

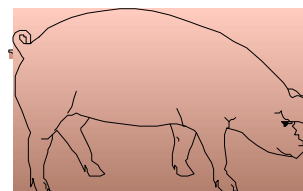
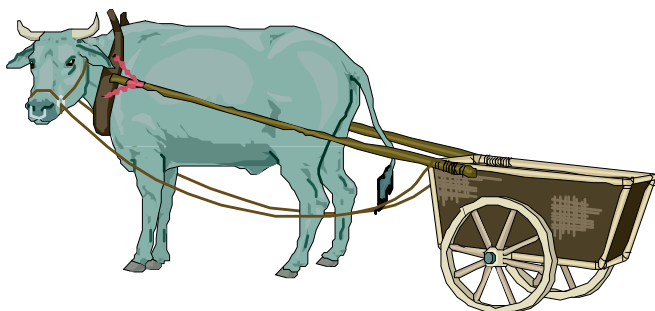
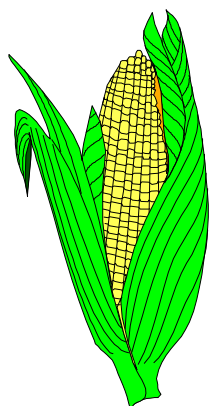


Republic of Zambia

CENTRAL STATISTICAL OFFICE

AGRICULTURAL AND PASTORAL PRODUCTION

*Structural Type and Post Harvest Data
2001/2002
For Small and Medium Scale Farmers*



P.O. Box 31908
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November, 2003

AGRICULTURAL AND PASTORAL PRODUCTION

Structural Type and Post Harvest Data For Small and Medium Scale Farmers

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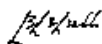
Preface

Central Statistical Office (CSO) through the Agriculture and Environment Statistics Division conducts on annual basis sample surveys covering the Small and Medium Scale Farms Sub-sector of Agriculture. Similarly, information on all Large-Scale Farms is collected during the same period when the Small and Medium Scale Farms survey is being undertaken. The data collection activities on Small, Medium and Large Scale Farms are usually undertaken during the months of October and November of each year.

This report covers only the operations of the Small and Medium Scale Farmers in the country. Information contained in this report relates to the Agricultural Season, which commenced on 1st October 2001 and ended on 30th September 2002.

The analysis of agricultural households by type of agricultural activities is done in this report. The information presented includes, among other statistics: number of rural households and type of agricultural activity they are engaged in; crop production and input use, livestock and poultry rearing and use of draught animals and farm equipment.

I would like to thank the Ministry of Agriculture and Cooperatives (MACO), Food Security Research Project (FSRP) for their valuable technical and financial contribution towards the preparation and eventual undertaking of these statistical activities. In particular, I would like to thank members of staff in the Agriculture and Environment Division for having ably executed these statistical activities in a timely manner.



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DIRECTOR OF CENSUS AND STATISTICS

November 2003

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Executive Summary

Below is a summary of the findings from the 2001/2002 Post Harvest Survey (PHS)

- During the 2001/2002 Agricultural Season, male-headed households accounted for 75.3 percent of the rural agricultural households while 24.7 percent were female-headed. The largest proportion of female-headed households were reported in Western and Eastern provinces with 32.0 percent and 27.3 percent respectively.
- About 8.4 percent of the male-headed households were single, while 76.6 percent were monogamously married. It was reported that 10.3 percent of the male-headed households were polygamously married with 1.3 percent being divorcees. Three percent of the male-headed households were widowed while only 0.4 percent said they were on separation.
- On the other hand, 11.8 percent of the female-headed households were single, while 21.9 percent were monogamously married. About 9.2 percent of the female-headed households were polygamously married while 16.0 percent were divorced. It was also reported that 38.2 percent of the female-headed households were widows and 2.9 percent were on separation.
- An estimated 812,945 rural agricultural households were engaged in some agricultural activity of one type or another. Out of the estimated 812,945 rural agricultural households, 98.3 percent were engaged in crop growing, 39.9 percent were raising livestock, while 72.4 percent were engaged in poultry production.
- An estimated 648,050 households were reported to have grown maize during the 2001/2002 Agricultural Season compared to 624,091 households during the 2000/2001 Agricultural Season. The total area planted to maize during the 2001/2002 Agricultural Season was estimated at 646,450 hectares and the quantity of maize produced was estimated at 664,116 metric tonnes.
- A total of 19,852,424 kg of basal fertiliser was applied to crops in all the nine provinces. Out of this 99.3 percent was applied to maize. Southern Province had the highest quantity of basal fertiliser applied at 27.3 percent while Eastern Province came in second with a proportion of 22.7 percent.
- A total of 20,717,147 kg of top dressing fertiliser was applied to crops in all the nine provinces. Out of this 99.5 percent was applied to maize. Southern Province had the highest quantity of basal fertiliser applied at 26.7 percent while Eastern Province came in second with a proportion of 23.3 percent.
- A total of 106, 675 kg of lime was applied to crops. Out of this, 89.8 percent was applied to maize. Luapula and Eastern provinces recorded the highest quantities of lime applied to crops with 42.6 and 16.8 percent, respectively.
- At national level, in 40.4 percent of all the maize fields, the main tillage method used was ploughing while in 34.7 percent of the maize fields conventional hand hoeing was used. Pot holing and zero tillage methods combined were recorded in 6.4 percent of the total maize fields.
- A total number of 166,646 households were estimated to have raised cattle. The total cattle population at the end of the Agricultural Season was estimated at 1,393,335 heads.
- There were 106,491 households raising pigs in 2001/2002 Agricultural Season. The total number of pigs raised at the end of the season was estimated at 415,665. This was 18.9 percent less than the number raised at the beginning of the season (512,819).
- A total number of 176, 786 households were estimated to have raised 1,206,642 goats at the beginning of the season as compared to 1,083,162 at the end of the Agricultural Season. During the season, the goat population declined by 10.2 percent.
- The number of households raising sheep was estimated at 9,096. At the end of the season an estimate number of 35,426 sheep were raised. The population of sheep reduced by 26.1 percent over the season.
- A total number of 1,425 households were estimated to have raised donkeys in the 2001/2002 Agricultural Season. The number of donkeys raised at the end of the season was estimated at 3,936. Southern Province was the highest and accounted for 47.6 percent of the total number of donkeys raised.
- Of the 588,621 households that reported raising chickens, 22.7 percent were in Eastern Province while 14.8 percent were in Southern Province. Lusaka Province had the least number of households (11,339 or 1.9 percent of the national total) raising poultry.

CHAPTER 1: BACKGROUND

1.0 Introduction

The Post-Harvest Survey covering the 2001/2002 Agricultural Season was conducted during the last two weeks of December, 2002 and the first week of January, 2003. The information collected and presented in this report refers to the Agricultural Season, which started on 1st October 2001 and ended on 30th September 2002. The survey was not undertaken during the month of October and November due to logistical problems. The 2001/2002 Post-Harvest Survey was the tenth to be conducted after the 1990/92 National Census of Agriculture.

At the time of questionnaire design, the questionnaire content was revised in such a way that information was to be collected field wise instead of crop wise. The main reason being that it is easier to quantify inputs applied to each field. This was a major departure from the previous data collection methodology in that agricultural production was better quantified with the inputs purchased and applied.

Over the period during which the Post-Harvest Surveys have been conducted, the survey questionnaire has undergone several major revisions. The purpose has been to capture relevant data from, and keep abreast with the changes occurring in the agricultural sector.

1.1 Objectives of the Post-Harvest Survey (PHS)

The **general objectives** for the Post-Harvest Survey (PHS) which is undertaken annually include:

- (i) Provision of annual agricultural data that helps to facilitate comprehensive analysis of the agricultural sector's contribution to the national economy, on annual basis;
- (ii) Development of the Agricultural Statistics Management Information System (ASMIS) to a level such that it accommodates advances in information technology; and,
- (iii) Provision of annual agricultural data that is useful for generation of performance indicators to facilitate interventions by government, donors and NGOs.

Specifically, the objectives of the survey include:

- (a) Provision of actual figures pertaining to:
 - Area planted to individual crops;
 - Production quantities;
 - Sales of produce and income realized;
 - Purchase and use of agricultural inputs;
 - Capital formation and other operational expenses;
 - Demographic characteristics of heads of rural households;
 - Farming practices and soil conservation methods used;
 - Access to agricultural loans; and,
 - Access to market prices information and agricultural extension services in general.
- (b) To enhance the capacities and analysis of agricultural data in the Central Statistical Office (CSO) and Ministry of Agriculture and Cooperatives (MACO). This is done through training and involvement of staff, at various levels, in survey data management.
- (c) Development of appropriate survey instruments for collecting post-harvest and other agricultural data.

1.2 Topics covered by the Post-Harvest Survey (PHS)

The Post-Harvest Survey is a comprehensive one such that it extends coverage of topics beyond what is collected during the Crop Forecast Survey (CFS). Data were collected on the following items during the 2001/2002 PHS:

- Farm land and input use: area planted to crops, fertilizer application, crop production and sales;
- Livestock production and marketing;
- Poultry production and marketing;
- Assets and investment;
- Sources of food relief;

CHAPTER 2: CONCEPTS AND DEFINITIONS

2.0 Introduction

The following concepts and definitions were used in collection of the PHS data for the 2001/2002 Agricultural Season. Generally, the standard concepts and definitions as articulated by Food and Agriculture Organisation (FAO) have been used in the agriculture surveys. However, some of these concepts and definitions have been modified to suit the Zambia local conditions.

2.1 General Concepts

Qualified Respondent	is an adult member of the household, who is knowledgeable about its crops, livestock, and poultry. The qualified respondent may however consult any other member of the household on different items in the questionnaire.
Household	consists of a group of people who normally live and eat together. These people may or may not be related by blood, but make common provision for food or other essentials for living and they have only one person whom they all regard as head of household. It may also consist of one member. A household normally occupies the whole of a housing unit or live in closely related premises.
Agricultural Household	is a household in which at least one member is carrying out some agricultural activity (defined below) on the holding belonging to the household.
Agricultural Activity	is the growing of any crop and/or raising of livestock and/or raising of poultry and/or fish farming.
Head of Household	is a person who is considered to be the head by the members of the household.
Holding	is all land wholly or partly operated for agricultural purposes such as growing crops and/or raising livestock and/or raising poultry for production under a single technical management. A holding may consist of one or more parcels (defined below) located in one or separate areas, the parcels share the same means of production e.g., labour.
Holder	is a person who exercises management control over the operations of the holding. Usually there is one holder in a household that is engaged in agricultural activity, who may or may not be the head of the household.
Parcel	is an undivided block of land in the holding, which is entirely surrounded, by land and/or water that does not belong to the same holding. It may contain one or several fields growing one or different crops, or it may be left idle or fallow, or it may be under pasture.
Field	is a piece of land usually cultivated with one crop at a time. In some cases, a number of different crops (mixture) may be grown in a single field at the same time.
Mixed Cropping	is a cultivation practice whereby two or more different temporary or permanent crops (but not temporary and permanent crops) are grown simultaneously in the same field.
Inter- cropping	is a cultivation practice whereby a crop is planted between the rows of another crop, e.g., sorghum between cotton rows, or sorghum between groundnuts rows, or groundnuts between maize rows.
Area under Mixed Crops	is the area of the field in which two or more crops are grown almost simultaneously.

Agricultural Season	Zambia's Agricultural Season extends from 1st October of one year to 30th September of the following year.
Adult member	refers to persons who are aged 12 years and above.
Land Preparation	refers to all activities such as clearing the land, tree stumping, ploughing, etc.
Animal Draught	refers to the use of animals such as oxen and donkeys, used in carrying out tasks like land preparation, planting, weeding, etc.
Mechanical Power	refers to the use of tractors, bulldozers, hand tractors, etc., in any agricultural activity.
Bunding	involves forming mounds in the field, i.e., piling up masses of earth over the whole field in order to reduce the rate of flow of rainwater.
Fallowing	is a soil conservation method in which a piece of land is ploughed but not sown or planted with any crop.
Recycled seed	refers to hybrid seed which when sown in one season, the seed for the following season is obtained from the season's harvest of the crop.
Local seed	refers to traditional and indigenous seed.
Hybrid seed	refers to improved seed varieties.

2.2 General Definitions

2.2.1 Crops, Fruits and Vegetables

Mixed beans	include all kinds of beans except soybeans and ground (round) beans.
Cassava	is brought to the market in several forms, i.e., tuber, chips, and flour. For statistical reporting, only one form is adopted as the standard form and that is cassava flour. Accordingly, quantities of production and sales of cassava relate to cassava flour.
Seed-cotton	production and sales is recorded in seed-cotton form in kilograms. Where the quantity is reported in bales/woolsacks, it is converted to kilograms before recording.
Groundnuts	are brought to the market in shelled as well as unshelled form. For statistical reporting, the concept of shelled groundnuts is adopted.
Maize	production and sales is recorded in dried grain form.
Rice	production and sales relate to paddy, (i.e., rice in husk).
Millet	includes bulrush and finger millet. Their production and sales are recorded in threshed dried grain form.
Sorghum	production and sales are recorded in threshed grain form.
Soybeans	production and sales are recorded in dried seed form.
Cow peas	production and sales are recorded in dried seed form.
Ground beans	production and sales are recorded in dried seed form.
Sunflower	production and sales are recorded in dried seed form.

Tobacco (Burley/Virginia)	production and sales relate to cured tobacco in kilograms.
Irish/Sweet (Potatoes)	production and sales are recorded in kg.
Fruits	include oranges, tangerines and mandarins, grapefruit and lemons, bananas, pineapples, mangoes, etc.
Vegetables	include all leafy crops e.g., cabbage, rape, onions, tomatoes, carrots, etc. Green maize, fresh groundnuts, fresh ground (round) beans is also included under vegetables.
Wheat	production and sales are recorded in dried grain form.
2.2.2 Livestock and Poultry	
Livestock	include cattle, pigs, goats, sheep, and donkeys.
Cattle	include bulls, oxen, tollies, cows, heifers, and calves.
Bulls	bulls are uncastrated adult male cattle.
Oxen/Tollies	are castrated male cattle.
Cows	are female cattle that have given birth at least once. This includes female cattle that have not yet given birth but are beyond the stage of being termed heifers, i.e., they are infertile.
Heifers	are female cattle that have not yet given birth and have not reached the stage of being termed cows.
Calves	are both male and female cattle that are not yet weaned.
Poultry	include chickens, ducks, geese, pigeons, guinea fowls, and turkeys.
Chickens	include cocks, cockerels, hens, pullets, and chicks.

3.0 Introduction

This chapter covers issues pertaining to sample design, questionnaire content, field supervision and data processing. All rural districts in the country were covered for the 2001/2002 Post-Harvest Survey. Coverage in the districts was based on a sample. Data collection activities took place during the period December 2002 and January 2003. The information was solicited using personal interviews with the qualified respondents with the selected households in the sample areas known as Standard Enumeration Areas (SEAs). This survey covered Small and Medium Scale Farms.

3.1 Sample Design

Construction of the sampling frame was done using the results obtained from the 1990 Census of Population, Housing, and Agriculture. Based on this sampling frame, a Master Sample of Census Supervisory Areas (CSAs) was constructed in 1992 soon after the National Census of Agriculture. This was before the onset of the 1992/93 Agricultural Season.

A multi-stage sample scheme was adopted. At the first stage of selection in this multi-stage sample, a proportional allocation of the number of sample Census Supervisory Areas (CSAs) was carried out in each province for the districts. Sample selection within a particular district employed Probability Proportional to Size (PPS) selection procedure. The measure of size was the number of households (as listed in the 1990 Census) in each CSA. From each selected CSA, one sample Standard Enumeration Area (SEA) was selected, again using PPS selection procedure.

This Master Sample was refined somewhat for the 1995/96 Agricultural Season. From the results of the Crop Forecast Survey for the 1994/95 Agricultural Season, it was observed that the standard errors (SE's) and hence the coefficients of variation (CV's), were high. This cast some shadow of doubt on the precision of the estimates, and this was particularly true for "localized" crops like rice (paddy) tobacco, seed-cotton, soya beans, sorghum, and sunflower. Because of this, it was decided that the sampling frame be revisited in order to improve on the estimates arising from the sample.

A crop zoning process was thus undertaken for each rural district. The basis for this process was the results of the 1990 Census of Population, Housing, and Agriculture. This process yielded eight (8) crop zones, which were as follows:

- Zone 1: maize, millet, groundnuts, cassava and sweet potatoes
- Zone 2: rice (paddy)
- Zone 3: sorghum
- Zone 4: soya beans
- Zone 5: sunflower
- Zone 6: seed-cotton
- Zone 7: tobacco – Virginia
- Zone 8: tobacco – burley

Each zone constituted a sub-frame from which a sample of CSAs/SEAs was selected for the particular crop.

The overall effect of this zoning process was an adjustment in the weight for each "localized" crop.

Household Selection

There was no selection of new sample of households for the 2001/2002 Agricultural Season Post Harvest Survey. However, the old sample of households that was selected for the 1999/2000 Agricultural Season Post Harvest Survey was used. This sample of households has been used in all the subsequent Post Harvest Survey including 2001/2002 Agricultural Season.

During listing for the Post Harvest Survey for the 1999/2000 Agricultural Season, households were classified into two strata, namely: small and medium scale agricultural operators. A household with total area planted to crop measuring less than 5 hectares was classified as small – scale operator. If the area planted to crops was 5 hectares or more but less than 20 hectares then the household was classified as Medium-Scale Operator. The following is a description of how the households were selected for the 1999/2000 Post Harvest Survey.

A total of twenty (20) households were selected from each Sample SEA. The sample of households was allocated at ten (10) households to be selected from each stratum. Where the number of households listed in a stratum did not permit selection of the 10 households required, the shortfall was drawn from the other stratum. This was done in order to maintain the sample size at 20 households for each Sample SEA.

Selection of households was done using linear systematic sampling (LSS) procedure with a random start, within each stratum.

3.2 Questionnaire Design and Content

The 2001/2002 PHS questionnaire was used to collect information on the following:

- Name of the village/locality;
- Household serial number (assigned by the Enumerator during listing);
- Name of the head of household;
- Sex and age of head of household;
- Household population, i.e., number of members of households by sex and age;
- Type of agricultural activity the household is involved in;
- Fertilizer acquisition and use;
- Crop production and sales;
- Vegetable and fruit production and sales;
- Livestock and poultry production and marketing;
- Household Production Assets/implements;
- Food purchases and food aid/relief for home consumption;
- Health and deaths: past 3 months and past five years;
- Crop Management - input application and tillage methods;
- Crop rotation and irrigation.

3.3 Field Supervision

The Central Statistical Office (CSO) comprises four (4) divisions operationally by subject matter area. Among these Divisions is the Agriculture and Environment Division. The Agriculture and Environment Division was responsible for planning and execution of the 2001/2002 Post-Harvest Survey.

The Regional Statistician in each province oversaw the fieldwork. The provincial head was assisted by a number of supervisors. The overall field work force was 9 Regional Statisticians, 9 Provincial Statistical Officers, 40 supervisors and 204 enumerators. Besides the provincial staff, Master Trainers assisted in the supervision of fieldwork. These were drawn from CSO and MACO –Policy and Planning Division (PPD).

Training

Professional officers from both CSO and MACO-PPD conducted training of supervisors and enumerators. Regional Statisticians/Provincial Statistical Officers assisted them in the task. The master trainers played a major role in the training of staff. The training of supervisors and enumerators were done jointly.

Transport

There were, on average, three vehicles for use on the survey in each province. Where the fleet of CSO's motor vehicles, were inadequate it was supplemented through borrowing from the Department of Agriculture and Cooperatives (Field Services) and from other Government Departments in the provinces/districts. Such an arrangement facilitated successful completion of the survey.

3.4. Data Processing and Analysis

Supervisors and some enumerators based at provincial headquarters edited the questionnaires. The edited questionnaires were entered on microcomputers using a software package known as Integrated Micro-Processing System (IMPS). Data capturing was accomplished at each provincial centre. Initial computer data processing was done at the provincial headquarters using IMPS software. Staff in Agriculture and Environment Division based at CSO headquarters did further data computer processing.

Consistency checks on the output of the raw data, with reference to the source documents, were applied before final weighted tables at district and provincial levels were produced. The software used for analysis was Statistical Package for Social Sciences (SPSS), while Microsoft Excel was used for data tabulation.

CHAPTER 4: GENERAL CHARACTERISTICS OF SURVEYED AGRICULTURAL RURAL HOUSEHOLDS

4.0 Demographic Characteristics

During the 2001/2002 Agricultural Season, there were a total of 812,945 rural households engaged in agricultural activities.

There were 75.3 percent of the rural households that were headed by males, while 24.7 percent were female-headed. The largest proportion of female-headed households was found in Western Province with 32 percent followed by Eastern Province with 27.3 percent. Southern Province recorded the least proportion of female-headed households with 18.5 percent. For details, refer to Table 4.1 and Figure 4.1.

