



Republic of Zambia

**CENTRAL STATISTICAL OFFICE**

# POST HARVEST SURVEY



# 2014-2015 AGRICULTURE SEASON

*Available at Central Statistical Office*



**POST HARVEST SURVEY**  
**2014 - 2015**  
**AGRICULTURE SEASON**  
**(Small and Medium Scale Farms)**

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**P. O. Box 31908, Lusaka- Zambia**

**Tel: 251377/251370/253468/256520 Fax: 253468/256520/253908**

**E-mail: [info@zamstats.gov.zm](mailto:info@zamstats.gov.zm)**

**Website: [www.zamstats.gov.zm](http://www.zamstats.gov.zm)**

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# Preface

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The Central Statistical Office (CSO) in collaboration with the Ministry of Agriculture and the Ministry of Fisheries and Livestock conducts annual agricultural sample surveys covering the Small and Medium Scale Farms Sub-sector of Agriculture. 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 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 1<sup>st</sup> October 2014 and ended on 30<sup>th</sup> September, 2015.

An analysis of agricultural households by type of agricultural activities is presented 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 rearing and management and household agricultural assets.

I would like to thank the two (2) Ministries for providing financial; material and technical support towards the preparation and eventual undertaking of the 2014-2015 Post Harvest Survey. I further extended my appreciation to the Indaba Agricultural Policy Research Institute (IAPRI) for technical support during data analysis. I would like to thank members of staff in the Agriculture and Environment Statistics Branch together with members of staff in our provincial offices for having ably executed the 2014-2015 Post Harvest Survey.

Last, but not least, I want to pay tribute to our respondents who have been supportive over the years.



*John Kalumbi*  
**DIRECTOR OF CENSUS AND STATISTICS**

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# Abbreviations/Acronyms

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ASMIS	-	Agricultural Statistics Management Information System
CSO	-	Central Statistical Office
FAO	-	Food and Agriculture Organisation
IAPRI	-	Indaba Agricultural Policy Research Institute
MoA	-	Ministry of Agriculture
MoFL	-	Ministry of Fisheries and Livestock
NGOs	-	Non-Government Organisations
PHS	-	Post Harvest Survey
PPS	-	Probability Proportional to Size
RS	-	Regional Statistician
SEAs	-	Standard Enumeration Areas

# Executive Summary

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Below is a summary of findings from the 2014-2015 Post Harvest Survey (PHS) for the Small and Medium Scale Farmers

## CHARACTERISTICS OF AGRICULTURAL HOUSEHOLDS

- *There were a total of 1,473,547 agricultural households in the Agriculture Season.*
- *There were more male-headed agricultural households (77.8 percent) than those that were female-headed (22.2 percent).*
- *The majority of agricultural household heads were in the age group 35-39.*
- *More than 50 percent of agricultural household heads had completed primary level of education at both national and province level.*
- *Eastern Province recorded the highest proportion of household heads that had not been to school, or had not completed any education level at 20.7 percent.*
- *Majority of the agricultural households had 4 to 6 household members.*
- *Most of the Household heads were monogamously married.*
- *A total of 1,424,387 households were engaged in crop growing during the 2014-2015 Season. There were 671,445 households raising livestock, while 949,541 households were involved in poultry production and 16,953 households were involved in fish farming.*
- *Of the total agricultural households, 70.7 percent were in category A, 23.0 percent were in category B while 6.3 percent were in category C.*

## CROP PRODUCTION

### MAIZE

- *A total of 1,307,202 households, representing 88.7 percent of all agricultural households grew Maize during the Season.*
- *The total area planted to Maize was 1,661,389.1 hectares during the Season.*
- *Eastern Province recorded the largest area planted to Maize countrywide, with 20.9 percent of total area under maize during the Season.*
- *The total quantity of maize produced was 2,916,013.6 metric tonnes, with Eastern Province accounting for the largest proportion at 21.3 percent of the total.*
- *Out of the 2,916,013.6 metric tonnes of Maize produced, 52.6 percent were sold during the Season.*

- A total of 159,935.1 metric tonnes of basal and 166,912.8 metric tonnes of top dressing fertilizer were used in Maize production.

## SORGHUM

- A total of 52,831 households, representing 3.6 percent of all agricultural households grew Sorghum during the Season.
- There were 28,557.1 hectares planted to Sorghum during the Season.
- A total of 256.3 metric tonnes of basal and 265.4 metric tonnes of top dressing fertilizer were used in Sorghum production.
- The total quantity of Sorghum produced during the season was 13,006.4 metric tonnes.
- Out of 13,006.4 metric tonnes of Sorghum produced, 1,372.2 metric tonnes were sold during the Season.

## RICE

- A total of 67,532 households, representing 4.6 percent of all agricultural households grew Rice during the Season.
- The total area planted to Rice was 46,433.0 hectares.
- Countrywide, 31,368.2 metric tonnes of Rice were produced, of which 46.8 percent were sold.
- There were 134.4 metric tonnes of basal and 135.9 metric tonnes of top dressing fertilizer used in Rice production.

## MILLET

- A total of 144,183 Households grew Millet during the season representing 9.8 percent of the total number of agricultural households.
- The total area under cultivation of Millet was 61,118.9 hectares during the Season.
- A total of 40,889.3 metric tonnes of Millet were produced during the season, with Northern Province accounting for 37.1 percent of the total.
- Out of the 40,889.3 metric tonnes of Millet produced, 24.4 percent were sold during the Season.
- There were 274.1 metric tonnes of basal and 300.6 metric tonnes of top dressing fertilizer that were used in the production of Millet.

## SUNFLOWER

- A total of 177,980 Households grew Sunflower during the season representing 12.1 percent of the total number of agricultural households.
- The total area planted to Sunflower during the season was 110,002.1 hectares.

- There were 41,372.7 metric tonnes of Sunflower produced during the season, with Eastern Province accounting for 68.3 percent of the total production.
- Out of the 41,372.7 metric tonnes of Sunflower produced, 23.3 percent were sold during the Season.
- A total of 117.8 metric tonnes of basal and 669.3 metric tonnes of top dressing fertilizer were used in Sunflower production.

### GROUND NUTS

- A total of 734,028 households, representing 49.8 percent of all agricultural households grew Groundnuts during the Season.
- The total area under Groundnut production was 272,629.8 hectares.
- A total of 122,621.5 metric tonnes of Groundnuts were produced during the Season.
- Out of 122,621.5 metric tonnes of Groundnuts produced, 44,093.6 were sold during the Season.

### SOYA BEANS

- A total of 113,805 households, representing 7.7 percent of all agricultural households, grew Soya Beans during the Season.
- The total area planted to Soya Beans during the season was 75,621.5 hectares.
- The total quantity of Soya Beans produced was 50,619.1 metric tonnes.
- Out of 50,619.1 metric tonnes of Soya Beans produced, 35,748.0 were sold during the Season.

### MIXED BEANS

- A total of 260,030 households, representing 17.6 percent of all agricultural households grew Mixed Beans during the Season.
- The total area under cultivation of Mixed Beans was 112,583.6 hectares.
- The total quantity of Mixed Beans produced during the season was 52,379.0 metric tonnes.
- From 52,379.0 metric tonnes of Mixed Beans produced countrywide, 53.5 percent were sold during the Season.

### VIRGINIA TOBACCO

- A total of 4,943 households, representing 0.3 percent of all agricultural households grew Virginia Tobacco during the Season.
- The total area under cultivation of Virginia Tobacco was 4,580.9 hectares.
- The total quantity of Virginia Tobacco produced during the season was 5,166.5 metric tonnes.

- From 5,166.5 metric tonnes of Virginia Tobacco produced countrywide, 4,083.0 metric tonnes were sold during the Season.

### BURLEY TOBACCO

- A total of 8,126 households, representing 0.6 percent of all agricultural households grew Burley Tobacco during the Season.
- The total area under cultivation of Burley Tobacco was 6,475.7 hectares.
- The total quantity of Burley Tobacco produced during the season was 7,845.9 metric tonnes.
- From 7,845.9 metric tonnes of Burley Tobacco produced countrywide, 7,494.2 metric tonnes were sold during the Season.

### CASSAVA PRODUCTION

- A total of 274,062 households grew Cassava during the Season.
- The total area under Cassava was reported to be 353,809.2 hectares.
- A total of 21,025.0 metric tonnes of Dried Cassava Chips were sold country wide during the Season.
- A total of 19,720 households sold Cassava Flour during the Season.
- There were 4,669.6 metric tonnes of Cassava flour sold, of which the largest quantity (1,971.9 metric tonnes) was sold in Luapula Province.
- A total of 144, 984 households had dry cassava in storage.
- A total quantity of 17,191.2 metric tonnes of Dried Cassava Chips were in storage during the Season.

### LAND PREPARATION METHODS

- Ploughing was the major land preparation method that was used to prepare most of the land under various crops during the agriculture season representing 48.8 percent of the land under crops, followed by ridging and conventional hand hoeing at 26.9 and 16.8 percent, respectively.

### LIVESTOCK RAISING

- The Cattle population as at 30th September 2015 was 3,946,348 compared to 3,261,695 held as at 1<sup>st</sup> October, 2014. Southern Province accounted for the highest percentage of cattle population at 37.2 percent of the total national stock at the end of the season.
- A total of 184,905 Cattle were sold at a total value of K389,898,647.13 during the season.
- The population of Pigs as at 30th September 2015 was 1,010,301. Eastern Province accounted for the highest percentage at 46.7 percent of the total population.
- A total of 268,922 Pigs were sold during the season at a total cost of K93,972,929.64.



- *The Goat population as at 30th September 2015 was 3,267,901 of which Southern Province accounted for the highest population at 33.8 percent.*
- *A total of 590,253 Goats were sold at a total value of K106, 283,463.00 during the season.*
- *As at 30th September 2015, the population of Sheep was 138,068. Southern Province accounted for the highest population of sheep with 34.9 percent, followed by Eastern Province with 31.4 percent.*
- *A total of 12,121 Sheep were sold at a total value of K3,093,736.79 during the season.*

## **LIVESTOCK MANAGEMENT**

- *Draught power was the main reason for raising Cattle at 55.8 percent of the responding agricultural households.*
- *Spraying was the main tick control method at 57.0 percent of the responding Cattle raising households.*
- *Cattle diseases were reported as the main challenge faced by cattle raising household at 20.9 percent.*
- *A total of 122,221 Cattle raising households reported that their cattle were infected out of which 89.8 percent of the households treated their cattle.*
- *Veterinary departments were the major sources of drugs reported by 50.2 percent of the households that had treated their Cattle.*

# Chapter 1: Background

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## 1.0. Introduction

The Post-Harvest Survey covering the 2014-2015 Agricultural Season was conducted during October and November 2015. The information collected and presented in this report refers to the Agricultural Season which started on the 1st October, 2014 and ended on 30th September, 2015.

At the time of questionnaire design, the content was revised in such a way that information was to be collected at field level instead of crop level. The main reason for this being that it is easier to quantify inputs applied in each field.

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, and keep abreast with the changes occurring in the agricultural sector.

## 1.1. Objectives of the Post-Harvest Survey (PHS)

The general objectives of the Post-Harvest Survey (PHS) include:

- Provision of annual agricultural data that helps facilitate comprehensive analysis of the agricultural sector's contribution to the national economy on annual basis;
- Development of the Agricultural Statistics Management Information System (ASMIS) to a level such that it accommodates advances in information technology; and

- Provision of annual agricultural data that is useful for generation of performance indicators to evaluate interventions by Government, Donors and NGOs.

Specifically, the objectives of the survey include:

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 agricultural households;
- Farming practices and soil conservation methods used;
- To enhance the capacities to analyse agricultural data in the Central Statistical Office (CSO) and Ministry of Agriculture (MoA). This is done through training and involvement of staff, at various levels, in survey data management.
- Development of appropriate instruments for collecting Post-Harvest Survey and other agricultural data.

## Chapter 2: Concepts and Definitions

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### 2.0. Introduction

The following concepts and definitions, as articulated by the Food and Agriculture Organization (FAO), were used during the 2014-2015 Post Harvest Survey (PHS). However, some of these concepts and definitions were modified to suit the Zambian context.

### 2.1. General Concepts

**Qualified Respondent:** A 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.

**Adult Household Member:** An Adult household member refers to a person who is aged 12 years or older.

**Household:** A household consists of a group of people who normally live and eat together. These 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 the 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:** An Agricultural household is a household in which at least one member is carrying out some agricultural activity defined below.

**Agricultural Activity:** An 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:** The head of the household is a person who is considered to be the head by the members of the household.

**Field:** A 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:** Mixed Cropping is a cultivation practice where two or more different temporary or permanent crops are grown simultaneously in the same field.

**Inter-Cropping:** 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 groundnut rows, or groundnuts between maize rows.

**Area Under Mixed Crops:** Area under mixed crops is the area of the field in which two or more crops are grown together.

**Agriculture Season:** Zambia's Agriculture Season extends from 1st October of one year to 30th September of the following year.

**Land Preparation:** Land Preparation refers to all activities undertaken to prepare the land for crop cultivation such as clearing the land, tree stumping, ploughing, etc.

**Animal Draught Power:** Animal Draught Power refers to the use of animals such as oxen and donkeys in any agricultural activity such as land preparation, planting, weeding and transportation.

**Mechanical Power:** Mechanical Power refers to the use of tractors, bulldozers, hand tractors, etc., in any agricultural activity.

