……...3 Grandson/Granddaughter ……5 Other (friend, employee, etc)…8
Spouse ……..….2 Father/Mother ……..4 Other relative……...6

2.0 ACTIVITIES OF THE HOUSEHOLD

2.1 **Type** of Agriculture Household

Agriculture household codes(Q2.1)

Crops only……..1 Livestock only ……..2 Pastoralist……..3 Crops and Livestock ……..4

2.2 **Rank the following livelihood activities/source of income** of the household in order of importance

S/N	Livelihood/source of income activity.	Rank in order of importance 1=most 7=least	How important are each of these activities expressed in percentage.
	(1)	*(2)*	*(3)*
2.2.1	**Annual Crop** farming		%
2.2.2	**Permanent** crop farming		%
2.2.3	**Livestock** keeping/herding		%
2.2.4	**Off Farm Income**		%
2.2.5	**Remittances**		%
2.2.6	**Fishing/hunting** and gathering		%
2.2.7	**Tree/forest** resources (eg honey, firewood, timber,etc)		%
			1 0 0 %

Definition and working page for page 1

General Definitions

Small holder hh/small scale farm:
Should have between 25sq metres and 20 Hectares under production, and/or between 1 and 50 head of Cattle, and/or between 5 and 100 head of Sheep/Goats/Pigs, and/or between 50 and 1000 chickens/turkeys/ducks/rabbits.

Household: A group of people who occupy the whole or part of one or more housing units and makes joint provisions for food and/or other essentials for living.

Household Head: A person who is acknowledged by all other members of the household either by virtue of his age or standing in the household as the head. He/she should be a permanent resident of the house and he/she is the main person responsible for making decissions.

Agricultural Holding: This is an economic unit of agricultural production under single management. It consists of all livestock kept and all land used for agricultural production without regard to title. For the purpose of this survey, the agricultural holdings are restricted to those which meet one of the following conditions:

- Having or operated at least 25 sq meter of arable land
- Own or keep at least one head of cattle or five goats/sheep/pigs or fifty chicken/ducks/turkeys during the agricultural year 2002/03 (October 2002 to September 2003) .

Question Specific Definitions:

Type of Agriculture Holdings Codes (Q2.1):

- Crops only: A holding is referred to be a crops only holding if it has cultivated a piece of land equal or exceeding 25 sq Meter. This also applies to all households owning or have kept livestock whose number does not qualify such household to be an agricultural holding (No cattle, less than 5 goats/sheep/pigs, less than 50 chickens/turkeys/ducks/rabbits)

- Livestock only: A holding is referred to be a Livestock only holding if it has exercised Livestock husbandry only during the agricultural year. The livestock can be herded in search for areas of pasture, but the core household unit always remains in the same place and the herder is rarely away from this place for long periods at a time.

- Livestock pastoralism: This refers to a household which practices livestock production as its major income generating activity and a means of subsistence, but moves from one place to another searching for water and pasture for the livestock. This movement usually involves long distances and in many cases the whole household unit moves with the livestock and they have no permanent place of residence.

For both livestock only and pastoralism , the number of livestock has to be at least 1 head of cattle, 5 goats/sheep/pigs or 50 chickens/turkeys/ ducks/rabbits. This also applies to all households owning or have cultivated a piece of land less than 25 sq meter, which does not qualify such household be an agricultural holding.

- Both crops and livestock: A holding is referred to be a both crops and livestock if it has cultivated a piece of land equal or exceeding 25 sq meter and if such households is owning or have kept livestock whose number qualify such household be an agricultural holding.

Important livelihood activities/source of income (Q 2.2):

- Crop farming: This refers to a household where crop production is its major means of subsistence and income generation.

- Livestock farming/herding/pastoralism: This refers to a household where livestock farming/herding is its major means of subsistence & income generation.

- Off Farm Income This refers to cash generated from activities other than from the households holding. This can be from permanent employment (eg government/other), temporary employment/labouring and includes cash generated from working on other farmers farms.

-**Remittances:** Assistance from family members who are not currently part of the household, or from a relative or family friend. This assistance is usually in the form of cash but it can also be in-kind (eg food, clothes, building material, farm tools, etc). The money is a gift and is not paid back.

-Fishing/hunting and gathering The use of non farmed resources for food eg fishing, hunting wildlife and gathering mushrooms, berries, wild honey roots from uncultivated land.

Procedures for Questions:

Q 2.1 Type of agriculture household/holding

1. Using the options under the question classify the type of agriculture hh/holding

Note: If the hh had 1 acre of crops and raised 40 chickens during 2002/03 it is classified as **'Crops only'** as the number of chickens do not qualify the hh as keeping livestock.

Q 2.2 Important hh livelihood activities /source of income

1. Read the list in column 1 to the respondent and ask him to rank them in order of importance during the reference year.

2. In column 2 Indicate the importance of each activity by placing **'1'** against the most important, **'2'** against the second most important, etc until you reach **'7'** the least important activity/source of income.

Note: You must attempt to fill in all boxes. Most households will carry out these activities to a greater or lesser degree. You will normally have to probe to get remittances.

If the hh did not undertake an activity during the 2002/2003 agriculture year then mark the appropriate box in column 2 with an 'X'.

3. For each activity/source of income assign a percentage. The enumerator should assist the respondent in assigning the percentage based on the information provided by the farmer.

4. After completing column 3 make sure the percentages add up to 100.

Note: It is not essential to be 100% accurate. This question is just to give the relative importance of the different items in general terms

3.0 HOUSEHOLD INFORMATION

3.1 Give details of personal **particulars** of all household members beginning with the head of the household

S/N	Names of household members	Relation-ship to head	Sex M=1 F=2	Age (if age is above 99 years then write 99)	Survival of Parents		Not applicable for children under 5 years of age					
					Mother	Father	Read & Write	Education Status	Education Level reached	Involvement in farming	Main activity (for aged 5 & above)	Off-farm Income Yes=1 No=2
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
3.1.1	.....	1										
3.1.2	.....											
3.1.3	.....											
3.1.4	.....											
3.1.5	.....											
3.1.6	.....											
3.1.7	.....											
3.1.8	.....											
3.1.9	.....											
3.1.10	.....											
3.1.11	.....											
3.1.12	.....											
3.1.13	.....											
3.1.14	.....											
3.1.15	.....											
3.1.16	.....											

Relation to head (Col 2)
Head of household 1
Spouse 2
Son/daughter 3
Father/Mother 4
Grandson/granddaughter .5
Other Relative 6
Others 8

Survival of Parents (Col 5 & 6)
Yes 1
No 2
Don't know 3

Read & Write (Col 7)
Swahili 1
English 2
Swahili & English 3
Any other language 4
Don't Read/ Write 5

Education Status (Col 8)
Attending School 1
Completed 2
Never attended School 3

Involvement in farming activities (Col 10)
Works full time on farm ...1
Works part-time on farm 2
Rarely works on farm 3
Never works on farm.....4

Education Level Reached (Col 9)

Primary Education		Secondary Education	
Not of school age	NA	Form one	11
Under Standard One	00	Form two	12
Standard One	01	Form three	13
Standard Two	02	Form four	14
Standard Three	03	Form five	15
Standard Four	04	Form six	16
Standard Five	05	Training after Secondary Education	17
Standard Six	06	University & other tertiary Education	18
Standard Seven	07	Adult Education	19
Standard Eight	08	Not applicable	99
Training after Primary Education	09		
Pre Form One	10		

Main activity (Col 11)
Crop Farming 01
Livestock Keeping/Herding..02
Livestock Pastoralism.....03
Fishing 04
Paid employment:
- Government/parastatal 05
- Private- NGO/mission/etc .06
Self employed (non farming)
- with employees 07
- without employees 08
Unpaid family helper (non agriculture) 09
Not working & available.....10
Not working & unavailable...11
Housemaker/housewife 12
Student 13
Unable to work /too old/ Retired/sick/disabled).....14
Other 98

Definition and working page for page 2

Question Specific Definitions:

Relation to head (Col 2):

- Household Head: A person who is acknowledged by all other members of the household either by virtue of their age or standing as the household head.

Read and Write (Col 7):

- Any other language: Must be a written language.

For someone who can read and write in Swahili and any other language apart from English, the correct code is 1. For one who can read and write in English and any other language apart from Swahili the correct code is 2. Code 4 should only be used for another language but not English or Swahili

Education Level Reached (Col 9):

Indicate the highest level only. For those still attending school fill in the last year reached before the survey period. For example if a hh member is currently in standard 7 this year his highest grade reached is standard 6

Main Activity (Col 11):

- Crop farming: The persons main activity is crop production. This can be annual crops, vegetables, permanent crops or tree farming.

- Livestock farming/herding: The persons main activity is livestock farming/herding. The livestock can be herded in search for areas of pasture, but the core household unit always remains in the same place and the herder is rarely away from this place for long periods at a time. This category also includes fish farming but not fishing.

- Livestock pastoralism: The persons main activity is in moving livestock from one place to another searching for water and pasture for the livestock. This movement usually involves long distances and in many cases the whole household unit moves with the livestock and they may have no permanent place of residence.

-Paid employment - In full time employment earning a cash income

- Government/Parastatal - In full time employment for a government Ministry, Department or Board that is controlled by the Government
- Private/NGO/Mission/etc - employed by Non public/government organisation

-Self employee - works for own business for cash income

- With employees - Works for own business for cash and employs other workers
- Without employees - Works for own business for cash but does not employ other workers

- Not working but available to work - No productive activity but would like to have one.

- Not working & nor available for work - No productive activity and does not want to have one.

- Unable to work too old, too young, retired, disabled, etc

Off-farm Income (Col 12) - Income made from activities NOT on the HH's farming activities. This can be any off farm income generation activity and includes working for cash on other peoples farms.

Indicate whether each member was involved in an off farm income generating activity during 2002/03

Overview to section 3.0

Section 3.0 - Preliminary note

1. Make sure that you define the hh properly to ensure that all the members of the hh are included. Make sure you stress that the hh is not just the hh heads direct family and that it includes other people living and eating together with the family.

2. If you notice that his house is large or you see many people around his house and he has only given you small number of hh members enquire further until you are sure that you have captured all the hh members.

Procedures for questions

Section 3.0 - Household Information

1. For each household member complete columns 1, 2 & 3.

2. After completing columns 1, 2 & 3 for each household member go back to the first household member and complete the remaining columns for that member.

3. Repeat step 2 for the rest of the household members

IMPORTANT NOTE:
Cross check responses in columns 11 and 12 with section 2 especially in relation to:

off-farm income - if a hh member was involved in off farm income then there should be a response in question 2.2.4 and vice versa.

4.0 LAND ACCESS/OWNERSHIP/TENURE

4.1 Details of **area "owned" by the household** in the 2002/03 agricultural year. Give area reported by the respondent in **"acres".**

		Area in Acres
4.1.1	Area **Leased/Certificate of ownership**	
4.1.2	Area owned under **Customary Law**	
4.1.3	Area **Bought** from others	
4.1.4	Area **Rented** from others	
4.1.5	Area **Borrowed** from others	
4.1.6	Area **Share -cropped** from others	
4.1.7	Area under **Other** forms of tenure ……	
	Total area	

4.2 Was all land available to the hh used during 2002/03 (Yes=1, No=2) ☐

4.3 Do you consider that you have sufficient land for the hh (Yes=1, No=2) ☐

4.4 Do any female members of the hh own or have customary right to land (Yes=1, No=2) ☐

5.0 LAND USE

5.1 Area operated by household under **different forms of land use** during 2002/03 agriculture year. Give area reported by the respondent in **"acres"**.

		Area in Acres	Calculation area
5.1.1	Area under **Temporary Mono-crops**		
5.1.2	Area under **Temporary Mixed** crops (eg Maize & beans)		
5.1.3	Area under **Permanent Mono-crops**		
5.1.4	Area under **Permanent Mixed** crops (eg bananas, coffee & trees)		
5.1.5	Area under **Permanent/temporary mix** (eg bananas & maize)		
5.1.6	Area under **Pasture**		
5.1.7	Area under **Fallow**		
5.1.8	Area under **Natural Bush**		
5.1.9	Area under **Planted Trees**		
5.1.10	Area **Rented** to others		
5.1.11	Area **Unusable**		
5.1.12	Area of **Uncultivated Usable** land (excluding fallow)		
	Total area		

6.0 ACCESS AND USE OF RESOURCES

6.1 In the following table indicate the distance to the different fields used by the household

S/N	Field Number	Distance (in kilometres) from field to: Homestead	Nearest road	Nearest Market
6.1.1	1			
6.1.2	2			
6.1.3	3			

Distance codes

less than 100m ……1 between 2 and 3km ….6
between 100 and 300m .2 between 3 and 5km …..7
between 300 and 500m .3 between 5 and 10 km ..8
between 500 and 1km....4 Over 10 km ……....9
between 1 and 2km ……5

6.2 In the following table indicate the distance and use of the following communal resources

S/N	Communal Resource	Distance to resource (km) dry season	wet season	Main hh use
	(1)	*(2)*	*(3)*	*(4)*
6.2.1	Water for **humans**			
6.2.2	Water for **livestock**			
6.2.3	Communal **Grazing**			
6.2.4	Communal **Firewood**			
6.2.5	Wood for **Charcoal**			
6.2.6	**Building** poles			
6.2.7	Forest for **bees (honey)**			
6.2.8	**Hunting(animal products)**			
6.2.9	**Fishing (Fish)**			

Instructions for distance to resource (Col 2 and 3):
If under 1km, write 0
If above 1km round to whole numbers
eg 1.5km= 2km, 1.25km= 1km

Main hh use (Col 4)

Home or farm Consumption/utilisation…..1
Sold to Neighbours……2
Sold to trader on the farm……3
Sold to village market ……4
Sold to local wholesale market……5
Sold to major wholesale market ……6
Not used by household.……7
Not available ……8

Definition and working page for page 3

Question Specific Definitions

Section 4.1 - Land Access/Ownership

Lease/Certificate of Ownership Area under lease/certificate of ownership refers to the area for which the household possesses a government issued leasehold title or certificate of ownership. The land will normally be officially surveyed and boundaries marked. This includes leased land bought from others where the lease/certificate of ownership has been transferred.

Customary Law: This refers to the land which the hh does not have an official government title to but its right of use is granted by the traditional leaders. This user-right agreement does not have to be granted directly by the village leaders as right of access may be passed on through heredity.

Bought: This refers to the area of customary land that has been bought from others. This land does not have an official title and therefore is not leasehold.