Table 4.1: Households by Sex of Household Head and Province, 2001/2002

Province	Male	Female	Total percent	Total Households
Central	76.7	23.3	100.0	68,537
Copperbelt	74.2	25.8	100.0	34,654
Eastern	72.7	27.3	100.0	188,579
Luapula	74.5	25.5	100.0	106,519
Lusaka	73.6	26.4	100.0	18,930
Northern	77.8	22.2	100.0	133,673
N/Western	80.9	19.1	100.0	50,005
Southern	81.5	18.5	100.0	109,345
Western	68.0	32.0	100.0	102,703
Zambia Total	75.3	24.7	100.0	812,945

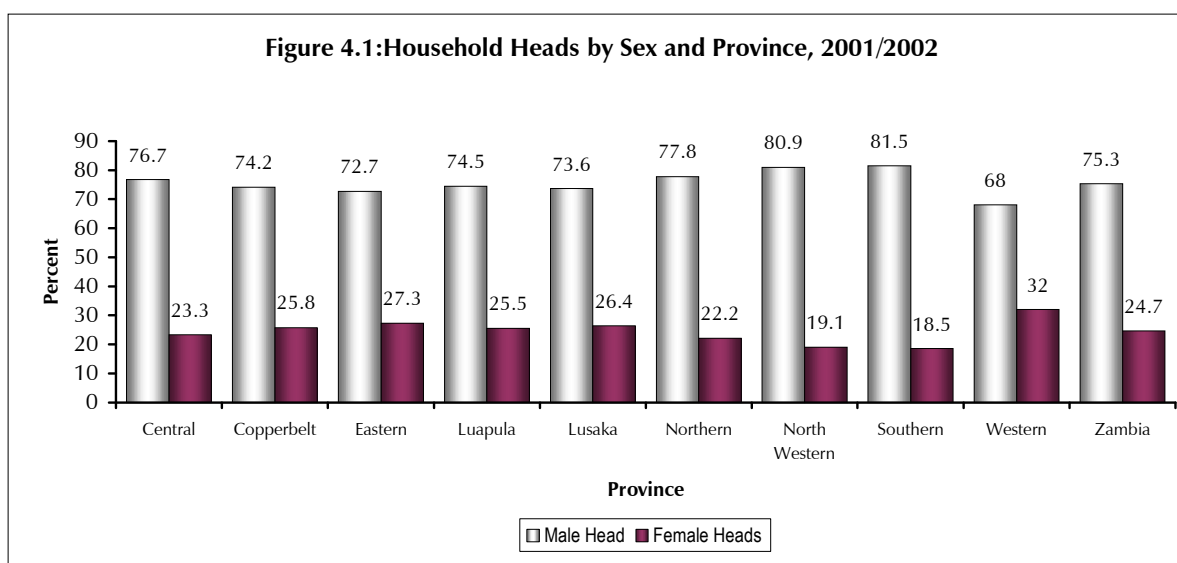


Table 4.2 shows male-headed households by marital status. The proportion of single male-headed households were high in North-western Province with 17.7 percent. All the other provinces recorded proportions of less than 10 percent each of male-headed households.

Monogamously marriage is universal in Zambia as evidenced from the high proportions of monogamously male-headed households. Polygamously married male-headed households were most common in Southern and Northern Provinces with 21.2 and 11.6 percent, respectively. The remaining provinces recorded less than 10.0 percent each of the polygamously married male-headed households. Marital status of divorced, widowed and separated male-headed households are less common as evidenced from the less than 5.0 percent each. However, slightly high proportions of widowed male-headed households were recorded in Copperbelt and Lusaka Provinces with 5.0 and 4.6 percent, respectively.

Table 4.2: Male Headed Households by Marital Status and Province, 2001/2002

Province	Single	Monogamously Married	Polygamously Married	Divorced	Widowed	Separated	Total
Central	7.7	78.3	8.7	1.1	4.1	0.1	100.0
Copperbelt	6.3	85.1	1.9	1.5	5.0	0.1	100.0
Eastern	8.6	77.7	8.9	0.9	3.4	0.5	100.0
Luapula	8.1	78.1	7.7	3.0	2.3	0.8	100.0
Lusaka	5.5	78.6	7.7	2.9	4.6	0.7	100.0
Northern	8.5	76.5	11.6	0.5	2.6	0.3	100.0
N/Western	17.7	75.7	2.9	0.7	2.4	0.6	100.0
Southern	6.5	69.7	21.2	0.5	1.9	0.2	100.0
Western	6.8	77.2	9.5	2.9	3.2	0.5	100.0
Zambia Total	8.4	76.6	10.3	1.3	2.9	0.4	100.0

There were high proportions of single female-headed households in North-western, Western, Central and Lusaka Provinces. In these provinces, proportions of single female-headed households ranged between 16.0 and 23.0 percent. Monogamously married female-headed households were high in Central Province with 41.9 percent, followed by Copperbelt Province with 28.7 percent. North-western Province had less proportions of monogamously married female-headed households with 14.4 percent. Polygamously married female-headed households were high in Southern Province with 22.6 percent followed by Eastern Province with 14.1 percent. The remaining provinces recorded less than 11.0 percent each of polygamously married female-headed households. There were more divorced female-headed households in Luapula, North-western and Western Provinces with proportions ranging between 23.0 and 31.0 percent. A third of divorced female-headed households were recorded in Luapula Province. More than half of widowed female-headed households were recorded in Lusaka and Northern Provinces with 52.1 and 52.5 percent, respectively. An equally high proportion of widowed female-headed households was recorded in Copperbelt Province with 48.7 percent. Western Province recorded the lowest proportions of widowed female-headed households with 26.9 percent in 2001/2002 Agricultural Season. Separated female-headed households are less common in all provinces with less than 5 percent each. For details refer to Table 4.3.

Table 4.3: Female Headed Households by Marital Status and Province, 2001/2002

Province	Single	Monogamously Married	Polygamously Married	Divorced	Widowed	Separated	Total
Central	16.5	41.9	2.2	6.6	30.5	2.3	100.0
Copperbelt	8.3	28.7	0.1	12.3	48.7	1.8	100.0
Eastern	6.4	22.0	14.1	14.5	39.9	3.1	100.0
Luapula	8.2	24.4	1.4	30.2	33.0	2.7	100.0
Lusaka	16.3	19.6	3.5	4.9	52.1	3.5	100.0
Northern	10.5	16.7	7.7	8.2	52.5	4.4	100.0
N/Western	22.1	14.4	-	27.2	34.6	1.7	100.0
Southern	13.6	16.9	22.6	6.2	37.5	3.1	100.0
Western	18.4	18.5	10.4	23.8	26.9	1.9	100.0
Zambia Total	11.8	21.9	9.2	16.0	38.2	2.9	100.0

4.1 Agricultural Activity

All the 812,945 rural households reporting were engaged in some agricultural activity of one type or another. Out of this total number, 98.3 percent were engaged in crop growing, 39.9 percent were raising livestock and 72.4 percent were engaged in poultry production.

Table 4.4: Rural Households by Type of Agricultural Activity, 2001/2002

Province	Households Reporting	Type of Agricultural Activity		
		Crops	Livestock	Poultry
Central	68,537	99.0	40.5	84.3
Copperbelt	364,654	96.9	23.6	78.7
Eastern	188,579	98.9	47.9	70.6
Luapula	106,519	98.3	22	67.9
Lusaka	18,930	93.7	40.4	59.9
Northern	133,673	98.9	37	78.5
North-western	50,005	99.8	30.4	60.7
Southern	109,345	96.8	60.4	79.5
Western	102,703	97.9	35.3	62.8
Zambia Total	812,945	98.3	39.3	72.4

CHAPTER 5: CROP PRODUCTION

5.0 Introduction

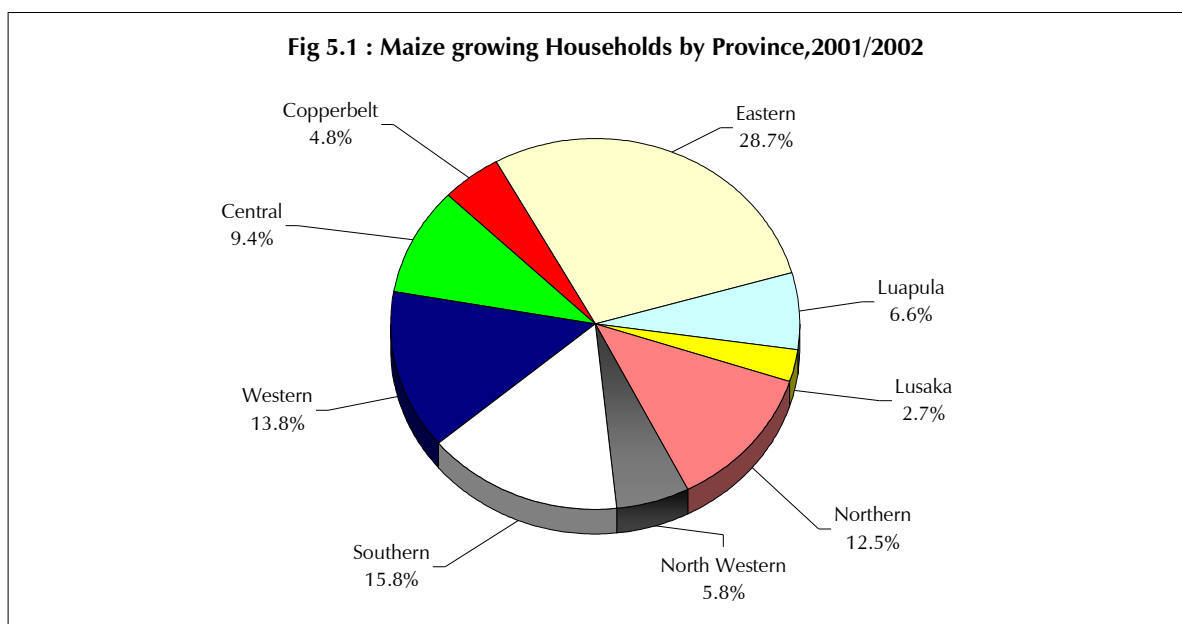
Small and Medium Scale Agriculture is dominated by the production of crops for two main reasons namely; as a source of livelihood, and as a source of income through marketed produce. As shown in the section on distribution of rural households by activity, over 95 percent of the rural households were engaged in crop production during the 2001/2002 Agricultural Season. The crops grown by this sub-sector of agriculture include food and cash crops.

5.1 Maize

Maize is the most common staple food in Zambia. Though a staple food, it also serves as a source of income for households through marketing the surplus.

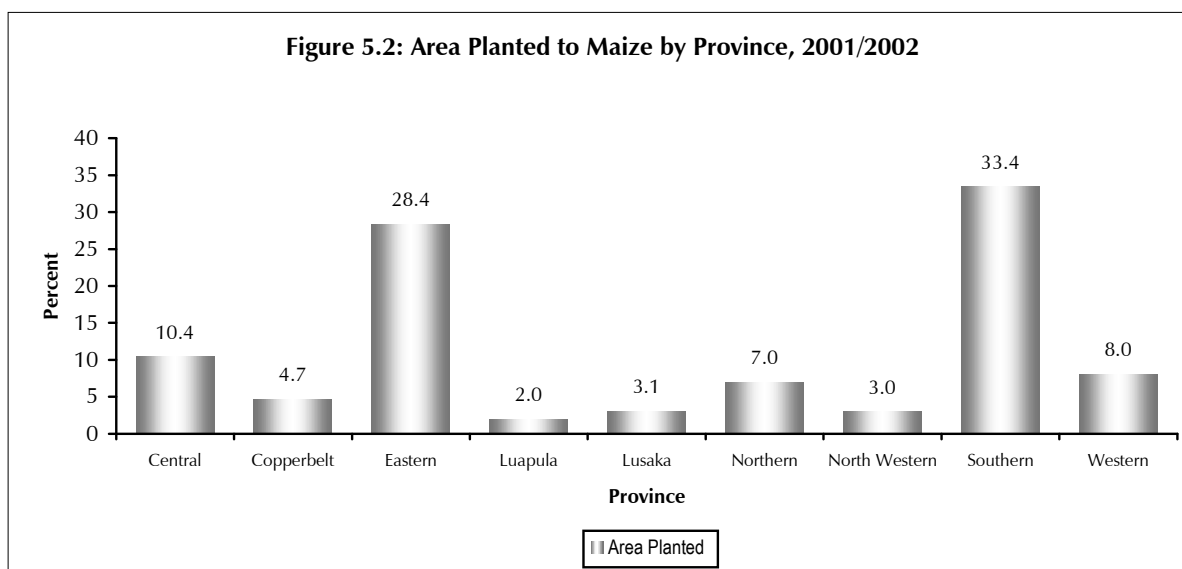
There were 648,050 households that reported to have grown maize during the 2001/2002 Agricultural Season compared to 624,091 households during the 2000/2001 Agricultural Season. The number of households reporting was 4.0 percent more than those that reported during the 2000/2001 Agricultural Season.

The largest number of households that grew maize was in Eastern Province with 28.7 percent. Southern Province accounted for 15.8 percent of the total maize growing households. Western and Northern Provinces recorded 13.8 and 12.5 percent, respectively. Less than 10 percent of rural agricultural households were engaged in maize growing in each of the following provinces; Copperbelt, Lusaka and Luapula.



5.1.1 Area Planted to Maize

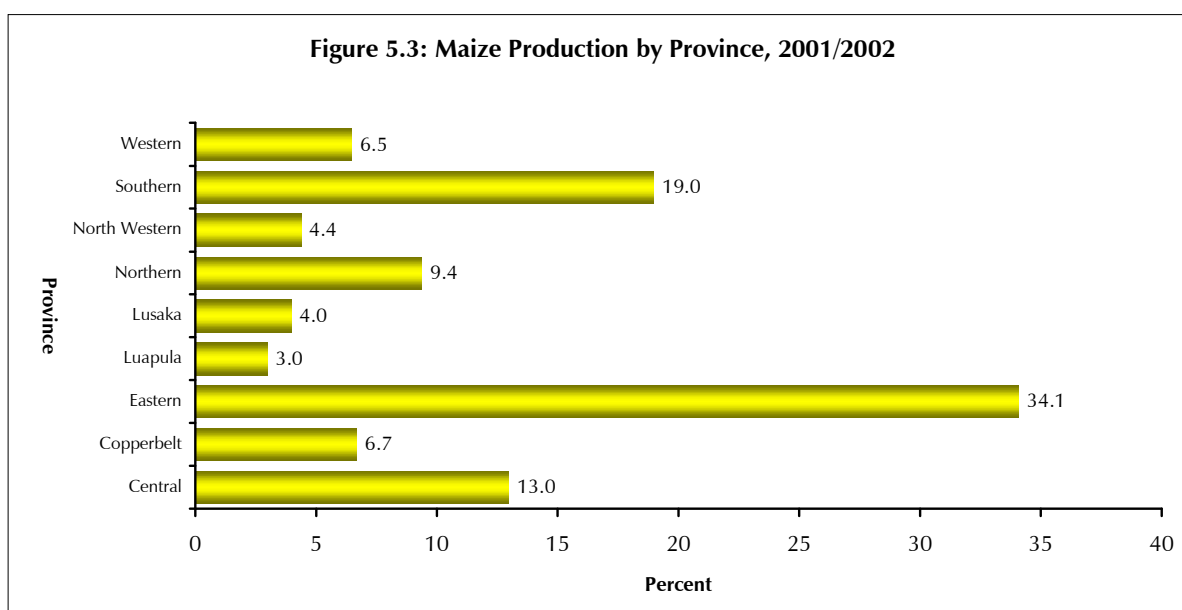
The total area planted to maize during the 2001/2002 Agricultural Season was estimated at 646,450 hectares. Southern and Eastern Provinces recorded the highest proportions of area planted to maize with 33.4 and 28.4 percent, respectively. Central Province recorded 10.4 percent of the total area planted to maize. The remaining provinces recorded less than 10 percent each of total area planted to maize. For details refer to Figure 5.2.



5.1.2 Maize Production

The total amount of maize produced during the 2001/2002 Agricultural Season was 664,116 metric tonnes, 11 percent more than the production recorded for the 2000/2001 Agricultural Season.

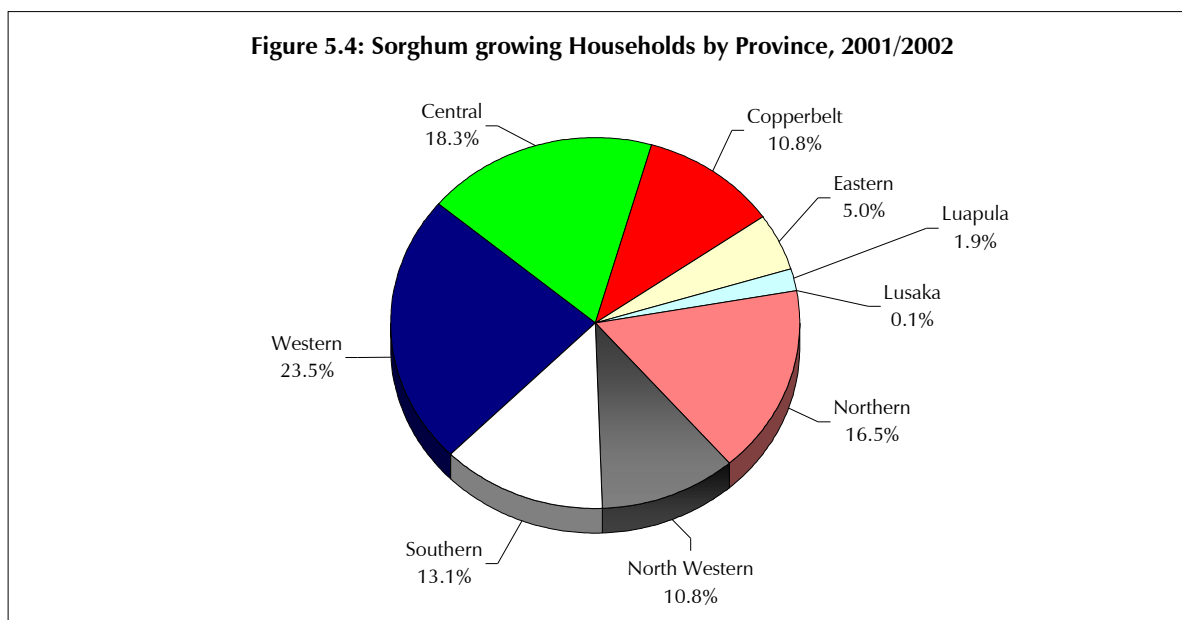
Eastern Province recorded the highest proportion of maize produced during 2001/2002 Agricultural Season at 34.1 percent, followed by Southern Province with 19.0 percent. Central province recorded 13.0 percent of maize produced. Lowest proportions of maize production were recorded in Luapula, Lusaka and North-western Provinces. For details refer to Figure 5.3.



5.2. Sorghum

Sorghum is widely grown throughout the country though the number of households engaged in its production is relatively small compared to the number of households engaged in maize production. The advantage of growing sorghum compared to most crops is that it withstands pests during storage. This crop is promoted especially in drought-prone areas since it is a drought-tolerant crop. The promotion of sorghum is aimed at improving food security in areas where drought and short rain periods are frequent. Some varieties of sorghum are used in the brewing industry and therefore, sorghum is both a food and cash crop.

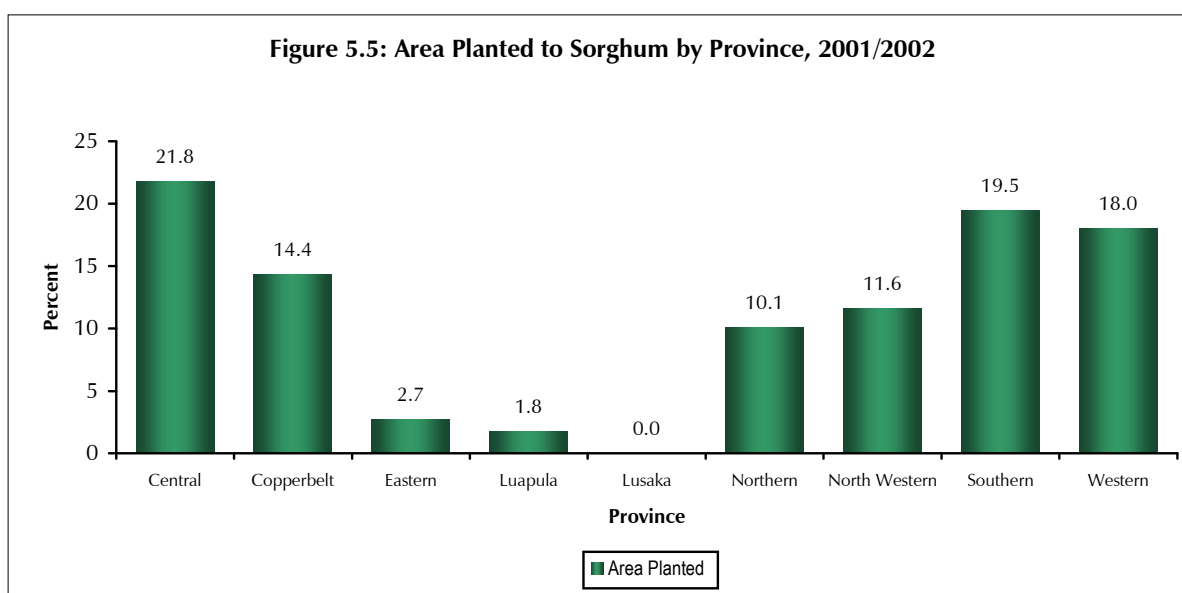
There were 66,705 households that reported to have grown sorghum during the 2001/2002 Agricultural Season. The largest number of households that grew sorghum was in Western Province, where 23.5 percent of the total sorghum growing households was recorded. Central Province accounted for 18.3 percent of the total sorghum growing households, followed by Northern (16.5 percent) and Southern Province with 13.1 percent.