**Bunding:** Bunding a method of land preparation where mounds are made in the fields i.e. piling up masses of earth over the whole field in order to reduce the rate of flow of rain water.

**Fallowing:** Fallowing is a soil conservation method in which a piece of land is not cultivated for a year or a number of years to improve its fertility.

**Recycled Seed:** Recycled seed refers to the seed obtained from a hybrid seed which was planted in the previous season(s).

**Local Seed:** Local seed refers to traditional and indigenous seed varieties.

**Hybrid Seed:** Hybrid seed refers to improved seed varieties.

## 2.2. General Definitions

**SEA:** Stands for standard enumeration area.

**Livestock:** This includes all animals that are used or maybe used for food and

agriculture production. This includes cattle, goats, sheep, pigs and donkeys.

**Cattle:** This includes bulls, oxen, tollies, steers, cows, heifers, and calves.

**Bulls:** Bulls are uncastrated adult male cattle.

**Oxen:** These are male castrated cattle raised mainly for draught power.

**Trained oxen:** These are castrated male animals that are trained to perform agricultural activities such as ploughing, transportation etc.

**Steers/Tollies:** These are young uncastrated male cattle.

**Cows:** Cows are female cattle that are beyond the stage of being termed heifers and have given birth at least once. This also includes female cattle that have not yet given birth and those that are infertile.

**Heifers:** Heifers are female cattle that have not yet given birth and have not reached the stage of being termed cows.

**Calves:** Calves are both male and female cattle that are not yet weaned.

## Chapter 3: Survey Methodology and Organisation

### 3.0. Introduction

Post-Harvest Surveys (PHSs) cover households engaged in crop and livestock production and other agricultural activities in order to provide data on agricultural production and practices. This chapter covers issues pertaining to sample design, questionnaire content, training, field work, supervision and data processing. Like in all previous surveys, all districts in the country were covered during the 2014-2015 Post Harvest Survey (PHS) on sample basis. Data collection activities took place during the months of October and November, 2015. The information was solicited using personal interviews with qualified respondents within the selected households in the sampled Standard Enumeration Areas (SEAs).

### 3.1. Sample Design

The sample design for the 2014 -2015 PHS was based on a probability sample of 13,600 agricultural households selected from 680 SEAs in which small and medium scale farming households were interviewed. The sample was selected country-wide from every district to produce nationally representative results.

The sampling frame of Standard Enumeration Areas (SEAs) for the PHS was constructed using the 2010 Census of Population and Housing data. Within each district, the SEAs were stratified by predominant crop in order to ensure a representative sample of each crop. The SEAs were then sorted by geographic codes to ensure that geographic distribution of the SEAs is also representative. The sampling frame

included all rural SEAs. In addition, urban SEAs, which had 70 percent or more agricultural households according to the Census, were included in the frame. Thus all the 74 districts in the 2010 census frame were included in the sample.

A two stage random stratified cluster sampling method was used. The primary sampling units (PSUs) were individual SEAs. Therefore, at the first stage, a proportionally allocated number of PSUs which are standard enumeration areas, in each province and district was selected using Probability Proportional to Size (PPS) selection procedure. The measure of size for the selection of SEAs with PPS within each stratum was the number of agricultural households enumerated in the 2010 Census of Population and Housing. A sample of 680 SEAs was drawn from about 18,820 SEAs which made up the agricultural sampling frame.

#### 3.1.1. Selection of Primary Sampling Units

The procedure for selecting the Primary Sampling Units is outlined as follows:

Cumulating the measures of size (agricultural households enumerated in 2010 census) down the ordered list of SEAs within the stratum. The final cumulated measure of size is the total number of agricultural households enumerated in the frame for the stratum ( $M_h$ ).

Calculating the sampling interval for stratum  $h$  ( $l_h$ ) by dividing  $M_h$  by the total number of SEAs to be selected in stratum  $h$  ( $n_h$ ), based on the sample allocation  $l_h = M_h/n_h$ .

Selecting a random number ( $R_h$ ) between 0 and  $I_h$ .

Identifying the sample SEAs in stratum  $h$  by the following selection numbers:

$$S_{hi} = R_h + [I_h \times (i - 1)], \text{ rounded}$$

up,

Where  $i = 1, 2, 3, \dots, n_h$

The  $i$ -th selected SEA is the one with a cumulated measure of size closest to  $S_{hi}$  but not less than  $S_{hi}$ .

### 3.1.2. Household Sample

The sampling frame for selecting the secondary sampling units (SSUs) which are households was constructed by listing all the households in the sampled SEAs. In order to identify agricultural households which were eligible for participation in the PHS, the households were asked questions relating to crop production, livestock and poultry production. If the household was not engaged in any of the agricultural activities mentioned, the household was excluded from the listing frame for the selection of sample households for the PHS. The reason for excluding the non-agricultural households is to improve the efficiency of the sampling frame for crop and livestock production and other agricultural characteristics.

To improve the precision of the survey estimates, the agricultural households were stratified in three (3) categories- A, B and C, based on total area under crops, presence of some specified crops and on numbers of cattle, goats, and chickens raised.

The selection procedure was specified using the following defined terms:

$N$  = total number of households listed in the sample SEA

$NA$  = number of households listed in category A within the sample SEA

$NB$  = number of households listed in category B within the sample SEA

$NC$  = number of households listed in category C within the sample SEA

$nA$  = number of sample households selected in category A within the sample SEA

$nB$  = number of sample households selected in category B within the sample SEA

$nC$  = number of sample households selected in category C within the sample SEA

The following steps were used to allocate the 20 sample households by category within each sample SEA:

- (1) If  $NC$  was less than or equal to 10, all the  $NC$  households in Category C were selected with certainty at the second sampling stage (that is,  $nC = NC$ ).
- (2) If  $NC$  was greater than 10, only 10 households in Category C were selected (systematically with a random start) at the second sampling stage (that is,  $nC = 10$ ).
- (3) After determining the number of sample households in Category C ( $nC$ ), the remaining number of sample households in the SEA ( $20 - nC$ ) was divided by 2, and rounded up. This was the number of sample households to be selected in Category B ( $nB$ ) if it was less than or equal to  $NB$ ; otherwise,  $nB = NB$ .
- (4) The number of sample households in Category A ( $nA$ ) was determined as the remainder:  $nA = 20 - nB - nC$

Using this procedure, a minimum of 5 sample households was selected in Category B when there are 5 or more households listed in this category. In cases where there were 10 households selected in Category C, there would be 5 sample households in Category B and 5 sample households in Category A.

A number of households were selected from each category using the systematic random sampling method, coming up with a total of twenty sample households in each Sample SEA.

### 3.2. PHS Questionnaire Content

The PHS questionnaire is designed to collect data on demographic characteristics of members of the household and various agricultural themes. All usual members of the household and their characteristics such as age, sex, marital status and education are listed under the Demographic Characteristics of members of households section. Screening of members who were 12 years or older whether they participated in crop, livestock or poultry production in the agricultural season is included in the same section.

Included in the agricultural sections of the questionnaire are topics such as farmland use, crop management, own crop stocks and sales, income and remittances, cost of production, storage facilities for grains, Cassava production and marketing, fruits, vegetables and sugarcane production and sales, dry season irrigation and wetland production, livestock poultry and fish production, milk and eggs production and sales, access to extension services and farmer training, household production and assets/implements and distance to selected services and infrastructure.

### 3.3. Training of Field Staff

Professional officers from both Central Statistical Office (CSO) and Ministry of Agriculture and Livestock (MAL) conducted training of supervisors and enumerators. Regional Statisticians/Provincial Statistical Officers assisted them in the task. Training of field staff involved use of instructions manual which guided participants on interviewing techniques and field procedures. Mock interviews were conducted between participants within the training venue and later field practices were conducted with real respondents outside sampled areas prior to implementation of PHS field work. The master trainers played a major role in the training of staff.

### 3.4. Fieldwork and Field Supervision

The overall field work force was 9 Regional Statisticians, 20 Master Trainers, 66 supervisors and 340 enumerators. Master trainers travelled to all provinces to observe initial implementation of the fieldwork. The objective was to ensure that all the field procedures and that survey instruments were being administered correctly. The trainers checked samples of completed questionnaires for errors, and discussed any problems with field teams.

Field supervisors collaborated with the Provincial staff in order to deal with any logistical problems arising in the field. They also maintained regular communication with their survey Master trainers. Master Trainers also assisted in the supervision of fieldwork. These were drawn from CSO and the Ministry of Agriculture (MoA).

The Agriculture and Environment Statistics Division under the Central Statistical Office (CSO) was responsible for planning and executing of the 2014-2015 Post Harvest Survey.



The Regional Statistician in each province oversaw the field work through regular communication with Master Trainers and Field Supervisors.

### 3.5. Data Processing and Analysis

Supervisors and some enumerators based at provincial headquarters edited the questionnaires. The edited questionnaires were entered on micro computers using the software package CPro. Data capturing was accomplished at each provincial centre. Staff in Agriculture and Environment Statistics Division did further data processing. Consistency checks on the output of the raw data, with reference to the source documents, were applied before weighted tables at district and provincial levels were produced. The software used for analysis was Statistical Package for Social Sciences (SPSS) version 20.

### 3.6. Estimation Procedure

#### 3.6.1. Sample Weights

Sampling weights were required to ensure actual representation of the sample at national level. The general procedure for calculating the weights made use of sampling probabilities at first-stage selection of SEAs and probabilities of selecting the households. The weights of the sample are equal to the inverse of the probabilities of selection.

$$P_{hi}^1 = \frac{a_h M_{hi}}{\sum_i M_{hi}}$$

Where:

$P_{hi}^1$  = the first selection probability of SEAs

$a_h$  = is the number of SEAs selected in stratum h (district)

$M_{hi}$  = is the size of the ith SEA in stratum h (agricultural households according to the Census frame)

$$\sum_i M_{hi} = \text{The total size of the stratum h}$$

At household selection level which is the second stage of selection, households were categorized by the agricultural strata A, B and C as earlier alluded. The probabilities of selection were calculated for each category separately. Therefore three category final weights were calculated by multiplying each one with the first stage weights.

The selection probability of the household in each category was calculated as follows:

$$P_{hi}^2 = \frac{n_{hi}}{N_{hi}}$$

Where:

$P_{hi}^2$  = the second selection probability of the household

$n_{hi}$  = the number of households selected from the  $i^{\text{th}}$  SEA of  $h^{\text{th}}$  stratum

$N_{hi}$  = Total number of households listed in a given category in an SEA

Therefore, the SEA specific sample weight was calculated as follows:

$$W_i = \frac{1}{P_{hi}^1 \times P_{hi}^2}$$

$W_i$ , which is the inverse of the product of the 2 selection probabilities, is called the PPS sample weight.



### 3.6.2. Estimation Process

In order to correct for differential representation, all estimates generated from the PHS survey data were weighted expressions. Therefore, if  $Y_{hij}$  is an observation on variable Y for the  $h^{\text{th}}$  household in the  $i^{\text{th}}$  SEA of the  $j^{\text{th}}$  stratum, then the estimated total for the  $j^{\text{th}}$  stratum is expressed as follows:

$$Y_{jT} = \sum_{i=1}^{a_j} w_{ij} \sum_{h=1}^{n_j} y_{hij}$$

Where:

$Y_{jT}$  = the estimated total for the  $j^{\text{th}}$  stratum

$i = 1$  to  $a_j$ : the number of selected clusters in the stratum

$h = 1$  to  $n_j$ : the number of sample households in the stratum

The national estimate is given by:

$$YT = \sum_{j=1}^{mj} Y_{jT}$$

Where:

$Y_{jT}$  = the provincial total estimate

$j = 1$  to  $m_j$ : the total number of strata In this case  $m_j=20$ ; (the rural/urban and the 10 provinces).

# Chapter 4: Characteristics of Agricultural Households

## 4.0. Introduction

This chapter gives a summary of demographic and agricultural characteristics of households engaged in agricultural activities in the 2014-2015 season. Some of the demographic characteristics highlighted are the sex, education level, marital status of household heads, as well as the agricultural household size. Agricultural characteristics include the number of households involved in various agricultural activities (i.e. crop production, fish farming, poultry, and livestock production) and household characteristics based on area cultivated, livestock and poultry raised.

## 4.1. Demographic Characteristics

### 4.1.1. Household Heads by Sex

Table 4.1 shows the percentage distribution of agricultural households by sex of household head and province. An estimated 1,473,547 households were engaged in agricultural activities during the 2014-2015 Agriculture Season nationwide. Of these, 77.8 percent were male-headed while 22.2 percent constituted female-headed households.

Eastern Province had the highest number of agricultural households with 274,741 followed by Southern Province which had 197,684 households. Lusaka Province had the lowest number of agricultural households with 46,213.