Rented from others: Land rented from others for Cash or for a fixed amount in crop produce (eg fixed number of bags at harvest).

Borrowed: Use granted by land owner free of charge. Land owner can either be a lease holder or has right of access through customary law.

Share Cropping: where the hh is permitted to use land which is then paid for from a percentage of the harvested crop.

Section 5.0 Land Use

- Temporary crops: are sown and harvested during the same agricultural year

- **Permanent crops:** are sown or planted once and then , they occupy the land for some years and need not to be replanted after each annual harvest. Permanent crops are mainly trees (e.g., apples) but also bushes and shrubs (e.g., berries), palms (e.g., dates), vines (e.g., grapes), herbaceous stems (e.g., bananas) and stemless plants (e.g., pineapples).

- **Mixed Crops:** This is a mixture of two or more crops planted together and mixed in the same plot/field. The two crops can either be randomly planted together or they can be planted in a particular patterm eg intercropping (1 row of maize and 1 row of beans). A field that has been divided into plots for different crops is not mixed. This is further subdivided into:

Permanent Mixed -two or more permanent crops grown together,
Permanent/Temporary Mix - permanent crop and annual crop together,
Temporary Mixed - two or more temporary, annual crops grown together.

- **Pasture Land:** This is an area of owned/allocated land which is set aside for livestock grazing. It can be improved pasture where the farmer has planted grass, applied fertilized or applied other production increasing technologies to improve the grazing. Or it can be rough pasture.

- **Fallow:** This is the area of land that is normally used for crop production, but is not used for crop production during a year or a number of years. This is normally to allow for self generation of fertility/soil structure and is often an integral part of the crop rotation system.

- **Natural Bush:** Land which is considered productive but is not under cultivation or used extensively for livestock production and has naturally growing shrubs and trees.

-**Planted trees:** Land which is used for planting trees for poles or timber

- **Unusable:** Land that is known to be non-productive for agriculture purposes

Uncultivated Usable: This is land that was not used for reasons other than fallow. The reasons could be lack of inputs/money/rainfall/etc

Distance to fields (Q6.1):

-fields A field is a contiguous piece of land holding which the farmer considers as a single entity. The field may be divided into plots for growing different crops. A holding may consist of one or more fields in different localities.

Use of Communal Resources (Q6.2):

-Communal resources - refers to the place on which all individual households can have access to. It is not individually owned or controlled by one hh.

NOTE: The listed resources refers to communal resources and not those individually owned or part shared. The resource has to be freely accessible to the whole village

Overview to section 4

Section 4.0 - Preliminary note

Land Access/ Ownership

Access/Ownership refers to the area utilized by the members of the household. This does not include communal land where the resources are shared between households. It does include official communal land that the hh has sole access to eg a plot for crop farming in the communal area.

Procedures for Questions

Section 4.0 - Land Ownership

1. Ask the respondent if he knows the total area of land the household has sole access to. If he knows make a note in the calculation space

2. Ask the respondent the area of the different land ownership categories the household has sole access to (Q4.1.1 to 4.1.7) and record in the appropriate spaces.

3. Add up the area of the different categories of land and compare it with the total area obtained in step 1 (if the respondent provided the information).

4. If the total area is different find out which one is correct and make amendments where appropriate.

Section 5.0 - Land Use

1. Ask the respondent the area of the different landuse categories the household has sole access to (Q5.1.1 to 5.1.12) and record in the appropriate spaces.

2. Add up the area of the different categories of land and compare it with the total area obtained in section 4.0. The total area should be the same.

3. If the total area is different find out which one is correct and make amendments where appropriate.

Section 6.2 Communal resources

Note: the code "Not available" means that the resource does not exist. The code "Not Used" means that the resource does exist but is not used by the hh.

7.0 ANNUAL CROP AND VEGETABLE PRODUCTION - SHORT RAINY SEASON

7.1.1 Did the hh **plant** any crops during the **Short Rainy** season? (Yes = 1, No=2) ☐ *If the response is **'NO'** give main reason* ☐ *Then go to section 7.2*

Main Reason (Above) *No rains.....1 Rains came too late .....2 Does not plant annual crops .....3 No money 4 Don't get Vuli season ..5 Illness/social problems .....6 Has irrigation & does not follow season (give annual production in Masika) 7*

7.1.2 For each crop planted during 2002/03 **Short Rainy** season provide the following information

				Planting		Inputs						Harvesting & Storage						Marketing	
Crop Name	**Crop Code**	**Land Clea -ring**	**Soil prep -arat -ion**	**Planned area (acres)**	**Actual Planted area (acres)**	**% impr -oved seed**	**Irrig -at -ion use**	**Fer -til -iser use**	**Her -bic -ide use**	**Fun -gic -ide use**	**Pest -tic -ide use**	**How harv ested**	**How thres hed**	**Area Harvested (acres)**	**main prod -uct code**	**Quantity harvested (Kgs)**	**Quantity Stored (kgs)**	**Quantity sold (kgs)**	**Mostly sold to**
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*	*(15)*	*(16)*	*(17)*	*(18)*	*(19)*	*(20)*
.....																			
.....																			
.....																			
.....																			
.....																			
.....																			
.....																			
.....																			
.....																			
Total Planned/Planted												**Total area harvested**							

7.1.3 Main reason for difference between **Area Planned** and **Area Planted** ☐

7.1.4 Main reason for difference between **Area Planted** and **Area Harvested** ☐

Land Clearing (Col 3)
Mostly bush clearance ...1
Mostly hand slashing 2
Mostly tractor slashing ...3
Mostly burning 4
No land clearing.....5

Soil preparation Method (Col 4)
Mostly tractor ploughing .1
Mostly Oxen ploughing ..2
Mostly Hand cultivation ..3

Improved seed Use (Col 7)
all Improved 1
approx 3/4 improved.....2
approx 1/2 improved.....3
approx 1/4 improved.....4
less than 1/4 improved ..5
No improved seed used.6

Irrigation Use (Col 8)
Used on all crop 1
Used on 3/4 of crop 2
Used on 1/2 of crop.....3
Used on 1/4 of crop 4
Used on less than 1/4....5
Not used 6

Fertiliser codes (Col 9)
Mostly Farm Yard Manure 1
Mostly Compost 2
Mostly Inorganic fertiliser ..3
No fertiliser applied 4

Agrochemical use codes (Col 10,11 &12)
Used on all crop 1
Used on 3/4 of crop 2
Used on 1/2 of crop.....3
Used on 1/4 of crop 4
Used on less than 1/4 5
Not used 6

Threshed/harvested (Col13 & 14)
By hand 1
By draft animal 2
By human powered tool.....3
By engine driven machine...4
Not applicable 9

Main product (Col 16)
Dry Grain.....1
Green cob/green pod.....2
Green leaves & Stem.....3
Straw, dry stems etc 4
Root, tuber, etc 5
Flower eg pyrethrum 6
Fruit/bunch 7
Other.....8
Not harvested yet 9

Mostly sold to (Col 20)
Neighbour.....01
Local market/trade store 02
Secondary Market..03
Tertiary Market 04
Marketing Coop 05
Farmer Association06
Largescale farm 07
Trader at Farm 08
Contract Partner ...09
Did not sell 10
Other 98

Reason for difference between area planned and planted (Q7.1.3)
Drought 1
Floods 2
Access to land preparation tools (Draft animal/tractors).3
Credit 4
Access to seeds/planting material.....5
Access to other inputs 6
Other 8
Not applicable 9

Reason for difference between area planted and harvested (Q7.1.4)
Drought 1
Rain/flood damage 2
Fire damage 3
Pest damage 4
Animal damage 5
Theft 6
Illness/social problems 7
Other 8
Not applicable 9

Definitions and working page for page 4

Working table for the calculation of area occupied by annual crop in a mixture

Crop mixture 1	Crop Name	Total area of mix (acre)	Ground area/plant (ACRE)	Total no. of plants	Total ground area of plants (ACRES)
(a)	*(b)*	*(c)*	*(d)*	*(e)*	*(f)*
Permanent crop 1			0.00		0 .
Permanent crop 2			0.00		0 .
Permanent crop 3			0.00		0 .
Permanent crop 4			0.00		0 .
Total Area of permanent crops in mix					0 .
REMAINING AREA UNDER TEMPORARY CROPS					.
				crop%	crop area
Temporary/permanent crop name 1					.
Temporary/permanent crop name 2					.
Temporary/permanent crop name 3					.
Total area check	.			Crop total check	.

Crop mixture 2	Crop Name	Total area of mix (acre)	Ground area/plant (ACRE)	Total no. of plants	Total ground area of plants (ACRES)
(a)	*(b)*	*(c)*	*(d)*	*(e)*	*(f)*
Permanent crop 1			0.00		0 .
Permanent crop 2			0.00		0 .
Permanent crop 3			0.00		0 .
Permanent crop 4			0.00		0 .
Total Area of permanent crops in mix					0 .
REMAINING AREA UNDER TEMPORARY CROPS					.
				crop%	crop area
Temporary/permanent crop name 1					.
Temporary/permanent crop name 2					.
Temporary/permanent crop name 3					.
Total area check	.			Crop total check	.

Land Clearing: Refers to removing trees/bush/grass prior to ploughing
Soil Preparation: Refers to the seedbed preparation (ploughing, harrowing, etc)
Planned Area: Area in **Acres** the household planned to plant before the season started
Actual Planted Area: The area in **Acres** the household was able to plant.
Area Harvested: The area in **Acres** that produced a harvest. This is the same as the area planted minus the area that was destroyed by major flood/pest/ animal/etc damage.

Temporary/Annual Crop:
Crops which are planted and harvested within a period of 12 months after which time the plants die. Most annual crops are planted and harvested on a seasonal basis.

Cash Crop Codes:

Code	Crop
50	Cotton
51	Tobacco
53	Pyrethrum
62	Jute
19	Seaweed

Crop Codes (Cereals /tubers/roots):

Code	Crop
11	Maize
12	Paddy
13	Sorghum
14	Bulrush Millet
15	Finger Millet
16	Wheat
17	Barley
22	Sweet Potatos
23	Irish potatos
24	Yams
25	Cocoyams
26	Onions
27	Ginger

Vegetable Codes:

Co -de	Crop
86	Cabbage
87	Tomatoes
88	Spinach
89	Carrot
90	Chillies
91	Amaranths
92	Pumpkins
93	Cucumber
94	Egg Plant
95	Water Mellon
96	Cauliflower

Crop Codes Legumes Oil & fruit:

Code	Crop
31	Beans
32	Cowpeas
33	Green gram
35	Chick peas
36	Bambara nuts
37	Field peas
41	Sunflower
42	Simsim
43	Groundnut
47	Soyabeans
48	Caster seed

Instructions for calculating the area of mixed crops in a mixture.

A. If the mixed crop is mixed annual only enter the total area of the field in the REMAINING AREA UNDER TEMPORARY CROPS. and goto step 1 of these instructions.

B. If the mixed crop is mixed permanent and annual try to get the % occupied by the different crops and calculate the area of annual crops outlined in step 1. Otherwise use the number of trees method to calculate the area of annual crops in the mix, Step C

C. Number of trees method to calculate annual crop areas in a peranent-annual crop mix/

(i) list each of the permanent crops in column b and enter the ground area per acre for each permanent crop (from instructions for page 6) in column 'd'.

(ii) obtain the number of permanent trees in the mix from the respondent and enter the number in column 'e'.

(iii) calculate the area occupied by each crop by multiplying column 'd' with column 'e' and sum these to obtain the total area of permanent crops in the mix.

(iv) subtract the total area of permanent crops in the mix from the total area of mix and enter the result in the total area under temporary crops.

(v) proceed to step 1 to calculate the area under each temporary crop.

1. Enter the name of each annual crop in the mix & estimate the percentage of each crop.
2. Using the percentages for each crop calculate the area of each crop from the REMAINING AREA UNDER TEMPORARY CROPS.
3. After completing this exercise for all fields, sum the area of each crop in the mix plus any monocrops and enter totals in section 7.1 col 6.
4. Obtain an estimate of the planned area for each crop and enter it in column 5
5. If the area harvested is different to the area planted estimate the harvest area
6. Once the quantity harvested is obtained calculate the Yield (Metric tonnes/acre) & compare the figure with the norms given in the crop codes box. If it is excessively different check the area and the amount harvested.

7.2 ANNUAL CROP AND VEGETABLE PRODUCTION - LONG RAINY SEASON

7.2.1 Did the hh **plant** any crops during the **LONG RAINY** season? (Yes=1 No=2) ☐ *If the response is **'NO'** give main reason* ☐ *Then go to section 7.3*

Main Reason (Above) *No rains.....1 Rains came too late .....2 Does not plant annual crops .....3 No money 4 Illness/social problems ..5*

7.2.2 For each crop planted during 2002/03 **Long Rainy** season provide the following information

				Planting		Inputs							Harvesting & Storage					Marketing	
Crop Name	Crop Code	Land Clea -ring	Soil prep -arat -ion	Planned area (acres)	Actual Planted area (acres)	% impr -oved seed	Irrig -at -ion use	Fer -til -iser use	Her -bic -ide use	Fun -gic -ide use	Pest -tic -ide use	How harv ested	How thres hed	Area Harvested (acres)	main prod -uct code	Quantity harvested (Kgs)	Quantity Stored (Kgs)	Quantity sold (kgs)	mostly sold to
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
.....																			
.....																			
.....																			
.....																			
.....																			
.....																			
.....																			
.....																			
.....																			
Total Planned/Planted												**Total area harvested**							

7.2.3 Main reason for difference between **Area Planned** and **Area Planted** ☐

7.2.4 Main reason for difference between **Area Planted** and **Area Harvested** ☐

Land Clearing (Col 3)
Mostly bush clearance ...1
Mostly hand slashing 2
Mostly tractor slashing ...3
Mostly burning 4
No land clearing 5

Soil preparation Method (Col 4)
Mostly tractor ploughing .1
Mostly Oxen ploughing ..2
Mostly Hand cultivation ..3

Improved seed Use (Col 7)
all Improved 1
approx 3/4 improved.....2
approx 1/2 improved.....3
approx 1/4 improved.....4
less than 1/4 improved ..5
No improved seed used.6

Irrigation Use (Col 8)
Used on all crop 1
Used on 3/4 crop 2
Used on 1/2 crop 3
Used on 1/4 of crop.....4
Used on less than 1/4 ...5
Not used 6

Fertiliser codes (Col 9)
Mostly Farm Yard Manure 1
Mostly Compost 2
Mostly Inorganic fertiliser ..3
No fertiliser applied 4

Agrochemical use codes (Col 10,11 &12)
Used on all crop 1
Used on 3/4 of crop 2
Used on half of crop.....3
Used on 1/4 of crop 4
Used on less than 1/4 5
Not used 6

Threshed/harvested (Col13 & 14)
By hand 1
By draft animal 2
By human powered tool.....3
By engine driven machine...4
Not applicable 9

Main product (Col 16)
Dry Grain.....1
Green cob/green pod.....2
Green leaves & Stem.....3
Straw, dry stems etc 4
Root, tuber, etc 5
Flower eg pyrethrum 6
Fruit/bunch.....7
Others 8
Not harvested yet 9

Mostly sold to (Col 20)
Neighbour.....01
Local market/trade store 02
Secondary Market..03
Tertiary Market 04
Marketing Coop 05
Farmer Association06
Largescale farm 07
Trader at Farm 08
Contract Partner ...09
Did not sell 10
Other 98

Reason for difference between area planned and planted (Q7.2.3)
Drought 1
Floods 2
Access to land preparation tools (Draft animal/tractors).3
Credit 4
Access to seeds/planting material.....5
Access to other inputs 6
Other 8
Not applicable 9

Reason for difference between area planted and harvested (Q7.2.4)
Drought 1
Rain/flood damage 2
Fire damage 3
Pest damage 4
Animal damage 5
Theft 6
Illness/social problems 7
Other 8
Not applicable.....9

Definitions and working page for page 5

Working table for the calculation of area occupied by annual crop in a mixture

Crop mixture 1	Crop Name	Total area of mix (acre)	Ground area/plant (ACRE)	Total no. of plants	Total ground area of plants (ACRES)
(a)	*(b)*	*(c)*	*(d)*	*(e)*	*(f)*
Permanent crop 1			0.00		0.
Permanent crop 2			0.00		0.
Permanent crop 3			0.00		0.
Permanent crop 4			0.00		0.
Total Area of permanent crops in mix					0.
REMAINING AREA UNDER TEMPORARY CROPS					.
				Temp crop%	Temp crop area
Permanent/Temporary crop name 1					.
Permanent/Temporary crop name 2					.
Permanent/Temporary crop name 3					.
Total area check	.		Temoporary crop total check		.