5.2.1 Area Planted to Sorghum

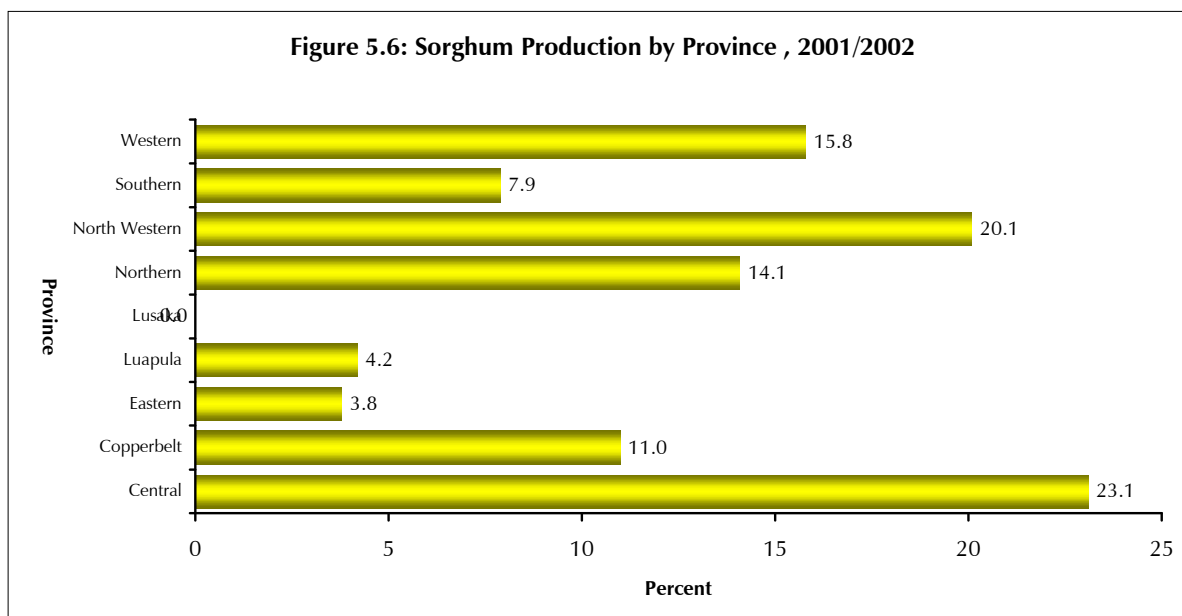
Figure 5.5 shows the distribution of area planted to sorghum in Zambia by province during the 2001/2002 Agricultural Season. The total area planted to sorghum during the 2001/2002 Agricultural Season was estimated at 33,872 hectares.

Central Province accounted for 21.8 percent of the total area, followed by Southern and Western Provinces with 19.5 and 18.0 percent, respectively.



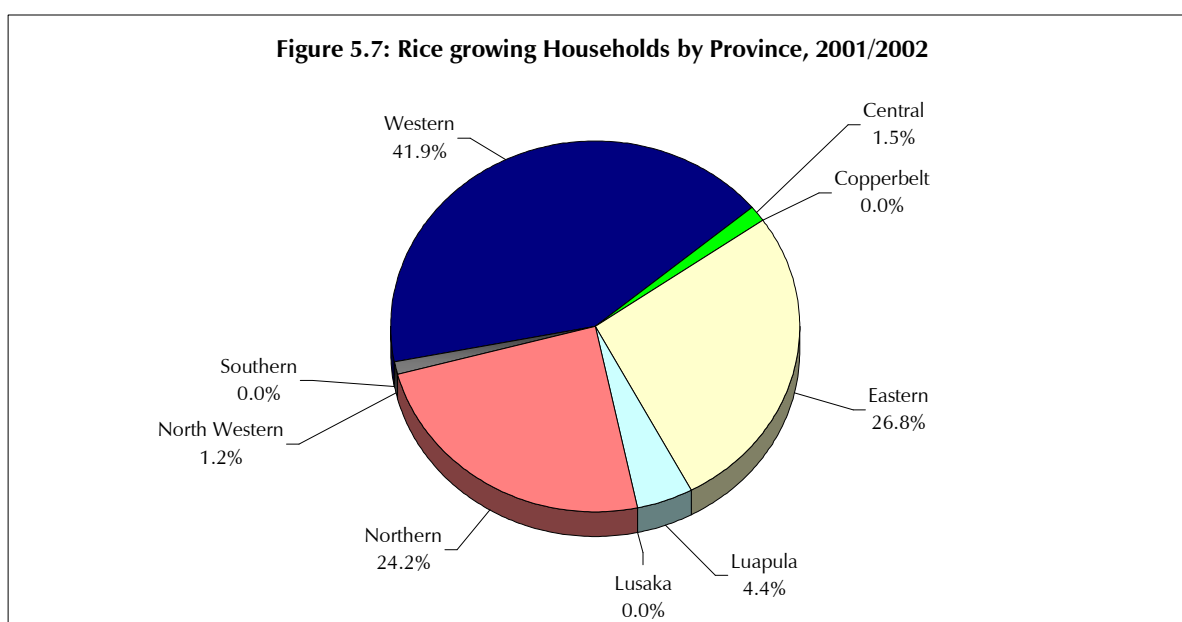
5.2.2 Sorghum Production

The total amount of sorghum produced during the 2001/2002 Agricultural Season was estimated at 18,639 metric tonnes. The largest proportion of sorghum produced during the 2001/2002 Agricultural Season was recorded in Central Province with 23.1 percent. North-western and Western Provinces recorded 20.1 and 15.8 percent, respectively. The lowest proportions of sorghum production was recorded in Lusaka, Luapula and Eastern Provinces with less than 5 percent each.



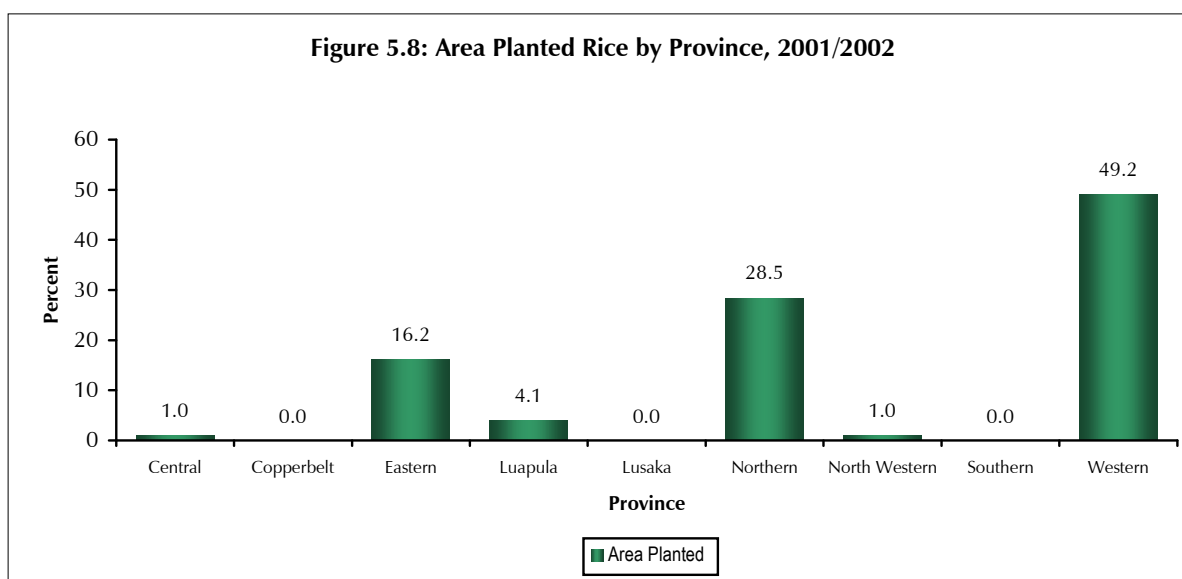
5.3 Rice

Rice grows well in well-watered areas, especially river valleys, where swamps, plains and marshlands can be found. There were 33,864 households that reported to have grown rice during the 2001/2002 Agricultural Season. The largest number of households that grew rice was reported in Western Province with 41.9 percent. Eastern Province accounted for 26.8 percent of the total rice-growing households, followed by Northern Province with 24.2 percent. Provinces that recorded proportions of less than 5.0 percent each were Central, Copperbelt, North-western and Luapula.



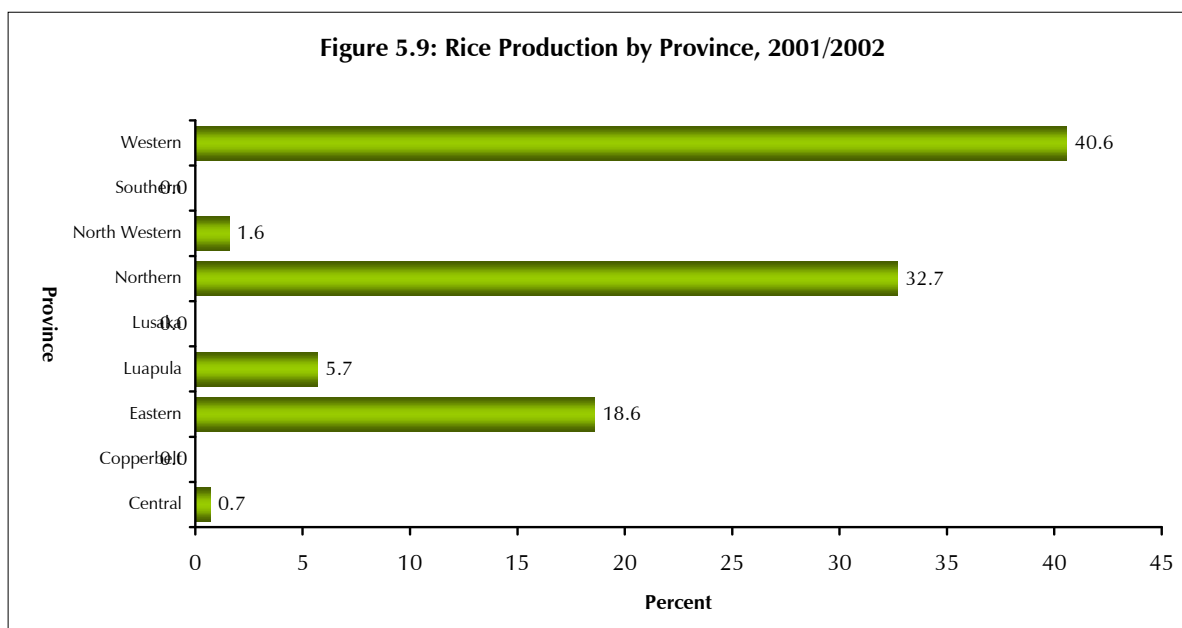
5.3.1 Area Planted to Rice

Figure 5.8 below shows the distribution of area planted to rice in Zambia by province during the 2001/2002 Agricultural Season. The total area planted to rice during the 2001/2002 Agricultural Season was 13,050 hectares. Western Province accounted for 49.2 percent of the total area, followed by Northern and Eastern Provinces with 28.5 and 16.2 percent, respectively.



5.3.2 Rice Production

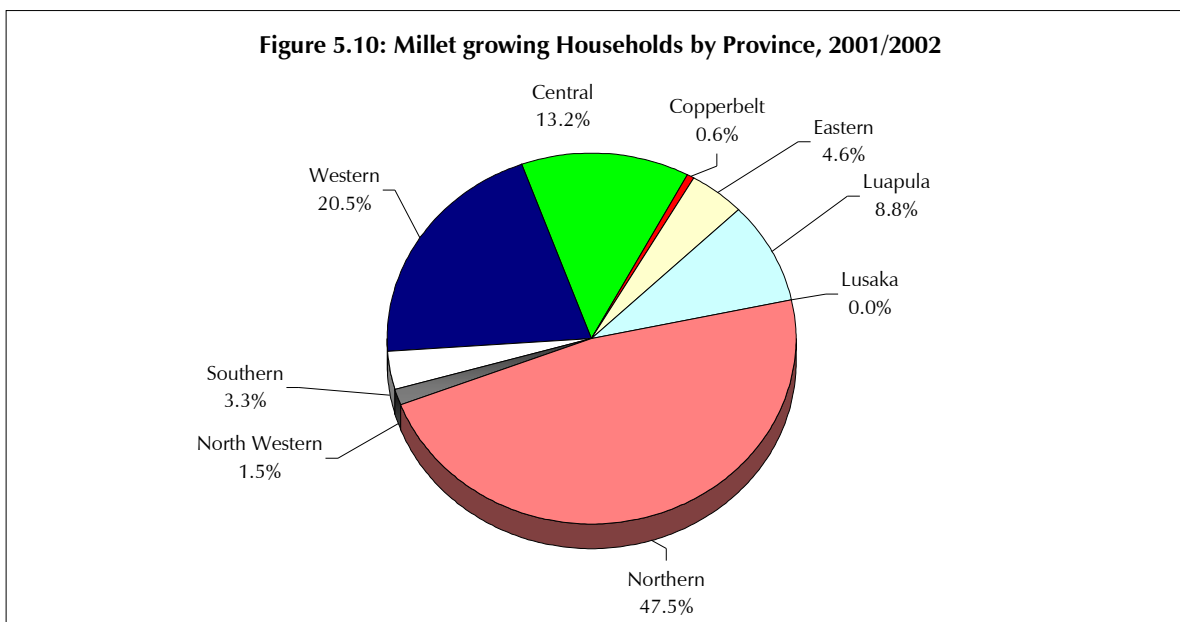
The total amount of rice produced during the 2001/2002 Agricultural Season was estimated at 19,210 metric tonnes. Western Province produced the highest quantity of rice with 40.6 percent of the total production. Northern and Eastern Provinces recorded 32.7 and 18.6 percent, respectively, of total rice production. Provinces that recorded proportions of less than 2.0 percent each of rice production were central, Copperbelt and North-western Provinces. For details refer to Figure 5.9.



5.4 Millet

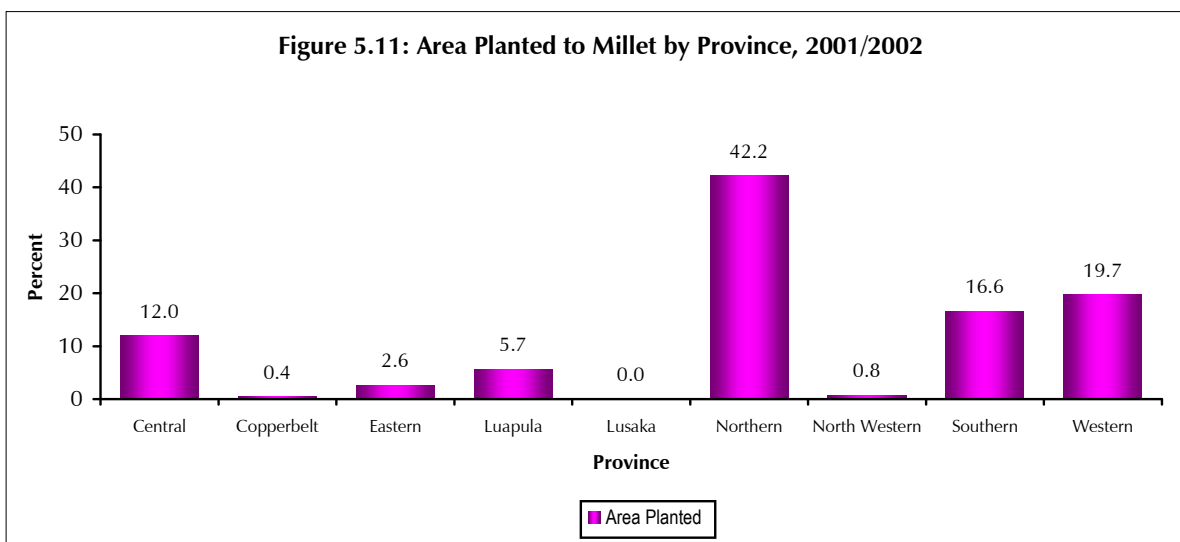
Millet is grown in all the provinces apart from Lusaka Province. Millet is a staple food in Northern and Western provinces. This is evidenced from the high numbers of agricultural households that grew the crop in 2001/2002 Agricultural Season. Millet is also used as a major ingredient in the preparation of local brews countrywide.

There were 133,881 households that reported to have grown millet during the 2001/2002 Agricultural Season. The largest number of households that grew millet was in Northern Province with 47.5 percent. Western Province accounted for 20.5 percent of the total millet-growing households, followed by Central and Luapula Provinces with 13.2 and 8.8 percent, respectively. Provinces that recorded proportions of less than 5.0 percent each of millet growing households were Copperbelt, Eastern, North-western and southern.



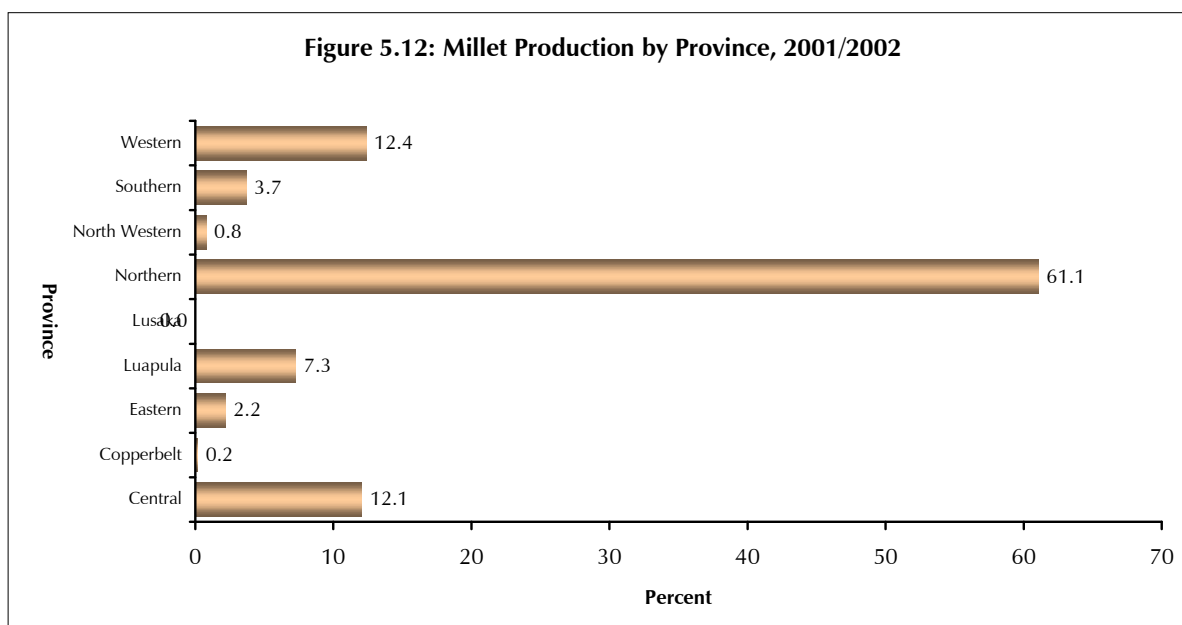
5.4.1 Area Planted to Millet

Figure 5.11 shows the distribution of area planted to millet in Zambia by province during the 2001/2002 Agricultural Season. The total area planted to millet during the 2001/2002 Agricultural Season was 61,347 hectares. Northern Province accounted for 42.2 percent of the total area, followed by Western and Southern provinces with 19.7 and 16.6 percent, respectively. Central and Luapula provinces recorded 12.0 and 5.7 percent, respectively.



5.4.2 Millet Production

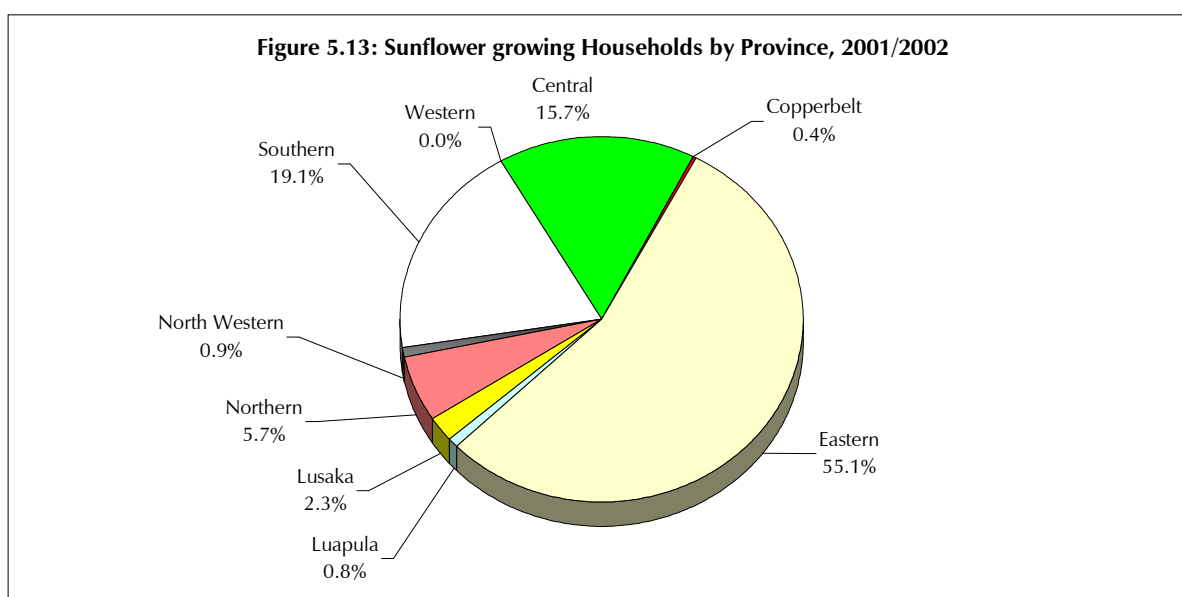
The total amount of millet produced during the 2001/2002 Agricultural Season was 40,282 metric tonnes. Northern Province produced most of the millet in 2001/2002 Agricultural Season with 61.1 percent followed by Western and Central provinces with 12.4 and 12.1 percent, respectively. Luapula Province recorded 7.3 percent of total millet production in 2001/2002 Agricultural Season. For details refer to Figure 5.12.