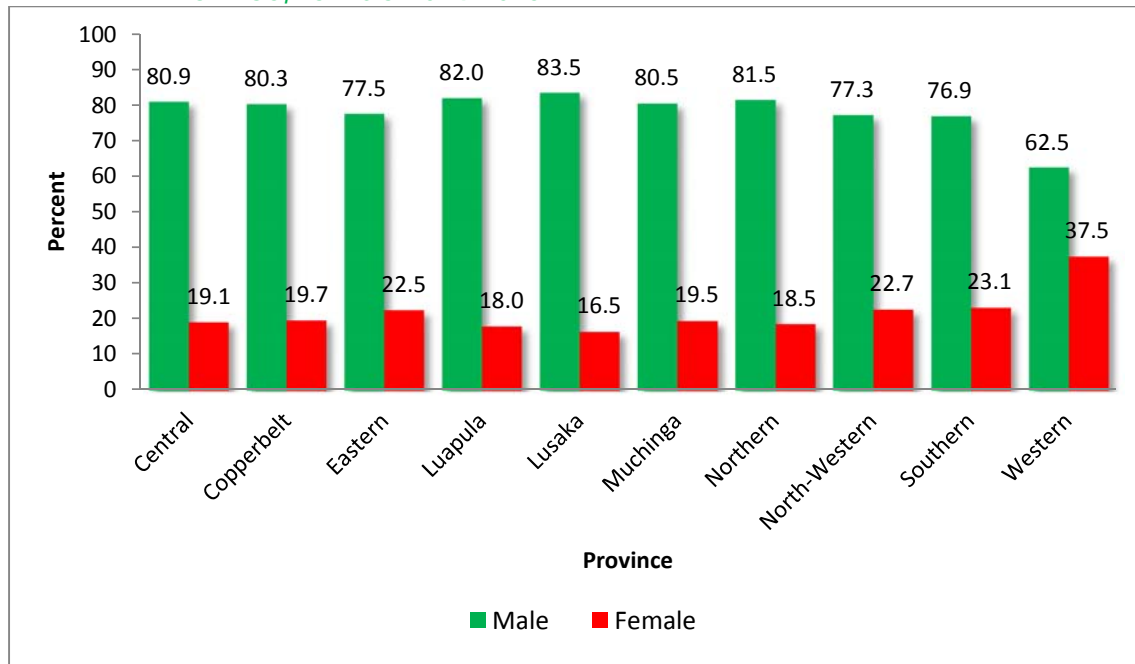
**Table 4.1: Percentage Distribution of Agricultural Households by Sex of Head and Province, Zambia 2014-2015**

Province	Sex of Household Head				Total Agricultural Households	
	Male		Female		Number	Percent
	Number	Percent	Number	Percent		
Central	135,679	80.9	31,952	19.1	167,631	100
Copperbelt	62,674	80.3	15,339	19.7	78,013	100
Eastern	213,033	77.5	61,708	22.5	274,741	100
Luapula	126,379	82.0	27,683	18.0	154,062	100
Lusaka	38,601	83.5	7,612	16.5	46,213	100
Muchinga	97,645	80.5	23,582	19.5	121,227	100
Northern	145,661	81.5	33,163	18.5	178,824	100
North Western	82,308	77.3	24,187	22.7	106,495	100
Southern	151,945	76.9	45,739	23.1	197,684	100
Western	92,843	62.5	55,814	37.5	148,657	100
<b>Zambia</b>	<b>1,146,768</b>	<b>77.8</b>	<b>326,779</b>	<b>22.2</b>	<b>1,473,547</b>	<b>100</b>

Among provinces, Western Province had the highest percentage of female-headed agricultural households at 37.5 percent followed by Southern Province

at 23.1 percent. Lusaka Province had the lowest percentage of female-headed households (16.5 percent) that were engaged in agricultural activities.

**Figure 4.1: Percentage Distribution of Agricultural Households by Sex of Head and Province, Zambia 2014-2015**



#### 4.1.2. Household Heads by Age Group

Table 4.2 shows the percentage distribution of agricultural household heads by five year age groups and province. The Table shows that, at national level, the highest proportion of household heads were in the age group 35-39 years which accounted for 13.9 percent. The age group 15-19 years had the lowest percentage of household heads at 0.5 percent.

At provincial level, Luapula Province had the highest percentage of household heads (16.3 percent) in the age group 35-39 years, followed by Muchinga Province at 15.3 percent. Southern and Central provinces had 15.0 percent each and the lowest was in Lusaka Province at 10.2 percent.

**Table 4.2: Percentage Distribution of Heads of Agricultural Households by Five Year Age Group and Province, Zambia 2014-2015**

Age Group of Household Head	Province										Zambia
	Central	Copperbelt	Eastern	Luapula	Lusaka	Muchinga	Northern	North Western	Southern	Western	
15-19	0.2	0.3	0.8	0.2	0.3	0.4	0.4	0.3	0.3	0.9	0.5
20-24	2.5	3.4	5.8	4.0	1.6	5.6	5.4	2.1	3.5	3.3	4.1
25-29	7.1	6.0	9.7	8.9	6.3	9.9	8.8	7.9	10.2	9.5	8.8
30-34	11.2	9.1	13.4	14.5	10.0	12.7	12.2	12.4	14	10.9	12.5
35-39	15.0	13	13.3	16.3	10.2	15.3	13.4	13.5	15	11.1	13.9
40-44	13.9	11.3	13.7	13.5	13.7	13.6	13.9	15.3	15.1	12.7	13.8
45-49	11.5	10.1	10.1	9.6	12.8	10.3	9.8	12.2	10.7	10.8	10.6
50-54	10.3	11.4	7.9	8.6	10.1	8.9	9.3	10.7	7.4	10.2	9.1
55-59	8.2	10.8	9.2	8.6	8.1	7.7	8.4	8.3	6.9	7.5	8.3
60-64	5.7	8.0	4.7	5.4	8.0	3.7	4.4	5.2	3.8	6.0	5.1
65-69	5.6	6.7	4.6	4.1	8.2	5.0	4.8	4.1	3.8	6.8	5.0
70-74	4.1	4.2	3.7	2.2	4.0	2.9	3.5	3.1	2.8	3.7	3.4
75-79	2.6	3.4	1.3	1.9	3.4	2.2	2.5	2.4	3.1	3.7	2.5
80+	2.1	2.3	1.8	2.2	3.3	1.8	3.2	2.5	3.4	2.9	2.4
<b>Total Percent</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Total Household Heads</b>	<b>167,631</b>	<b>78,013</b>	<b>274,741</b>	<b>154,062</b>	<b>46,213</b>	<b>121,227</b>	<b>178,824</b>	<b>106,495</b>	<b>197,684</b>	<b>148,657</b>	<b>1,473,547</b>

#### 4.1.3. Household Heads by Highest Educational Level Attained

Table 4.3 shows the percentage distribution of agricultural household heads by highest level of education attained and province. The Table shows that 57.9 percent of the household

heads at national had primary level of education. The Table further shows that 17.6 percent of the heads had basic education while 11.9 percent had never been to school.

**Table 4.3: Percentage Distribution of Household Heads by highest Educational Level Attained and Province, Zambia 2014-2015**

Province	Highest Level								Total Percent	Total Agricultural Households
	None	Primary	Basic	High School	A Level	College/University	Certificate/Diploma	Bachelor's Degree or above		
Central	10.8	59.6	17.1	10.2	0.0	0.8	1.3	0.2	100	167,631
Copperbelt	7.8	51.1	20.2	17.1	0.1	0.5	1.8	1.4	100	78,013
Eastern	20.7	56.3	14	6.2	0.0	0.3	2.4	0.1	100	274,741
Luapula	5.9	63.5	17.5	9.3	0.0	0.4	2.8	0.6	100	154,062
Lusaka	8.4	43.2	21.7	16.2	0.8	0.8	5.0	3.9	100	46,213
Muchinga	7.2	54.6	22.5	10.8	0.2	0.2	3.7	0.8	100	121,227
Northern	7.5	64.7	18.8	7.7	0.1	0.2	0.7	0.3	100	178,824
North Western	17.1	51.6	19.0	8.8	0.0	1.0	2.1	0.4	100	106,495
Southern	7.6	58.9	18.4	11.5	0.0	0.4	2.4	0.8	100	197,684
Western	17.7	59.1	14.7	6.6	0.1	0.3	1.0	0.5	100	148,657
<b>Zambia</b>	<b>11.9</b>	<b>57.9</b>	<b>17.6</b>	<b>9.4</b>	<b>0.1</b>	<b>0.4</b>	<b>2.1</b>	<b>0.6</b>	<b>100</b>	<b>1,473,547</b>

Northern Province had the highest percentage of agricultural household heads that had primary education accounting for 64.7 percent followed by Luapula Province with 63.5 percent.

Eastern Province had the highest percentage of household heads that had not been to school at 20.7 percent.

The highest percentage of household heads that had Bachelor's Degree level of education was in Lusaka Province at 3.9 percent.

#### 4.1.4. Household Size of Agricultural Households

Table 4.4 shows the percentage distribution of agricultural households by

household size and province. At national level, 42.8 percent of the households had 4 to 6 members and 8.5 percent of the households had ten or more members. Southern and North-western provinces had the highest percentage of households that had ten or more members.

Province	Number of persons in the household				Total Percent	Total Agricultural Households
	1 to 3	4 to 6	7 to 9	10+		
Central	14.7	39.1	34.3	11.9	100	167,631
Copperbelt	21.5	37.9	32.4	8.2	100	78,013
Eastern	19.5	44.9	29.1	6.5	100	274,741
Luapula	15.4	43.9	34.1	6.6	100	154,062
Lusaka	17.7	43.1	29.6	9.6	100	46,213
Muchinga	16.6	47.2	30.6	5.6	100	121,227
Northern	21.3	41.0	31.9	5.8	100	178,824
North Western	13.4	38.2	36.2	12.2	100	106,495
Southern	13.2	43.4	31.2	12.2	100	197,684
Western	22.4	45.9	23.4	8.3	100	148,657
<b>Zambia</b>	<b>17.6</b>	<b>42.8</b>	<b>31.1</b>	<b>8.5</b>	<b>100</b>	<b>1,473,547</b>

#### 4.1.5. Household Heads by Marital Status

Table 4.5 shows the percent distribution of agricultural household heads by marital status and province. The Table shows that at national level 78.6 percent of the household heads were married (68.8 percent monogamous and 9.8 percent polygamous).

Among provinces, Luapula, Northern and Lusaka had the highest percentage of monogamously married household heads at 76.3, 76.0 and 75.7 percent, respectively. Western Province

had the lowest percentage of monogamously married household heads at 54.8 percent.

Provinces with above national average of 9.8 percent polygamously married agricultural household heads were in Southern (19.8 percent), Eastern (12.8 percent), Muchinga (11.5 percent) and Central (10.3 percent) provinces. Copperbelt Province had the lowest percentage of polygamous marriages at 1.9 percent.

**Table 4.5: Percentage Distribution of Heads of Agricultural Households by Marital Status and Province, Zambia 2014-2015**

Province	Marital Status							Total Percent	Total Agricultural Households
	Never Married	Married		Divorced	Widowed	Separated	Cohabiting		
		Monogamous	Polygamous						
Central	1.4	70.3	10.3	5.0	11.6	1.4	0.0	100	167,631
Copperbelt	1.7	75.3	1.9	6.0	13.0	2.1	0.0	100	78,013
Eastern	0.7	68.2	12.8	6.2	11.5	0.6	0.0	100	274,741
Luapula	1.2	76.3	5.6	5.7	9.6	1.6	0.0	100	154,062
Lusaka	2.2	75.7	2.4	5.6	11.8	2.0	0.3	100	46,213
Muchinga	0.8	71.6	11.5	2.7	12.2	1.2	0.0	100	121,227
Northern	0.5	76.0	7.2	3.8	11.6	0.9	0.0	100	178,824
North Western	2.6	70.6	3.8	7.8	12.3	2.8	0.1	100	106,495
Southern	1.7	59.6	19.8	3.8	12.7	2.3	0.1	100	197,684
Western	6.9	54.8	7.5	13.3	14.2	2.1	1.2	100	148,657
<b>Zambia</b>	<b>1.8</b>	<b>68.8</b>	<b>9.8</b>	<b>5.9</b>	<b>12.0</b>	<b>1.5</b>	<b>0.2</b>	<b>100</b>	<b>1,473,547</b>

Western Province had the highest percentage of widowed agricultural household heads at 14.2 percent followed by Copperbelt Province 13.0 percent. Luapula Province had the lowest percentage of widowed agricultural household heads at 9.6.

## 4.2. Agricultural Characteristics

### 4.2.1. Households Involved in Various Agricultural Activities

Table 4.6 shows the percentage distribution of households involved in various agricultural activities, i.e. crop production, livestock raising, poultry raising, and fish farming, by province.

A total of 1,424,387 households were engaged in crop growing during the 2014-2015 Agriculture Season. Of these households, Eastern Province accounted for the highest percentage at 18.6 percent followed by Southern Province at 13.7 percent. The lowest number of households was recorded in Lusaka Province, accounting for 3.2 percent.

There were 671,445 households raising livestock during the season. Eastern Province recorded the highest number, accounting for 24.0 percent, followed by Southern Province at 21.2 percent. Lusaka Province accounted for the lowest percentage at 2.6 percent of the total.

A total of 949,541 households were involved in poultry production during the season. The highest number of these households was recorded in Eastern Province accounting for 17.8 percent of the total. Southern, Central and Northern provinces accounted for 16.3, 13.5 and 13.0 percent, respectively. The lowest number of households raising poultry was recorded in Lusaka Province, accounting for 3.1 percent.

A total of 16,953 households were involved in fish farming during the season. Central Province accounted for the highest percentage of these households, at 20.4 percent. Northern, Eastern and Southern provinces accounted for 16.1, 13.2 and 12.7 percent of the total, respectively, while Lusaka Province accounted for the lowest percentage at 2.2 percent.