Crop mixture 2	Crop Name	Total area of mix (acre)	Ground area/plant (ACRE)	Total no. of plants	Total ground area of plants (ACRES)
(a)	*(b)*	*(c)*	*(d)*	*(e)*	*(f)*
Permanent crop 1			0.00		0.
Permanent crop 2			0.00		0.
Permanent crop 3			0.00		0.
Permanent crop 4			0.00		0.
Total Area of permanent crops in mix					0.
REMAINING AREA UNDER TEMPORARY CROPS					.
				Temp crop%	Temp crop area
Temporary/permanent crop name 1					.
Temporary/permanent crop name 2					.
Temporary/permanent crop name 3					.
Total area check	.		Temoporary crop total check		.

Land Clearing: Refers to removing trees/bush/grass prior to ploughing
Soil Preparation: Refers to the seedbed preparation (ploughing, harrowing, etc)
Planned Area: Area in **Acres** the household planned to plant before the season started
Actual Planted Area: The area in **Acres** the household was able to plant.
Area Harvested: The area in **Acres** that the household got most of its production from. This is the same as the area planted minus the area that was destroyed by major flood/pest/ animal/etc damage

Temporary/Annual Crop: Crops which are planted and harvested within a period of 12 months after which time the plants die. Most annual crops are planted and harvested on a seasonal basis.

Cash Crop Codes:

Code	Crop
50	Cotton
51	Tobacco
53	Pyrethrum
62	Jute
19	Seaweed

Crop Codes (Cereals /tubers/roots):

Code	Crop
11	Maize
12	Paddy
13	Sorghum
14	Bulrush Millet
15	Finger Millet
16	Wheat
17	Barley
22	Sweet Potatos
23	Irish potatos
24	Yams
25	Cocoyams
26	Onions
27	Ginger

Vegetable Codes:

Code	Crop
27	Ginger
86	Cabbage
87	Tomatoes
88	Spinach
89	Carrot
90	Chillies
91	Amaranths
92	Pumpkins
93	Cucumber
94	Egg Plant
95	Water Mellon
96	Cauliflower
20	Garlic

Crop Codes Legumes Oil & fruit:

Code	Crop
31	Beans
32	Cowpeas
33	Green gram
35	Chick peas
36	Bambara nuts
37	Field peas
41	Sunflower
42	Simsim
43	Groundnut
47	Soyabeans
48	Caster seed

Instructions for calculating the area of mixed crops in a mixture.

A. If the mixed crop is mixed annual only enter the total area of the field in the REMAINING AREA UNDER TEMPORARY CROPS. and goto step 1 of these instructions.

B. If the mixed crop is mixed permanent and annual try to get the % occupied by the different crops and calculate the area of annual crops outlined in step 1. Otherwise use the number of trees method to calculate the area of annual crops in the mix (Step C).

C. Number of trees method to calculate annual crop areas in a peranent-annual crop mix
- (i) list each of the permanent crops in column b and enter the ground area per acre for each permanent crop (from instructions for page 6) in column 'd'.
- (ii) obtain the number of permanent trees in the mix from the respondent and enter the number in column 'e'.
- (iii) calculate the area occupied by each crop by multiplying column 'd' with column 'e' and sum these to obtain the total area of permanent crops in the mix.
- (iv) subtract the total area of permanent crops in the mix from the total area of mix and enter the result in the total area under temporary crops.
- (v) proceed to step 1 to calculate the area under each temporary crop.

1. Enter the name of each annual crop in the mix & estimate the percentage of each crop.
2. Using the percentages for each crop calculate the area of each crop from the REMAINING AREA UNDER TEMPORARY CROPS.
3. After completing this exercise for all fields, sum the area of each crop in the mix plus any monocrops and enter totals in section 7.1 col 6.
4. Obtain an estimate of the planned area for each crop and enter it in column 5
5. If the area harvested is different to the area planted estimate the harvest area
6. Once the quantity harvested is obtained calculate the Yield (Metric tonnes/acre) & compare the figure with the norms given in the crop codes box. If it is excessively different check the area and the amount harvested.

7.3 PERMANENT/PERENNIAL CROPS AND FRUIT TREE PRODUCTION

7.3.1 Does your household have any **permanent/perennial crops or fruit trees** (Yes=1, No=2) [1]

7.3.2 For each of the **permanent crops and fruit trees** owned by the household provide the following informatior

		Size of production unit			Inputs					Harvesting & Storage						Marketing	
		MONOCROP	MIXED CROP														
Perm-anent Crop Name	Perman-ent crop/ fruit tree crop Code	Area of Plants/ trees/Bushes in MONO CROP (acres)	Area covered by Permanent Crop in a MIXED CROP (acre)	Number of permanent Plants/trees in a MIXED CROP	Irrig-at-ion use	Fert-ilis-er use	Herb-ic-ide use	Fun-gic-ide use	Pest-ici-de use	Area Harvested (acres)	Number of mature plants	main prod-uct code	Quantity harvested (kgs)	If no harvest give re-ason	Quantity Stored (Kgs)	Quantity sold (kgs)	mostly sold to
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
……																	
……																	
……																	
……																	
……																	
……																	
……																	
……																	
……																	

Irrigation Use (Col 6)
Used on all crop ……..1
Used on most crop ……..2
Used on half crop ……..3
Used on small amount of crop..4
Not used on crop ……..5

Fertiliser codes (Col 7)
Mostly Farm Yard Manure……1
Mostly Compost ……..2
Mostly Inorganic fertiliser ……..3
No fertiliser applied ……..4

Agrochemical use codes (Col 8, 9 & 10)
Used on all crop ……1
Used on 3/4 of crop ……..2
Used on 1/2..of crop……..3
Used on 1/4 of crop ……..4
less than 1/4 of crop ……..5
Not used ……..6

Main product (Col 13)
Dry Grain……..1
Green cob/green pod..2
Green leaves & Stem..3
Straw, dry stems etc ...4
Root, tuber, etc ……..5
Flower ……..6
Fruit/bunch……..7
Other ……..8
Not harvested yet …..9

Main Reason for no harvest(Col 15)
Crop not harvested yet ……..1
Drought ……..2
Rain/flood damage ……..3
Fire damage ……..4
Pest damage ……..5
Animal damage ……..6
Theft ……..7
Other ……..8
Not applicable ……..9

Mostly sold to (Col 18)
Neighbour……..01
Local market/trade store…..02
Secondary Market ……..03
Tertiary Market ……..04
Marketing Coop ……..05
Farmer Association ……..06
Largescale farm ……..07
Trader at farm ……..08
Contract Partner ……..09
Did not sell ……..10
Other ……..98

Definitions and working page for page 6

Permanent Crop:
Permanent crops: are sown or planted once and then , they occupy the land for some years and neec not to be replanted after each annual harvest. Permanent crops are mainly trees (e.g., apples) but also bushes and shrubs (e.g., berries), palms (e.g., dates), vines (e.g., grapes), herbaceous stems (e.g., bananas) and stemless plants (e.g., pineapples).

Total number of plants:
This includes both mature harvestable plants and immature non harvestable plants.

Number of mature plants: This is the number of plants which bared harvest.

Instructions for Permanent crop mono stands and mixtures

A. For fields that are **monocrop permanent, ONLY** enter the **area of plants in column 3.**

B. For fields that are **mixed permanent** calculate the area of each crop based on the **% occupied by each crop method** (NOT using the number of trees method) and **ONLY** enter the area in **column 4**

C. For fields that are **mixed permanent/annual** either:
- **ONLY** enter the **area** in **column 4** if the area of the permanent crop was based on the **% occupied by each crop method**

OR

- **ONLY** enter the **number** of trees in **column 5** if the number of permanent crop plants was provided

Permanent crops (oils):

Code	Crop	Ground area/plant
44	Palm Oil	0.00049
45	Coconut	0.00037
46	Cashewnut	0.00062

Permanent (Cash crops)

Code	Crop	Ground area/plant
53	Sisal	0.00012
54	Coffee	0.00049
55	Tea	0.00037
56	Cocoa	0.00049
57	Rubber	0.00099
58	Wattle	0.00099
59	Kapok	0.00124
60	Sugar Cane	0.00012
61	Cardamom	0.00049
63	Tamarin	0.00099
64	Cinamon	0.00124
65	Nutmeg	0.00099
66	Clove	0.00074
18	Black Pepper	0.00037
34	Pigeon pea	0.00025
21	Cassava	0.00019
75	Pineapple	0.00006

Permanent Crops:

Code	Crop	Ground area/plant
70	Passion Fruit	0.00074
71	Banana	0.00037
72	Avocado	0.00099
73	Mango	0.00099
74	Papaw	0.00037
76	Orange	0.00074
77	Grapefruit	0.00074
78	Grapes	0.00012
79	Mandarin	0.00074
80	Guava	0.00074
81	Plums	0.00074
82	Apples	0.00074
83	Pears	0.00074
84	Peaches	0.00074
85	Lime/lemon	0.00074
68	Pomelo	0.00099
69	Jack fruit	0.00074
97	Durian	0.00074
98	Bilimbi	0.00074
99	Rambutan	0.00074
67	Bread fruit	0.00099
38	Malay apple	0.00074
39	Star fruit	0.00074

Working Area/calculation space

7.4 Main use of **Secondary Products**

7.5 Did you use **Secondary Products** from any of your crops during the 2002/03 year. (Yes=1, No=2) ☐

*If the response is **'NO'** go to section 8.0*

7.6 List the **main crops** with **secondary products** and provide the following details:

S/N	Crop name	Crop Code	Secondary product	Prod code	Used for	Unit	Total no of Units	No of units sold	Total value of sold units (Tsh.)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7.6.1	……	☐☐	……	☐	☐	☐	☐☐☐☐	☐☐☐☐	☐☐☐☐☐
7.6.2	……	☐☐	……	☐	☐	☐	☐☐☐☐	☐☐☐☐	☐☐☐☐☐
7.6.3	……	☐☐	……	☐	☐	☐	☐☐☐☐	☐☐☐☐	☐☐☐☐☐
7.6.4	……	☐☐	……	☐	☐	☐	☐☐☐☐	☐☐☐☐	☐☐☐☐☐
7.6.5	……	☐☐	……	☐	☐	☐	☐☐☐☐	☐☐☐☐	☐☐☐☐☐
7.6.6	……	☐☐	……	☐	☐	☐	☐☐☐☐	☐☐☐☐	☐☐☐☐☐

Main product (Col 4)
Green leaves & Stem..1 Flower …4
Straw, dry stems etc …2 Fruit ……5
Root, tuber, etc ……..3 Other …..8

Mainly used for (Col 5)
Feeding to livestock ..1 Consumed by hh ……4
Building material ……2 Sold ……5
Fuel for cooking ….. 3 Did not use……6

Unit (Col 6)
Loose Bundle/bunch ……1 kg ……5
Compressed bunch/Bail….2 Stems ……6
Tin …….. 3 Sack ……7
Bucket ……4 Other ……8

8.0 AGROPROCESSING AND BY-PRODUCTS

8.1 Did the household **process** any of the products harvested on the farm during 2002/03 (Yes=1, No=2) ☐

*If the response is **'NO'** go to section 9.0*

8.2 List the **main crops processed** and provide the following details:

S/N	Crop name	Crop Code	Proc-ess-ed	Main Prod-uct code	Used for	Unit	Quantity of main product	Quantity Sold	Whe-re sold	By-Prod-uct code	Used for	Unit	Quantity of by-product	Quan-tity Sold
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
8.2.1	…….	☐☐	☐	☐	☐	☐	☐☐☐☐	☐☐☐☐	☐	☐	☐	☐	☐☐☐☐	☐☐☐
8.2.2	…….	☐☐	☐	☐	☐	☐	☐☐☐☐	☐☐☐☐	☐	☐	☐	☐	☐☐☐☐	☐☐☐
8.2.3	…….	☐☐	☐	☐	☐	☐	☐☐☐☐	☐☐☐☐	☐	☐	☐	☐	☐☐☐☐	☐☐☐
8.2.4	…….	☐☐	☐	☐	☐	☐	☐☐☐☐	☐☐☐☐	☐	☐	☐	☐	☐☐☐☐	☐☐☐
8.2.5	…….	☐☐	☐	☐	☐	☐	☐☐☐☐	☐☐☐☐	☐	☐	☐	☐	☐☐☐☐	☐☐☐
8.2.6	…….	☐☐	☐	☐	☐	☐	☐☐☐☐	☐☐☐☐	☐	☐	☐	☐	☐☐☐☐	☐☐☐