5.5 Sunflower

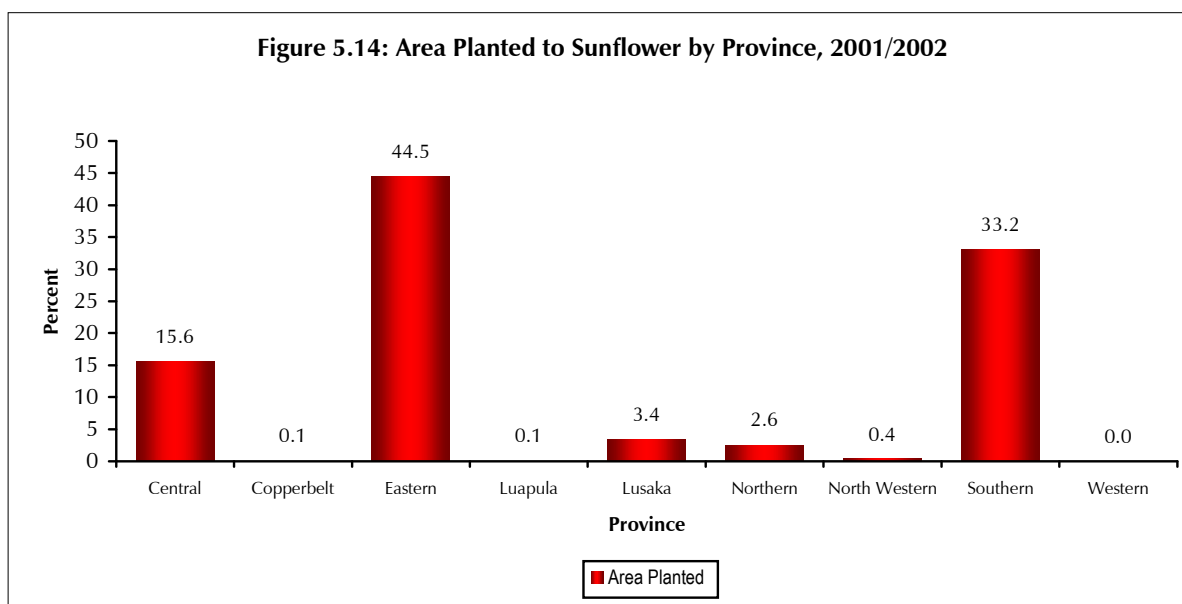
Sunflower is an oil-producing seed widely grown in the country. It is basically grown for cash. There were 39,086 households that reported to have grown sunflower during the 2001/2002 Agricultural Season. The largest number of households that grew sunflower was recorded in Eastern Province with 55.0 percent. Southern and Central provinces recorded 19.1 and 15.7 percent, respectively, of the total sunflower growing households in the country.

Sunflower growing is less common in Copperbelt, Luapula, North-western and Western provinces with less than 1.0 percent each in 2001/2002 Agricultural Season.



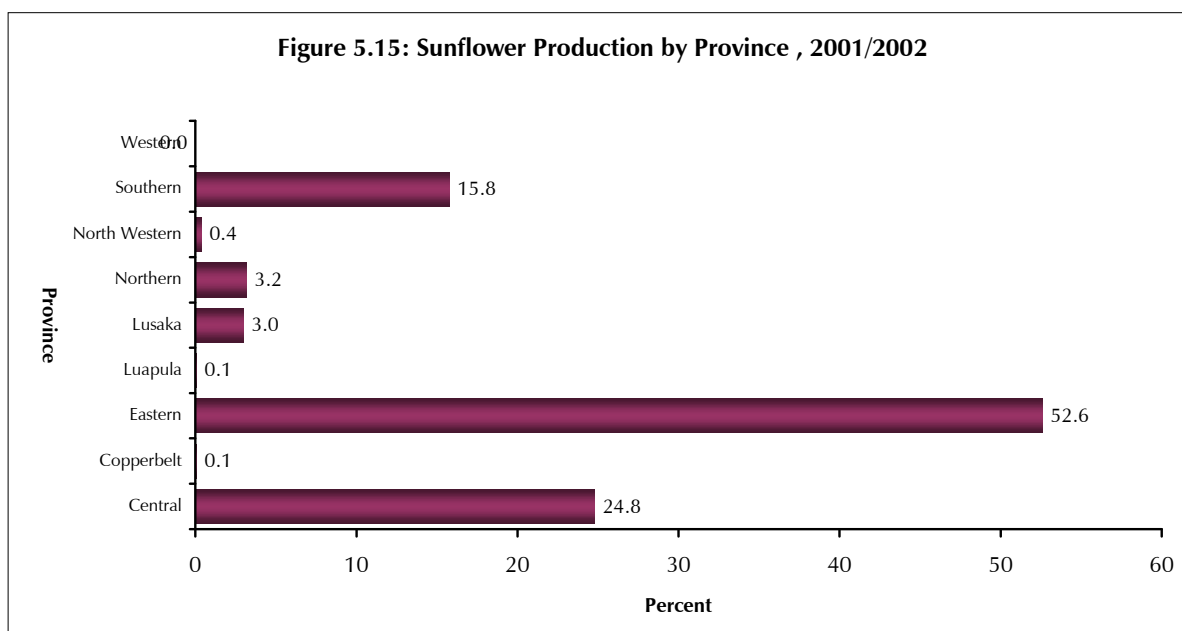
5.5.1 Area Planted to Sunflower

Figure 5.14 below shows the distribution of area planted to sunflower in Zambia by province during the 2001/2002 Agricultural Season. The total area planted to sunflower during the 2001/2002 Agricultural Season was 22,139 hectares. Eastern Province accounted for 44.5 percent of the total area under sunflower, followed by Southern and Central provinces with 33.2 and 15.6 percent, respectively.



5.5.2 Sunflower Production

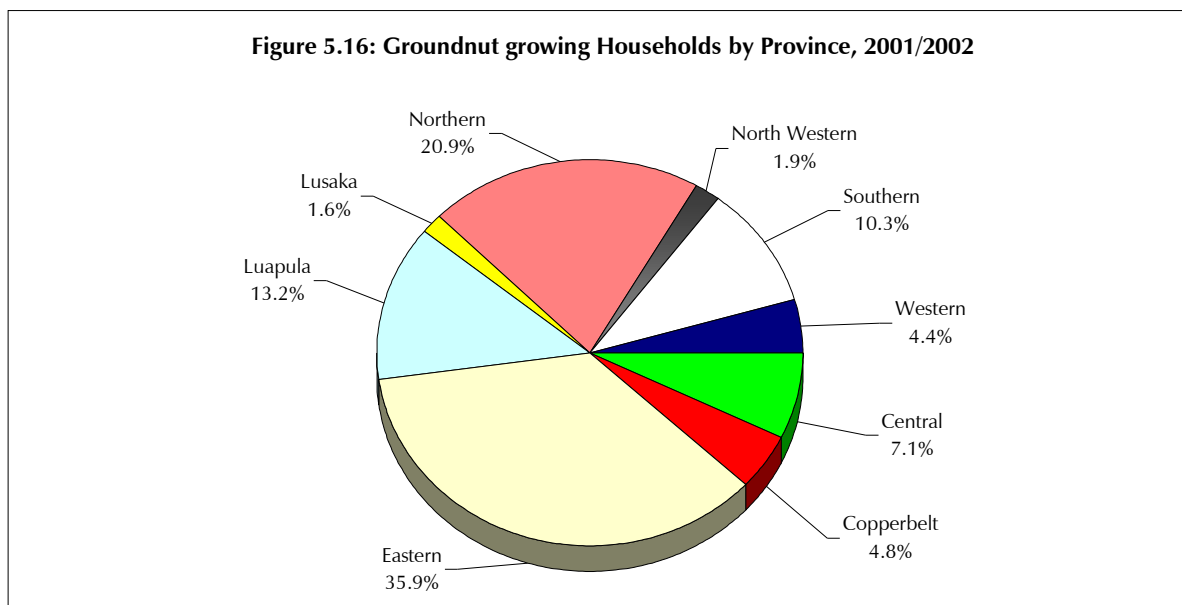
The total amount of sunflower produced during the 2001/2002 Agricultural Season was 7,389 metric tonnes. Eastern Province produced the largest quantity of Sunflower in the 2001/2002 Agricultural Season with 52.6 percent. Central and Southern Provinces recorded 24.8 and 15.8 percent, respectively. The growing of sunflower is less common in Copperbelt, Luapula and North-western provinces with less than 1.0 percent each.



5.6 Groundnuts

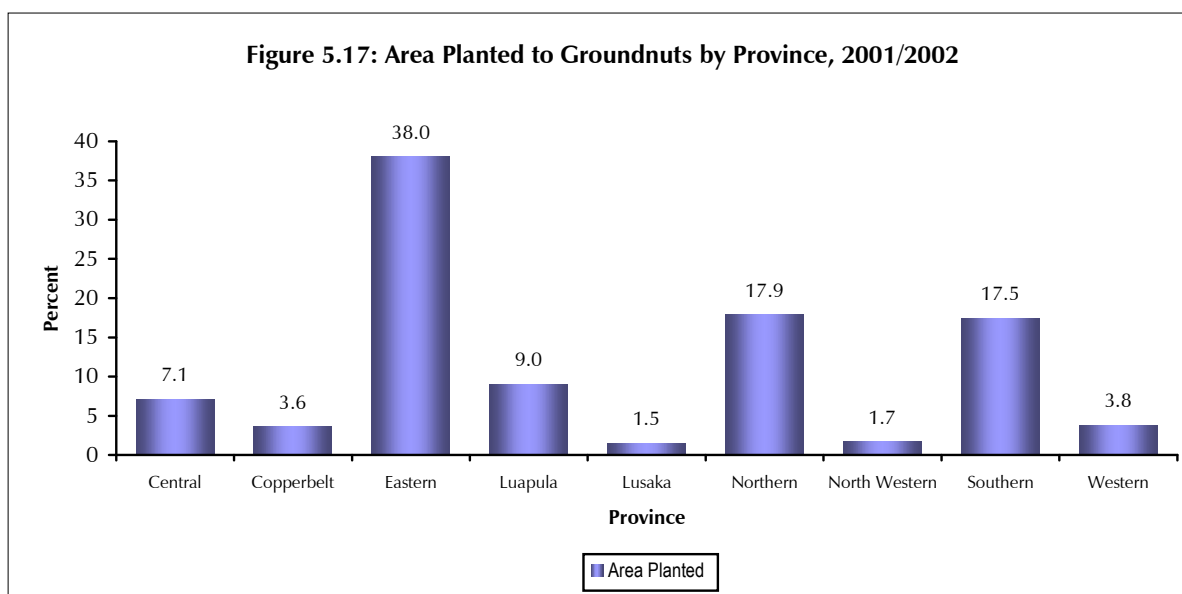
Groundnuts are widely grown in Zambia. The crop is mainly used as an ingredient in relishes, especially in vegetables. It is also source of cooking oil. Manufactured foods such as peanut butter are widely consumed in Zambia. There were 372,498 households that reported to have grown groundnuts during the 2001/2002 Agricultural Season. Eastern Province recorded the highest proportion of groundnuts growing households with 35.9 percent. Northern and Luapula provinces recorded 20.9 and 13.2 percent, respectively of groundnuts growing households in 2001/2002 Agricultural Season.

The growing of groundnuts is less common in Lusaka and North-western provinces with less than 2.0 percent each of total households in 2001/2002 Agricultural Season. For details refer to Figure 5.16.



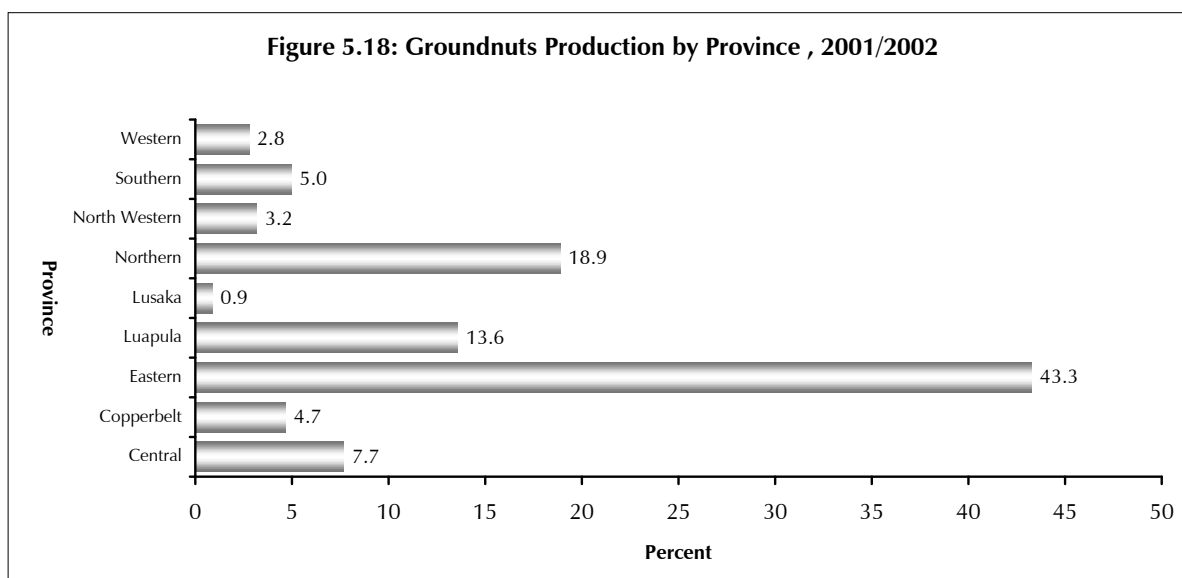
5.6.1 Area Planted to Groundnuts

The total area planted to groundnuts during the 2001/2002 Agricultural Season was 139,015 hectares. Eastern Province accounted for 38.0 percent of the total area under groundnuts. Northern and Southern provinces recorded 17.9 and 17.5 percent, respectively of the total area planted in 2001/2002 Agricultural Season. For details refer to Figure 5.17.



5.6.2 Groundnuts Production

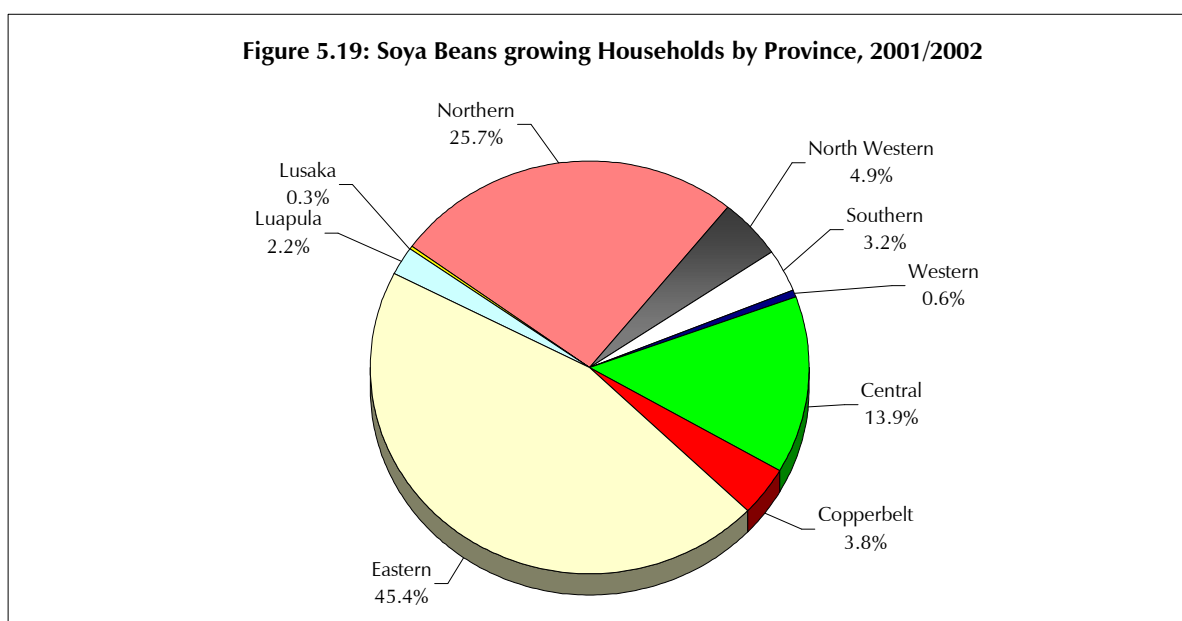
The total amount of groundnuts produced during the 2001/2002 Agricultural Season was estimated at 75,781 metric tonnes. Eastern Province produced the largest quantity of groundnuts during the 2001/2002 Agricultural Season with 43.3 percent followed by Northern and Luapula provinces with 18.9 and 13.6 percent, respectively. For details refer to Figure 5.18.



5.7 Soya Beans

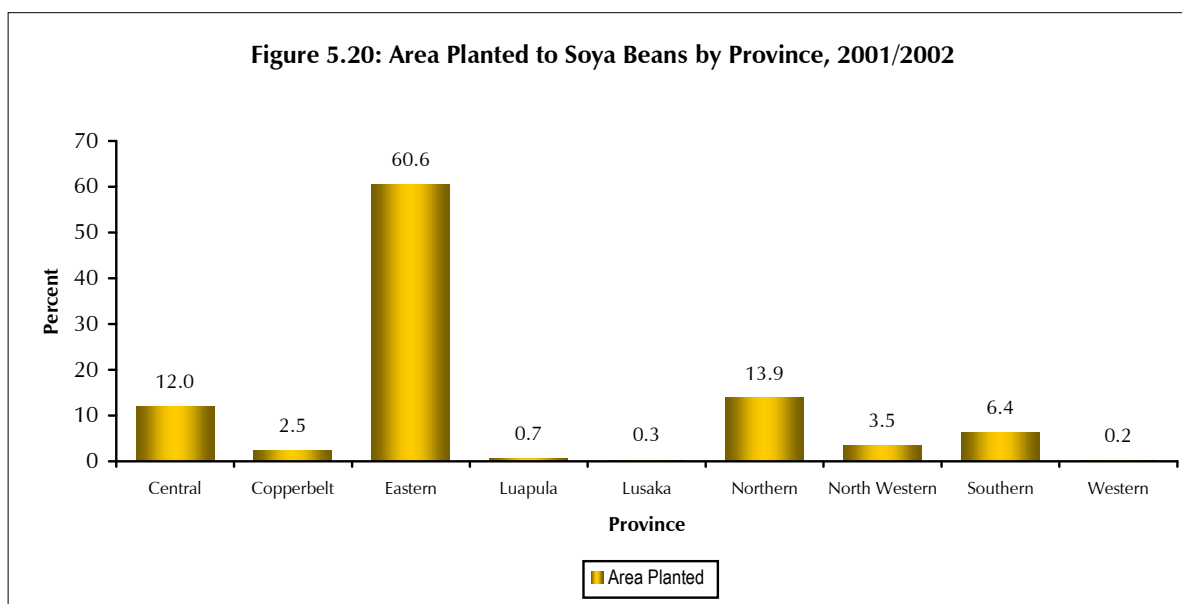
Soya beans has a high nutrition content and is recommended for infant feeding. It is equally grown as a cash crop. The number of households estimated to have grown Soya beans during the 2001/2002 Agricultural Season was 17,190. Eastern Province recorded the highest proportion of Soya beans growing households with 45.4 percent followed by Northern Province with 25.7 percent. Central Province recorded 13.9 percent of Soya beans growing households in 2001/2002 Agricultural Season.

Soya beans growing is less common in Lusaka and Western provinces with less than 1.0 percent each. For details refer to Figure 5.19.



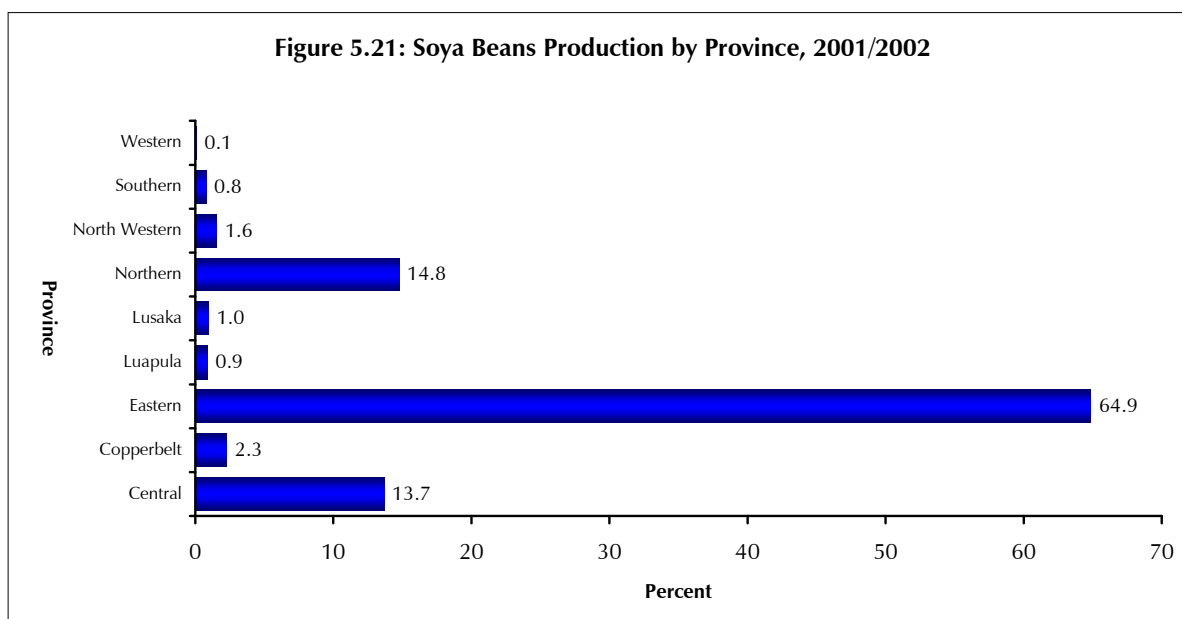
5.7.1 Area Planted to Soya beans

The area planted to Soya beans during the 2001/2002 Agricultural Season was estimated at 6,820 hectares. Eastern Province recorded the highest proportion of area planted to Soya beans at 60.6 percent followed by Northern Province with 13.9 percent. Lusaka and Western provinces recorded less than 1.0 percent each of total area planted to Soya beans in 2001/2002 Agricultural Season. For details refer to Figure 5.20.