**Table 4.6: Percentage Distribution of Households by Agricultural Activity and Province, Zambia 2014-2015**

Province	Households Growing Crops	Households Raising Livestock	Households Raising Poultry	Households involved in Fish Farming
Central	11.4	13.8	13.5	20.4
Copperbelt	5.1	3.6	5.5	6.3
Eastern	18.6	24.0	17.8	13.2
Luapula	10.5	7.7	9.4	9.5
Lusaka	3.2	2.6	3.1	2.2
Muchinga	8.3	6.8	8.9	7.2
Northern	11.9	10.0	13.0	16.1
North Western	7.0	5.4	5.1	8.2
Southern	13.7	21.2	16.3	12.7
Western	10.3	4.8	7.3	4.2
<b>Total Percent</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Zambia</b>	<b>1,424,387</b>	<b>671,445</b>	<b>949,541</b>	<b>16,953</b>

*\*Note: Households maybe involved in more one agricultural activity.*

#### 4.2.2. Households in Categories A, B and C

Agricultural households are stratified into categories A, B and C based on the size of cultivated land, on numbers of livestock (cattle, pigs, goats and chickens) raised, and on rarely grown crops such as sunflower, tobacco, soya beans, paprika, cotton, pineapples, cashew nuts and sugarcane.

Category A includes households with cultivated land of less than two hectares and have reported raising less than 50 cattle, less than 30 goats, less than 20 pigs and less than 50 chickens.

Category B includes households with 2.0 to 4.99 hectares of cultivated land. This category also includes households reporting any of the rarely grown crops, when 3 to 5 households in the SEA report the specified crop(s), even if they do not qualify based on area under crops.

Category C includes households with 5.0 to 19.99 hectares of cultivated land. This category also includes:

- Households reporting any of the rarely grown crops when only 1 or 2 households in the SEA report the rarely grown crop(s), even if they do not qualify based on area under crops.
- Households raising either, 50 or more cattle, and/or 20 or more pigs, and/or 30 or more goats, and/or 50 or more chickens, even if they do not qualify based on area under crops.

Table 4.7 shows the percentage distribution of households in categories A, B and C. A total of 1,041,671 households were in category A of which Eastern Province recorded the highest number, accounting for 15.3 percent followed by Northern and Luapula provinces at 12.5 and 12.3 percent, respectively. Lusaka recorded the lowest percentage at 3.7 percent.

An estimated 339,259 households were in category B. The highest percentage of these households was recorded in Eastern Province at 28.8 percent. Southern and Central provinces recorded 16.4 and 14.2 percent, respectively, while the lowest percentage was recorded in Lusaka Province at 1.4 percent.

A total of 92,617 households were in category C. Southern Province recorded the highest percentage at 26.0 percent, followed by Eastern and Central provinces at 19.2 and 18.9 percent, respectively. North Western Province recorded the lowest percentage at 2.6 percent.

**Table 4.7: Percentage Distribution of Households by Category and Province, Zambia 2014-2015**

Province	Percentage of Households		
	Category A	Category B	Category C
Central	9.8	14.2	18.9
Copperbelt	6.1	3.2	4.3
Eastern	15.3	28.8	19.2
Luapula	12.3	6.6	3.8
Lusaka	3.7	1.4	3.3
Muchinga	9.5	5.4	4.3
Northern	12.5	11.7	10.2
North Western	8.2	4.8	2.6
Southern	11.3	16.4	26.0
Western	11.3	7.5	7.4
Total Percent	100.0	100.0	100.0
<b>Zambia</b>	<b>1,041,671</b>	<b>339,259</b>	<b>92,617</b>



## Chapter 5: Crop Production

### 5.0. Introduction

During the 2014-2015 Post Harvest Survey (PHS) data was collected for various crops, on area planted, fertilizer used, quantity produced and quantity sold. This chapter covers maize, sorghum, rice, millet, sunflower, groundnuts, soya beans, mixed beans and tobacco production in all provinces. Small and medium-scale farmers carry out crop production as a source of food and income.

### 5.1. Maize

Maize is Zambia's staple food and is a widely grown crop in most parts of the country. Production and sales quantities are reported in dried grain form.

#### 5.1.1. Households growing Maize

Table 5.1 shows the percentage distribution of households growing maize by province. A total of 1,307,202 agricultural households grew maize during the season. Eastern Province had the highest number of households that grew maize accounting for 20.4 percent of such households. Southern and Central provinces accounted for 14.4 and 12.3 percent of the total number of households that grew maize, respectively. The smallest percentage of maize-growing households was recorded in Lusaka Province, representing 3.4 percent.

**Table 5.1: Percentage Distribution of Households growing Maize by Province, Zambia, 2014-2015**

Province	Number of Households	Percentage Share
Central	160,410	12.3
Copperbelt	75,091	5.7
Eastern	266,953	20.4
Luapula	100,905	7.7
Lusaka	45,092	3.4
Muchinga	108,625	8.3
Northern	129,460	9.9
North Western	96,162	7.4
Southern	188,669	14.4
Western	135,835	10.4
<b>Zambia</b>	<b>1,307,202</b>	<b>100.0</b>

#### 5.1.2. Area Planted to Maize and Quantity of Fertilizer Applied

Table 5.2 shows the distribution of area planted to maize and quantity of fertilizer applied by province. The total area planted to maize in the season was 1,661,389.1 hectares. Southern

Province accounted for the largest area under maize, followed by Eastern Province at 24.1 percent and 21.9 percent, respectively. Lusaka Province recorded the smallest percentage of area planted to maize at 2.9 percent.

A total of 159,935.1 metric tonnes of basal and 166,912.8 metric tonnes of top dressing fertilizer were applied to maize fields country-wide. Eastern Province accounted for the highest percentage of fertilizer applied at 20.8 percent of basal and 20.9 percent of top dressing followed by Central

Province at 20.1 percent of basal and 19.5 percent of top dressing fertilizer. Western Province recorded the lowest quantities of both basal (1.3 percent) and top (1.7 percent) dressing fertilizer applied to maize.

**Table 5.2: Distribution of Area Planted to Maize and Quantity of Fertilizer Applied by Province, Zambia 2014-2015**

Province	Area Planted		Fertilizer Applied			
			Basal Dressing		Top Dressing	
	Hectares	Percent	Metric Tonnes	Percent	Metric Tonnes	Percent
Central	284,437.2	17.1	32,086.1	20.1	32,615.8	19.5
Copperbelt	92,714.6	5.6	11,661.0	7.3	12,041.1	7.2
Eastern	363,242.4	21.9	33,289.1	20.8	34,877.8	20.9
Luapula	54,469.6	3.3	8,462.7	5.3	8,465.1	5.1
Lusaka	48,914.1	2.9	5,991.1	3.7	6,021.1	3.6
Muchinga	96,053.2	5.8	13,037.6	8.2	13,092.3	7.8
Northern	124,480.9	7.5	18,518.0	11.6	18,684.2	11.2
North Western	86,105.1	5.2	9,154.0	5.7	10,062.1	6.0
Southern	400,789.7	24.1	25,580.9	16.0	28,200.8	16.9
Western	110,182.4	6.6	2,154.6	1.3	2,852.6	1.7
<b>Zambia</b>	<b>1,661,389.1</b>	<b>100</b>	<b>159,935.1</b>	<b>100</b>	<b>166,912.8</b>	<b>100.0</b>

### 5.1.3. Maize Production and Sales

Table 5.3 shows the quantity of maize produced and sold by province. A total of 2,916,013.6 metric tonnes of maize were produced during the season. Eastern Province produced the largest quantity of maize, representing 21.3 percent of the total produced, followed by Central and Southern provinces at 19.9 and 16.7 percent, respectively. Western Province produced the lowest quantity at 2.1 percent.

Out of the 2,916,013.6 metric tonnes of maize produced, 1,533,980.1 metric tonnes were sold, representing 52.6 percent of the total produced. Central Province had the highest percentage of maize sold at 21.5 percent followed by Eastern Province at 17.4 percent. Western Province recorded the smallest proportion sold at 1.0 percent.

**Table 5.3: Quantity of Maize Produced and Quantity Sold by Province, Zambia 2014-2015**

Province	Quantity Produced		Quantity Sold	
	Metric Tonnes	Percent	Metric Tonnes	Percent
Central	579,653.3	19.9	330,316.2	21.5
Copperbelt	209,761.6	7.2	114,818.0	7.5
Eastern	622,136.1	21.3	266,767.5	17.4
Luapula	134,269.6	4.6	91,558.7	6.0
Lusaka	97,448.6	3.3	40,281.2	2.6
Muchinga	246,587.9	8.5	146,475.5	9.5
Northern	283,250.4	9.7	223,188.5	14.5
North Western	195,584.8	6.7	104,870.3	6.8
Southern	486,200.8	16.7	199,691.5	13.0
Western	61,120.6	2.1	16,012.7	1.0
<b>Zambia</b>	<b>2,916,013.6</b>	<b>100</b>	<b>1,533,980.1</b>	<b>100.0</b>

## 5.2. Sorghum

Sorghum is a cereal crop which is mainly consumed as food. It is also used in the brewing industry. Production and sales are recorded in threshed grain form.

### 5.2.1. Households growing Sorghum

Table 5.4 shows the percentage distribution of households growing sorghum by province. A total of 52,830 households grew sorghum during the season. The majority of these were in Western, Southern and Muchinga provinces, accounting for 33.2, 27.0 and 15.8 percent, respectively. Luapula and Copperbelt provinces recorded the smallest percentages, accounting for 1.7 percent each.

**Table 5.4: Percentage Distribution of Households growing Sorghum by Province, Zambia 2014-2015**

Province	Number of Households	Percentage Share
Central	2,849	5.4
Copperbelt	880	1.7
Eastern	1,151	2.2
Luapula	913	1.7
Lusaka	952	1.8
Muchinga	8,369	15.8
Northern	2,880	5.5
North Western	3,079	5.8
Southern	14,244	27.0
Western	17,514	33.2
<b>Zambia</b>	<b>52,830</b>	<b>100.0</b>

### 5.2.2. Area Planted to Sorghum and Quantity of Fertilizer Applied

Table 5.5 shows the distribution of area planted to sorghum and quantity of fertilizer applied by province. A total of 28,557.1 hectares were planted to sorghum during the season. Southern Province had the largest area planted accounting for 43.6 percent, followed by Western and Muchinga provinces at 29.1 and 9.7 percent, respectively. Eastern Province recorded the smallest

area planted to sorghum, accounting for 1.0 percent.

A total of 256.3 metric tonnes of basal and 256.4 metric tonnes of top dressing fertilizer were applied to sorghum fields. Central Province accounted for the highest quantity of fertilizer used, representing 79.4 percent of basal and 76.7 percent of top dressing. Copperbelt Province accounted for 3.0 percent basal and 11.6 percent top dressing.

**Table 5.5: Distribution of Area Planted to Sorghum and Quantity of Fertilizer Applied by Province, Zambia 2014-2015**

Province	Area Planted		Fertilizer Applied			
	Hectares	Percent	Basal dressing		Top dressing	
			Metric Tonnes	Percent	Metric Tonnes	Percent
Central	1,625.1	5.7	203.6	79.4	203.6	76.7
Copperbelt	397.8	1.4	7.7	3.0	30.7	11.6
Eastern	297.4	1.0	0.2	0.1	0.2	0.1
Luapula	404.2	1.4	-	-	-	-
Lusaka	407.6	1.4	11.7	4.5	10.6	4.0
Muchinga	2,759.0	9.7	-	-	-	-
Northern	505.6	1.8	9.5	3.7	9.5	3.6
North Western	1,388.7	4.9	10.9	4.3	2.7	1.0
Southern	12,450.8	43.6	6.5	2.5	1.8	0.7
Western	8,320.8	29.1	6.3	2.4	6.3	2.4
<b>Zambia</b>	<b>28,557.1</b>	<b>100.0</b>	<b>256.3</b>	<b>100.0</b>	<b>265.4</b>	<b>100.0</b>

Note: (-) Insignificant figures

### 5.2.3. Sorghum Production and Sales

Table 5.6 shows the distribution of quantity of sorghum produced and sold by province. A total of 13,006.4 metric tonnes of sorghum were produced. Southern and Western provinces recorded the highest quantity of sorghum produced accounting for 35.8 and 17.9 percent, respectively. Lusaka and Luapula provinces produced the

smallest quantities, representing 0.9 percent each.

A total of 1,372.2 metric tonnes of sorghum were sold during the season. Southern Province had the highest quantity of sorghum sold, accounting for 32.8 percent, while Copperbelt and Lusaka provinces accounted for 17.2 and 14.8 percent, respectively.

**Table 5.6: Distribution of Quantity of Sorghum Produced and Quantity Sold by Province, Zambia 2014-2015**

Province	Quantity Produced		Quantity Sold	
	Metric Tonnes	Percent	Metric Tonnes	Percent
Central	2,279.7	17.5	55.3	4.0
Copperbelt	237.0	1.8	236.6	17.2
Eastern	113.9	0.9	4.3	0.3
Luapula	121.1	0.9	13.4	1.0
Lusaka	351.3	2.7	202.4	14.8
Muchinga	1,820.3	14.0	79.9	5.8
Northern	302.6	2.3	97.6	7.1
North Western	788.7	6.1	71.9	5.2
Southern	4,661.1	35.8	449.5	32.8
Western	2,330.7	17.9	161.5	11.8
<b>Zambia</b>	<b>13,006.4</b>	<b>100.0</b>	<b>1,372.2</b>	<b>100.0</b>

### 5.3. Rice

Rice is produced in large quantities mainly in Western, Northern and Muchinga provinces. Production and sales relate to paddy rice (rice in husks).