Processed (Col 3)
On farm by hand…..……1
On farm by machine…….2
By neighbours machine...3
By farmers association …4
By Cooperative union …..5
By trader ……...6
On Large scale farm ……7
By factory ……..9
Other 8

Main product code (Col 4)
Flour/meal……..1
Grain……2
Oil .. ……3
Juice……4
Fiber……..5
Pulp ……6
Sheet ……..……7
Other ……8

Used for (Col 5 & 11)
Household/human consumption ..1
Fuel for cooking ……..2
Sale ……..3
Animal consumption……..4
Did not use ……5
Other ……..8

Unit (Col 6 & 12)
Loose bundle/bunch ……1
Compressed bunch/bail….2
Tin ……..3
Bucket ……..4
kg ……..……..5
litre ……..6
Other ……..8

Where sold (Col 9)
Neighbour……..…1
Local market/trade store ……..2
Secondary Market …..3
Marketing Coop ……..4
Farmer Association …..5
Largescale farm ……6
Trader at farm ……..7
Did not sell ……..9
Other ……..8

By-product code (Col 10)
Bran ……...01
Cake ……...02
Husk ……...03
Juice ……...04
Fiber ……...05
Pulp ……...06
Oil ……...07
Shell ……...08
Other ……..98

Definition and working page for page 7

Temporary/annual crop codes for section 7.4 col 2

Crop Code	Crop Name	Secondary Product Question 7.4	Agroprocessing & bi-products: Main Products (Section 8.0)	Bi-product (Sect 8.0): 1	2
11	Maize	Stems/straw	Flour	Bran	
12	Paddy	Stems/straw	polished rice grain	husk	
13	Sorghum	Stems/straw	flour		
14	Bulrush Millet	Stems/straw	flour		
15	Finger Millet	Stems/straw	flour		
16	Wheat	Stems/straw	flour	Bran	
17	Barley	Stems/straw	flour	Bran	
21	Cassava	Leaves/stems	flour		
22	Sweet Potatoes	Leaves			
23	Irish potatoes				
24	Yams				
25	Cocoyams				
26	Onions				
27	Ginger				
31	Beans	straw/stems			
32	Cowpeas	straw			
33	Green gram	straw			
34	Pigeon peas	stems			
35	Chick peas	straw			
36	Bambara nuts	straw/stems	oil	cake	
41	Sunflower	Stems	oil	Cake	
42	Simsim	straw	oil	Cake	
43	Groundnut	straw	oil	Cake	
47	Soya beans	straw	oil	Cake	
48	Caster seed	straw	oil	Cake	
75	Pineapple		Juice		
50	Cotton	straw	fibre/seed	oil	cake
51	Tobacco				
53	Pyrethrum	straw	insecticide		
62	Jute		fibre		
86	Cabbage				
87	Tomatoes				
88	Spinach				
89	Carrot				
90	Chillies		dried powder		
91	Amaranths				
92	Pumpkins	leaves			
93	Cucumber				
94	Egg Plant				
95	Water Mellon				
96	Cauliflower				
44	Oil Palm	leaves	oil outer	oil inner	cake
45	Coconut	leaves/husk	milk		
46	Cashewnut	Fruit	fruit juice	shell liquid	
52	Sisal	stems	fibre	oil	
54	Coffee	stems	beans	husks	
55	Tea	stems			
56	Cocoa	stems	cocoa	cocoa butter	
57	Rubber	stems			
58	Wattle	stems			
59	Kapok	stems			
60	Sugar Cane		sugar/juice	molasses	ethanol
61	Cardamom				
71	Banana	leaves/stems	juice		
72	Avocado	stems			
73	Mango	stems	Juice		
74	Paw paw		Juice		
76	Orange	stems	Juice		
77	Grape fruit	stems	Juice		
78	Grapes	stems	Juice		
79	Mandarin	stems	Juice		
80	Guava	stems			
81	Plums	stems			
82	Apples	stems			
83	Pears	stems			
84	Pitches	stems			
85	Lime/Lemon	stems	juice		

General Definition for Section 7.4

Secondary Products: Second most important product from a crop. Eg a household may consider the grain from maize as the primary product and the stems/straw as the secondary product.

Note: Secondary products are NOT the same as bi-products. By-products are the result of a processing activity and are dealt with in section 8.0.

Procedures for Questions

Q 7.6 Details of Secondary Products:

1. From the list of crops in Q 7.1.2, 7.2.2 & 7.3.2, ask the respondent if the hh used any secondary products. List the crop names and codes in column 1 and 2 for those crops that the hh used secondary products.
2. For the listed crops give details of the secondary products used.
3. If no units were sold, enter "0" in columns 8 & 9.

Q 8.0 Agroprocessing & bi-products:
1. From the list of crops in Q 7.1.2, 7.2.2 & 7.3.2, ask the respondant if the hh processed any of these crops during the 2002/03 agriculture year. List the crop names and codes in column 1 and 2 for those crops that were processed by the hh.
2. For the listed crops give details of the secondary crops used.
3. If no main product or bi-product was sold enter "0" in columns 8 & 14.
4. If no bi-product was produced enter "0" in columns 10, 11, 12, 13 &14.

Question Specific Definitions

Agroprocessing and bi-products (Q 8.2) (Note: Agroprocessing refers to the processing of crops for hh utilisation and for sale)

Main Product (Col 5):
Main Product after processing. Eg for Paddy it may be the polished grain. For Maize it may be flour.
Bi-Product code (Col 11): is the secondary residue after processing, eg for rice it may be the husk. for maize it may be the bran.

Mainly used for (Col 5 & 11):
- **Consumed by household** can mean eaten or utilised in another way (eg by animals) by the hh.

9.0 CROP STORAGE

9.1 Did the household **store** any crops during the 2002/03 agriculture year? (Yes =1, No=2) ☐

*If the response is **'NO'** go to section 10.0*

9.2 For **each** of the listed crops provide the following details on **storage**

S/N	Crop Name	Stored Y=1 No=2	Current Quantity Stored (kg)	Method of Storage	Normal duration of storage	Main purpose	Estimate Storage loss
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
9.2.1	Maize	☐	☐☐☐☐	☐	☐	☐	☐
9.2.2	Paddy	☐	☐☐☐☐	☐	☐	☐	☐
9.2.3	Sorghum/Millet	☐	☐☐☐☐	☐	☐	☐	☐
9.2.4	Beans, peas, etc	☐	☐☐☐☐	☐	☐	☐	☐
9.2.5	Wheat	☐	☐☐☐☐	☐	☐	☐	☐
9.2.6	Coffee	☐	☐☐☐☐	☐	☐	☐	☐
9.2.7	Cashewnut	☐	☐☐☐☐	☐	☐	☐	☐
9.2.8	Tobacco	☐	☐☐☐☐	☐	☐	☐	☐
9.2.9	Cotton	☐	☐☐☐☐	☐	☐	☐	☐
9.2.10	Groundnuts/bambara	☐	☐☐☐☐	☐	☐	☐	☐

Main method of Storage (Col 4)
In locally made traditional structure..1
In Improved locally made structure .2
In modern store ……..3
In Sacks/open drum……..4
In airtight drum ……5
Unprotected pile ……6
Other ……8

Duration of Storage (Col 5)
Less than 3 months ……1
Between 3 and 6 months ……2
Over 6 months ……3

Main purpose of storage (Col 6)
Food for the household ……1
To sell for higher price ……2
seed for planting……3
Other ……8

Storage loss (Col 67)
Little or no loss ……1
Up to 1/4 loss ……2
Between 1/4and 1/2 loss ..3
Over 1/2 loss ……4

10.0 MARKETING

10.1 Did the household **sell any crops** from the 2002/03 agriculture year? (Yes=1, No=2) ☐

(If the response is 'YES' or 'NO' go to section 10.2)

10.2 For **each of the following crops** what was the main **marketing problem** faced by the household during 02/03

	Crop	Main problem		Crop	Main problem
	(1)	*(2)*		*(1)*	*(2)*
10.2.1	Maize	☐☐	10.2.9	Vegetables	☐☐
10.2.2	Rice	☐☐	10.2.10	Tree Fruits	☐☐
10.2.3	Sorghum/millet	☐☐	10.2.11	Cashewnut	☐☐
10.2.4	Wheat	☐☐	10.2.12	Cotton	☐☐
10.2.5	Beans, peas etc	☐☐	10.2.13	Tobacco	☐☐
10.2.6	Cassava	☐☐	10.2.14	Groundnuts/bamabara	☐☐
10.2.7	Bananas	☐☐	10.2.15	Trees/timber/poles	☐☐
10.2.8	Coffee	☐☐	10.2.16	Fish	☐☐

10.3 From the list of marketing problems below, for all produce rank the five most important problems

		1	2
10.3.1	Biggest problem	☐☐	
10.3.2	2nd problem	☐☐	
10.3.3	3rd problem	☐☐	
10.3.4	4th problem	☐☐	
10.3.5	5th problem	☐☐	

Market problems (Q10.2 & 10.3 (Col 2))
Open market price too low ……01 *Market too far ……05* *Government Regulatory board problems...09*
No transport ……02 *Farmer association problems .....06* *Lack of market Information 10*
Transport cost too high ……03 *Cooperative Problems .....07* *Other (specify) ……98*
No buyer ……04 *Trade Union problems .....08* *Not Applicable 99*

10.4 What was the main **reason for not selling** crops during 2002/03 year …… ☐

Reason for not selling crops (Q10.4)
Price too low ……1 *Farmer association problems ……4* *Government regulatory board problems 7*
Production insufficient to sell……2 *Cooperative Problems.....5* *Other (specify) ……8*
Market too far …… ...3 *Trade Union problems .....6* *Not Applicable ……9*

Definition and working page for page 8

Question Specific definitions (Section 9.0)
Crop Storage, Section 9

Method of Storage (column 4)

- **Locally made structure:** The structures that have been inherited from their fore fathers

- **Improved locally made structure:** Traditional structures that have been improved using modern technology.

- **Normal duration of storage:** Often there are stored stocks from different seasons and different years. The normal duration refers to the number of months that the most of the crop is stored for.

Marketing problems Q 10.2 and 10.3 col 2:

- **Farmer Association:** A village or community based group of farmers who have formed an organisation to purchase inputs/sell/store their products in order to achieve a better price for their products.

- **Cooperative Union:** Large inter-village /community organisation set up on a district/regional or national basis for providing inputs, marketing and storing farmers products.

- **Government Regulatory board:** Government control body for setting prices and controlling quality of certain agriculture commodities.

Procedures for Questions

Q 9.2 Details of Crop Storage:

1. For the crops listed indicate if the household stored any during 2002/03 in column 2.

2. Check that the crops correspond to the crop lists in Q 7.1.2, 7.2.2 & 7.3.2. If there is a difference inquire on the reason why. It is possible that a crop was missed during the enumeration of these questions and if so make necessary amendments

3. For the listed crops give details of storage.

Q 10.2 Details on Crop Marketing:

1. For each of the crops listed indicate the main problems in marketing during 2002/03 in column 2.

2. Check if the crops correspond to the crop lists list in Q 7.1.2, 7.2.2 & 7.3.2. If there is a difference inquire on the reason why. It is possible that a crop was missed during the enumeration of these questions and if so make necessary amendments

Q 10.3 Ranking of market problems:

Rank in order of importance the 5 most important marketing problems from the codes in the Market Problems code box.

Working Area/calculation space

11.0 ON-FARM INVESTMENT

11.1 Does the household practice **irrigation** (Yes=1, No=2) ☐

If the response is 'NO' go to section 11.3

S/N	Source of Irrigation water	Method of obtaining water	Method of applic -ation	Irrigatable area (acres)	Area of irrig ated land this year (acres)
	(1)	(2)	(3)	(4)	(5)
11.1.1	☐	☐	☐	☐☐☐.☐	☐☐☐.☐

Source of irrigation water (Col 1)
River .....1 Borehole 5
Lake .....2 Canal 6
Dam .....3 Tap Water 7
Well 4

Method of obtaining water (Col 2)
Gravity .....1 motor pump 4
Hand bucket .....2 Other 8
Hand pump 3

Method of application (Col 3)
Flood 1
Sprinkler 2
water hose.....3
Bucket/watering can 4

11.2 Does the household have any **erosion control/water harvesting facilities** on their land (Yes=1, No=2) ☐

*If the response is **'NO'** go to section 12.0*

S/N	Type of erosion control/ water harvesting structure	Number of structures	Year of con- struction		Type of erosion control/ water harvesting structure	Number of structures	Year of con- struction
	(1)	(2)	(3)		(1)	(2)	(3)
11.2.1	Terraces	☐☐	☐☐	11.2.5	Tree belts	☐☐	☐☐
11.2.2	Erosion control bunds	☐☐	☐☐	11.2.6	Water harvesting bunds	☐☐	☐☐
11.2.3	Gabions/Sandbags	☐☐	☐☐	11.2.7	Drainage ditches	☐☐	☐☐
11.2.4	Vetiver Grass	☐☐	☐☐	11.2.8	Dam	☐☐	☐☐

12.0 ACCESS TO FARM INPUTS AND IMPLEMENTS

12.1 Give details of **farm inputs** used during the 2002/03 agriculture year

S/N	Input name	Used Yes=1 No=2	Source	Distance to Source	Source of Fin -ance	Reason for not using	Quality of Input	Plan to use next year Yes =1,No=2
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
12.1.1	Chemical Fertiliser	☐	☐☐	☐	☐	☐	☐	☐
12.1.2	Farm Yard Manure	☐	☐☐	☐	☐	☐	☐	☐
12.1.3	Compost	☐	☐☐	☐	☐	☐	☐	☐
12.1.4	Pesticide/fungicide	☐	☐☐	☐	☐	☐	☐	☐
12.1.5	Herbicide	☐	☐☐	☐	☐	☐	☐	☐
12.1.6	Improved Seeds	☐	☐☐	☐	☐	☐	☐	☐
12.1.7	Other	☐	☐☐	☐	☐	☐	☐	☐

Source (Col 3)
Cooperative 01
Local farmers group 02
Local market/Trade Store ...03
Secondary Market 04
Development project 05
Crop buyers 06
Large scale farm 07
Locally produced by hh 08
Neighbour 09
Other (specify) 98
Not applicable 99

Distance to source (Col 4)
Less than 1 Km 1
Between 1 and 3km 2
between 3 and 10 km.. ...3
Between 10 and 20 km ...4
20km and above 5
not applicable 9

Source of finance (Col 5)
Sale of farm products .1
Other income generating activities 2
Remittances 3
Bank Loan/Credit.....4
produced on farm 5
Other 8
Not applicable 9

Reason for not using (Col 6)
Not available 1
Price too high 2
No money to buy 3
Too much labour required..4
Do not know how to use.....5
Input is of no use 6
Locally produced by hh 7
Other 8
Not applicable 9

Quality of input (Col 7)
Excellent 1
Good 2
Average 3
Poor 4
Does not work .5
not applicable...9

Definition and working page for page 9

Overview of Investment activities (Section 11.0)

Investment activities:

Investment activities refer to medium to long term farm development structures and projects. This can be Irrigation structures, erosion and water harvesting structures or other permanent or semi-permanent investment made on the land that the household owns.