5.7.2 Soya beans Production

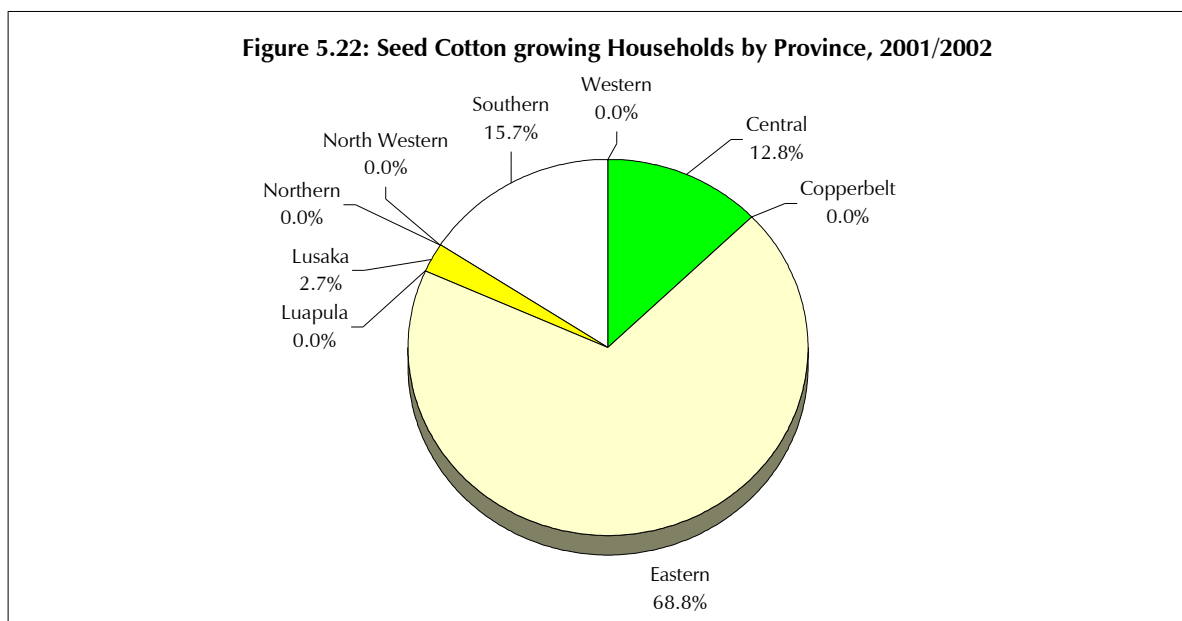
A total of 3,348 metric tonnes of Soya beans were produced during the 2001/2002 Agricultural Season. Eastern Province produced the largest quantity of Soya beans in 2001/2002 Agricultural Season with 64.9 percent, followed by Northern Province with 14.8 percent. Central Province recorded 13.7 percent of Soya beans production in 2001/2002 Agricultural Season. Provinces that recorded less than 2.0 percent each of Soya beans production in 2001/2002 Agricultural Season were Luapula, Lusaka, North-western, Southern and Western. For details refer to Figure 5.21.



5.8 Seed Cotton

The growing of seed cotton is common in Eastern, Southern and Central Provinces. The number of households estimated to have grown seed cotton during the 2001/2002 Agricultural Season was 87,422.

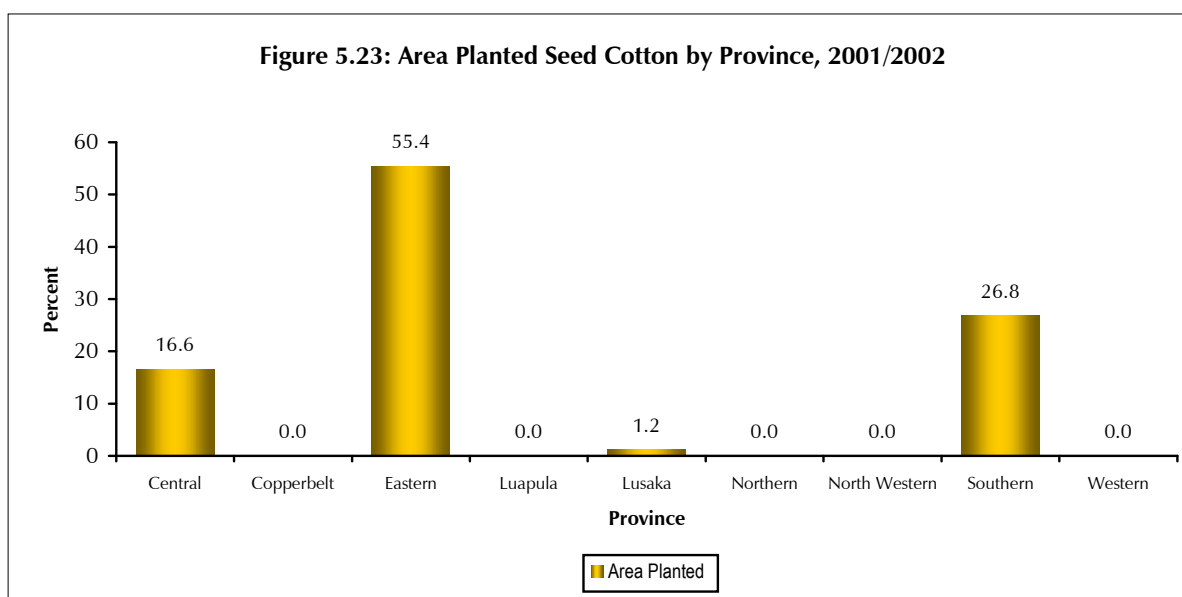
Eastern Province recorded the highest proportion of seed cotton growing households in 2001/2002 Agricultural Season with 68.8 percent followed by Southern Province with 15.7 percent. Central province recorded 12.8 percent of total seed cotton growing households during the 2001/2002 Agricultural Season. Less than 1.0 percent of total seed cotton growing households was recorded in North-western Province. For details refer to Figure 5.22.



5.8.1 Area Planted to Seed Cotton

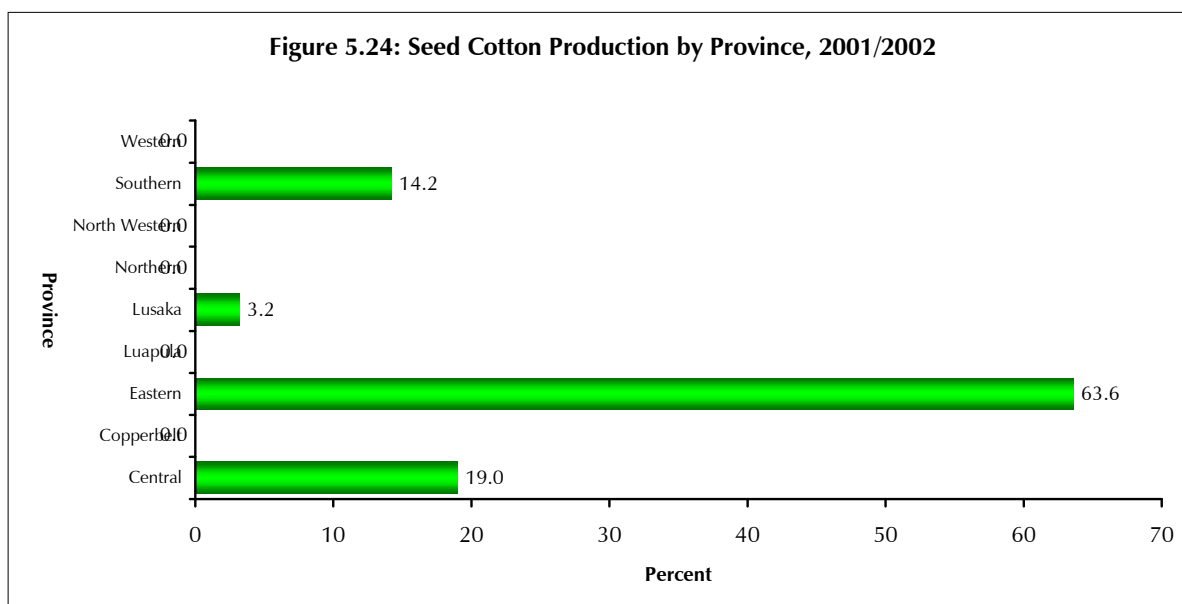
The area planted to seed cotton during the 2001/2002 Agricultural Season was estimated at 87,026 hectares.

Eastern Province recorded the highest area under Seed cotton with 55.4 percent followed by Southern and Central Provinces with 26.8 and 16.6 percent, respectively. For details refer to Figure 5.23.



5.8.3 Seed Cotton Production

A total of 65,979 metric tonnes of seed cotton were produced during the 2001/2002 Agricultural Season. Eastern Province produced the largest quantity of seed cotton in 2001/2002 Agricultural Season with 63.6 percent followed by Central and Southern Provinces with 19.0 and 14.2 percent, respectively. The growing of Seed cotton is less common in North-western Province. For details refer to Figure 5.24.



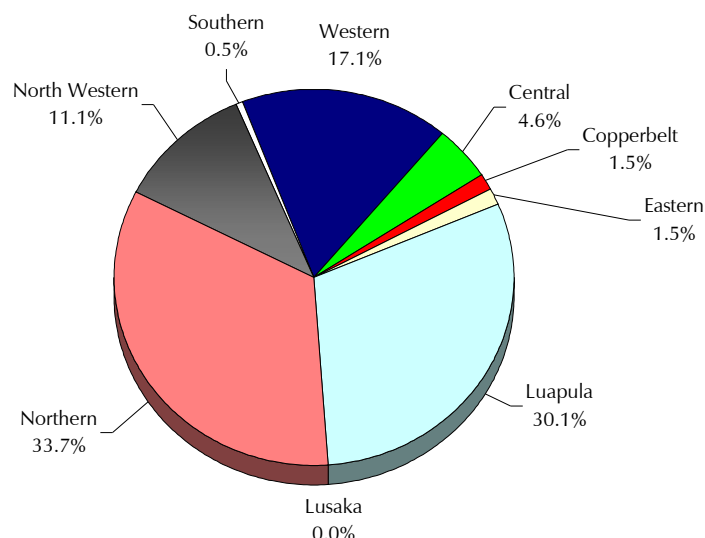
5.9 Cassava

Cassava is a staple food grown in many parts of the country especially in Northern, Luapula and Western Provinces. Cassava growing is being encouraged in other parts of the country for food security reasons, as it is a drought resistant and less expensive crop to manage.

The estimated number of cassava growing households was 343,616 in 2001/2002 Agricultural Season. The highest proportions of cassava growing households were recorded in Northern and Luapula Provinces with 33.7 and 30.1 percent, respectively. Western and North-western Provinces recorded 17.1 and 11.1 percent, respectively, of cassava growing households in the 2001/2002 Agricultural Season.

Cassava growing is less common in Lusaka and Southern Provinces with less than 1.0 percent of cassava growing households. For details refer to Figure 5.25.

Figure 5.25: Cassava growing Households by Province, 2001/2002

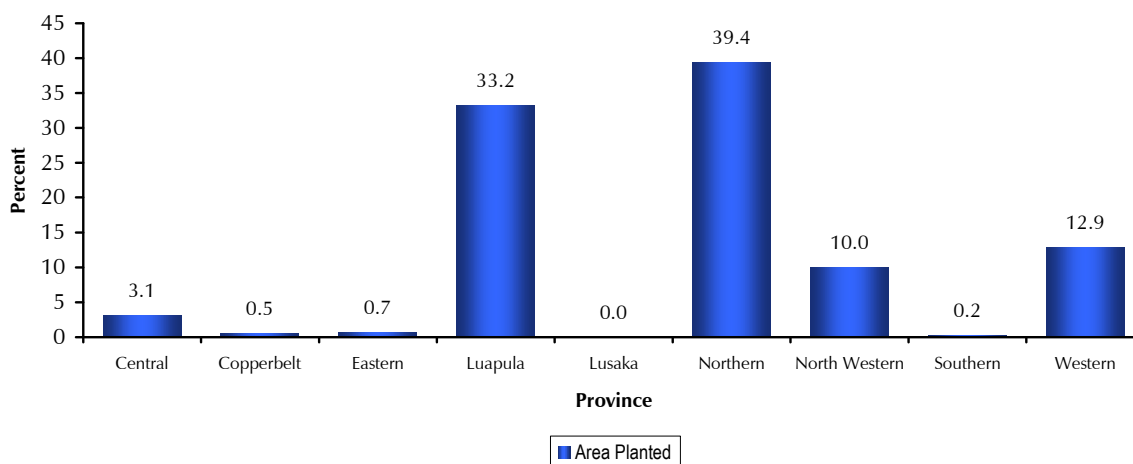


5.9.1 Area Planted to Cassava

The area planted to cassava during the 2001/2002 Agricultural Season was estimated at 278,759 hectares.

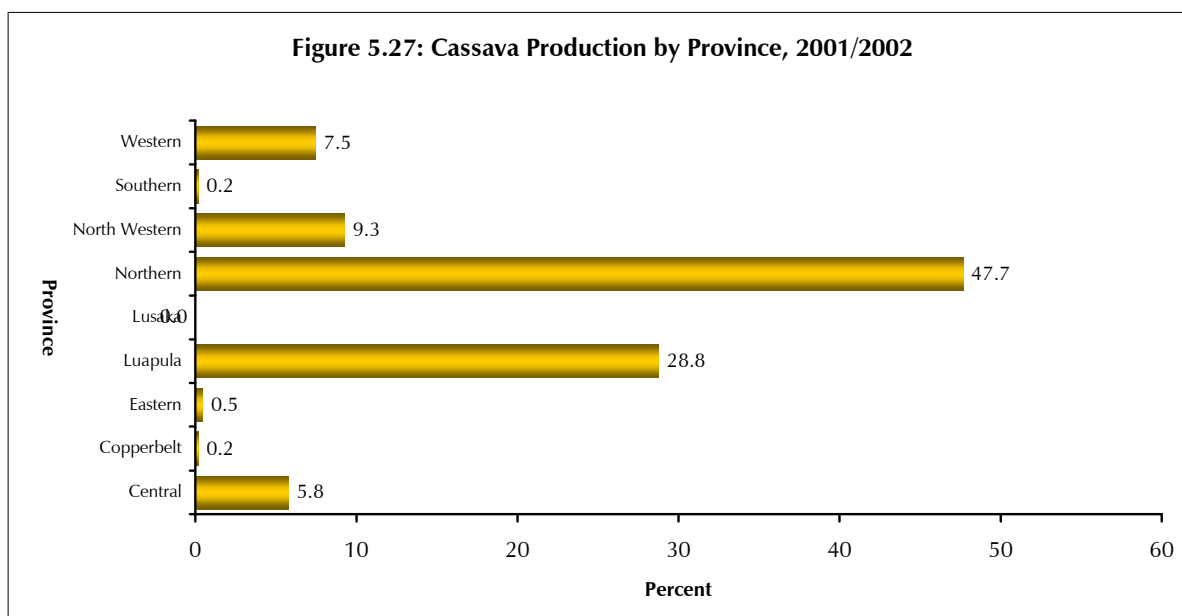
The largest area planted to cassava was recorded in Northern Province with 39.4 percent, followed by Luapula and Western Provinces 33.2 and 12.9 percent, respectively. North-western Province recorded 10.0 percent of the total area planted to cassava in 2001/2002 Agricultural Season. Copperbelt, Eastern, Lusaka and Southern Provinces recorded less than 1.0 percent each of the total area planted to cassava. For details, refer to Figure 5.26.

Figure 5.26: Area Planted to Cassava by Province, 2001/2002



5.9.2 Cassava Production

Cassava production for the 2001/2002 Agricultural Season was estimated at 282,331 metric tonnes. Most of the cassava produced was reported in Northern, Luapula and North-western provinces accounting for 47.7, 28.8 and 9.3 percent, respectively. Less than 1.0 percent of total cassava production was reported in each of the following provinces; Copperbelt, Eastern, Lusaka and Southern. For details refer to Figure 5.27.

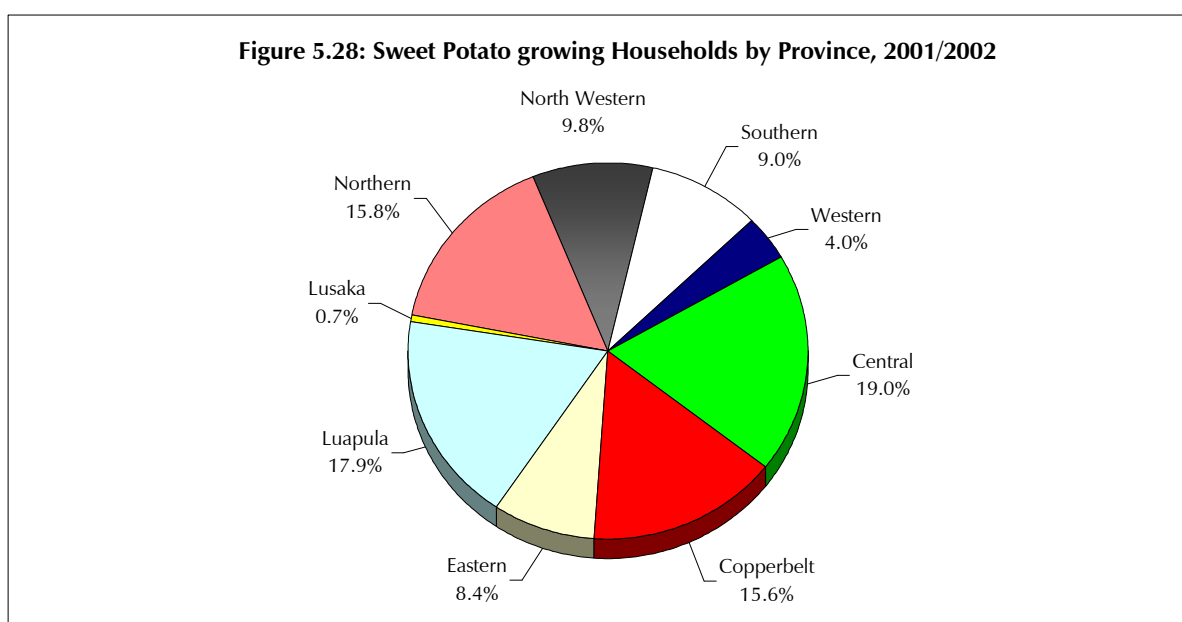


5.10 Sweet Potatoes

Growing of sweet potatoes is common in all provinces. In North-western, Copperbelt and Central Provinces, sweet potatoes are also important cash crops.

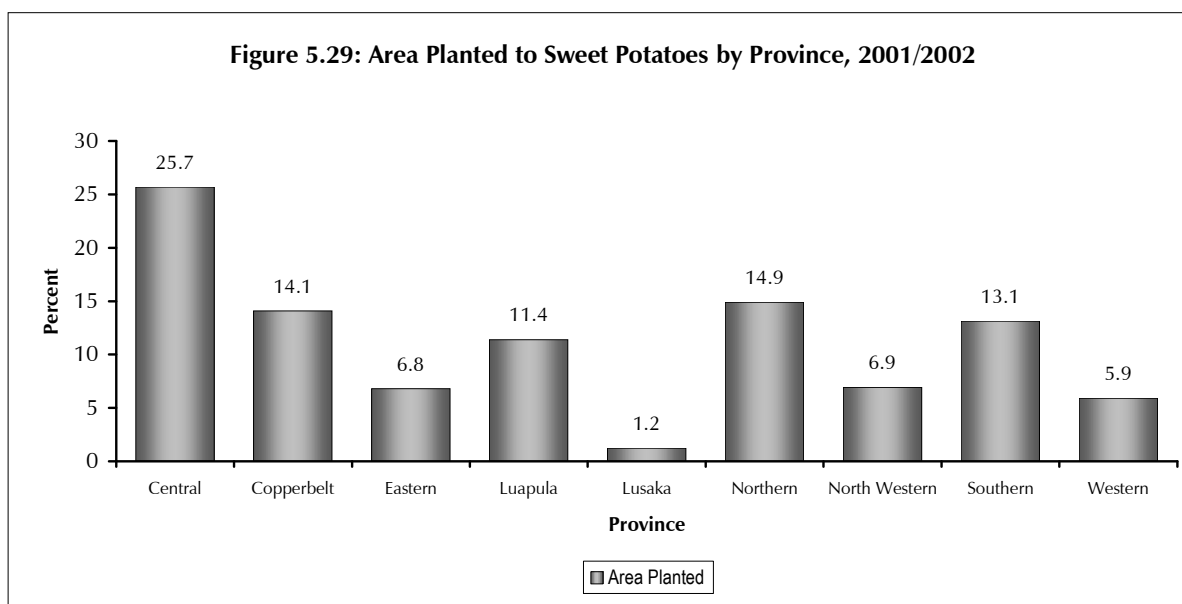
The estimated number of sweet potatoes growing households in 2001/2002 Agricultural Season was 90,223. The highest number of households growing sweet potatoes was recorded in Central Province, accounting for 19.0 percent of the total. Luapula and Northern Provinces recorded 17.9 and 15.8 percent, respectively of households growing sweet potatoes in 2001/2002 Agricultural Season. Copperbelt province recorded 15.6 percent of total households growing sweet potatoes in 2001/2002 Agricultural Season.