#### 5.3.1. Households growing Rice

Table 5.7 shows the distribution of households growing rice by province. A total of 67,532 households grew rice during the season. Western Province

recorded the highest number of households that grew rice accounting for 42.1 percent of the total followed by Muchinga and Northern provinces with 23.4 and 18.1 percent respectively. Lusaka and Copperbelt provinces recorded the lowest number.

**Table 5.7: Percentage Distribution of Households growing Rice by Province, Zambia 2014-2015**

Province	Number of Households	Percentage Share
Central	52	0.1
Copperbelt	27	-
Eastern	3,238	4.8
Luapula	6,980	10.3
Lusaka	27	0.0
Muchinga	15,828	23.4
Northern	12,219	18.1
North Western	679	1.0
Southern	84	0.1
Western	28,399	42.1
<b>Zambia</b>	<b>67,532</b>	<b>100.0</b>

Note: (-) Insignificant figures

### 5.3.2. Area Planted to Rice and Quantity of Fertilizer Applied

Table 5.8 shows the distribution of area planted to rice and quantity of fertilizer applied by province. The total area planted to rice during the season was 46,433.0 hectares. Western Province accounted for the largest percentage of area planted at 55.2 percent, followed by Northern and Muchinga provinces at 25.7 and 11.8 percent, respectively. Central, Copperbelt,

Lusaka and Southern provinces had the smallest area planted to rice.

A total of 134.4 metric tonnes of basal and 135.9 metric tonnes of top dressing fertilizer were applied to rice fields during the season. Western Province accounted for the largest quantity used with 82.1 metric tonnes of basal and 85.0 metric tonnes of top dressing fertilizer. Lusaka and Southern provinces accounted for least amount of both basal and top dressing fertilizer used.

**Table 5.8: Distribution of Area Planted to Rice and Quantity of Fertilizer Applied by Province, Zambia 2014-2015**

Province	Area Planted		Fertilizer Applied			
	Hectares	Percent	Basal dressing		Top dressing	
			Metric tonnes	Percent	Metric tonnes	Percent
Central	13.0	-	1.3	1.0	1.3	1.0
Copperbelt	3.3	-	0.6	0.4	0.1	0.1
Eastern	995.3	2.1	-	-	0.6	0.4
Luapula	2,069.2	4.5	28.3	21	35.6	26.2
Lusaka	5.6	-	-	-	-	-
Muchinga	5,468.8	11.8	0.1	0.1	0.1	0.1
Northern	11,930.1	25.7	18.6	13.8	9.8	7.2
North Western	281.6	0.6	3.5	2.6	3.5	2.6
Southern	22.2	-	-	-	-	-
Western	25,644.1	55.2	82.1	61.1	85.0	62.5
<b>Zambia</b>	<b>46,433.0</b>	<b>100</b>	<b>134.4</b>	<b>100</b>	<b>135.9</b>	<b>100</b>

Note: (-) Insignificant figures

### 5.3.3. Rice Production and Sales

Table 5.9 shows the distribution of the quantity of rice produced and sold by province. During the season, the total quantity of rice produced was 31,368.2 metric tonnes. Western Province accounted for the largest percentage produced at 37.8 percent of the total followed by Northern and Muchinga provinces at 30 and 21.7 percent, respectively. Central, Copperbelt, Lusaka and Southern provinces each accounted for less than 1 percent of the total quantity produced.

Out of the 31,368.2 metric tonnes of rice produced, 14,685.3 metric tonnes were sold. Northern Province recorded the largest percentage of rice sold at 46.5 percent of the total followed by Western and Muchinga provinces at 25.2 and 17.5 percent, respectively. Eastern, Central, Copperbelt, Lusaka and Southern provinces each accounted for less than one percent of the total quantity sold.

**Table 5.9: Distribution of Quantity of Rice Produced and Quantity Sold by Province, Zambia 2014-2015**

Province	Quantity Produced		Quantity Sold	
	Metric Tonnes	Percent	Metric Tonnes	Percent
Central	6.3	-	-	-
Copperbelt	2.6	-	0.9	-
Eastern	739.2	2.4	127.6	0.9
Luapula	2,178.4	6.9	1,228.0	8.4
Lusaka	3.5	-	0.3	-
Muchinga	6,817.9	21.7	2,564.2	17.5
Northern	9,418.0	30.0	6,834.5	46.5
North Western	339.1	1.1	233.4	1.6
Southern	2.7	-	-	-
Western	11,860.6	37.8	3,696.4	25.2
<b>Zambia</b>	<b>31,368.2</b>	<b>100</b>	<b>14,685.3</b>	<b>100.0</b>

Note: (-) Insignificant figures

## 5.4. Millet

Millet is widely grown throughout the country but its production is predominant in Northern, Western and Muchinga provinces. It is mainly used in the preparation of local brews and is also sold for income. Millet production and sales are reported in threshed grain form.

### 5.4.1. Households growing Millet

Table 5.10 shows the percentage distribution of households growing millet by province. A total of 144,183 households grew millet during the agriculture season. Northern Province accounted for 33.0 percent, followed by Western Province at 22.2 percent, and Muchinga Province at 21.9 percent. The rest of the provinces recorded less than 9 percent each.

**Table 5.10: Percentage Distribution of Households growing Millet by Province, Zambia 2014-2015**

Province	Number of Households	Percentage Share
Central	1,1735	8.1
Copperbelt	1,520	1.1
Eastern	2,413	1.7
Luapula	7,944	5.5
Lusaka	406	0.3
Muchinga	31,644	21.9
Northern	47,641	33.0
North Western	1,406	1.0
Southern	7,450	5.2
Western	32,024	22.2
<b>Zambia</b>	<b>144,183</b>	<b>100.0</b>

#### 5.4.2. Area Planted to Millet and Quantity of Fertilizer Applied

Table 5.11 shows the distribution of area planted to millet and quantity of fertilizer applied. The total area under millet was 61,118.9 hectares. Western Province recorded the largest area planted to millet at 31.9 percent, followed by Northern Province at 26.8 percent. Muchinga accounted for 14.7 percent. Each of the remaining provinces accounted for less than 10 percent of the total area under millet.

A total of 274.1 metric tonnes of Basal and 300.9 metric tonnes of top dressing fertilizer were applied to millet fields during the season. Central Province accounted for the highest quantity of fertilizer used at 60.3 percent of basal and 53.1 percent of top dressing fertilizer. Northern Province used 32.0 percent of basal and 17.1 percent of top dressing fertilizer; while Muchinga Province used 6.8 percent of basal and 10.5 percent of top dressing fertilizer.

Province	Area Planted		Fertilizer Applied			
	Hectares	Percent	Basal dressing		Top dressing	
			Metric tonnes	Percent	Metric tonnes	Percent
Central	5,848.7	9.6	165.2	60.3	159.6	53.1
Copperbelt	473.5	0.8	2.5	0.9	1.5	0.5
Eastern	957.3	1.6	-	-	-	-
Luapula	2,729.5	4.5	-	-	-	-
Lusaka	153.8	0.3	-	-	6.0	2.0
Muchinga	8,973.8	14.7	18.5	6.8	31.5	10.5
Northern	16,381.3	26.8	87.7	32.0	51.6	17.1
North Western	303.9	0.5	-	-	-	-
Southern	5,798.4	9.5	0.2	0.1	22.7	7.5
Western	19,498.8	31.9	-	-	28.1	9.3
<b>Zambia</b>	<b>61,118.9</b>	<b>100.0</b>	<b>274.1</b>	<b>100.0</b>	<b>300.9</b>	<b>100.0</b>

Note: (-) Insignificant figures

#### 5.4.3. Millet Production and Sales

Table 5.12 shows the distribution of quantity of millet produced and quantity sold by province. A total of 40,889.3 metric tonnes of millet were produced during the season. Northern Province accounted for the largest quantity produced at 37.1 percent followed by Muchinga Province at 24.3 percent. The lowest millet production was recorded in North Western and Lusaka provinces which accounted for

less than one percent each of the total production.

Out of the total 40,889.3 metric tonnes of millet produced, 9,996.2 metric tonnes (24.4 percent) were sold. Northern Province accounted for the largest quantity sold at 46.2 percent followed by Muchinga at 24.6 percent. Eastern and North Western provinces had the lowest percentage of millet sold.



**Table 5.12: Distribution of Quantity of Millet Produced and Quantity Sold by Province, Zambia 2014-2015**

Province	Quantity Produced		Quantity Sold	
	Metric Tonnes	Percent	Metric Tonnes	Percent
Central	5,407.9	13.2	488.0	4.9
Copperbelt	481.4	1.2	127.5	1.3
Eastern	451.8	1.1	23.0	0.2
Luapula	2,107.6	5.2	814.4	8.1
Lusaka	324.1	0.8	300.4	3.0
Muchinga	9,946.6	24.3	2,456.4	24.6
Northern	15,174.3	37.1	4,617.1	46.2
North Western	250.3	0.6	9.5	0.1
Southern	3,026.8	7.4	990.1	9.9
Western	3,718.6	9.1	169.8	1.7
<b>Zambia</b>	<b>40,889.3</b>	<b>100.0</b>	<b>9,996.2</b>	<b>100.0</b>

## 5.5. Sunflower

Sunflower is widely grown in the country. Production and sales quantities of sunflower are recorded in dried seed form. Sunflower is mainly produced for income and it is used in the manufacturing industry to produce cooking oil and other edible oils.

### 5.5.1. Households growing Sunflower

Table 5.13 shows the distribution of households growing sunflower by province. During the season, a total of

177,980 households grew sunflower. Eastern Province accounted for the highest percentage of households at 70.7 percent, followed by Southern Province at 19.1 percent and Central Province at 5.0 percent. The rest of the provinces accounted for less than 5.0 percent of the total sunflower-growing households each, while Western Province had no household that reported to have grown sunflower.

**Table 5.13: Percentage Distribution of Households growing Sunflower by Province, Zambia 2014-2015**

Province	Number of Households	Percentage Share
Central	8,821	5.0
Copperbelt	74	0.0
Eastern	125,766	70.7
Luapula	102	0.1
Lusaka	421	0.2
Muchinga	4,733	2.7
Northern	3,696	2.1
North Western	315	0.2
Southern	34,052	19.1
Western	-	-
<b>Zambia</b>	<b>177,980</b>	<b>100.0</b>

Note: (-) Insignificant figures

### 5.5.2. Area Planted to Sunflower and Quantity of Fertilizer Applied

Table 5.14 shows the distribution of area planted to sunflower and quantity of fertilizer applied by province. During the 2014-2015 Agriculture Season the total area planted to sunflower was 110,002.1 hectares. The largest area planted to sunflower was recorded in Eastern Province at 63.1 percent followed by Southern Province which accounted for 25.5 percent.

A total of 117.8 metric tonnes of basal dressing fertilizer and 669.3 metric tonnes of top dressing fertilizer were applied to sunflower fields during the season. Central Province accounted for the largest quantity of basal dressing fertilizer used at 58.0 percent followed by Eastern Province at 17.1 percent. Eastern and Southern provinces used the largest quantities of top dressing fertilizer accounting for 66.7 percent and 22.9 percent, respectively.

Province	Area Planted		Fertilizer Applied			
	Hectares	Percent	Basal dressing		Top dressing	
			Metric Tonnes	Percent	Metric Tonnes	Percent
Central	7,811.1	7.1	68.3	58.0	58.6	8.8
Copperbelt	16.2	-	-	-	0.6	0.1
Eastern	69,405	63.1	20.2	17.1	446.1	66.7
Luapula	12.7	-	-	-	-	-
Lusaka	167.3	0.2	-	-	-	-
Muchinga	2,216.2	2.0	10.7	9.1	10.7	1.6
Northern	2,269.8	2.1	-	-	-	-
North Western	22.4	-	0.7	0.6	-	-
Southern	28,080.6	25.5	17.9	15.2	153.3	22.9
Western	-	-	-	-	-	-
<b>Zambia</b>	<b>110,002.1</b>	<b>100.0</b>	<b>117.8</b>	<b>100.0</b>	<b>669.3</b>	<b>100.0</b>

Note: (-) Insignificant figures

### 5.5.3. Sunflower Production and Sales

Table 5.15 shows the distribution of quantity of sunflower produced and quantity sold by province. A total of 41,372.7 metric tonnes of sunflower were produced in the season. Eastern Province recorded the largest amount of sunflower produced accounting for 68.3 percent. Southern and Central provinces produced 18.8 and 8.0 percent, respectively.

Out of the total sunflower produced, 17,737.0 metric tonnes were sold. This represented 42.9 percent of the total production. Eastern Province sold the largest quantity, at 70.9 percent, followed by Southern Province at 15.2 percent and Central Province at 10.4 percent. The other provinces recorded less than two percent of the total sales each.

**Table 5.15 Distribution of Quantity of Sunflower Produced and Sold by Province, Zambia 2014-2015**

Province	Quantity Produced		Quantity Sold	
	Metric Tonnes	Percent	Metric Tonnes	Percent
Central	3,307.2	8.0	1,848.5	10.4
Copperbelt	2.8	0.0	2.1	0.0
Eastern	28,251.2	68.3	12,579.1	70.9
Luapula	4.7	0.0	1.0	0.0
Lusaka	48.1	0.1	26.7	0.2
Muchinga	1,334.2	3.2	340.0	1.9
Northern	641.5	1.6	243.4	1.4
North Western	16.2	0.0	0.0	0.0
Southern	7,766.8	18.8	2,696.2	15.2
Western	-	-	-	-
<b>Zambia</b>	<b>41,372.7</b>	<b>100.0</b>	<b>17,737.0</b>	<b>100.0</b>

Note: (-) Insignificant figures

## 5.6. Groundnuts

Groundnuts are grown throughout the country. The quantities of groundnuts in this report are recorded in shelled form. Groundnuts are used in the production of cooking oil and other foods such as peanut butter.