Question Specific Definitions (Q 11.1)

Source of irrigation Water (Col 1): The main source of water from which water is obtained for irrigation.

Method of obtaining water (Col 2): The mechanism by which the water is extracted from the source,

Application Method (Col 3): How the water is applied on the field.
- Flood - is the application of water down the slope of the land by means of gravity
- Sprinkler - is the application of pressurised water through pipes. The water passes through a device which sprays the water onto the crop from above.

Irrigatable Area (Col 4): The area the irrigation system is designed to cover in acres.

Area of irrigated land this year (Col 5): Area of land under irrigation during the 2002/03 agric year. This is the physical area and NOT the cumulative area of 2 or more croppings.

Q 11.1 Irrigation

1. If the hh practices irrigation give details on the main source, main method of obtaining and applying water.

2. Cross check column 8, Q 7.1.2, 7.2.2 & 7.3.2 to check if irrigation was used on any crops.

Question Specific Definitions (Q 11.3)

Erosion control/water harvesting structure (Col 1)

Terraces: Are structures constructed on the side of a hill to provide a level ground to plant crops. They are often used to trap water for paddy/lowland rice production.

Erosion Control Bunds: These are banks of earth/stones built perpendicular to the slope to slow down water and prevent erosion. They are different to Terraces in that the soil behind the banks are not level.

Gabions: A gabion is a wire mesh box filled with rocks/stones and used to control or prevent gully erosion

Sandbags Used to prevent or control gully erosion

Tree belts/Wind breaks: A band of trees planted perpendicular to the prevailing wind whose main purpose is to slow down wind speed

Water Harvesting bunds: A bank of earth constructed horizontal to the slope of the land to trap water. They are usually banana shaped.

Dam: A bank of earth/material which traps river water to form a catchment of water behind it.

Q 11.3 erosion control/water harvesting

1. Number of structures refers to the number of working/maintained structures and does not include derelict or irreparable structures.

2. Year of construction refers to the year that the structures were first constructed. It is not the year that the structures were last maintained.

Farm Inputs (Q 12.1.1 to 12.1.7)

Farm yard Manure: An organic fertiliser made on farm composed of animal dung.

Compost: An organic fertiliser made on farm from decomposed plant material

Pesticide: Chemical used to either protect the plant from or kill insects, birds, molluscs, mites, etc attacking the plant

Fungicide: is a chemical that s used to protect the plant from or control a fungal disease.

Herbicide: A chemical used to control weeds.

Q 12.0 Farm Inputs

1. Indicate in column 1 whether each of the inputs are used or not.

2. Complete cols 3, 4, 6, and 7 for inputs that are used and place **'9'** in column 5 (for not applicable).

3. Complete cols 5 & 7 for inputs not used.

NOTE: Cross check column 6, 7, 8 & 9 , Q 7.1.2, 7.2.2 & 7.3.2 to check what inputs were used.

12.2 Give details of **farm implements and assets** used and owned by the household during 2002/03 agriculture year

S/N	Equipment/Asset Name	Number Owned	Number rent-ed	Used in 2002/03 Yes 1,No=2	Source of Equip-ment	Source of Fin-ance	Reason for not using	Plan to use next year Yes=1,No=2
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
12.2.1	Hand Hoe							
12.2.2	Hand Powered Sprayer							
12.2.3	Oxen							
12.2.4	Ox Plough							
12.2.5	Ox Seed Planter							
12.2.6	Ox Cart							
12.2.7	Tractor							
12.2.8	Tractor Plough							
12.2.9	Tractor Harrow							
12.2.10	Shellers/threshers							

Source of equipment (Col 5)
Neighbour..... .....1 Development project 5
Cooperative .....2 Government 6
Local farmers association.....3 Large scale farm 7
market/Trade store .....4 Other (specify) 8

Source of finance (Col 6)
Sale of farm products 1
Other income generating activities .2
Remittances 3
Bank Loan 4
Credit 5
Other 8
Not applicable 9

Reason for not using (Col 7)
Not available 1
Price too high 2
No money to buy/rent.....3
Too much labour required....4
Equipment/Asset of no use ...5
Other 8
Not applicable 9

13.0 USE OF CREDIT FOR AGRICULTURE PURPOSES

13.1 During the year 2002/03 did any of the hh members **borrow money** for **agriculture** (Yes = 1, No = 2) ☐
(if the response is 'NO' go to section 13.3)

13.2 Give details of the **credit** obtained during the agricultural year **2002/03**
(if the credit was provided in kind , for example by the provision of inputs, then estimate the value in 13.2.9)

		Source "a"	Source "b"	Source "c"
	use codes to indicate source	☐	☐	☐
	Provided to Male = 1, Female 2	☐	☐	☐
		tick the boxes below to indicate the use of the credit	tick the boxes below to indicate the use of the credit	tick the boxes below to indicate the use of credit
13.2.1	Labour	☐	☐	☐
13.2.2	Seeds	☐	☐	☐
13.2.3	Fertilisers	☐	☐	☐
13.2.4	Agrochemicals	☐	☐	☐
13.2.5	Tools/equipment	☐	☐	☐
13.2.6	Irrigation structures	☐	☐	☐
13.2.7	Livestock	☐	☐	☐
13.2.8	Other	☐	☐	☐
13.2.9	**Value of Credit (Tsh.)**	☐☐☐☐☐☐☐	☐☐☐☐☐☐☐	☐☐☐☐☐☐☐
13.2.10	**Value of repayment (Tsh.)**	☐☐☐☐☐☐☐	☐☐☐☐☐☐☐	☐☐☐☐☐☐☐
13.2.11	**Period of repayment (months)**	☐☐☐	☐☐☐	☐☐☐

Source of credit (Q 13.2-a, b and c)) *Family, friend or relative....1 Commercial Bank.....2 Cooperative .....3 Savings & credit Soc 4*
Trader/trade store .....5 Private individual .....6 Religious Organisation/NGO/Project ...7 Other (Specify).....8

13.3 If the answer to question 13.1 above is 'NO' what is the reason for not using Credit? ☐

Reason for not using credit (Q13.3) *Not needed ...1 Not available ...2 Did not want to go into debt.....3 Interest rate/cost too high.....4*
Did not know how to get credit....5 Difficult bureaucratic procedure ...6 Credit granted too late ...7 Other (specify) ...8 Dont know about credit 9

Definition and working page for page 10

Question Specific Definitions (Q 12.2)

Farm Implements (Col 1):

Hand powered Sprayer: Knapsack or bicycle pump sprayer

Reason for not using (Col 6): Be careful about using "too much labour required" as this code generally refers to hand hoes only. The codes for this should **"NOT"** be read out to the farmer as a prompt.

Note: If remittance is given as the main source of finance check for a response to remittances in **question 2.2.5**

Question Specific Definitions (Q 13.0)

Section 13.0 Credit for Agriculture Purposes

Credit is defined as finance in the form of cash or in-kind contributions (eg direct provision of inputs, machinery, livestock or other material) for the purpose of crop and livestock production whereby the value of the credit must be paid back to the borrower. The value of repayment may either be with interest or interest free.

Credit may be paid back in the form of cash or agriculture produce.

Section 13.0 Credit for Agriculture Purposes

Value of credit: is the amount in cash received from the borrower. If the credit was paid in-kind, estimate the value of this.

Value of repayment: This is the amount to be repaid to the borrower and includes the principal amount (value of credit) plus any interest repayment. If the credit is paid back in agriculture produce, then the cash value of this must be estimated.

Period of repayment: This is the time **in months** the borrower has given for full repayment.

Procedures for questions

Q 12.0 Farm Inputs

1. Indicate in column 2 and 3 whether each of the implements were used or not.

2. Complete cols 4, 5, 6, and 8 for inputs that are used and place **'9'** in column 7 (for not applicable).

3. Complete cols 7 & 8 for inputs not used.

Section 13.2 Source of agriculture credit

If the farmer obtained credit from more than one source then use the columns "a" , "b" and "c" for the different sources of credit. Start with the main source of credit in column "a".

NOTE: Check for use of inputs in column 7, 8 & 9 of questions 7.1.2, 7.2.2 & 7.3.2.

Working Area/calculation space

14.0 TREE FARMING/AGROFORESTRY

14.1 Did your household have any **Planted Trees** on your land during 2002/03 agric year? (Yes =1, No=2) ☐

*If the response is **'NO'** go to section 14.3*

14.2 Give details of the **planted trees** you have **on your land**.

S/N	Tree Code	Number of trees	Where planted	Main Use	Second Use	Number of Plank trees Sold	Number of Pole trees Sold	hh utilised Number of Poles	hh utilised Number of Timber	Total Value (Tsh.)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
14.2.1	☐☐	☐☐☐☐	☐	☐	☐	☐☐☐	☐☐☐	☐☐	☐☐	☐☐☐☐☐☐
14.2.2	☐☐	☐☐☐☐	☐	☐	☐	☐☐☐	☐☐☐	☐☐	☐☐	☐☐☐☐☐☐
14.2.3	☐☐	☐☐☐☐	☐	☐	☐	☐☐☐	☐☐☐	☐☐	☐☐	☐☐☐☐☐☐
14.2.4	☐☐	☐☐☐☐	☐	☐	☐	☐☐☐	☐☐☐	☐☐	☐☐	☐☐☐☐☐☐

Where Planted (Col 3)
Mostly on field/plot boundaries.1
Mostly scattered in fields 2
Mostly in plantation/coppice ...3

Use (Col 4 & 5)
Planks/Timber.....1 *Shade 5*
Poles .....2 *Medicinal.....6*
Charcoal .....3 *Other 8*
Fuel wood 4

14.3 Does your village have a **Community tree planting scheme** (Yes=1, No=2) ☐

*If the response is **'NO'** go to section 15.0*

14.4 Household involvement in **community tree planting scheme**

S/N	Distance to community planted forest (Km)	hh Involvement	Main purpose	Main use during 2002/03
	(1)	(2)	(3)	(4)
	☐☐.☐	☐	☐	☐

HH involvement (Col 2)
Only planting 1
Only protection and thinning.....2
Only cutting 3
Most or all activities.....4

Main Purpose (Col 3)
Erosion control.....1 *Environment rehaiblitation ...4*
Production of poles .....2 *Restoration of wildlife 5*
production of firewood..3 *Other (specify) 8*

Main Use during 02/03(Col 4)
Poles .....1 *Not ready to use 5*
Timber logs .....2 *Not allowed to use ...6*
Charcoal ....3 *Other (specify) 8*
Firewood 4

15.0 CROP EXTENSION SERVICES

15.1 Did your household receive **extension advice** for **crop production** during 2002/03 (Yes=1,No=2) ☐

*If the response is **'NO'** go to section 16.0*

S/N	Extension Provider	Source of extension (Y=1,N=2)	If you pay for extension, what is the cost/yr	Contact farmer /group member (Yes=1,No=2)	No. of visits by extension agency per year	No. of message adopted in the last 3 years	Quality of Service
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
15.1.1	Government extension	☐	☐☐☐☐☐	☐	☐☐	☐☐	☐
15.1.2	NGO/development project	☐	☐☐☐☐☐	☐	☐☐	☐☐	☐
15.1.3	Cooperative	☐	☐☐☐☐☐	☐	☐☐	☐☐	☐
15.1.4	Large Scale farmer	☐	☐☐☐☐☐	☐	☐☐	☐☐	☐
15.1.5	Other.....	☐	☐☐☐☐☐	☐	☐☐	☐☐	☐

Quality of service (Col 7)
Very good .....1 good .....2 Average..... ...3 Poor.....4 No Good 5

Definition and working page for page 11

General Definitions for section 14.0

Tree Farming/Agroforestry

This section refers to trees **planted** for wood (firewood, poles, planks, carving, charcoal, medicinal, etc, but **NOT** fruit trees). It does **not** include naturally growing trees on the farm (unless special care has been given to promote their establishment) or trees growing naturally on the communal areas.

Tree farming is the planting of trees on an area of land for which the main purpose is the production and regeneration of trees for wood on that land.

Agroforestry: is the planting of trees on land for the purpose of complementing other farming activities like crop and animal production. For the purpose of this questionnaire Agroforestry trees are trees planted on boundaries and scattered throughout fields. The main productive unit in this case is Crops and Livestock.

Section 14.2 Details of planted trees

1. Enter the tree codes of the main species grown by the hh

2. If no planks or poles are sold enter a "0" in columns 8, & 9.

3. Total value includes both value of hh utilised trees and sold trees.

4. If no trees were utilised by the hh or sold enter "0" in column 10

Question Specific Definitions

Tree farming (Section 14.0)

Pole trees (Col 6): These are young trees which have a maximum diameter of 6 inches at the bottom and are often used for house construction. They are often the thinning harvest after 3 - 5 years.

Plank trees (Col 7): Trees for sawing into timber planks.

Animal shade: Trees grown for the purpose of providing shade to animals.

Community tree planting scheme (Section 14.3)

Community Forest: A forest planted on the communal land which is planted, replanted or spot planted by the members of the village.

Crop Extension Services (Section 15.1)

Contact Farmer: A farmer who is used by the extension agent as a focal point to demonstrate new interventions. The contact farmer then passes on the message to other farmers

Group member: Member of a group under which the contact farmer leads

Adoption: This is the uptake of an intervention for 2 or more years

Section 15.1 Crop Extension Services

1. For each of the extension providers ask if the hh received extension during 2002/2003 agriculture year and indicate in column 2.