The growing of sweet potatoes is less common in Lusaka Province as evidenced from less than 1.0 percent of all households that grew the crop in 2001/2002 Agricultural Season. For details refer to Figure 5.28.



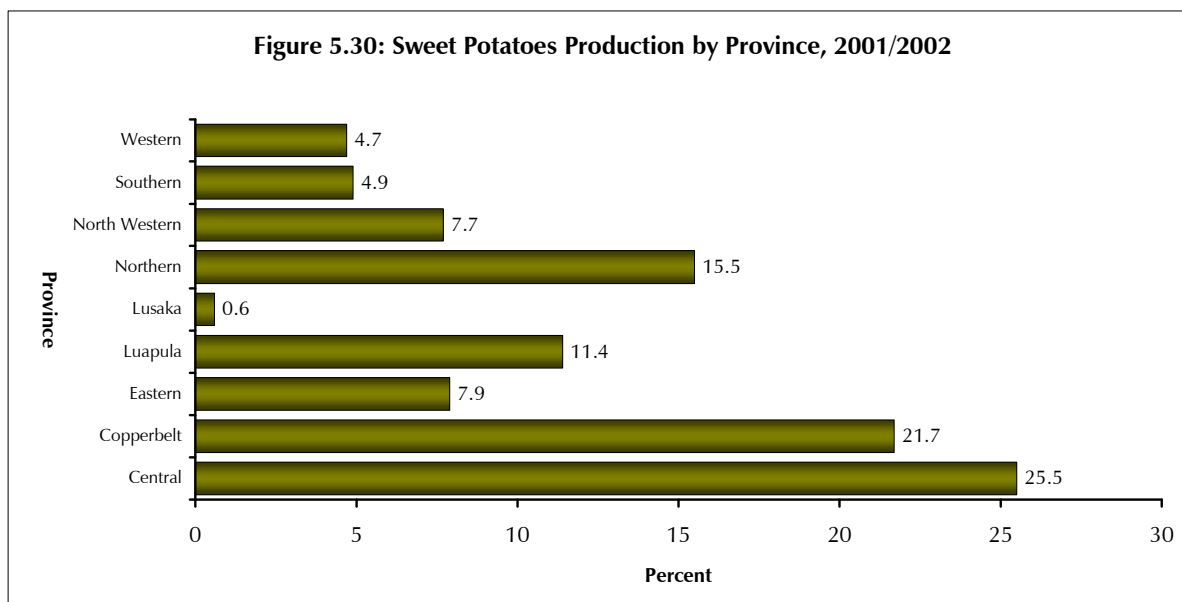
5.10.1 Area Planted to Sweet Potatoes

The area planted to sweet potatoes during the 2001/2002 Agricultural Season was estimated at 23,007 hectares. The highest proportion of area planted to sweet potatoes was recorded in Central Province with 25.7 percent in 2001/2002 Agricultural Season. Northern and Copperbelt provinces recorded 14.9 and 14.1 percent, respectively, of total area planted to sweet potatoes. For details refer to Figure 5.29.



5.10.2 Sweet Potatoes Production

An estimated 48,516 metric tonnes of sweet potatoes were produced during 2001/2002 Agricultural Season. Most of the sweet potatoes were produced in Central, Copperbelt and Northern provinces, accounting for 25.5, 21.7 and 15.5 percent, respectively. For details refer to Figure 5.30.



6.0 Introduction

This chapter gives an overview of the quantities of fertilizers and lime applied to different crops by province. The importance of collecting such data cannot be overemphasised because of the role fertilizers and lime play in increasing agricultural productivity.

6.1 Basal Fertilizer

Table 6.1 shows that a total of 19, 852, 424 kg of basal fertilizers was applied to various crops countrywide during the 2001/2002 Agricultural Season. The largest quantity of basal fertilizer was applied to crops in Southern Province with 27.3 percent, followed by Eastern Province with 22.7 percent. Central Province recorded 16.5 percent of basal fertilizers applied to crops in 2001/2002 Agricultural Season. The least quantity of basal fertilizers were applied to crops in Western, Luapula and North-western provinces with less than 4 percent each in 2001/2002 Agricultural Season.

It is important to note that large quantities of basal fertilizers were applied to maize in all the provinces in 2001/2002 Agricultural Season. More than 95 percent of basal fertilizers in each province was applied to maize. Copperbelt, Lusaka and North-western provinces recorded 100 percent application of the basal fertilizers to maize. In Western Province, of the 347,188 kg of basal fertilizer, 3.4 percent was applied to rice and 1.5 percent was applied to millet. For details refer to Table 6.1.

Table 6.1: Quantities of Basal Fertilizer Applied (Kg) by Crop and Province, 2001/2002

Province	Total	Percent	Type of Crop (percent)							Total percent
			Maize	Sorghum	Rice	Millet	Sunflower	Ground nuts	Soya beans	
Central	3,270,023	16.5	99.5	-	-	0.0	0.1	-	0.3	100.0
Copperbelt	1,386,685	6.5	100.0	-	-	-	-	-	-	100.0
Eastern	4,510,496	22.7	99.5	-	-	-	0.2	-	0.2	100.0
Luapula	591,336	3.0	99.6	0.1	-	-	-	-	0.2	100.0
Lusaka	998,946	5.0	100.0	-	-	-	-	-	-	100.0
Northern	2,718,993	13.7	97.8	0.4	-	1.7	-	0.6	0.1	100.0
N/ Western	610,217	3.1	100.0	-	-	-	-	-	-	100.0
Southern	5,418,540	27.3	99.7	-	-	-	0.3	-	-	100.0
Western	347,188	1.7	95.1	-	3.4	1.5	-	-	-	100.0
Zambia Total	19,852,424	100.0	99.3	0.1	0.1	0.3	0.1	0.1	0.1	100.0

6.2 Top-dressing Fertilizer

Table 6.2 shows that a total of 20,717,148 kg of top dressing fertilizer was applied to various crops countrywide during the 2001/2002 Agricultural Season. The largest quantity of top dressing fertilizer was applied to crops in Southern Province with 26.7 percent, followed by Eastern Province with 23.3 percent. Central and Northern provinces recorded 16.8 and 13.1 percent, respectively of top dressing fertilizer applied to crops in 2001/2002 Agricultural Season. The least quantity of top dressing fertilizers were applied to crops in Western, Luapula and North-western provinces with less than 4 percent each in 2001/2002 Agricultural Season.

Similarly large quantities of top dressing fertilizer were applied to maize in all the provinces in 2001/2002 Agricultural Season. More than 97 percent of top dressing fertilizer in each province was applied to maize. In Western Province, of the 243,324 kg of top dressing fertilizer, 2.2 percent was applied to millet. For details refer to Table 6.2.

Table 6.2: Quantities of Top-Dressing Fertilizer Applied (kg) by Crop and Province, 2001/2002

Province	Total	Percent	Maize	Sorghum	Rice	Millet	Sunflower	Groundnuts	Soya beans
Central	3,473,188	16.8	99.8	-	-	-	-	-	0.2
Copperbelt	1,558,969	7.5	99.9	0.1	-	-	-	-	-
Eastern	4,837,131	23.3	99.3	-	-	-	0.2	0.3	0.2
Luapula	701,600	3.4	99.7	0.1	-	-	-	0.0	0.2
Lusaka	1,107,735	5.3	99.2	-	-	-	-	0.5	0.3
Northern	2,696,413	13.0	98.6	0.2	-	0.6	-	0.5	0.1
N-western	566,729	2.7	100.0	-	-	-	-	-	-
Southern	5,532,059	26.7	99.7	-	-	-	0.3	0.0	-
Western	243,324	1.2	97.8	-	-	2.2	-	-	-
Zambia Total	20,717,147	100.0	99.5	0.0	-	0.1	0.1	0.2	0.1

6.3 Lime

The largest quantities of lime was applied to maize fields in all provinces of Zambia in 2001/2002 Agricultural Season. A total of 106, 675 kg of lime was applied countrywide. Out of this quantity 42.6 percent was applied in Luapula Province, followed by Eastern Province with 16.8 percent. Central Province recorded 11.8 percent of lime applied to crops in 2001/2002 Agricultural Season. Nearly all quantities of lime were applied to maize fields with an exception of Central and Northern provinces. In Northern Province out of 7, 906 kg of lime, 84.1 percent was applied to groundnuts fields. Overall, 89.8 percent of 106,675 kg of lime were applied to maize fields followed by 6.2 percent to groundnuts fields. Sorghum, Millet and Soya beans fields had 0.4, 0.4 and 3.2 percent, respectively of lime applied in 2001/2002 Agricultural Season.

Table 6.3: Quantities of Lime Applied (Kg) by Crop and Province, 2001/2002

Province	Total	percent	Type of Crop (percent)							Total percent
			Maize	Sorghum	Rice	Millet	Sunflower	Ground nuts	Soya beans	
Central	12,583	11.8	66.6	3.0	-	3.0	-	-	27.4	100.0
Copperbelt	1,845	1.7	100.0	-	-	-	-	-	-	100.0
Eastern	17,899	16.8	100.0	-	-	-	-	-	-	100.0
Luapula	45,463	42.6	100.0	-	-	-	-	-	-	100.0
Lusaka	193	0.2	100.0	-	-	-	-	-	-	100.0
Northern	7,906	7.4	15.9	-	-	-	-	84.1	-	100.0
N/ Western	2,233	2.1	100.0	-	-	-	-	-	-	100.0
Southern	7,194	6.7	100.0	-	-	-	-	-	-	100.0
Western	11,359	10.6	100.0	-	-	-	-	-	-	100.0
Zambia Total	106,675	100.0	89.8	0.4	-	0.4	-	6.2	3.2	100.0

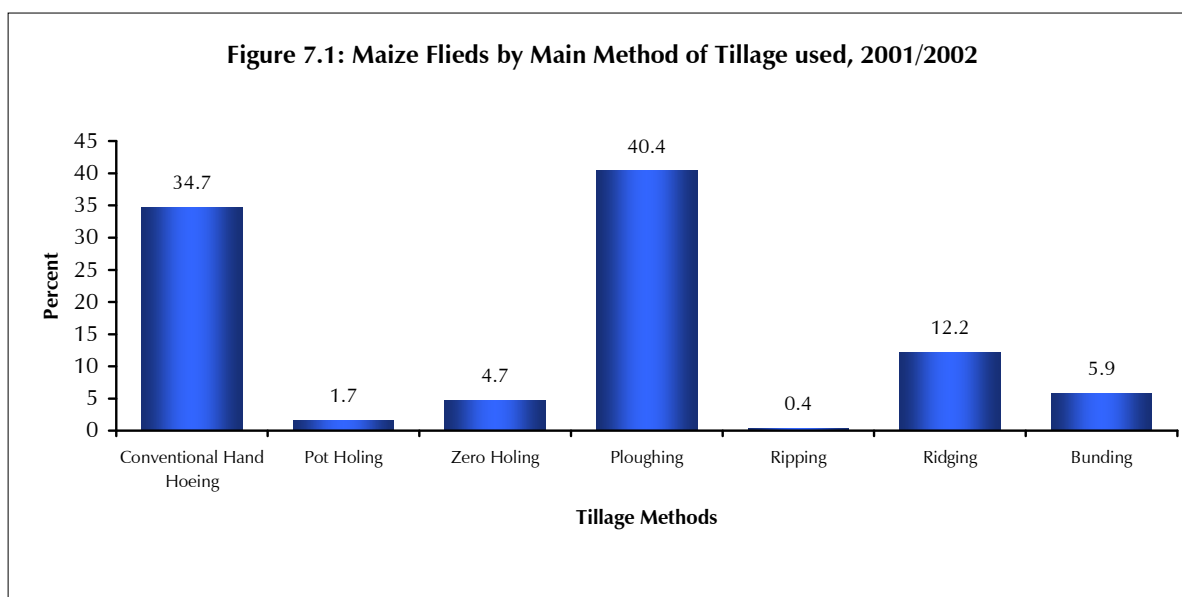
As indicated in the table above, Luapula Province had a high proportion of lime application accounting for 42.6 percent of the total distribution of lime applied to maize in the country. This is expected because of the acidic nature of the soils due to the high rainfall. Eastern Province came in second with a proportion of 16.8 percent while Western Province claimed 10.6 percent out of the total distribution. Others are Central (11.8 percent), Southern (6.7 percent), Copperbelt (1.7 percent) and North western (2.1 percent), while Northern Province reported 7.4 percent.

7.0. Introduction

During the 2001-2002 Post Harvest Survey, data was collected on main tillage method used, namely conventional hand hoeing, pot holing, zero tillage, ploughing, ripping, ridging and bunding.

7.1 Tillage Methods used in Maize Fields

Overall, ploughing was used as tillage method in 40.4 percent of total maize fields, followed by conventional hand hoeing with 34.7 percent. Ridging as a method of tillage was used in 12.2 percent of total maize fields in 2001/2002 Agricultural Season. Pot holing and ripping methods of tillage were not commonly used in Zambia in 2001/202 Agricultural Season. For details refer to Figure 7.1.



Conventional hand hoeing method of tillage was commonly used in Eastern, Central and Copperbelt provinces with above 48 percent of maize fields. Southern Province recorded the least percent of 11.7 of maize fields in which conventional hand hoeing tillage method was used in 2001/2002 Agricultural Season.

Ploughing as a tillage method was commonly used in Southern, Western and Lusaka provinces in more than 55 percent of maize fields. In less than 5 percent of maize fields in Luapula, Northern and North-western provinces, ploughing was used as method of tillage

Ridging as a method of tillage was commonly used in Northern and North-western provinces with 58.0 and 47.3 percent of the maize fields respectively. In less than 10 percent of maize fields in Central, Lusaka, Eastern, Southern and Western provinces, ridging was used as a main tillage method in 2001/2202 Agricultural Season.

Bunding as main method of tillage was commonly used in Luapula and Copperbelt provinces with 54.4 and 33.8 percent of total maize fields respectively. For details see Table 7.1

Table 7.1: Maize Fields by Main Method of Tillage used by Province, 2001/2002

Province	Total Number of Maize Fields	Main Tillage Method Used							
		Conventional Hand hoeing	Pot Holing	Zero Tillage	Ploughing	Ripping	Ridging	Bunding	Total
Central	72,216	51.0	2.5	0.8	42.2	0.5	1.8	1.1	100.0
Copperbelt	36,143	48.6	-	-	12.3	0.5	4.9	33.8	100.0
Eastern	206,726	53.9	1.6	15.4	22.9	-	6.1	0.1	100.0
Luapula	46,827	23.4	0.1	0.3	0.5	0.2	21.2	54.4	100.0
Lusaka	21,577	38.7	2.8	2.5	55.3	0.4	0.3	-	100.0
Northern	88,322	34.4	0.7	0.3	4.1	0.3	58.0	2.2	100.0
N-western	40,725	29.9	0.1	0.3	3.9	3.5	47.3	15.0	100.0
Southern	152,971	11.7	4.4	2.7	80.7	0.4	0.1	0.1	100.0
Western	128,655	23.2	0.0	-	76.3	-	0.4	-	100.0
Zambia Total	794,163	34.7	1.7	4.7	40.4	0.4	12.2	5.9	100.0

7.2 Tillage Methods used in Millet Fields

The total number of fields under millet was estimated at 145,799. In about 66.9 percent of these fields, the main tillage method used was conventional hand hoeing. Ploughing was used in 15.9 percent of these millet fields while zero tillage was used in 12.6 percent of the total millet fields.

Within provinces, conventional hand hoeing as main tillage method used in millet fields was very common. In 91.3 and 83.0 percent of the millet fields in Central and Northern Provinces respectively, the main method of tillage used was conventional hand hoeing. In about 66.8 percent of the millet fields in Luapula Province, the main tillage method was Zero tillage.

Ploughing is used in 76 percent of the millet fields in Southern Province and in 55.9 percent of the millet fields in Western Province. Ridging as main tillage method was used in 31.3 percent of the millet fields in North Western Province.

In 41.2 percent and 10.5 percent of the millet fields in the Copperbelt and Luapula Provinces respectively, the main tillage method used was bunding. For details see Table 7.2

Table 7.2: Millet Fields by Main Method of Tillage used by Province, 2001/2002

Province	Total Number of Millet Fields	Main Tillage Method Used							
		Conventional Hand hoeing	Pot Holing	Zero Tillage	Ploughing	Ripping	Ridging	Bunding	Total
Central	19,193	91.3	0.0	1.0	7.0	0.0	0.0	0.7	100.0
Copperbelt	776	37.2	0.0	0.0	21.5	0.0	0.0	41.2	100.0
Eastern	6,117	48.8	0.0	38.1	7.7	0.0	5.3	0.0	100.0
Luapula	11,757	19.1	0.0	66.8	0.0	3.7	0.0	10.5	100.0
Lusaka	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Northern	71,419	83.0	0.0	10.9	1.2	0.0	2.6	2.2	100.0
N-western	2,010	55.2	0.0	0.0	0.0	4.6	31.3	8.9	100.0
Southern	4,985	21.8	0.0	2.2	76.0	0.0	0.0	0.0	100.0
Western	29,542	43.9	0.0	0.2	55.9	0.0	0.0	0.0	100.0
Zambia Total	145,799	66.9	0.0	12.6	15.9	0.4	1.9	2.4	100.0

7.3 Tillage Methods used in Groundnuts Fields

At the national level, the total number of fields under groundnuts was estimated at 386,447. In 51.0 percent of these fields, the main method of tillage used was conventional hand hoeing.

Within provinces, conventional hand hoeing was a common practice with Northern Province having 72.9 percent of fields under groundnuts in which this tillage method was used. In 52.8 percent and 51.1 percent of groundnuts fields in the Copperbelt and Central Provinces respectively, conventional hand hoeing was used.

Ploughing as main tillage method was used in 76.1 percent of groundnuts fields in Southern Province. In about 64.5 percent and 57.8 percent of groundnuts fields in Lusaka and Western Provinces respectively, ploughing was also used as a main tillage method.

In about 49.9 percent of groundnuts fields in Luapula Province, the main method of tillage used was bunding and the same method was used in 39.0 percent of the groundnuts fields in the Copperbelt Province. For details see Table 7.3

Table 7.3: Groundnuts Fields by Main Method of Tillage used by Province, 2001/2002

Province	Total Number of Groundnuts Fields	Main Tillage Method Used							
		Conventional Hand hoeing	Pot Holing	Zero Tillage	Ploughing	Ripping	Ridging	Bunding	Total
Central	27,240	51.1	0.3	0.4	45.9	0.0	0.7	1.5	100.0
Copperbelt	18,080	48.6	0.2	0.4	7.0	0.0	4.8	39.0	100.0
Eastern	135,234	52.8	0.2	6.9	28.2	0.0	11.9	0.0	100.0
Luapula	54,487	40.5	0.0	3.6	0.0	0.2	5.9	49.9	100.0
Lusaka	5,986	34.1	1.4	0.0	64.5	0.0	0.0	0.0	100.0
Northern	82,590	72.9	5.7	2.9	1.8	0.2	15.6	1.0	100.0
N-western	7,211	49.6	0.0	0.0	9.2	7.8	23.6	9.7	100.0
Southern	38,740	20.3	3.4	0.3	76.1	0.0	0.0	0.0	100.0
Western	16,879	42.2	0.0	0.0	57.8	0.0	0.0	0.0	100.0
Zambia Total	386,447	51.0	1.7	3.6	25.1	0.2	9.1	9.4	100.0

7.4 Tillage Methods used in Mixed Beans Fields

At the national level, about 110,301 fields were estimated to be under mixed beans with ridging being the main tillage method used for these fields (36.9percent). Conventional hand hoeing and bunding were used in 35.4 and 12.9 percents of these fields respectively. Pot holing and zero tillage methods were used in 4.0 percent of the total fields under mixed beans.

Within provinces, conventional hand hoeing was a common practice with the Copperbelt Province having 73.8 per cent of the fields under mixed beans using this tillage method. The same tillage method was used in 64.4 percent and 58.8 percent of the fields under mixed beans in Eastern and Central Provinces respectively.

Pot holing and zero tillage methods were not commonly used as main tillage method for fields under mixed beans.

In 86.3 percent of the fields under mixed beans in Lusaka Province, the main method of tillage used was ploughing. In Western Province the percentage of fields under mixed beans in which this tillage method was used was 76.5 percent and for Southern Province it was 70.6 percent.

Ridging was reported mainly in Northern Province where 54.7 percents of the fields under mixed beans used this method while in 48.8 percents of fields under mixed beans in North Western Province used the same method.

Bunding was a very significant tillage method used for fields under mixed beans in Luapula Province. For details see Table 7.4

Table 7.4: Mixed Beans Fields by Main Method of Tillage used by Province, 2001/2002

Province	Total Number Mixed beans Fields	Main Tillage Method Used							
		Conventional Hand hoeing	Pot Holing	Zero Tillage	Ploughing	Ripping	Ridging	Bunding	Total
Central	7,717	58.8	0.0	0.0	26.5	0.0	9.2	5.5	100.0
Copperbelt	5,338	73.8	0.0	0.0	0.8	0.0	3.1	22.4	100.0
Eastern	9,209	64.4	0.0	2.2	13.7	0.0	19.7	0.0	100.0
Luapula	11,028	19.1	0.0	8.0	0.0	0.0	12.3	60.6	100.0
Lusaka	1,729	13.7	0.0	0.0	86.3	0.0	0.0	0.0	100.0
Northern	59,604	32.7	4.3	0.8	2.2	0.2	54.7	5.1	100.0
N-western	8,021	14.2	0.0	0.0	1.8	0.0	48.8	35.2	100.0
Southern	6,446	22.3	5.4	0.0	70.6	0.0	1.7	0.0	100.0
Western	1,209	23.5	0.0	0.0	76.5	0.0	0.0	0.0	100.0
Zambia Total	110,301	35.4	2.7	1.4	10.7	0.1	36.9	12.9	100.0

7.5 Tillage Methods used in Cassava Fields

The total number of cassava fields was estimated at 717,064. In 40.7 percent of these fields, the main method of tillage used was bunding, whereas conventional hand hoeing was used in 36.9 percent of the total cassava fields in 2001/2002 Agricultural Season. Pot holing and zero tillage method together were used in just over 5.0 percent of cassava fields.