### 5.6. Households growing Groundnuts

Table 5.16 shows the distribution of households growing groundnuts by province. A total of 734,028 households

grew groundnuts during the season. Eastern Province recorded the highest number of households that grew groundnuts, accounting for 22.9 percent of the total followed by Southern Province, at 14.8 percent. Copperbelt and Lusaka provinces recorded the lowest percentages, accounting for 4.2 and 2.3 percent, respectively.

**Table 5.16: Percentage Distribution of Households growing Groundnuts by Province, Zambia, 2014-2015**

Province	Number of Households	Percentage Share
Central	82,410	11.2
Copperbelt	30,705	4.2
Eastern	168,357	22.9
Luapula	83,056	11.3
Lusaka	16,932	2.3
Muchinga	61,497	8.4
Northern	99,989	13.6
North Western	42,658	5.8
Southern	108,552	14.8
Western	39,872	5.4
<b>Zambia</b>	<b>734,028</b>	<b>100.0</b>

### 5.6.2. Area Planted to Groundnuts and Quantity of Fertilizer Applied

Table 5.17 shows the distribution of area planted to groundnuts and quantity of fertilizer applied by province. The total area planted to groundnuts was 272,629.8 hectares. The largest area planted to groundnuts was recorded in Eastern Province at 27.3 percent of the total, followed by Southern Province which accounted for 18.6 percent. The smallest area under groundnuts was recorded in Lusaka Province, accounting for 2.4 percent.

A total of 147.7 metric tonnes of basal dressing fertilizer and 91.1 metric tonnes of top dressing fertilizer were applied to groundnut fields during the season. North Western Province accounted for the largest quantities of fertilizer used at 38.4 percent of basal dressing and 46.8 percent of top dressing. Eastern Province accounted for 19.4 percent of basal dressing and 27.7 percent of top dressing.

**Table 5.17: Distribution of Area Planted to Groundnuts and Quantity of Fertilizer Applied by Province, Zambia 2014-2015**

Province	Area Planted		Fertilizer Applied			
			Basal dressing		Top dressing	
	Hectares	Percent	Metric Tonnes	Percent	Metric Tonnes	Percent
Central	34,022.2	12.5	5.9	4.0	-	-
Copperbelt	12,017.0	4.4	11.0	7.4	2.7	2.9
Eastern	74,434.1	27.3	28.6	19.4	25.2	27.7
Luapula	20,818.4	7.6	-	-	-	-
Lusaka	6,556.7	2.4	11.8	8.0	9.9	10.9
Muchinga	17,200.1	6.3	9.0	6.1	5.8	6.4
Northern	33,069.8	12.1	5.7	3.8	1.8	2.0
North-western	12,583.2	4.6	56.7	38.4	42.6	46.8
Southern	50,836.1	18.6	14.0	9.5	3.0	3.3
Western	11,092.4	4.1	5.0	3.4	-	-
<b>Zambia</b>	<b>272,629.8</b>	<b>100.0</b>	<b>147.7</b>	<b>100.0</b>	<b>91.1</b>	<b>100.0</b>

Note: (-) Insignificant figures

### 5.6.3. Groundnut Production and Sales

A total of 122, 621.5 metric tonnes of groundnuts were produced during the season. Eastern Province produced the largest quantity of groundnuts, accounting for 26.5 percent of the total produced. Southern Province accounted for 16.2 percent, followed by Central Province which accounted for 12.9 percent.

Out of 122, 621.5 metric tonnes of groundnuts produced, 44, 093.6 metric tonnes were sold. Eastern province had the highest quantity sold at 22.9 percent followed by Northern, Central and Southern provinces with 15.6, 14.8 and 11.3 percent, respectively.

**Table 5.18: Distribution of Quantity of Groundnuts Produced and Quantity Sold by Province, Zambia 2014-2015**

Province	Quantity Produced		Quantity Sold	
	Metric Tonnes	Percent	Metric Tonnes	Percent
Central	15,798.8	12.9	6,514.4	14.8
Copperbelt	5,358.7	4.4	3,616.8	8.2
Eastern	32,464.8	26.5	10,081.1	22.9
Luapula	9,010.6	7.3	4,270.7	9.7
Lusaka	2,661.4	2.2	800.5	1.8
Muchinga	8,239.2	6.7	2,099.9	4.8
Northern	16,606.9	13.5	6,894.4	15.6
North Western	8,433.1	6.9	3,695.3	8.4
Southern	19,913.6	16.2	4,981.8	11.3
Western	4,134.4	3.4	1,138.7	2.6
<b>Zambia</b>	<b>122,621.5</b>	<b>100.0</b>	<b>44,093.6</b>	<b>100.0</b>

## 5.7. Soya Beans

Soya beans are cultivated in all parts of the country. Production and sales are recorded in dried seed form. The crop is mostly used in the manufacturing industry.

### 5.7.1. Households growing Soya Beans

Table 5.19 shows the distribution of households growing soya beans by province. A total of 113,805 households grew soya beans during the season. Eastern Province recorded the highest number of soya beans-growing households at 39.0 percent, followed by Central Province at 27.0 percent. Western Province recorded the lowest percentage accounting for 0.6 percent.

**Table 5.19 Percentage Distribution of Households growing Soya Beans by Province, Zambia 2014-2015**

Province	Number of Households	Percentage Share
Central	30,675	27.0
Copperbelt	2,679	2.4
Eastern	44,407	39.0
Luapula	2,398	2.1
Lusaka	811	0.7
Muchinga	10,480	9.2
Northern	16,565	14.6
North Western	3,010	2.6
Southern	2,108	1.9
Western	672	0.6
<b>Zambia</b>	<b>113,805</b>	<b>100.0</b>

### 5.7.2 Area Planted to Soya Beans and Quantity of Fertilizer Applied

Table 5.20 shows the distribution of area planted to soya beans and quantity of fertilizer applied by province. A total of 75,621.5 hectares were planted to soya beans in the season. Eastern Province had the largest proportion of area planted to soya beans accounting for 39.5 percent followed by Central Province with 39.3 percent. Western Province had the smallest area planted to soya beans with less than one percent of the total area planted.

A total of 1,059.5 metric tonnes of basal dressing fertilizer and 513.6 metric tonnes of top dressing fertilizer were applied to soya beans fields during the season. Central Province accounted for the largest amount of fertilizer used at 72.0 percent of basal dressing fertilizer and 73.6 percent of top dressing fertilizer, followed by the Copperbelt province at 13.4 percent of basal dressing fertilizer and 7.2 percent of top dressing fertilizer.

**Table 5.20: Distribution of Area Planted to Soya Beans and Quantity of Fertilizer Applied by Province, Zambia 2014-2015**

Province	Area Planted		Fertilizer Applied			
	Hectares	Percent	Basal dressing		Top dressing	
			Metric Tonnes	Percent	Metric Tonnes	Percent
Central	29,729.1	39.3	762.4	72.0	378.3	73.6
Copperbelt	1,749.6	2.3	141.8	13.4	37.1	7.2
Eastern	29,847.9	39.5	18.5	1.7	2.0	0.4
Luapula	500.5	0.7	10.0	0.9	3.3	0.6
Lusaka	1,001.9	1.3	43.1	4.1	20.7	4.0
Muchinga	4,222.9	5.6	16.3	1.5	27.0	5.3
Northern	4,490.7	5.9	51.7	4.9	39.6	7.7
North Western	1,208.1	1.6	11.1	1.0	3.2	0.6
Southern	2,705.5	3.6	4.0	0.4	2.0	0.4
Western	165.4	0.2	0.5	0.0	0.5	0.1
<b>Zambia</b>	<b>75,621.5</b>	<b>100</b>	<b>1,059.5</b>	<b>100</b>	<b>513.6</b>	<b>100</b>

### 5.7.3. Soya Beans Production and Sales

Table 5.21 shows the distribution of the quantity soya beans produced and quantity sold by province. The Table shows that a total of 50,619.1 metric tonnes of soya beans were produced in the season. Central Province produced the largest amount of soya beans accounting for 41.5 percent, followed by Eastern Province at 36.5 percent. Western Province recorded the smallest quantity of soya beans produced

accounting for 0.2 percent of the total production.

Of the 50619.1 metric tonnes of soya beans produced in the season, 35,748.0 metric tonnes were sold. Central Province sold the largest quantity at 43.8 percent, followed by Eastern Province with 36.2 percent of the sales. Luapula, Lusaka and Western provinces recorded the lowest quantities of soya beans sales, at less than 1 percent each.

**Table 5.21: Distribution of Quantity of Soya Beans Produced and Quantity Sold by Province, Zambia 2014-2015**

Province	Quantity Produced		Quantity Sold	
	Metric Tonnes	Percent	Metric Tonnes	Percent
Central	21,008.2	41.5	15,671.9	43.8
Copperbelt	1,702.5	3.4	843.1	2.4
Eastern	18,470.8	36.5	12,955.4	36.2
Luapula	302.3	0.6	184.0	0.5
Lusaka	538.5	1.1	302.0	0.8
Muchinga	2,848.2	5.6	1,884.0	5.3
Northern	3,987.4	7.9	2,605.8	7.3
North Western	575.5	1.1	449.0	1.3
Southern	1,094.9	2.2	816.6	2.3
Western	90.9	0.2	36.4	0.1
<b>Zambia</b>	<b>50,619.1</b>	<b>100.0</b>	<b>35,748.0</b>	<b>100.0</b>

## 5.8. Mixed Beans

Mixed beans include all kinds of beans except soya beans and ground (round) beans. Households produce mixed beans for food and income.

### 5.8.1. Households growing Mixed Beans

Table 5.22 shows the distribution of mixed households growing mixed beans by province. A total of 260,030 households grew mixed beans during

the season. Northern Province recorded the largest percentage of households that grew mixed beans accounting for 32.9 percent followed by Muchinga and North Western provinces which accounted for 18.4 and 11.5 percent, respectively. Luapula Province accounted for 11.1 percent while the rest of the provinces accounted for less than 10 percent of the total production of mixed beans each.

**Table 5.22: Percentage Distribution of Mixed-Beans growing Households by Province, Zambia 2014-2015**

Province	Number of Households	Percentage Share
Central	17,707	6.8
Copperbelt	10,104	3.9
Eastern	15,432	5.9
Luapula	28,826	11.1
Lusaka	1,963	0.8
Muchinga	47,717	18.4
Northern	85,575	32.9
North Western	29,816	11.5
Southern	12,494	4.8
Western	10,396	4.0
<b>Zambia</b>	<b>260,030</b>	<b>100.0</b>

### 5.8.2. Area Planted to Mixed Beans and Quantity of Fertilizer Applied

Table 5.23 shows the distribution of area planted to mixed beans and quantity of fertilizer applied by province. The total area under cultivation of mixed beans was 112,583.6 hectares. Northern Province had the largest area planted to mixed beans accounting for 48.5 percent of the total. Muchinga, North Western and Central provinces accounted for 14.2 percent, 9.4 percent and 6.0 percent, respectively. Copperbelt and Lusaka provinces had the smallest percentage of area

planted to mixed beans accounting for 2.1 percent and 0.5 percent, respectively.

The total amounts of fertilizer applied to mixed beans fields was 641.8 metric tonnes of basal dressing and 449.8 metric tonnes of top dressing. North Western Province had the largest quantities of fertilizer used accounting for 16.0 percent of basal dressing and 26.3 percent of top dressing. Copperbelt Province accounted for 19.7 percent of basal and 19.2 percent of top dressing.

**Table 5.23: Distribution of Area Planted to Mixed Beans and Quantity of Fertilizer Applied by Province, Zambia 2014-2015**

Province	Area Planted		Fertilizer Application			
	Hectares	Percent	Basal dressing		Top dressing	
			Metric Tonnes	Percent	Metric Tonnes	Percent
Central	6,752.8	6.0	104.5	16.3	16.4	3.6
Copperbelt	2,419.9	2.1	126.6	19.7	86.2	19.2
Eastern	6,120.2	5.4	115.7	18.0	89.2	19.8
Luapula	8,181.7	7.3	25.2	3.9	25.2	5.6
Lusaka	546.2	0.5	12.0	1.9	13.9	3.1
Muchinga	15,950.1	14.2	35.1	5.5	36.1	8.0
Northern	54,621.9	48.5	100.0	15.6	62.4	13.9
North Western	10,557.5	9.4	102.8	16.0	118.2	26.3
Southern	4,702.0	4.2	19.8	3.1	2.3	0.5
Western	2,731.3	2.4	-	-	-	-
Zambia	112,583.6	100	641.8	100	449.8	100

Note: (-) Insignificant figures

### 5.8.3. Mixed Beans Production and Sales

Table 5.24 shows the distribution of quantity of mixed beans produced and quantity sold by province. A total of 52,379.0 metric tonnes of mixed beans were produced during the season. Northern Province accounted for the highest percentage produced at 49.7 percent. Muchinga and North Western

provinces produced 13.4 percent and 11.2 percent, respectively.