2. For each of the providers complete the rest of the columns

Tree Name Guide Col 1

Code	Local Name	Botanical Name	English Name
01		Senna siamea	Cassod tree
02	Msongoma	Gravellia	Silver oak
03	Mbarika	Afzelia quanzensis	Pod mahogony
04	Mkeshia	Acacia spp	Umbrella thorn
05	Msindano	Pinus spp	Pine
06	Mkaratusi	Eucalyptus spp	Red River Gum
07		Cyprus spp	Cyprus tree
08	Mtondoo	Calophylum inophyllum	
09	Mvule	Melicia excelsa	Iroko
10	Mvinji	Casurina equisetfilia	Whistling oak
11	Msaji	Tectona grandis	Teak
12	Mkungu wa kienyeji	Terminalia catapa	Sea almond
13	Mkungu india	Terminilia ivorensis	Black afara
14	Muhumula	Maesopsis berchemoides	
15			

Code	Local Name	Botanical Name	English Name
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

15.2 Crop Extension Messages

S/N	Extension Message	Received Advice Yes=1 No=2	Adopted Yes=1 No=2	Source of Crop Extension
	(1)	(2)	(3)	(4)
15.2.1	Spacing			
15.2.2	Use of agrochemicals			
15.2.3	Erosion control			
15.2.4	Organic fertiliser use			
15.2.5	Inorganic fertiliser use			
15.2.6	Use of improved seed			
15.2.7	Mechanisation/LST			
15.2.8	Irrigation Technology			
15.2.9	Crop Storage			
15.2.10	Vermin control			
15.2.11	Agro-processing			
15.2.12	Agro-forestry			
15.2.13	Bee Keeping			
15.2.14	Fish Farming			
15.2.15	Other			

Source of extension (Col 4)

Government .....1 NGO/Dev project ..2 Cooperative ...3 Large scale farmer .....4 Other (Specify) ...8 Not applicable 9

16.0 LIVELIHOOD CONSTRAINTS

From the list of constraints on the right select:

16.1	the 5 most important problems		16.2	the 5 least important problems	
	Order of most importance	Constraint		Order of least importance	Constraint
	(1)	(2)		(1)	(2)
16.1.1	most important		16.2.1	Least important	
16.1.2	2nd most important		16.2.2	2nd least important	
16.1.3	3rd most important		16.2.3	3rd least important	
16.1.4	4th most important		16.2.4	4th least important	
16.1.5	5th most important		16.2.5	5th least important	

List of constraints

1. Access to Land
2. Ownership of Land
3. Poor farm Inputs
4. Soil Fertility
5. Access to improved seed
6. Irrigation facilities
7. Access to chemical Inputs
8. Cost of Inputs
9. Extension Services
10. Access to forest resources
11. Hunting and Gathering
12. Access to potable water
13. Access to credit
14. Harvesting
15. Threshing
16. Storage
17. Processing
18. Market Information
19. Transport costs
20. Distruction by animals
21. Stealing
22. Pests and Diseases
23. Local government taxation
24. Access to off Farm Income

17.0 ANIMAL CONTRIBUTION TO CROP PRODUCTION

17.1 Did you use Draft animals to cultivate your land during 02/03 (Yes=1, No=2) ☐

(If no, go to question 17.2)

S/N	Type of Draft	Number owned	Number used	Area cultivated (acres)
	(1)	(2)	(3)	(4)
17.1.1	Oxen			.
17.1.2	Bulls			.
17.1.3	Cows			
17.1.4	Donkeys			.

17.2 Did you apply organic fertiliser during 02/03 (Yes=1, No=2) ☐

(If no, go to question 18)

S/N	Type of organ Fertiliser	Area applied (acres)
	(1)	(2)
17.2.1	FYM	.
17.2.2	Compost	.

Definitions and working page for page 12

Question Specific Definitions

Crop Extension Advice (Section 15.2)

Mechanisation/LST: LST means Labour Saving Technology

Section 16.0 Livelihood constraints

16.1 List the five most important problems in order of most importance:

1. Read out the list of constraints to the respondent and ask him to select the ones that are a problem. Place a ✓ against the constraints that are a problem.

2. Read the selected constraints and ask the farmer to select 5 which create the largest problems

3. Ask the farmer to list these in order of importance and enter in column 2

16.2 List the five least important problems in order of least importance:

1. Read out the list of constraints to the respondent and ask him to select the ones that are **NOT** a problem. Place an ✗ against the constraints that are **NOT** a problem.

2. Read the selected constraints and ask the farmer to select 5 which create the least problems

3. Ask the farmer to list these in order of least importance and enter in column 2

18.0 CATTLE POPULATION, INTAKE AND OFFTAKE

18.1 Did the household own, raise or manage any **CATTLE** during 2002/03 agriculture year? (Yes =1 No =2) ☐

(If **no** go to section 19.0)

18.2 Cattle Population as of 1st October 2003

S/N	Cattle type	Number of Indigenous	Number of Improved: Beef	Number of Improved: Dairy	Total
	(1)	*(2)*	*(3)*	*(4)*	*(5)*
18.2.1	Bulls				
18.2.2	Cows				
18.2.3	Steers				
18.2.4	Heifers				
18.2.5	Male Calves				
18.2.6	Female Calves				
	Grand Total				

18.3 **Cattle Intake** during 2002/2003

S/N	Number Purchased	Number given /obtained	Number Born	Total Intake of Cattle	Average Value per head
	(6)	*(7)*	*(8)*	*(9)*	*(10)*
18.3.1			X X X		
18.3.2			X X X		
18.3.3			X X X		
18.3.4			X X X		
18.3.5					
18.3.6					
			Total Intake		

18.4 **Cattle Offtake** during 2002/2003

S/N	Cattle type	Number Sold/traded	Number consumed by hh	Number given away/stolen	Number died	Total Cattle Offtake	Average value per head
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
18.4.1	Bulls						
18.4.2	Cows						
18.4.3	Steers						
18.4.4	Heifers						
18.4.5	Male Calves						
18.4.6	Female Calves						
				Total Offtake			

18.5 **Cattle diseases**

S/N	Disease/ parasite	Number Infected	Number Treated	No. Rec-overed	Number Died	Last vaccinated	Main Source
	(1)	*(2)*	(3)	*(4)*	(5)	*(6)*	*(7)*
18.5.1	Tick Borne diseases						
18.5.2	CBPP						
18.5.3	Trypanosomiasis					X	X
18.5.4	Lumpy Skin Disease						
18.5.5	Helmenthioitis					X	X
18.5.6	FMD						

18.6 **Milk Production**

S/N	Season	Litres of milk/day	No. of cattle milked/day	Value/litre	Sold to	Sold/day (Litres)
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
18.6.1	Wet Season					
18.6.2	Dry Season					

Sold to Q18.6 Col 5)

Neighbour……..1 Largescale farm ..5
Local Market……..2 Trader at Farm ...6
Secondary Market ...3 Did not sell 7
Processing industry .4 Other ……..8

Last Vaccinated (Col 6)

2003 ……1 2000 ……..4
2002 ……..2 before 2000 5
2001 ……..3 Not Vaccinated...6

Main Source of vaccine (Col 7)

Private Vet Clinic ..1 Other ……..…..8
District Vet Clinic ..2 Not applicable ….9
NGO/Project…….3

Definitions and working page for page 13

General definitions for page 13

Cattle Intake during 2002/03: Cattle purchased, given or born which increases the number of cattle in the herd.

Cattle Offtake during 2002/03:
Cattle removed from the herd, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 18.0)

Cattle type (Q 18.2 & 18.4, Col 1)

Bull: Mature **Uncastrated** male cattle used for breeding

Cow: Mature female cattle that has given birth at least once

Steer: Castrated male cattle over 1 year

Heifer: Female cattle of 1 year up to the first calving

Calves: Young cattle under 1 year of age

Average Value per Head (Q 18.3, (Col 7 & 9) & 18.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Cattle vaccination (18.5 col 1)

ECF: East Coast Fever

FMD: Foot and Mouth Disease

CBPP: Contagious Bovine Pleura Pneumonia

Section 18.0 Cattle Population, Intake & Offtake.

NOTE: Section 18.1 is for the current population (as of 1st October 2003);
Section 18.2 and 18.3 is for movement in and out of the herd during the 2002/03 agriculture year.
Section 18.4 is for diseases encountered during the agriculture year.

1. If the household has cows, you would normally expect them to have calves in column 8

2. If calves are reported in column 2, 3, or 4 (18.2.6, 18.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of cattle the importance of this must be reflected in Q 2.2.3

Section 18.5 If cattle are reported to have died in Column 5 then at least that number should be reported in 18.4 col 4

Working area for page 13

19.0 GOAT POPULATION, INTAKE AND OFFTAKE

19.1 Did the household own, raise or manage any **GOATS** during the 2002/03 agriculture year? (Yes =1 No =2) ☐
(If no go to section 20.0)

19.2 Goat Population as of 1st October 2003

S/N	Goat type	Number of Indigenous	Number of Improved for meat	Number of Improved Dairy	Total
	(1)	(2)	(3)	(4)	(5)
19.2.1	Billy Goat				
19.2.2	Castrated Goat				
19.2.3	She Goat				
19.2.4	Male Kid				
19.2.5	She Kid				
	Grand Total				

19.3 **Goat Intake** during 2002/2003

S/N	Number Purchased	Number given /obtained	Number Born	Total Intake of Goats	Average Value per head
	(6)	(7)	(8)	(9)	(10)
19.3.1			X X X		
19.3.2			X X X		
19.3.3			X X X		
19.3.4					
19.3.5					
			Total Intake		

19.4 **Goat Offtake** during 2002/2003

S/N	Goat type	Number Sold/traded	Number consumed by hh	Number given away/stolen	Number died	Total Goat Offtake	Average value per head
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
19.4.1	Male goat						
19.4.2	Castrated Goat						
19.4.3	She Goat						
19.4.4	Male Kid						
19.4.5	She Kid						
	Total Offtake						

19.5 **Goat diseases**

S/N	Disease/ parasite	Number Infected	Number Treated	No. Rec-overed	Number Died	Last vaccinated	Main Source
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
19.5.1	Foot Rot					X	X
19.5.2	CC PP						
19.5.3	Helminthiosis					X	X
19.5.4	Tetanus						
19.5.5	Mange					X	X

19.6 **Milk Production**

S/N	Season	Litres of milk/day	No. of Goats milked/day	Value/litre	Sold to	Sold/day (Litres)
	(1)	(2)	(3)	(4)	(5)	(6)
19.6.1	Wet Season					
19.6.2	Dry Season					

Sold to Q19.6 Col 5)
Neighbour……..1 Largescale farm ..5
Local Market……..2 Trader at Farm ...6
Secondary Market ...3 Did not sell 7
Processing industry .4 Other ……..8

Last Vaccinated (Col 6)
2003 ……1 2000 ……..4
2002 ……..2 before 2000 …..5
2001 ……..3 Not Vaccinated...6

Main Source of vaccine (Col 7)
Private Vet Clinic ..1 Other ……..…..8
District Vet Clinic ..2 Not applicable ….9
NGO/Project…….3

Definitions and working page for page 14

Goat definitions for page 14

Goat Intake during 2002/03: Goat purchased, given or born which increases the number of goats in the herd.

Goat Offtake during 2002/03:
Goat removed from the herd, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 19.0)

Goat type (Q 19.2 & 19.4, Col 1)

Billy Goat (he-goat): Mature **Uncastrated** male goat used for breeding

Castrated goat: Male goat that has been castrated.

She Goat: Mature female goat over 9 months of age

Kid: Young goat under 9 months of age.

Average Value per Head (Q 19.3, (Col 7 & 9) & 19.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Goat vaccination (19.5 col 1)

FMD: Foot and Mouth Disease

CCPP: Contagious Caprine Pleura Pneumonia

LSD: Lumpy Skin Disease

Section 19.0 Goat Population, Intake & Offtake.

NOTE: Section 19.1 is for the current population (as of 1st October 2003);
Section 19.2 and 18.3 is for movement in and out of the herd during the 2002/03 agriculture year.
Section 19.4 is for diseases encountered during the agriculture year.

1. If the household has she goats, you would normally expect them to have kids in column 8

2. If kids are reported in column 2, 3, or 4 (19.2.6, 19.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of goats the importance of this must be reflected in Q 2.2.3

Section 19.5 If goats are reported to have died in Column 5 then at least that number should be reported in 19.4 col 4

Working area for page 14

20.0 SHEEP POPULATION, INTAKE AND OFFTAKE

20.1 Did the household own, raise or manage any **SHEEP** during the 2002/03 agriculture year? (Yes =1 No =2) ☐

(If no go to section 21.0)

20.2 **Sheep Population** as of 1st October 2003

S/N	Sheep type	Number of Indigenous	Number of Improved for Mutton	Number of Improved Dairy	Total
	(1)	(2)	(3)	(4)	(5)
20.2.1	Ram			X X X	
20.2.2	Castrated Sheep			X X X	
20.2.3	She Sheep			X X X	
20.2.4	Male lamb			X X X	
20.2.5	She lamb			X X X	
	Grand Total				

20.3 **Sheep Intake** during 2002/2003

S/N	Number Purchased	Number given /obtained	Number Born	Total Intake of Sheep	Average Value per head
	(6)	(7)	(8)	(9)	(10)
20.3.1			X X X		
20.3.2			X X X		
20.3.3			X X X		
20.3.4					
20.3.5					

20.4 **Sheep Offtake** during 2002/2003

S/N	Sheep type	Number Sold/traded	Number consumed by hh	Number given away/stolen	Number died	Total Sheep Offtake	Average value per head
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
20.4.1	Ram						
20.4.2	Castrated Sheep						
20.4.3	She Sheep						
20.4.4	Male lamb						
20.4.5	She lamb						
	Total Offtake						

20.5 **Sheep diseases**

S/N	Disease/ parasite	Number Infected	Number Treated	No. Rec-overed	Number Died	Last vaccinated	Main Source
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
20.5.1	Foot Rot					X	X
20.5.2	CC PP						
20.5.3	Helminthiosis					X	X
20.5.4	Trypanosomiasis						
20.5.5	FMD						

Last Vaccinated (Col 6)

2003 ……1 2000 ……....4
2002 ……....2 before 2000 …...5
2001 ……....3 Not Vaccinated...6

Main Source of vaccine (Col 7)

Private Vet Clinic ..1 Other ……..…..8
District Vet Clinic ..2 Not applicable ….9
NGO/Project…....3

Definitions and working page for page 15

Sheep definitions for page 15

Sheep Intake during 2002/03: Sheep purchased, given or born which increases the number of Sheep in the herd.

Sheep Offtake during 2002/03:
Sheep removed from the herd, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 20.0)

Sheep type (Q 20.2 & 20.4, Col 1)

Ram: Mature **Uncastrated** male goat used for breeding

Castrated sheep: Male sheep that has been castrated.