Within provinces, conventional hand hoeing was a common tillage method used in cassava fields. In 83.2 percent of the fields under cassava in Western Province, the method of tillage used was conventional hand hoeing.

In 30.6 percent of the cassava fields in Southern Province, the main method of tillage used was ploughing.

In 90.6 percent of the fields under cassava in Central Province, the main method of tillage used was bunding, while the percentage of cassava fields in North-western and Luapula Provinces in which this tillage method was also used was 75.9 and 67.3 percents respectively. For details see Table 7.5.

Table 7.5: Cassava Fields by Main Tillage Method used by Province, 2001/2002

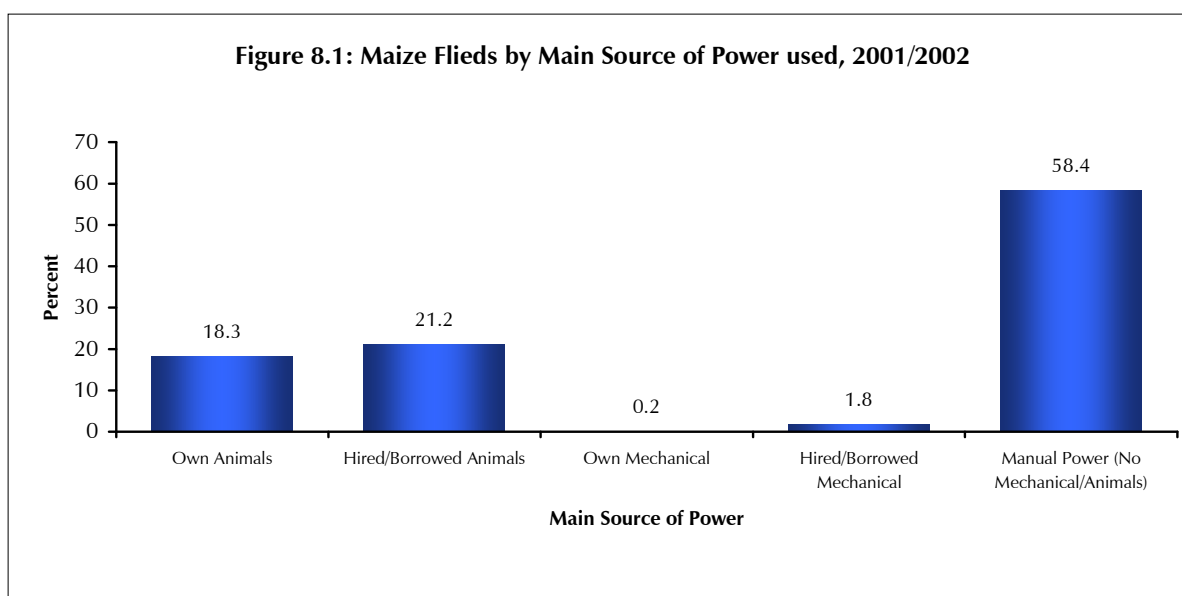
Province	Total Number Cassava Fields	Main Tillage Method Used							
		Conventional Hand hoeing	Pot Holing	Zero Tillage	Ploughing	Ripping	Ridging	Bunding	Total
Central	20,721	6.4	0.0	0.0	0.0	0.0	3.0	90.6	100.0
Copperbelt	5,093	31.0	0.0	0.0	0.8	3.2	9.3	55.7	100.0
Eastern	5,180	64.9	0.0	10.1	1.8	0.0	8.3	15.0	100.0
Luapula	287,890	22.3	1.4	6.5	0.0	0.0	2.6	67.3	100.0
Lusaka	64	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Northern	233,105	48.5	1.3	4.2	0.0	0.1	39.5	6.4	100.0
N-western	80,572	14.3	0.4	0.0	0.4	0.1	8.9	75.9	100.0
Southern	1,666	64.2	0.0	0.0	30.6	1.7	3.5	0.0	100.0
Western	82,773	83.2	0.3	0.0	16.6	0.0	0.0	0.0	100.0
Zambia Total	717,064	36.9	1.1	4.0	2.0	0.1	15.1	40.7	100.0

8.0 Introduction

During the 2001-2002 Post Harvest Survey, data was also collected on the main source of power used to till the fields, namely own animals; hired/borrowed animals; own mechanical; hired/borrowed mechanical; and human power where neither mechanical nor animal power was used.

8.1 Main Source of Power used to till Maize Fields

At national level, in the 58.4 percent of the maize fields, the main source of power that was used to till these fields was human power. In 21.2 percent of the same fields, the main source of power used was hired/borrowed animals. For details refer to Figure 8.1.



Within provinces, own animals, as main source of power used was quite common in a number of maize fields. In about 37.1 percent and 23.2 percent of the maize fields in Southern and Western Provinces respectively, the main source of power used was own animals.

Hired/borrowed animals were also quite common. In 50.6 percent of the maize fields in Western Province, the main source of power used was hired animals. The proportion of fields that used hired/borrowed animals as main source of power in Southern and Lusaka Provinces was 38.9 percent and 24.0 percent respectively.

Manual power was used in all the provinces particularly in Luapula Province where in 99.1 percent of the maize fields, this source of power was used. For details, refer Table 8.1.

Table 8.1: Maize Fields by Main Source of Power used by Province, 2001/2002

Province	Total Number Maize Fields	Main Source of Power Used					Total
		Own Animals	Hired/Borrowed Animals	Own Mechanical	Hired/ Borrowed Mechanical	Manual Power (No Mechanical/ Animals)	
Central	72,217	19.7	21.0	0.6	1.1	57.5	100.0
Copperbelt	36,143	2.1	5.4	0.0	5.5	87.0	100.0
Eastern	206,725	16.6	9.1	0.3	0.8	73.3	100.0
Luapula	46,828	0.5	0.3	0.0	0.0	99.1	100.0
Lusaka	21,576	20.8	24.0	0.2	9.0	45.9	100.0
Northern	88,324	4.7	0.9	0.1	0.0	94.4	100.0
N-western	40,727	2.1	4.7	0.7	0.2	92.3	100.0
Southern	152,972	37.1	38.9	0.1	4.2	19.7	100.0
Western	128,655	23.2	50.6	0.1	1.2	24.9	100.0
Zambia Total	794,167	18.3	21.2	0.2	1.8	58.4	100.0

8.2. Main Source of Power used to till Groundnuts Fields

At national level, in the 73.0 percent of the groundnuts fields, the main source of power that was used to till these fields was human power. In 15.1 percent of the fields, the main source of power used was own animals. Hired animals were used in 10.8 percent of the total groundnuts fields.

Within provinces, the proportion of groundnut fields in which own animals was used as main source of power were 41.5 percent, 41.4 percent and 27.7 percent in Lusaka, Southern and Western Provinces respectively.

In about 31.8 percent of the groundnuts fields in Southern Province, the main source of power used was hired animals. The percentage of fields that used this power source in Western province was 28.7 percent.

Manual power in groundnuts fields was practiced in all the provinces. In all the groundnuts fields reported in Luapula Province, the main source of power used was neither mechanical nor animal power. The same source was used in the 96.8 percent of all groundnuts fields reported in Northern Province. For details refer to Table 8.2.

Table 8.2: Groundnut Fields by Main source of Power used by Province, 2001/2002

Province	Total Number Groundnuts Fields	Main Source of Power Used					Total
		Own Animals	Hired/Borrowed Animals	Own Mechanical	Hired/ Borrowed Mechanical	Manual Power (No Mechanical/ Animals)	
Central	27,239	25.7	17.9	0.3	1.2	54.9	100.0
Copperbelt	18,080	2.6	2.4	0.0	2.2	92.8	100.0
Eastern	135,232	18.6	12.6	0.1	1.0	67.7	100.0
Luapula	54,488	0.0	0.0	0.0	0.0	100.0	100.0
Lusaka	5,985	41.5	17.2	0.0	5.7	35.5	100.0
Northern	82,590	2.6	0.4	0.0	0.2	96.8	100.0
N-western	7,211	6.8	8.9	0.0	1.3	83.0	100.0
Southern	38,740	41.4	31.8	0.0	2.7	24.0	100.0
Western	16,879	27.7	28.7	0.0	1.5	42.1	100.0
Zambia Total	386,446	15.1	10.8	0.1	1.0	73.0	100.0

8.3 Main Source of Power used to till Mixed Beans Fields

In 87.7 percent of the fields under mixed beans, the main source of power used was manual power. In 8.4 percent of the fields, the main source of power used was own animals. Hired animals as main source of power, was used in 3.5 percent of the fields under mixed beans.

In 86.3 percent of the fields under mixed beans in Lusaka Province, the main source of power used was own animals. In 37.1 percent of the fields under the same crop in Western Province, the main source of power used

was hired animals and the same source of power was used in 23.3 percent of the fields under mixed beans in Southern Province.

In over 95 percent of the fields under mixed beans, manual power was used as the main source of power in Copper belt, Luapula, Northern and North Western Provinces. In particular, manual power as main source was used in all fields under mixed beans in Luapula Province. For details, refer to Table 8.3.

Table 8.3: Mixed Beans Fields by Main source of Power used by Province, 2001/2002

Province	Total Number Mixed beans Fields	Main Source of Power Used					Total
		Own Animals	Hired/Borrowed Animals	Own Mechanical	Hired/ Borrowed Mechanical	Manual Power (No Mechanical/ Animals)	
Central	7,717	16.6	8.6	0.0	1.4	73.5	100.0
Copperbelt	5,338	1.4	3.1	0.0	0.3	95.2	100.0
Eastern	9,208	15.2	6.4	0.1	0.0	78.3	100.0
Luapula	11,029	0.0	0.0	0.0	0.0	100.0	100.0
Lusaka	1,729	86.3	0.0	0.0	0.0	13.7	100.0
Northern	59,603	2.5	0.5	0.1	0.2	96.7	100.0
N-western	8,020	1.8	1.9	0.0	0.0	96.3	100.0
Southern	6,447	44.5	23.3	0.0	3.9	28.3	100.0
Western	1,209	39.4	37.5	0.0	0.0	23.5	100.0
Zambia Total	110,300	8.4	3.5	0.0	0.5	87.7	100.0

8.4 Main Source of Power used to till Sweet Potatoes Fields

At national level, in 92.4 percent of the total fields reported under sweet potatoes, the main source of power used was manual power. But the same source was used in 39.5 percent of sweet potatoes fields in Southern Province. In about 31.3 percent and 26.2 percent of the fields under sweet potatoes in Southern Province, the main sources of power used were own and hired animals respectively. For details, refer to Table 8.4.

Table 8.4: Sweet Potatoes Fields by Main source of Power used by Province, 2001/2002

Province	Total Number Sweet Potatoes Fields	Main Source of Power Used					Total
		Own Animals	Hired/Borrowed Animals	Own Mechanical	Hired/ Borrowed Mechanical	Manual Power (No Mechanical/ Animals)	
Central	17,255	5.2	1.9	0.0	0.6	92.3	100.0
Copperbelt	14,146	0.0	0.0	0.0	0.1	99.9	100.0
Eastern	7,735	5.7	0.0	0.0	0.0	94.3	100.0
Luapula	16,216	0.0	0.0	0.0	0.0	100.0	100.0
Lusaka	667	0.0	0.0	0.0	0.0	100.0	100.0
Northern	15,005	0.0	0.0	0.0	0.0	100.0	100.0
N-western	8,805	0.0	0.0	0.0	0.0	100.0	100.0
Southern	8,108	31.3	26.2	0.0	0.0	39.5	100.0
Western	3,574	6.4	0.0	0.0	0.0	93.6	100.0
Zambia Total	91,511	4.5	2.7	0.0	0.4	92.4	100.0

8.5 Main Source of Power used to till Cassava Fields

In nearly all fields under cassava, the main source of power used was manual power.

In 23.3 percent of the total cassava fields in Southern Province, the main source of power used was own animals while in 10.2 percent of the cassava fields in Western Province, the main source of power used was hired animals.

Table 8.5: Cassava Fields by Main source of Power used by Province, 2001/2002

Province	Total Number Cassava Fields	Main Source of Power Used					Total
		Own Animals	Hired/Borrowed Animals	Own Mechanical	Hired/ Borrowed Mechanical	Manual Power (No Mechanical/ Animals)	
Central	20,721	0.0	0.0	0.0	0.0	100.0	100.0
Copperbelt	5,093	0.8	0.0	0.0	0.0	99.2	100.0
Eastern	5,181	0.0	1.5	0.0	0.0	98.5	100.0
Luapula	287,891	0.0	0.0	0.0	0.1	99.9	100.0
Lusaka	64	0.0	0.0	0.0	0.0	100.0	100.0
Northern	233,106	0.3	0.1	0.0	0.0	99.6	100.0
N-western	80,572	0.1	0.5	0.0	0.0	99.4	100.0
Southern	1,666	23.3	0.0	0.0	10.9	65.8	100.0
Western	82,772	6.4	10.2	0.0	0.6	82.8	100.0
Zambia Total	717,066	0.9	1.3	0.0	0.1	97.7	100.0

9.0 Introduction

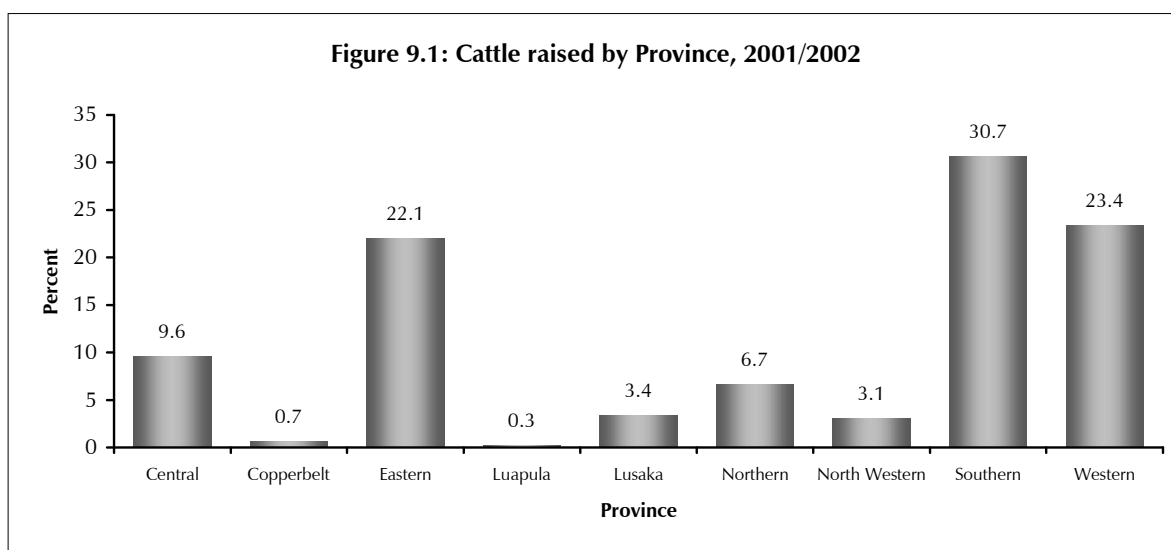
During the 2001/2002 Post-Harvest Survey, information was collected on different types of livestock. For each type of livestock, the following data items were collected during the survey; Households raising, Number raised, distribution by Sex, Number died, Number sold and sales.

9.1 Cattle

During the 2001/2002 Agricultural Season, 166,646 households reported raising cattle countrywide. The largest number of cattle-raising households was reported in Eastern and Southern provinces, which respectively recorded 29.4 and 28.2 percent of the cattle raising households. Western Province recorded 18.3 percent of households while Central and Northern provinces respectively recorded 8.7 and 8.0 percent each of cattle raising households. The lowest number of households that reported raising cattle was recorded in Luapula Province with 0.5 percent. (Refer to table on Cattle in Appendix).

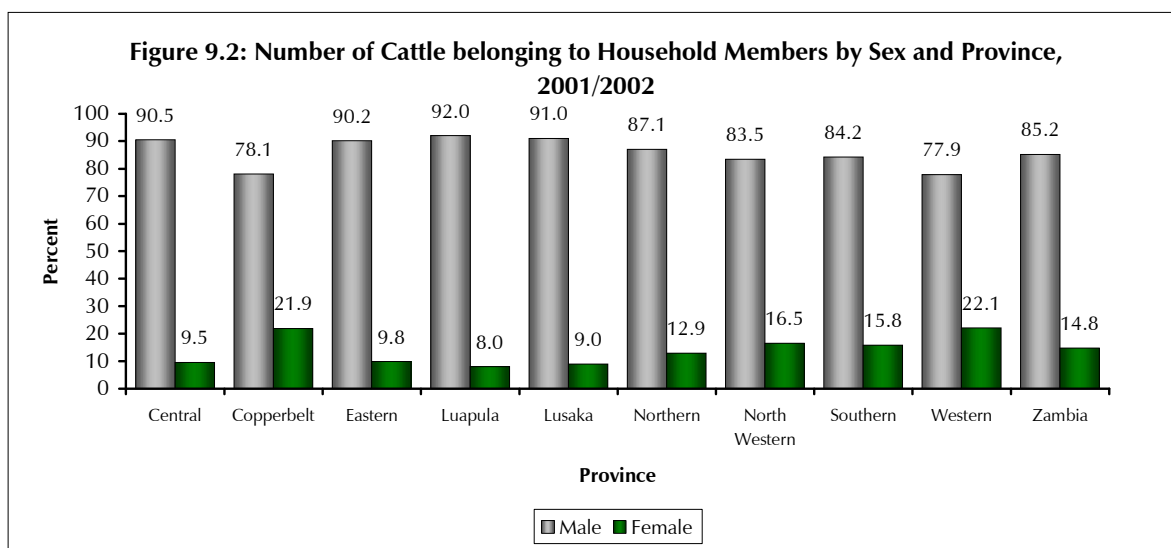
9.1.1. Number of Cattle Raised

The cattle population at the end of the 2001/2002 Agricultural Season was estimated at 1,393,335 as compared to 1,625,514 that was held at the beginning of the Agricultural Season. Southern Province recorded the highest number of cattle at the end of the season at 30.7 percent followed by Western Province at 23.4 percent and Eastern Province at 22.1 percent. There was a decline in the population of cattle in all provinces during the season apart from Copperbelt and Northern provinces that recorded a slight increase. The decline could be attributed to the livestock diseases and other factors. (Refer to table on cattle raised in the Appendix).



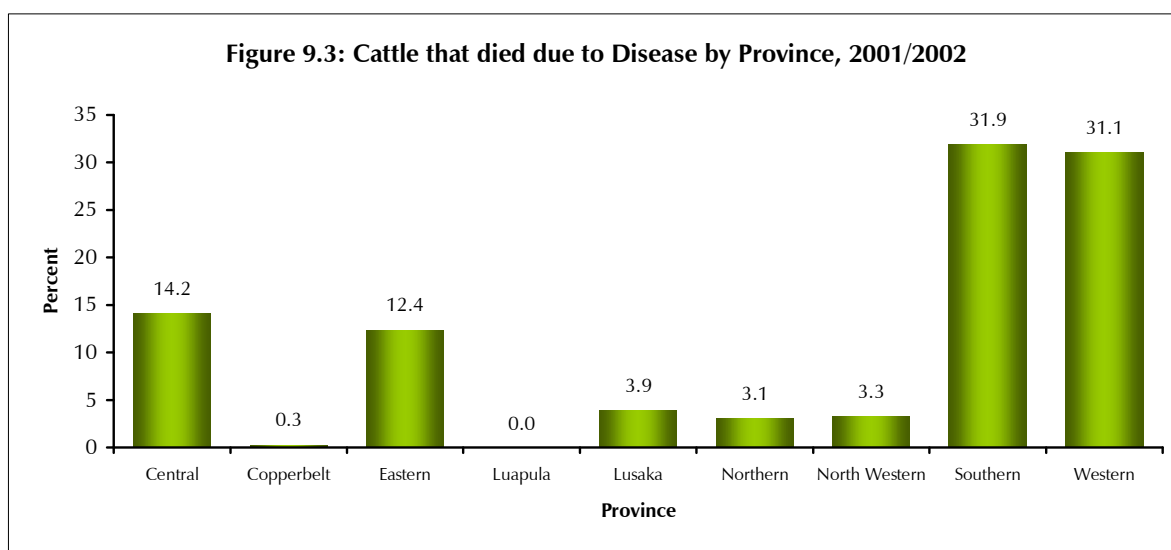
9.1.2 Cattle Ownership

In the 2001/2002 Agricultural Season data was collected on the ownership of livestock by gender of owner. The estimated total number of cattle owned by household members was 1,279,209, which was 91.8 percent of the total cattle raised, and of these, 85.2 percent belonged to male members of the households. At provincial level, the highest proportion of cattle owned by female members was reported in Western Province (22.1 percent), followed by Copperbelt Province (21.9 percent), North-western Province (16.5 percent), Southern Province (15.8 percent) and Northern Province (12.9 percent).