Out of the total quantity of mixed beans produced, 28,005.8 metric tonnes were sold. Northern Province sold the largest quantity of mixed beans at 54.8 percent. North Western and Muchinga provinces accounted for 10.5 percent and 9.8 percent of the total sold, respectively.



**Table 5.24: Distribution of Quantity of Mixed Beans Produced and Quantity Sold by Province, Zambia 2014-2015**

Province	Quantity Produced		Quantity Sold	
	Metric Tonnes	Percent	Metric Tonnes	Percent
Central	2,863.0	5.5	1,618.2	5.8
Copperbelt	2,232.1	4.3	1,444.3	5.2
Eastern	2,592.3	4.9	1,180.1	4.2
Luapula	3,668.1	7.0	2,280.6	8.1
Lusaka	190.0	0.4	19.4	0.1
Muchinga	6,997.2	13.4	2,740.7	9.8
Northern	26,032.4	49.7	15,358.8	54.8
North Western	5,853.3	11.2	2,944.4	10.5
Southern	1,400.6	2.7	351.7	1.3
Western	550.1	1.1	67.7	0.2
<b>Zambia</b>	<b>52,379.0</b>	<b>100</b>	<b>28,005.8</b>	<b>100</b>

## 5.9. Virginia Tobacco

Virginia tobacco is cured by smoking over gentle fire and is mainly grown by large scale farmers.

### 5.9.1. Households growing Virginia Tobacco

Table 5.25 shows the percentage distribution of households growing Virginia tobacco. A total of 4,943 households grew Virginia tobacco during the season. Eastern Province

recorded the largest percentage of Virginia tobacco-growing households, accounting for 48.3 percent of the total. Southern, Central and Western provinces accounted for 29.2, 10.8 and 9.6 percent, respectively.

There were no households that reported growing Virginia tobacco in Copperbelt, Lusaka, Northern and North Western provinces.

**Table 5.25: Percentage Distribution of Households growing Virginia Tobacco by Province, Zambia 2014-2015**

Province	Number of Households	Percentage Share
Central	536	10.8
Eastern	2,387	48.3
Luapula	52	1.1
Muchinga	50	1.0
Southern	1,444	29.2
Western	474	9.6
<b>Zambia</b>	<b>4,943</b>	<b>100</b>

### 5.9.2. Area Planted to Virginia Tobacco and Quantity of Fertilizer Applied

Table 5.26 shows the distribution of area planted to Virginia tobacco and quantity of fertilizer applied. The total area under cultivation of Virginia tobacco during the season was 4,580.9 hectares. The largest area under Virginia tobacco production was recorded in Eastern Province which accounted for 41.8 percent of total area followed by Southern and Western provinces which accounted for 32.9 and 14.6 percent, respectively.

A total of 680.5 metric tonnes of basal dressing fertilizer and 626.3 metric tonnes of top dressing fertilizer were used to produce Virginia tobacco. Eastern Province accounted for the largest percentage of fertilizer used at 38.2 percent of basal dressing fertilizer and 44.0 percent of top dressing fertilizer, followed by Southern Province which accounted for 24.1 percent of basal dressing fertilizer and 24.6 percent of top dressing fertilizer and Western Province accounted for 23.3 percent of basal dressing fertilizer and 25.5 percent of top dressing fertilizer.

**Table 5.26: Distribution of Area Planted to Virginia Tobacco and Quantity of Fertilizer Applied by Province, Zambia 2014-2015**

Province	Area Planted		Fertilizer Applied			
			Basal Dressing		Top Dressing	
	Hectares	Percent	Metric Tonnes	Percent	Metric Tonnes	Percent
Central	461.8	10.1	93.2	13.7	34.0	5.4
Eastern	1,916.2	41.8	259.9	38.2	275.4	44.0
Luapula	3.2	0.1	-	-	-	-
Muchinga	20.4	0.4	5.0	0.7	2.5	0.4
Southern	1,508.2	32.9	163.9	24.1	154.4	24.6
Western	671.0	14.6	158.5	23.3	159.9	25.5
<b>Zambia</b>	<b>4,580.9</b>	<b>100.0</b>	<b>680.5</b>	<b>100.0</b>	<b>626.3</b>	<b>100.0</b>

Note: (-) Insignificant figures

### 5.9.3. Virginia Tobacco Production and Sales

Table 5.27 shows the quantity of Virginia tobacco produced and quantity sold by province. The total quantity of Virginia tobacco produced was 5,166.5 metric tonnes. Eastern Province accounted for the highest percentage of Virginia tobacco produced at 50.2

percent, followed by Southern Province with 20.5 percent.

Of the total Virginia tobacco produced, 4,083.0 were sold. Eastern Province sold the largest quantity accounting for 58.0 percent sold followed by Southern Province with 21.6 percent.

**Table 5.27: Distribution of Quantity of Virginia Tobacco Produced and Quantity Sold by Province, Zambia 2014-2015**

Province	Quantity Produced		Quantity Sold	
	Metric Tonnes	Percent	Metric Tonnes	Percent
Central	868.3	16.8	551.9	13.5
Eastern	2,592.4	50.2	2,367	58.0
Muchinga	15.1	0.3	15.1	0.4
Southern	1,061.4	20.5	883.2	21.6
Western	629.3	12.2	265.8	6.5
<b>Zambia</b>	<b>5,166.5</b>	<b>100</b>	<b>4,083.0</b>	<b>100</b>

### 5.10. Burley Tobacco

Burley tobacco is mainly air-cured and is preferred by most Zambian tobacco producers.

#### 5.10.1. Households growing Burley Tobacco

Table 5.28 shows the distribution of households growing burley tobacco by province. A total of 8,126 households grew burley tobacco during the season.

Eastern Province recorded the largest percentage of households that grew the crop, accounting for 89.6 percent of the total. Western Province accounted for 6.7 percent, Northern and Central provinces accounted for 1.5 percent, and 1.4 percent, respectively. Luapula, Muchinga and North Western provinces had less than 1.0 percent each.

**Table 5.28: Percentage Distribution of Households growing Burley Tobacco by Province, Zambia 2014-2015**

Province	Number of Households	Percent Share
Central	117	1.4
Eastern	7,279	89.6
Luapula	24	0.3
Muchinga	26	0.3
Northern	125	1.5
North Western	11	0.1
Western	544	6.7
<b>Zambia</b>	<b>8,126</b>	<b>100.0</b>

#### 5.10.2. Area Planted to Burley Tobacco and Quantity of Fertilizer Applied

Table 5.29 shows the distribution of area planted for burley tobacco and quantity of fertilizer applied by province. A total area of 6,475.7 hectares was under burley tobacco during the season. The largest area under burley

tobacco was recorded in Eastern Province which accounted for 91.0 percent of the total. Western and Central provinces accounted for 6.2 percent and 2.3 percent of the total area, respectively.

A total of 1,268.2 metric tonnes of basal and 1,165.2 metric tonnes of top dressing fertilizer were applied to burley tobacco fields. The largest quantities of fertilizer used were recorded in Eastern

Province which accounted for 92.0 percent of basal and 94.7 percent of the total top dressing fertilizer used.

**Table 5.29: Distribution of Area Planted to Burley Tobacco and Quantity of Fertilizer Applied by Province, Zambia 2014-2015**

Province	Area Planted		Fertiliser Applied			
			Basal Dressing		Top Dressing	
	Hectares	Percent	Metric Tonnes	Percent	Metric Tonnes	Percent
Central	150.8	2.3	67.2	5.3	20.6	1.8
Eastern	5,895.4	91.0	1,167.4	92.0	1,103.1	94.7
Luapula	1.5	-	-	-	-	-
Muchinga	5.3	0.1	-	-	-	-
Northern	15.6	0.2	-	-	-	-
North Western	2.7	-	0.6	-	0.5	-
Western	404.4	6.2	33.1	2.6	41.0	3.5
<b>Zambia</b>	<b>6,475.7</b>	<b>100.0</b>	<b>1,268.2</b>	<b>100.0</b>	<b>1,165.2</b>	<b>100.0</b>

Note: (-) Insignificant figures

### 5.10.3. Burley Tobacco Production and Sales

Table 5.30 shows the distribution of quantity of burley tobacco produced and quantity sold by province. The total quantity of burley tobacco produced during the season was 7,842.2 metric tonnes. Eastern Province accounted for 94.2 percent of the total production, while Western and Central provinces

accounted for 3.9 and 2.0 percent, respectively.

Of the 7,842.2 metric tonnes of Burley tobacco produced, 7,495.2 metric tonnes were sold. Eastern Province sold the largest quantity accounting for 96.1 percent.

**Table 5.30: Distribution of Quantity of Burley Tobacco Produced and Quantity Sold by Province, Zambia 2014-2015**

Province	Quantity Produced		Quantity Sold	
	Metric Tonnes	Percent	Metric Tonnes	Percent
Central	155.0	2.0	155.0	2.1
Eastern	7,386.0	94.2	7,204.4	96.1
Western	302.2	3.9	135.8	1.8
<b>Zambia</b>	<b>7,842.2</b>	<b>100</b>	<b>7,495.2</b>	<b>100</b>

## Chapter 6: Cassava Production and Marketing

### 6.0. Introduction

Cassava is a perennial woody shrub with an edible root, which grows in tropical and sub-tropical areas of the world. It is mainly sold in form of tubers, chips or flour.

In Zambia, Cassava is mostly grown in Luapula, Northern, Western and North Western provinces. Cassava growing is being encouraged in other parts of the country for food security reasons, as it is drought-resistant and less expensive to manage compared to other crops.

### 6.1. Households growing Cassava

Table 6.1 shows the percentage distribution of households growing cassava. A total of 274,062 households grew Cassava during the season. Luapula Province recorded the largest percentage at 29.5 percent followed by Northern Province at 28.6 percent. Lusaka, Eastern and Southern provinces recorded less than one percent each.

**Table 6.1 Percentage Distribution of Households growing Cassava by Province, Zambia 2014-2015**

Province	Number of Households	Percentage Share
Central	8,464	3.1
Copperbelt	2,660	1.0
Eastern	1,339	0.5
Luapula	80,853	29.5
Lusaka	212	0.1
Muchinga	23,898	8.7
Northern	78,467	28.6
North Western	43,625	15.9
Southern	526	0.2
Western	34,019	12.4
<b>Zambia</b>	<b>274,062</b>	<b>100.0</b>

### 6.2. Area under Cassava

Table 6.2 shows the percentage distribution of area under Cassava by province. The total area under Cassava during the season was 353,809.2 hectares. Luapula and Northern provinces recorded the largest percentage of area under cassava, accounting for 29.0 and 26.2 percent of

the total area, respectively. Western, North Western and Muchinga provinces accounted for 16.3, 14.1 and 10.3 percent, respectively. Copperbelt, Eastern, Southern and Lusaka provinces each recorded less than one percent of the total area under cassava.

Province	Area under Cassava	
	Hectares	Percentage Share
Central	9,863.8	2.8
Copperbelt	2,865.5	0.8
Eastern	764.2	0.2
Luapula	102,709.4	29.0
Lusaka	113.8	-
Muchinga	36,473.0	10.3
Northern	92,865.8	26.2
North Western	49,964.3	14.1
Southern	387.2	0.1
Western	57,802.3	16.3
<b>Zambia</b>	<b>353,809.2</b>	<b>100.0</b>

Note: (-) Insignificant figures

### 6.3. Area under Cassava by Variety

Table 6.3 shows the percentage distribution of area under Cassava by variety and province. The Cassava varieties which were grown during the season included Bangweulu, Nalumino, Kapumba, Chila, Mweru, Tanganyika,

Improved variety, Local variety, Kampolombo and Manyokola. Local varieties were planted to 69.0 percent of the total area under cassava, whereas Kampolombo accounted the least area.

Province	Cassava Variety and Area Planted (Percent)										Total Area Planted (Hectares)	
	Bangweulu	Nalumino	Kapumba	Chila	Mweru	Tanganyika	Improved (Other)	Local variety	Kampolombo	Manyokola (Maniopola)		Total Percent
Central	12.2	0.4	-	4.2	8.5	-	10.3	59.5	4.8	-	100	9,863.8
Copperbelt	0.7	0.3	0.5	-	-	-	31.8	61.5	0.1	5.0	100	2,865.5
Eastern	-	-	-	-	-	-	18.1	21.3	-	60.7	100	764.2
Luapula	9.6	0.1	0.2	0.8	5.4	0.1	3.0	80.6	-	-	100	102,709.4
Lusaka	0.8	-	-	-	-	-	69.0	4.0	-	26.1	100	113.8
Muchinga	6.7	0.1	0.2	-	0.2	0.4	2.4	90.0	-	-	100	36,473.0
Northern	4.7	0.2	1.2	0.3	0.4	0.7	3.6	88.9	-	0.1	100	92,865.8
North Western	4.8	9.3	1.9	-	16.4	-	3.6	63.4	0.3	0.3	100	49,964.3
Southern	0.6	62.2	4.0	-	1.3	3.3	1.8	12.0	14.8	-	100	387.2
Western	1.5	84.8	1.7	-	-	0.4	0.6	10.9	-	-	100	57,802.3
<b>Zambia</b>	<b>6.0</b>	<b>15.3</b>	<b>1.0</b>	<b>0.4</b>	<b>4.3</b>	<b>0.3</b>	<b>3.3</b>	<b>69.0</b>	<b>0.2</b>	<b>0.3</b>	<b>100</b>	<b>353,809.2</b>

Note: (-) Insignificant figures

## 6.4. Cassava Production and Marketing

### 6.4.1. Households that Sold Dried Cassava Chips and Quantity Sold

Table 6.4 shows the distribution of households that sold dried Cassava chips and the quantity sold by province. During the season, 66,250 households reported to have sold dried Cassava chips. The largest percentage of these households was in Luapula Province, accounting for 35.1 percent of the total. Southern Province recorded the

smallest percentage of households that sold dried Cassava chips accounting for 0.1 percent.