Ewe: Mature female sheep over 9 months of age

Lamb: Young sheep under 9 months of age.

Average Value per Head (Q 20.3, (Col 7 & 9) & 20.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Sheep vaccination (20.5 col 1)

FMD: Foot and Mouth Disease

CCPP: Contagious Caprine Pleura Pneumonia

Section 20.0 Sheep Population, Intake & Offtake.

NOTE: Section 20.1 is for the current population (as of 1st October 2003);
Section 20.2 and 20.3 is for movement in and out of the herd during the 2002/03 agriculture year.
Section 20.4 is for diseases encountered during the agriculture year.

1. If the household has ewes, you would normally expect them to have kids in column 8

2. If lambs are reported in column 2, 3, or 4 (20.2.6, 20.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of Sheep the importance of this must be reflected in Q 2.2.3

Section 20.5 If Sheep are reported to have died in Column 5 then at least that number should be reported in 20.4 col 4

Working area for page 15

21.0 PIG POPULATION AND PRODUCTION

21.1 Did the household own, raise or manage any **PIGS** during the 2002/03 agriculture year (Yes =1 No =2) ☐
(If no go to section 22.0)

21.2 **PIG Population** as of 1 st October 2003

S/N	Pig type	Number
	(1)	*(2)*
21.2.1	Boar	
21.2.2	Castrated male	
21.2.3	Sow/Gilt	
21.2.4	Male piglet	
21.2.5	She piglet	
	Grand Total	

21.3 **Pig increase** during 2002/2003

S/N	Number Purchased	Number given /obtained	Number Born	Total Pig Increase	Average Value per head
	(3)	*(4)*	*(5)*	*(9)*	*(10)*
21.3.1			X X X		
21.3.2			X X X		
21.3.3			X X X		
21.3.4					
21.3.5					

21.4 **Pig decrease** during 2002/2003

S/N	Pig type	Number Sold/traded	Number con sumed by hh	Number given away/stolen	Number died	Total Pig Offtake	Average value per head
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
21.4.1	Boar						
21.4.2	Castrated male						
21.4.3	Sow/Gilt						
21.4.4	Male piglet						
21.4.5	She piglet						
	Total Offtake						

21.5 **Pig diseases/pests/conditions**

S/N	Disease/ parasite	Number Infected	Number Treated	No. Rec -overed	Number Died	Last vacci nated	Main Sou -rce
	(1)	*(2)*	(3)	*(4)*	*(5)*	*(6)*	*(7)*
21.5.1	Anthrax						
21.5.2	ASF						
21.5.3	Anemia					X	X
21.5.4	Helmenthiosis					X	X

22.0 LIVESTOCK PEST & PARASITE CONTROL

22.1 Did you **deworm** your animals during 2002/03 (Yes=1, No-2) ☐
(If the response is 'NO' go to section 22.3)

22.2 Which animals did you **deworm**? (Tick appropriate boxes)
Cattle ☐ Goats ☐ Sheep ☐ Pigs ☐

22.3 Do you normally encounter a **tick** problem (Yes=1,No-2) ☐
(If the response is 'NO' go to section 22.5)

22.4 Which methods of tick control did you use ☐
Control method (Q 22.4) *None..1 Spraying ..2 Dipping..3 Smearing ..4 Other.8*

22.5 Do you normally encounter a **tsetse fly** problem (Y=1,N=2) ☐
*(If the response is **'NO'** go to section 23.0)*

22.6 Which methods of control did you use ☐
Control method (Q22.6) *None .1 Spray .2 Dipping .3 Trapping .4 Other .8*

Last Vaccinated (Col 6)
2003 ..1 2000 ……..4
2002 ..2 before 2000 ….5
2001 ..3 Not Vaccinated.6

Main Source (Col 7)
Private Vet Clinic ..1
District Vet Clinic ..2
NGO/Project……..3
Other ……..……8
Not applicable ……9

Definitions and working page for page 16

Pigs definitions for page 16

Pig Intake during 2002/03: Pigs purchased, given or born which increases the number of Pigs in the production unit.

Pig Offtake during 2002/03:
Pigs removed from the production unit, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 21.0)

Pigs type (Q 21.2 & 21.4, Col 1)

Boar: Mature **Uncastrated** male pig used for breeding

Castrated Pig: Male pig that has been castrated.

Sow: Mature female pig that has given birth to at least one litter of pigs.

Gilt: Female pig of 9 months up to the first farrowing.

Piglet: Young pig under 3 months of age.

Average Value per Head (Q 21.3, (Col 7 & 9) & 21.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Pig vaccination (21.5 col 1)

ASF: African Swine Fever

Section 21.0 Pig Population, Intake & Offtake.

NOTE: Section 21.1 is for the current population (as of 1st October 2003);
Section 21.2 and 21.3 is for movement in and out of the herd during the 2002/03 agriculture year.
Section 21.4 is for diseases encountered during the agriculture year.

1. If the household has sows, you would normally expect them to have piglets in column 8

2. If piglets are reported in column 2, 3, or 4 (20.2.6, 20.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of Pigs the importance of this must be reflected in Q 2.2.3

Section 20.5 If Pigs are reported to have died in Column 5 then at least that number should be reported in 20.4 col 4

Working area for page 16

23.0 **Other Livestock** currently available and details of consumption and sales during the last 12 months

	Animal type	Current Number	Sold during 2002/03		Consumed during 2002/03	
			Number	Average Value/head	Number	Average Value/head
		(1)	(2)	(3)	(4)	(5)
23.1	Indigenous Chicken					
23.2	Layer					
23.3	Broiler					
23.4	Ducks					
23.5	Turkeys					
23.6	Rabbits					
23.7	Donkeys					
23.8	Horses				X X X	X X X X X
23.9	Other ……					

24.0	CHICKEN DISEASES	Number infected	Number Treated	Number Died	Number Recovered
24.1	Newcastle Disease				
24.2	Gumboro				
24.3	Coccidiosis				
24.4	Chorysa				
24.5	Fowl typhoid				

25.0	LIVESTOCK PRODUCTS	Sold during 2002/03		Consumed/utilised during 2002/03	
		Number	Average Value/unit	Number	Average Value/unit
25.1	Eggs		X		
25.2	Hides				
25.3	Skins				

26.0 List in order of importance the **outlets for the sale** of Livestock

S/N	Impo-rtance of outlet	Outlets for Cattle	Out-lets for Goat	Outlets for Sheep	Outl-ets for Pigs	Outlets for Chick-ens
	(1)	(2)	(3)	(4)	(5)	(6)
26.1	1st					
26.2	2nd					
26.3	3rd					
26.4	4th					
26.5	5th					

Outlet code (Col 2, 3, 4 & 5)

Trader at farm……1 *Abattoir/factory……5*
Local Market …….. ……2 *Another farmer ……6*
Secondary market/auction……3 *Other (Specify)……8*
Neighbour ……4

Source of structure (Q27.0 - Col 2)

Owns ……1 *NGO ……6*
Cooperative ……2 *Large scale farm ……7*
Local farmers association …… 3 *Other ……8*
Gov extension/veterinary ……4 *Not applicable ……9*
Development project …… ……5

27.0 Access to **functional Livestock structures /accessories**

S/N	Type of structure/accessory	Source of Structure	Distance to struct-ure (Km)
	(1)	(2)	(3)
27.1	Cattle Dip		.
27.2	Spray Race		.
27.3	Hand powered sprayer		.
27.4	Cattle crush		.
27.5	Primary Market		.
27.6	Secondary Market		.
27.7	Abattoir		.
27.8	Slaughter Slab		.
27.9	Hide/skin shed		.
27.10	Input supply		.
27.11	Veterinary Clinic		.
27.12	Village holding ground		.
27.13	village watering point/dam		.
27.14	Drencher		.

Definition and working page for page 17

Question Specific Definitions Section 26.0)

Question Specific Definitions Section 27.0)

Access to functional Livestock Structures/accessories (Section 27.0):

NOTE: The structures must be functional. If they are not working/derelict then they should not be included. The distance to the next nearest functional structure should be taken.

Spray Race: A fixed spray structure on an animal race for spraying acaricide

Cattle crush: Corridor structure for restraining cattle.

Abattoir: Large building designed for slaughtering a large amount of animals. It normally has complex structures to assist in the slaughter and storage and a high level of hygiene is maintained.

Slaughter Slab: Concrete slab designed fos slaughtering a small amount of animals

Hides: obtained from Cattle

Skins: Obtained from sheep and goats

Hide/Skin Shed: Shed for curing/tanning animal skins and hides

Village holding Pen: Enclosure for containing large amount of livestock which is owned communally.

Drencher: Device for orally administering medicine to livestock.
If no product was sold in 2002 enter "0" in columns 6, 7& 9.

Procedures for questions

Section 23.0 - Other Livestock:

1. The current number includes both adult and young animals. For example The number of chickens in col 1 would include adults and chicks.

Section 26.0 - Outlets for livestock:

Using the codes enter the outlets for the sale of different livestock in order of importance. If there are, for example, only 2 outlets mark the rest with a "X".

28.0 FISH FARMING

28.1 Was **Fish farming** carried out by this household during 2002/2003? (Yes =1, No=2) ☐ *(If the response is **'NO'** go to section 29.0)*

28.2 Specify details of **fish farming practices**

S/N	Production unit number	Fish farming system	Size of unit/pond (m2)	Source of fing-erling	frequency of stocking (No/year)	Number of stocked fish: Tilapia	Number of stocked fish: Carp	Number of stocked fish: Other	Number of fish harvested	weight of fish harvested	weight of fish sold	Mainly sold to
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
28.1.1	1											
28.1.2	2											
28.1.3	3											

Farming System (Col 2)
Natural Pond. ..1 Natural Lake…..3 Other …..8
Dug out pond...2 Water resevoir..4

Source of fingerlings (Col 4)
Own pond ……1 NGO/Project...3 P rivate trader ...5
Government Institution ..2 Neighbour …..4 Other……8

Mainly sold to (Col 12)
Neighbour…….1 Secondary Market.....3 Largescale farm .....5 Did not sell 7
Local Market…….2 Processing industry ….4 Trader at Farm .....6 Other 8

29.0 LIVESTOCK EXTENSION

29.1 Did you receive **livestock extension advice** during 02/03 (Yes=1,No=2) ☐ *(If the response is **'NO'** go to section 30.0)*

S/N	Livestock Extension Message	Received Advice Yes=1,No=2	Adopted Yes=1 No=2	Source of Livestock Extension
	(1)	(2)	(3)	(4)
29.1.1	Feed and Proper feeding			
29.1.2	Housing (Goat, Dairy, Poultry, Pigs)			
29.1.3	Proper Milking			
29.1.4	Milk Hygiene			
29.1.5	Disease control (dipping/spraying)			
29.1.6	Herd/Flock size and selection			
29.1.7	Pasture Establishment			
29.1.8	Group formation and strengthening			
29.1.9	Calf rearing			
29.1.10	Use of improved bulls			
29.1.11	Other livestock extension			

Source of livestock extension (Col 4)
Government …..1 NGO/Dev project ..2 Cooperative …3 Large scale farmer …..4 Other (Specify) ….8

29.2 For the following **Livestock Extension Service Providers** give details

S/N	Extension Provider	If you pay for extension, what is the cost/yr	Contact far-mer/group member (Y=1,N=2)	No. of visits by extension agency/year	No. of mess-ages adopted in the last 3 yrs	Quality of Service
	(1)	(2)	(3)	(4)	(5)	(6)
29.2.1	Government					
29.2.2	NGO/dev project					
29.2.3	Cooperative					
29.2.4	Large Scale farmer					
29.2.5	Other……					

Quality of service (Col 6) *Very good ...1 good ….2 Average…3 Poor…4 No Good ...5*

30.0 GOVERNMENT REGULATORY PROBLEMS

31.1 Did you face problems with government regulations during 2002/03 (Y=1, N=2) ☐

(If the response is no go to section 31.0)

List in order of importance

		Problem code
30.1.1	1st	
30.1.2	2nd	
30.1.3	3rd	

Problem code
Land ownership by government ……..1
Restriction of sale between regions ..2
Import of food items ……3
Other (specify)……..8

Definitions and working page for page 18

General definitions for Section 28.0

Fish farming: Refers to the rearing/production of fish. It is different to fishing in that the fish have to be reared and fed in fish farming. Fishing traps or captures naturally occurring fish in rivers, lakes and the sea and should not be included in this section.

Question Specific Definitions (Section 28.2)

Production unit number (Col 1): A production unit is a pond river/lake which is treated as a separate entity for the production of fish eg it may be by virtue of manageable size, maturity of fish, type of fish etc. Eg a farmer may have 3 fish ponds. (each one is a separate production unit).

Frequency of stocking (Col 5): What is the number of times the farmer puts new fingerlings into the pond each year.

Fingerlings: These are young immature fish used for stocking ponds.