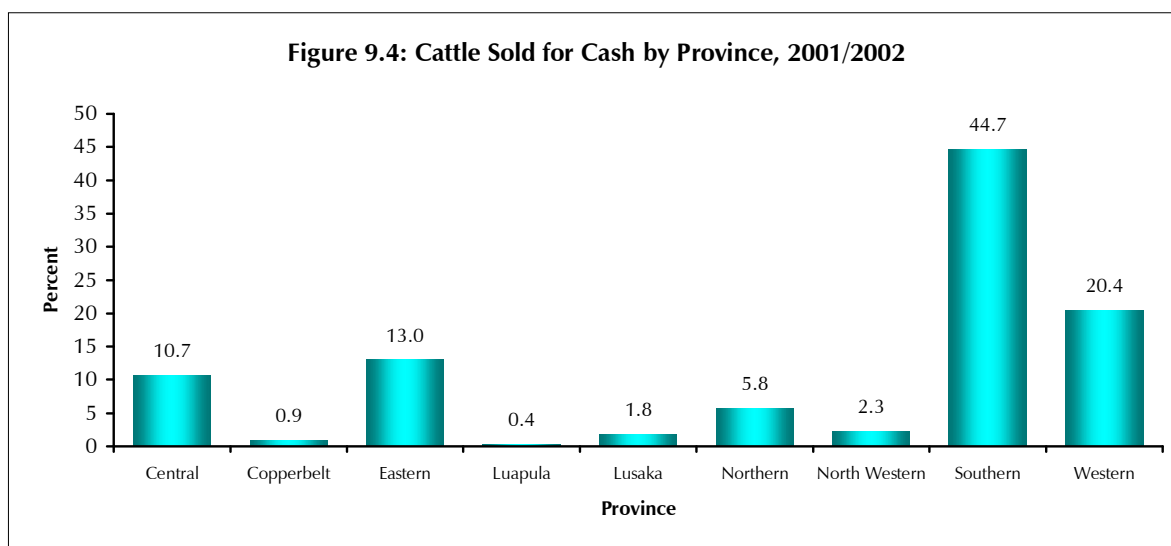
9.1.3 Cattle Losses due to Disease

During the 2001/2002 Agricultural Season, 267,180 cattle were reported to have died due to disease in the country. The highest number of cattle that died due to disease was recorded in Southern Province at 31.9 percent of the total deaths followed by Western Province at 31.1 percent, Central Province (14.2 percent) and Eastern Province (12.4 percent). The rest of the provinces recorded less than 4.0 percent each.



9.1.4 Cattle Sold for Cash and Value of Sales

There were 96,192 cattle reported sold for cash at a total value of K41,240,000,000 during the 2001/2002 Agricultural Season. Southern Province accounted for almost half the total number of cattle sold at 44.7 percent, while Western, Eastern and Central provinces accounted for 20.4, 13.0 and 10.7 percent, respectively. Luapula and Copperbelt Provinces recorded the lowest number with less than 1.0 percent each. The average price varied across provinces with the highest price recorded in the Copperbelt Province followed by Eastern and Lusaka provinces. The lowest average price was recorded in Western and North-western provinces. (Refer to table on cattle sales for cash in the Appendix).



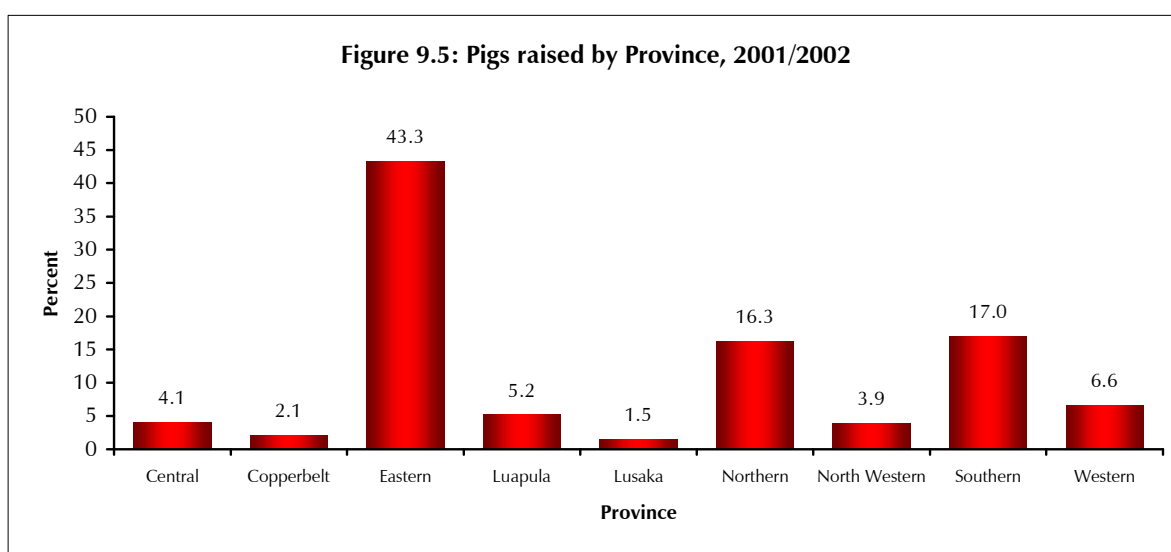
9.2 Pigs

During the 2001/2002 Agricultural Season, 106,491 households reported raising pigs. The households that reported raising pigs were largely from Eastern Province at 44.4 percent followed by Northern Province at 20.1 percent. The least number of pig-raising households was reported in Lusaka (1.6 percent), Copperbelt (2.0 percent) and North-western Province at 2.6 percent.. (Refer to table on pigs in the Appendix).

9.2.1. Number of Pigs Raised

A total of 512,819 pigs were raised at the beginning of the 2001/2002 Agricultural Season compared to 511,065 the previous season. By the end of the season the population of pigs reduced to 415,665 (18.9 percent). The reductions were recorded mainly in Eastern and Northern provinces at 32.7 and 11.9 percent, respectively. The rest of the provinces recorded a slight increase in the population of pigs raised over the twelve months covered in the report.

Figure 9.5 shows that, Eastern Province recorded the highest number of pigs raised at the end of the 2001/2002 Agricultural Season with 43.3 percent of total pigs raised. Southern and Northern provinces recorded 17.0 and 16.3 percent respectively. The remaining provinces recorded less than 7.0 percent each with the least being Lusaka Province with 1.5 percent of the total pigs raised at the end of the 2001/2002 Agricultural Season.



9.2.2 Pigs Losses Due to Disease

A total of 179,353 pigs were lost due to disease during the 2001/2002 Agricultural Season. Eastern Province recorded the biggest number of losses compared to the other provinces at 79.4 percent of all losses due to diseases. Central, Copperbelt and Luapula provinces recorded less than 1.0 percent each. (Refer to table on pigs in the Appendix).

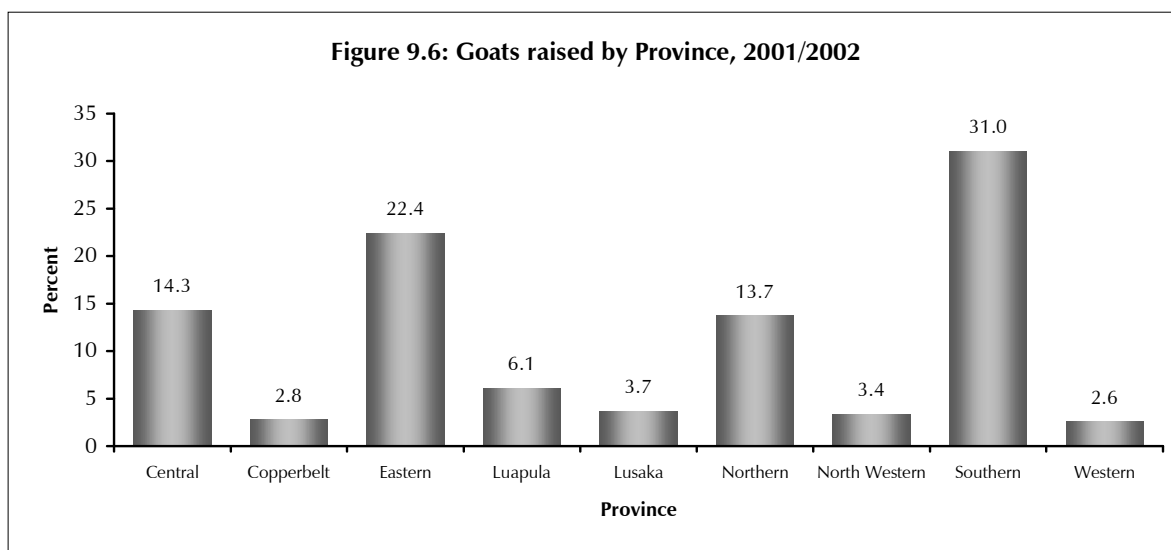
9.3 Goats

A total of 176,786 households were estimated to have raised goats during the 2001/2002 Agricultural Season. Of the households reporting, Eastern Province accounted for 26.4 percent while Southern Province contributed 23.4 percent. Lusaka and Western provinces had the lowest number of households raising goats, with only 2.6 percent of the total number of households reported in the country. (Refer to tables on goats in Appendix).

9.3.2 Number of Goats Raised

The number of goats raised during the 2001/2002 Agricultural Season declined by 10.2 percent from 1,206,642 at the start of the season to 1,083,162 by the end of the season. The population of goats generally declined in all provinces apart from N/western and Luapula.

Figure 9.6 shows that, the largest numbers of goats raised by the end of 2001/2002 Agricultural Season were in Southern province with 31.0 percent, followed by Eastern Province with 22.4 percent. Western, Copperbelt, Lusaka and North-western recorded less than 4.0 percent each of the total goats raised by the end of the 2001/2002 Agricultural Season.

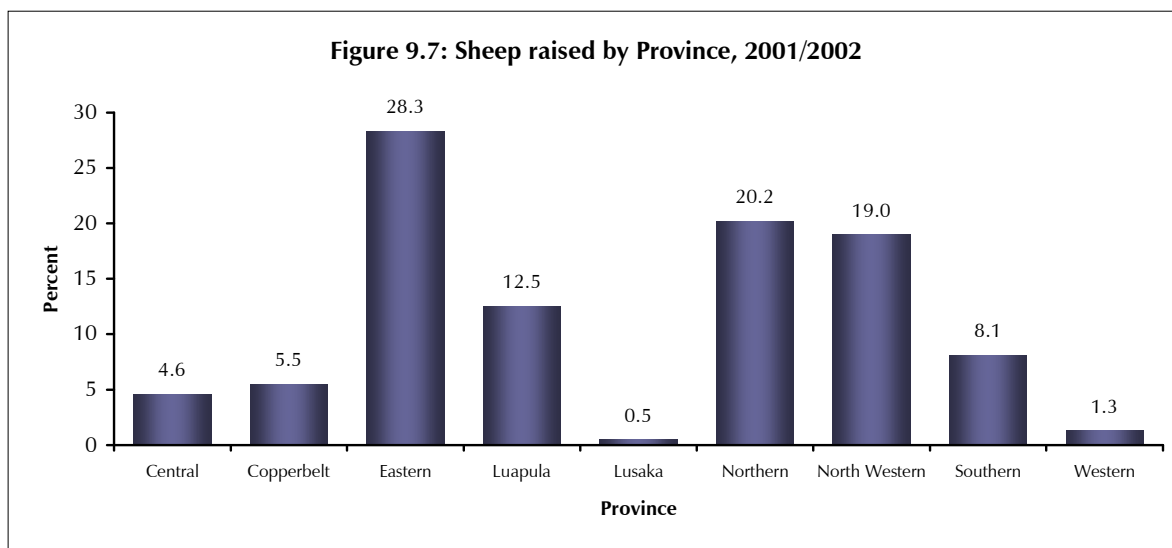


9.4 Sheep

Sheep raising was reported by 9,096 households during the season under review. Northern Province recorded the largest number of households raising sheep (29.0 percent), followed by Eastern province that reported 22.7 percent. The smallest numbers were recorded in Lusaka and Western provinces at 0.7 percent and 1.0 percent, respectively. (Refer to table on sheep in the Appendix).

9.4.1 Number of Sheep Raised

The number of sheep raised at the beginning of the 2001/2002 Agricultural Season was estimated at 47,929. By the end of the season this number had reduced to 35,426, a 26.1 percent decline. Apart from Copperbelt and Western provinces, which recorded a slight increase, the rest of the provinces recorded a decline in the number of sheep had by the end of the season.

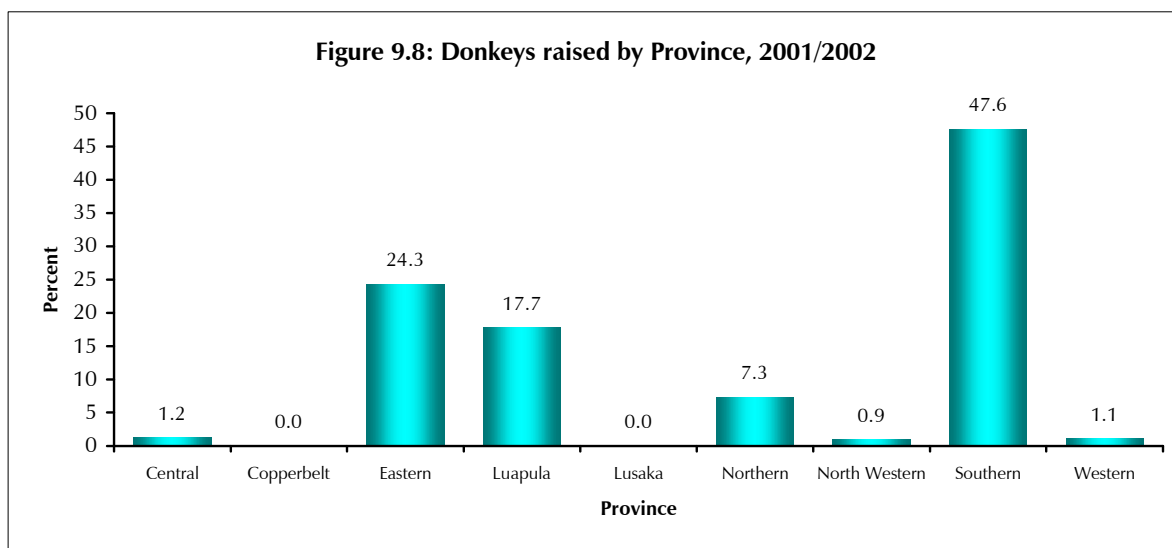


9.5 Donkeys

Donkey raising, was reported by 1,425 households during the season under review. Southern Province reported the largest number of households raising donkeys at 50.5 percent, followed by Eastern province that reported 22.6 percent. The smallest numbers were recorded in Central, North-western and Western provinces at 1.6, 2.4 and 2.9 percent, respectively. (Refer to table on donkeys in the Appendix).

9.5.1 Number of Donkeys Raised

The population of donkeys was estimated at 5,141 at the start of the season under review. By the end of the season the population dropped to 3,936 donkeys. Southern Province reported the largest number of donkeys at 47.6 percent during the 2001/2002 Agricultural Season.

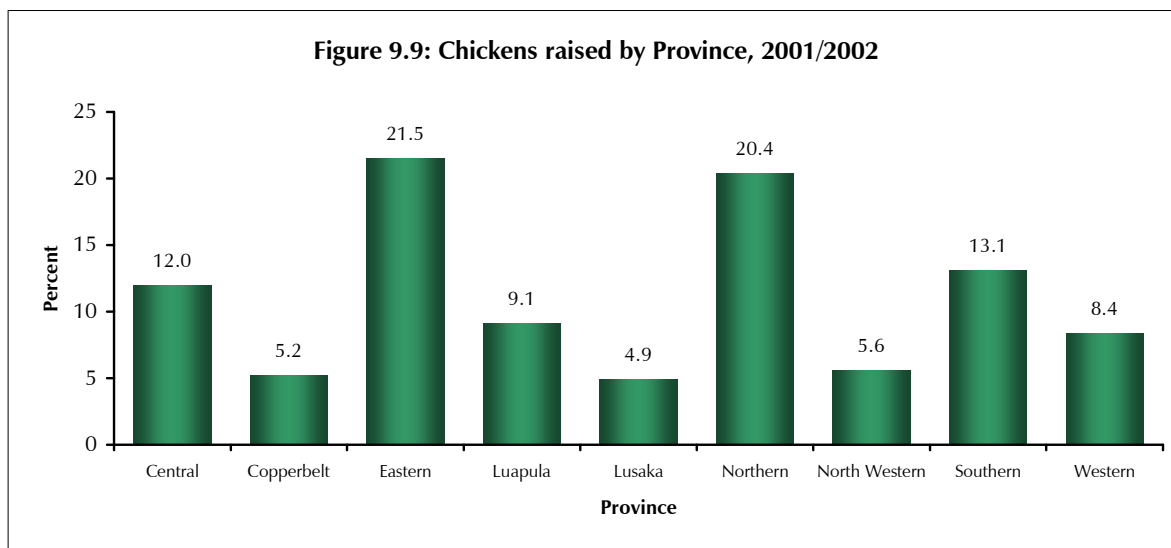


9.6 Chickens

Data collected on chickens, showed that an estimate of 586,621 households reported to have raised chickens in the 2001/2002 Agricultural Season. Eastern Province reported the highest population of households raising chickens, representing 22.7 percent while Lusaka Province recorded the lowest number with 2.0 percent of the 586,621 households. (Refer to table on chickens in the Appendix).

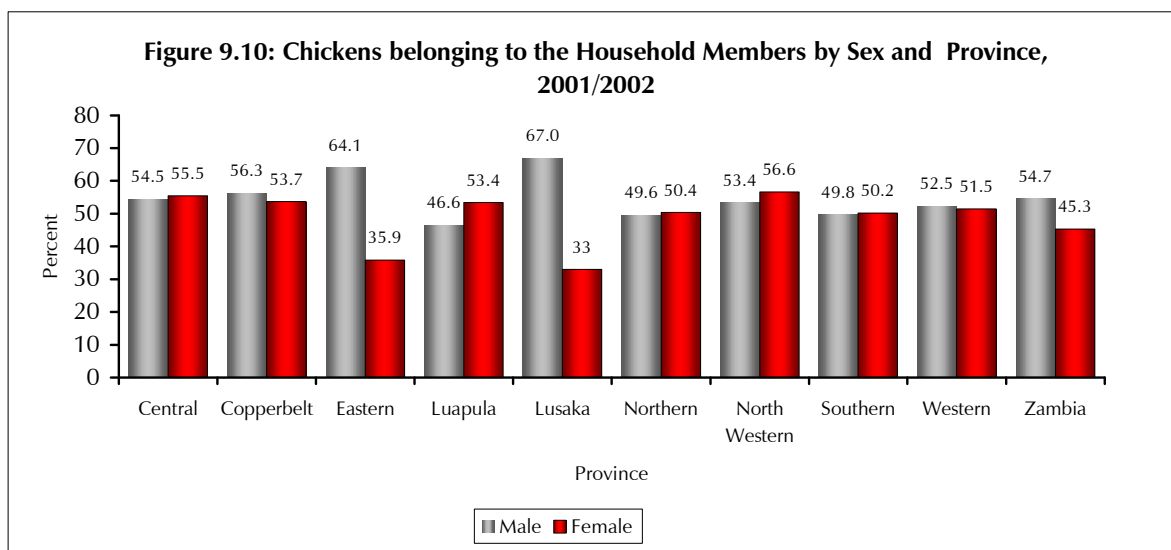
9.6.1 Number of Chickens Raised

In the 2001/2002 Agricultural Season, a total number of 5,325,093 chickens were raised by 30th September 2002 nation wide. Eastern Province is reported to have raised 1,144,656 chickens representing the highest number of chickens at 21.5 percent. Lusaka Province was the least with 261,275 chickens representing 4.9 percent. Northern and Southern provinces reported 20.4 and 13.1 percent, respectively. For details, refer to Figure 9.9.



9.6.2 Chickens Ownership

The data was further analysed to show the distribution of ownership of the chickens by gender of the owners. At National level, males owned 54.7 percent and females owned 45.3 percent of the total number of chickens that belonged to the households.



9.6.3 Chickens Sold for Cash and Value of Sales

A total of ZMK 7,032,305,689 cash was obtained from the sales of chickens in all the provinces. Southern Province reported the highest value of sales with ZMK 1,927,395,701 being realised and the lowest sales were recorded in North-western Province with only ZMK 177,047,008.

Note: Data on other poultry was also collected. Refer to tables on poultry in the Appendix.

10. Crop Rotation and Irrigation

Table 10 below shows the number and percentage distribution of households reporting crop rotation and irrigation of cereals during the 2001/2002 Agricultural Season by province.

Central Province had the highest percentage number of households practising crop rotation at 75 percent of total crop-growing households in the province, followed by Eastern Province (70 percent). Northern and Southern provinces had 65.0 percent and 44.0 percent, respectively of crop growing households practising crop rotation. Western and North-western provinces had the lowest percentage number of households at 13 percent and 27 percent, respectively.

North-western Province had the highest percentage of households practising Irrigation of cereals at 21percent of total crop-growing households in the province, followed by Central Province at 16 percent. Western and Eastern Provinces had the lowest percentage number of households at 2.0 percent each.

Table 10: Households reporting Crop Rotation and Irrigation of Cereals by Province, 2001/2002

Province	Total Crop Growing Households	Crop Rotation	Percent	Irrigation of Cereals	Percent
Central	67,871	50,578	75	10,755	16
Copperbelt	33,583	12,145	36	2,950	5
Eastern	186,560	130,262	70	2,950	2
Luapula	104,734	40,266	38	2,669	3
Lusaka	17,735	7,093	40	693	4
Northern	132,159	85,869	65	6,872	5
North Western	49,896	13,568	27	10,326	21
Southern	105,857	46,590	44	4,505	4
Western	100,539	13,107	13	1,915	2
Zambia Total	798,934	399,478	50	42,500	5

APPENDIX A

KEY PERSONS INVOLVED IN THE ANALYSIS

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