Sold: (Col 10 & 11)

If no fish were sold enter "0" in column 10 and 11)

Livestock Extension Services (Section 29.1)

Adopted (Col 3): This is the uptake of an intervention for 2 or more years

Livestock Extension Service providers (Section 29.2)

Contact Farmer: A farmer who is used by the extension services as a focal point to demonstrate new interventions to. The contact farmer then passes on the message to other farmers

Adopted (Col 5): This is the uptake of an intervention for 2 or more years

Working area for page 18

31.0	LABOUR USE		
31.1	Who is **mainly responsible** for undertaking the following tasks:		
S/N	**Activity**	**Tick if carried out by hh**	**Main respo-nsib-ility**
	(1)	*(2)*	*(3)*
31.1.1	Land **Clearing**		
31.1.2	Soil **preparation (by hand)**		
31.1.3	Soil **preparation (oxen/trac**		
31.1.4	**Planting**		
31.1.5	**Weeding**		
31.1.6	**Crop Protection**		
31.1.7	**Harvesting**		
31.1.8	Crop **processing**		
31.1.9	Crop **marketing**		
31.1.10	Cattle r**earing/husbandry**		
31.1.11	Cattle **herding**		
31.1.12	Cattle **marketing**		
31.1.13	Goat/sheep **rearing/husband**		
31.1.14	Goat and sheep **herding**		
31.1.15	Goat and sheep **marketing**		
31.1.16	**Milking**		
31.1.17	Pig **rearing/husbandry**		
31.1.18	Poultry **keeping**		
31.1.19	Collecting **Water**		
31.1.20	Collecting **Firewood**		
31.1.21	**Pole** cutting		
31.1.22	**Timber** wood cutting		
31.1.23	**Building/maintaining** house		
31.1.24	Making **Beer**		
31.1.25	**Bee** keeping		
31.1.26	**Fishing**		
31.1.27	**Fish farming**		
31.1.28	**Off-farm income** generation		

Responsibility (Col 3)

HH head alone ....1 Girls 6
Adult Males .....2 Boys & Girls 7
Adult Females.....3 All household members.....8
Adults..... 4 Hired labour 9
boys 5

Satisfied with service (Col 4)

Very good .....1 Average.....3 No good 5
Good .....2 Poor .....4 Not applicable 9

32.0	SUBSISTENCE vs NON-SUBSISTENCE				
32.1	Indicate if any members of the household was involved in the following activities and assess the **percentage used for subsistence/consumption** by the household:				
S/N	Activity	**Tick if hh was involved in activit**	**Estimate % used for subsistance**	**Estimate % used for no subsistence**	**Check Total**
	(1)	*(2)*	*(3)*	*(4)*	*(5)*
32.1.1	**Crop** production				1 0 0
32.1.2	**Livestock** production				1 0 0
32.1.3	**Vegetable** production				1 0 0
32.1.4	Tree cutting for **firewood**				1 0 0
32.1.5	Tree logging for **poles**				1 0 0
32.1.6	Tree logging for **timber**				1 0 0
32.1.7	Tree logging for **charcoal**				1 0 0
32.1.8	**fishing**				1 0 0
32.1.9	**bee** keeping				1 0 0
32.1.10	**employment/off farm**				1 0 0
32.1.11	**employment/off farm**				1 0 0
32.1.12	**Remittances**				1 0 0

33.0	ACCESS TO INFRASTRUCTURE & OTHER SERVICES			
S/N	Type of service	**Distance in Km**	S/N	Type of service	**Distance in Km**
	(1)	*(2)*		*(1)*	*(2)*
33.1	**Primary** School	.	32.7	**Feeder** Road	.
33.2	**Secondary** School	.	32.8	**All weather** roa	.
33.3	Health **Clinic**	.	32.9	**Tarmac** road	.
33.4	**Hospital**	.	32.10	**Primary** market	.
33.5	**District** Capital	.	32.11	**Secondary** mark	.
33.6	**Regional** Capital	.	32.12	**Tertiary** market	.

S/N	Type of service	**Distance in Km**	**No of visits/year**	**Satisfied with service**
	(1)	*(2)*	*(3)*	*(4)*
33.13	**Vet** Clinic	.		
33.14	**Extension** Centre	.		
33.15	**Research** Station	.		
33.16	**Plant protection** Lab	.		
33.17	**Land registration** offic	.		
33.18	**Livestock Dev** Centre	.		

Definition and working page for page 19

Question specific definitions (Section 31.1)

Activity (Col 1):

Land Clearing: Refers to removing trees/bush/grass prior to ploughing

Soil Preparation: Refers to the seedbed preparation (ploughing, harrowing, etc).

Cattle Rearing: Tending to cattle at home, eg assisting with births, castration,etc. Different livestock keeping activity to herding.

Cattle Herding: Moving livestock from place to place for grazing and water. If herding is carried out the respondent must also give a response to rearing/husbandry

Question Specific Definitions (Section 32.0.0)

Activity (Col 1):

Subsistence: For the family's survival, rather than for the generation of cash. This includes feeding the hh, provision of water and fuel for cooking. The source of these products are usually from the land resources available to the family. Remember that not all cash earnings are for non subsistence purposes/activities as cash can be used to purchase subsistence items eg food.

Non -subsistence: Cash used for items and activities which are not crucial for the survival of the family. This includes modern medication, non working clothes, refined beer, school fees, etc.

Procedures for (Section 31.1)

Section 31.1 ((Labour use)

1. For each listed activity in column 1, place a tick in column 2 if any member of the household was involved in that activity during the 2002/03 agriculture year.

2. After completing column 2 return to the first activity in row 27.1.1 and complete column 3.

3. Make sure you stress MAINLY responsible.

NOTE: If an activity has been mentioned previously in the questionnaire eg that the hh keeps chickens, make sure a response is obtained in the appropriate place ie poultry keeping.

If off-farm income generation is mentioned, check for responses to off farm income in other parts of the questionnaire

Section 32.0 - Subsistence vs Non-subsistence

1. For each listed activity in column 1, place a tick in column 2 if any member of the household was involved in that activity during the 2002/03 agriculture year.

2. After completing column 2 return to the first activity in row 32.1.1 and complete column 3 & 4. For each activity make an assessment of the percentage used for subsistence survival and the percent converted to cash for non subsistence goods and items.

3. Make sure you stress MAINLY responsible.

NOTE: Cross check the responses with previous sections in the questionnaire. eg if a response is given to remittances check for an entry in question 2.2.5

34.0 HOUSEHOLD FACILITIES

34.1 House Construction

For the **main dwelling**, what are the **main building materials used** in the construction of the following

34.1.1: Roof ☐ 34.1.2 Number of rooms ☐☐

Roof Material
Iron Sheets.....1
Tiles 2
Concrete 3
Asbestos 4
Grass/leaves.....5
Grass & mud.....6
Other (Specify) 8

34.2 Household **assets**

Does your household **own** the following?

	Asset	Y=1 N=2
34.2.1	Radio/cassette, music system)	☐
34.2.2	Telephone (landline)	☐
34.2.3	Telephone (mobile)	☐
34.2.4	Iron	☐
34.2.5	Wheelbarrow	☐
34.2.6	Bicycle	☐
34.2.7	Vehicle	☐
34.2.8	Television	☐

34.3 **Energy use** by the Household

Energy use and access by the household

Main Source of energy for

34.3.1 Lighting ☐☐ **34.3.2** Cooking ☐☐

Lighting energy
Mains electricity.....01
Solar 02
Gas (biogas) 03
Hurricane Lamp 04
Pressure Lamp 05
Wick Lamp 06
Candles 07
Firewood 08
Other (specify) 98

Cooking energy
Mains electricity.....01
Solar 02
Gas (hh biogas) 03
Bottled gas 04
Paraffin/kerocine.....05
Charcoal.....06
Firewood 07
Crop Residues 08
Livestock dung 09
Other (specify) 98

34.4 Access to **drinking water**

	Season	Main sou -rce of drinking water	Distance to source (in km)	Time to and from source (Hour : minute)
	(1)	*(2)*	*(3)*	*(4)*
34.4.1	Wet Season	☐☐	☐☐.☐	☐☐:☐☐
34.4.2	Dry Season	☐☐	☐☐.☐	☐☐:☐☐

Main Source of drinking water
Piped water 01
Protected well 02
Protected/covered spring ... .03
Unprotected Well 04
Unprotected spring 05
Surface water (lake/dam/river/stream)06
Covered rainwater catchment ...07
Uncovered rainwater catchment 08
Water Vendor 09
Tanker truck 10
Bottled water 11
Other (Specify) 98

34.5 Access to **toilet facilities**

34.5.1 What **type of toilet** does your hh use ☐

Type of toilet
No toilet/bush.....1
Flush toilet 2
Pit latrine - traditional ..3
Improved pit latrine - hh owned.....4
Other type (specify) 5

34.6 **Food consumption** patterns

34.6.1	**Number of meals** the hh normally has per day	☐
34.6.2	**Number of days** hh consumed **meat** last w	☐
34.6.3	How often did the hh have **problems in satisfying the food needs** of the hh last year?	☐

Problems satisfying hh food needs (row 34.6.3)
Never 1
Seldom 2
Sometimes 3
Often 4
Always 5

34.7 Source of Household **income**

34.7.1 What is the households **main source of cash income**? ☐☐

Source of Income codes
Sale of food crops 01
Sale of Livestock.....02
Sale of livestock products ...03
Sale of cash crops.....04
Sale of forest products 05
Business income.....06
Wages or salaries in cash 07
Other casual cash earnings ..08
Cash remittances 09
Fishing 10
Other 98
Not applicable 99

Definition and working page for page 20

Household facilities (Section 34):

Number of rooms used for sleeping in the household (Q 34.1)

Include sitting room, dining room, kitchen, etc if used for sleeping. It also includes rooms outside the main dwelling

A room is defined as a space which is separate from the rest of the building by a permanent wall or division. A building/house that is not divided into rooms is considered to have one room.

Household assets (Q 34.2): these assets must be functioning. Do not include if broken.

Access to drinking water (Q 34.4): If there is more than one source, use the one, which the hh uses most frequently.

Main source of hh cash income:

Activity that provides the hh with the most cash during 2002/03 agriculture year.

Average/maximum yields

Use this table to compare the yields calculated in sections 7.1, 7.2, and 7.3. They are STRICTLY to be used as guidelines only and the sole purpose is to assist in getting the correct area and harvest for each crop

	Crop Name	kg/ha		kg/acre	
		Average	Max	Average	Max
11	Maize	1200	6250	486	2530
12	Paddy	700	4000	283	1619
13	Sorghum	750	3500	304	1417
14	Bulrush Millet	350	3000	142	1215
15	Finger Millet	300	2500	121	1012
16	Wheat	1200	4500	486	1822
17	Barley	1400	2300	567	931
21	Cassava	3000	7000	1215	2834
22	Sweet Potato	600	8000	243	3239
23	Irish potatoes	750	8500	304	3441
24	Yams	4000	10000	1619	4049
25	Cocoyams	2500	5000	1012	2024
26	Onions			0	0
27	Ginger			0	0
31	Beans	400	1300	162	526
32	Cowpeas	300	1750	121	709
33	Green gram			0	0
34	Pigeon pea	600	2000	243	810
35	Chick peas	500	1500	202	607
36	Bambara nut	600	4000	243	1619
41	Sunflower	600	1700	243	688
42	Simsim	300	1000	121	405
43	Groundnut	600	4000	243	1619
47	Soyabeans	1300	2500	526	1012
48	Caster seed	300	750	121	304
75	Pineapple	25000	60000	10121	24291
50	Cotton	300	1500	121	607
51	Tobacco	500	2000	202	810
53	Pyrethrum			0	0
62	Jute	800	3500	324	1417
44	Palm Oil	1200	5000	486	2024
45	Coconut	2000	8000	810	3239
46	Cashewnut	9	60/tree	4	24

	Crop Name	kg/ha		kg/acre	
		Average	Max	Average	Max
86	Cabbage			0	0
87	Tomatoes			0	0
88	Spinach			0	0
89	Carrot			0	0
90	Chillies			0	0
91	Amaranths			0	0
92	Pumpkins			0	0
93	Cucumber			0	0
94	Egg Plant			0	0
95	Water Mellon			0	0
96	Cauliflower			0	0
52	Sisal	800	25000	324	10121
54	Coffee	500	100	202	40
55	Tea	2500	10000	1012	4049
56	Cacao	200	1000	81	405
57	Rubber	400	1400	162	567
58	Wattle			0	0
59	Kapok			0	0
60	Sugar Cane	60000	150000	24291	60729
61	Cardamom			0	0
71	Banana	10000	50000	4049	20243
72	Avocado			0	0
73	Mangoes	10000	25000	4049	10121
74	Papaw	50000	70000	20243	28340
76	Orange	20000	40000	8097	16194
77	Grape fruit	30000	50000	12146	20243
78	Grapes	5000	30000	2024	12146
79	Mandarin/tange	20000	40000	8097	16194
80	Guava	7000	35000	2834	14170
81	Plums			0	0
82	Apples			0	0
83	Pears			0	0
84	Pitches			0	0

Back Page Reference material

This page contains reference information that may be required to complete some of the questions in the questionnaire.

Weights and measures

1 hectare	= 10,000 sq metres	(100 x 100 metres)
1 kilometre	= 1000 metres	
1 acre	= 4840 square yards	(110 x 44 yards)

Conversions

1 hectare	= 2.47 acres
1 mile	= 1.61 Kilometres

Kg equivalents

The following standards may be used as a guide to obtain kg if the reported unit is different. Only use these conversions if the respondent is unable to provide weights in kgs.

	Crop Name	Number of Kgs: Standard Bag	Standard Tin	Non-standard Name	Non-standard kgs
11	Maize	100	18	Rumbesi	140
12	Paddy	75	15		
13	Sorghum	100	18		
14	Bulrush Millet	100	18		
15	Finger Millet	120	20		
16	Wheat	75	15		
17	Barley	75	15		
21	Cassava	60	12		
22	Sweet Potatoe	80	16		
23	Irish potatoes	80	16		
24	Yams	80	16		
25	Cocoyams	80	16		
26	Onions	80	16		
27	Ginger	75	15		
31	Beans	100	20		
32	Cowpeas	100	20		
33	Green ram	100	20		
34	Pigeon pea	100	20		
35	Chick peas	100	20		
36	Bambara nut	100	20		
41	Sunflower	60	12		
42	Simsim	100	20		
43	Groundnut	50	10		
47	Soyabeans	100	20		
48	Caster seed	100	20		
75	Pineapple	90	18		
50	Cotton	50	10		
51	Tobacco	70	14		
53	Pyrethrum	60	12		
62	Jute	50	10		
44	Palm Oil	100			
45	Coconut	75			
46	Cashewnut	80			

	Crop Name	Number of Kgs: Standard Bag	Standard Tin	Non-standard Name	Non-standard kgs
86	Cabbage	50			
87	Tomatoes	90			
88	Spinach	45			
89	Carrot	110			
90	Chillies	85			
91	Amaranths	50			
92	Pumpkins	60			
93	Cucumber	80			
94	Egg Plant	70			
95	Water Mellon	80			
96	Cauliflower	50			
52	Sisal	130			
54	Coffee	55			
55	Tea	60			
56	Cacao	60			
57	Rubber				
58	Wattle	90			
59	Kapok				
60	Sugar Cane	120			
61	Cardamom	100			
71	Banana	120			
72	Avocado	140			
73	Mangoes	130			
74	Papaw	100			
76	Orange	130			
77	Grape fruit	120			
78	Grapes	80			
79	Mandarin/tange	110			
80	Guava	110			
81	Plums	110			
82	Apples	110			
83	Pears	110			
84	Pitches	110			

For official use only:

If a question has a query, an indication will be made by the supervisor/data entry controller on the front page of the questionnaire. This space is to note what and where the problem is, the action required to be taken and the responsible person to take follow up action.

Nature of the problem:

_____

_____

_____

Action Required: National supervisor action ☐ Field supervisor action ☐

Overall Status: Does not affect overall integrity of the questionnaire. ☐ Discard and resample ☐

More data is required before it can be used ☐ Discard as missing data ☐