A total of 21,025.0 metric tonnes of dried Cassava chips were sold during the season. Of this, the largest quantity was sold in Luapula Province, which accounted for 53.6 percent, whereas Southern Province recorded the smallest quantity.

Province	Households that Sold Dried Cassava Chips		Quantity of Dried Cassava Chips Sold	
	Number	Percent	Metric Tonnes	Percent
Central	1,236	1.9	132.8	0.6
Copperbelt	173	0.3	10.3	-
Eastern	-	-	-	-
Luapula	23,263	35.1	11,271.0	53.6
Lusaka	-	-	-	-
Muchinga	3,419	5.2	688.7	3.3
Northern	15,784	23.8	2,956.0	14.1
North Western	14,469	21.8	3,925.0	18.7
Southern	47	0.1	3.6	-
Western	7,859	11.9	2,037.5	9.7
<b>Zambia</b>	<b>66,250</b>	<b>100.0</b>	<b>21,025.0</b>	<b>100.0</b>

Note: (-) Insignificant figures

### 6.4.2. Households that Sold Cassava flour and Quantity Sold

Table 6.5 shows the distribution of households that sold Cassava flour and the quantity sold by province. A total of 19,720 households sold Cassava flour during the season. Luapula Province recorded the largest percentage of households that sold Cassava flour, with 44.7 percent. Northern Province had the second largest percentage accounting for 41.4 percent. Copperbelt recorded less than one percent.

The table further shows that Luapula Province recorded the largest quantity of Cassava flour sold during the season accounting for 42.2 percent, while Northern Province accounted for 38.7 percent. Copperbelt Province recorded less than one percent of Cassava flour sold.

There were no recorded sales of Cassava flour in Lusaka, Eastern and Southern provinces by households that reported growing Cassava.

**Table 6.5: Distribution of Households that Sold Cassava flour and Quantity Sold by Province, Zambia 2014-2015**

Province	Household that sold Cassava Flour		Cassava Flour sold in Tonnes	
	Number	Percent	Number	Percent
Central	687	3.5	65.0	1.4
Copperbelt	9	-	0.9	-
Luapula	8,818	44.7	1,971.9	42.2
Muchinga	1,171	5.9	349.7	7.5
Northern	8,160	41.4	1,805.2	38.7
North Western	469	2.4	126.8	2.7
Western	406	2.1	350.1	7.5
<b>Zambia</b>	<b>19,720</b>	<b>100.0</b>	<b>4,669.6</b>	<b>100.0</b>

Note: (-) Insignificant figures

#### 6.4.3. Households that had dried Cassava in Storage

Table 6.6 shows the distribution of households that had dried Cassava in storage by province. A total of 114,984 households reported to have had dried Cassava in storage. Of these households, 43,357 were recorded in Luapula Province, accounting for 37.7 percent. Copperbelt Province recorded the smallest number of households with dried Cassava in storage, accounting for 0.4 percent.

A total of 17,191.2 metric tonnes of dried Cassava chips were in storage during the season. Luapula Province had the largest quantity of Cassava chips in storage at 46.7 percent. Northern Province recorded 23.9 percent, while Copperbelt Province recorded the lowest at 0.1 percent.

There were no recorded storage of dried Cassava in Lusaka, Eastern and Southern provinces by households that reported growing Cassava.

**Table 6.6: Distribution of Households that had Dried Cassava in Storage by Province, Zambia 2014-2015**

Province	Households with Dried Cassava in storage		Tonnes of Dried Cassava stored	
	Number	Percent	Tonnes	Percent
Central	2,029	1.8	624.9	3.6
Copperbelt	468	0.4	16.3	0.1
Luapula	43,357	37.7	8,033.0	46.7
Muchinga	5,997	5.2	766.7	4.5
Northern	34,428	29.9	4,113.7	23.9
North-western	22,307	19.4	2,901.7	16.9
Western	6,398	5.6	734.9	4.3
<b>Zambia</b>	<b>114,984</b>	<b>100.0</b>	<b>17,191.2</b>	<b>100.0</b>



## Chapter 7: Tillage Methods

### 7.0. Introduction

Data was collected on land preparation methods used for crop production during the season. The common tillage methods were; conventional hand hoeing, planting basins/potholes, chitemene, ploughing, ripping, ridging and bunding. This chapter discusses the tillage methods used throughout the country.

### 7.1. Area cultivated using Various Tillage Methods

A total of 2,655,369.3 hectares were planted to various crops during the season. The largest percentage of this land was prepared by ploughing, representing 48.8 percent, followed by ridging and conventional hand hoeing at 26.9 and 16.8 percent, respectively.

**Table 7.1: Distribution of Area Planted to Various Crops by Tillage Method and Province, Zambia 2014-2015**

Province	Tillage method used									Total Percent	Total Area
	Conventional hand hoe	Planting basins/potholes	Zero tillage	Ploughing	Ripping	Ridging	Bunding	Chitemene zero tillage	Chitemene ploughing/hand hoe		
Central	13.3	0.3	0.3	80.9	3.1	1.3	0.5	0.1	0.1	100.0	443,477.4
Copperbelt	35.9	1.9	1.0	32.6	1.1	22.0	5.1	0.1	0.2	100.0	117,017.7
Eastern	12.7	1.4	4.8	27.7	4.3	48.9	0.1	0.1	-	100.0	654,474.6
Luapula	22.5	0.4	0.5	-	0.4	56.8	17.3	0.7	1.4	100.0	96,735.7
Lusaka	31.5	4.0	0.8	57.1	4.3	1.7	0.6	-	-	100.0	59,869.8
Muchinga	26.5	0.1	6.0	3.3	0.5	58.9	1.5	2.4	0.8	100.0	168,870.4
Northern	21.2	0.1	0.6	10.4	0.8	60.2	0.9	4.5	1.4	100.0	255,169.7
North Western	48.6	0.1	0.2	6.7	0.1	43.6	0.4	0.1	0.3	100.0	118,182.9
Southern	2.4	0.5	0.3	92.6	2.7	0.3	0.9	0.1	0.1	100.0	553,131.7
Western	28.0	0.7	0.6	69.4	0.6	0.6	0.1	-	0.1	100.0	188,439.4
Zambia	16.8	0.8	1.9	48.8	2.5	26.9	1.4	0.7	0.3	100.0	2,655,369.3

Note: (-) Insignificant figures

Ploughing was widely used in Southern, Central, Western and Lusaka provinces, where it was used to prepare 92.6 percent, 80.9 percent, 69.4 percent and 57.1 percent of the total land cultivated within the provinces, respectively.

Ridging was the commonly practiced tillage method in Northern, Muchinga, Luapula, Eastern and North Western provinces representing 60.2 percent, 58.9 percent, 56.8 percent, 48.9 percent

and 43.6 percent of the total land cultivated, respectively.

Conventional hand hoeing was the main tillage method used in North Western, Copperbelt, and Lusaka accounting for 48.6 percent, 35.9 percent and 31.5 percent of the total land cultivated within the province, respectively.

## Chapter 8: Livestock Raising

### 8.0. Introduction

Livestock is among the major sources of income through the sale of live animals and livestock products such as meat and milk. Data collected in the 2014-2015 PHS included: type of livestock, number raised, number slaughtered, number sold and the value of sales.

### 8.1. Cattle

#### 8.1.1. Households Raising Cattle

Table 8.1 shows the number of households raising cattle, and the number of cattle held as at the close of the season (30<sup>th</sup> September, 2015). A total of 330,582 households reported to be raising cattle country-wide during the period. The largest number of

households raising cattle was in Southern Province representing 33.1 percent of the total households, followed by Eastern Province with 30.8 percent. Luapula Province had the smallest number of households raising cattle, with a percentage of 0.3 percent.

The Table further shows that the cattle population as at 30<sup>th</sup> September, 2015 was 3,946,348. The highest number of cattle was recorded in Southern Province, accounting for 37.2 percent of the total number of cattle, while Luapula Province had the lowest number of cattle, accounting for 0.5 percent of the total.

**Table 8.1: Distribution of Households raising Cattle and Number of Cattle Raised by Province, Zambia 2014-2015**

Province	Households Raising Cattle		Cattle Held on 30th September, 2015	
	Number	Percent	Number	Percent
Central	58,830	17.8	1,124,813	28.5
Copperbelt	4,475	1.4	48,664	1.2
Eastern	101,967	30.8	685,130	17.4
Luapula	1,002	0.3	19,606	0.5
Lusaka	6,287	1.9	70,256	1.8
Muchinga	9,548	2.9	111,052	2.8
Northern	7,564	2.3	32,642	0.8
North Western	6,298	1.9	43,129	1.1
Southern	109,311	33.1	1,467,304	37.2
Western	25,300	7.7	343,752	8.7
<b>Zambia</b>	<b>330,582</b>	<b>100</b>	<b>3,946,348</b>	<b>100</b>

#### 8.1.2. Number of Cattle Raised by Type

Table 8.2 shows the distribution of Cattle that were raised during the season by type of cattle and province. The Table shows that a total of 3,946,348 cattle

were raised during the season. Cows accounted for the largest type of cattle raised at 49.0 percent, followed by trained oxen at 18.3 percent.

**Table 8.2: Distribution of Number of Cattle Raised by Type of Cattle and Province, Zambia 2014-2015**

Province	Total Cattle Raised	Total Percent	Type of Cattle Raised						
			Cows	Heifers	Bulls	Untrained Oxen	Trained Oxen	Tollies/Steers	Calves
Central	1,124,813	100	72.7	5.7	2.6	2.0	10.4	1.9	4.6
Copperbelt	48,664	100	79.7	4.9	5.5	0.1	6.9	1.3	1.6
Eastern	685,130	100	31.3	10.9	6.5	2.8	30.5	7.7	10.3
Luapula	19,606	100	56.9	14.3	7.8	1.2	0.0	8.6	11.1
Lusaka	70,256	100	46.2	9.4	7.5	3.1	16.1	5.2	12.4
Muchinga	111,052	100	48.9	14.3	12.4	0.3	5.5	7.0	11.7
Northern	32,642	100	24.5	16.6	19.4	12.4	16.5	1.1	9.5
North Western	43,129	100	55.4	9.2	7.7	1.2	18.3	3.2	5.1
Southern	1,467,304	100	40.1	11.2	3.3	3.1	20.6	6.8	14.8
Western	343,752	100	41.8	9.1	6.5	2.7	17.2	7.5	15.2
<b>Zambia</b>	<b>3,946,348</b>	<b>100</b>	<b>49.0</b>	<b>9.4</b>	<b>4.5</b>	<b>2.6</b>	<b>18.3</b>	<b>5.5</b>	<b>10.7</b>

### 8.1.3. Number of Cattle Slaughtered

Table 8.3 shows the distribution of Cattle that were slaughtered during the season by type of cattle and province. The Table shows that a total of 44,864 cattle were slaughtered during the

season. Of the cattle that were slaughtered, 55.9 percent were cows followed by trained oxen with 18.4 percent.

**Table 8.3: Distribution of Number of Slaughtered Cattle by Type of Cattle and Province, Zambia 2014-2015**

Province	Total Slaughtered	Total Percent	Type of Cattle Slaughtered						
			Cows	Heifers	Bulls	Untrained Oxen	Trained Oxen	Tollies/Steers	Calves
Central	8,384	100	63.3	2.8	1.1	0.3	30.0	0.5	2.0
Copperbelt	2,121	100	93.3	-	4.4	-	2.3	-	-
Eastern	12,565	100	39.3	10.6	15.6	7.2	14.1	10.9	2.4
Luapula	552	100	48.7	-	18.5	-	-	32.8	-
Lusaka	1,293	100	27.8	16.9	49.9	-	-	-	5.6
Muchinga	1,774	100	68.8	-	27.6	-	3.6	-	-
Northern	1,354	100	11.7	53.1	32.1	3.1	-	-	-
North Western	1,641	100	81.4	-	-	2.9	15.8	-	-
Southern	12,184	100	61.1	4.6	1.9	0.6	27.4	2.5	2.0
Western	2,996	100	69.4	2.1	9.3	-	8.4	1.3	9.5
<b>Zambia</b>	<b>44,864</b>	<b>100</b>	<b>55.9</b>	<b>7.0</b>	<b>9.7</b>	<b>2.4</b>	<b>18.4</b>	<b>4.3</b>	<b>2.4</b>

Note: (-) Insignificant figures

### 8.1.4. Number of Cattle Sold

Table 8.4 shows the distribution of Cattle that were sold during the season by type of cattle and province. A total of 184,905 cattle were sold during the

season. Cows accounted for the largest number of cattle sold with 45.6 percent followed by trained oxen and heifers with 24.8 and 16.1 percent, respectively.

**Table 8.4: Distribution of Number of Cattle Sold by Type and Province, Zambia 2014-2015**

Province	Total Cattle Sold	Total Percent	Type of Cattle Sold						
			Cows	Heifers	Bulls	Untrained Oxen	Trained Oxen	Tollies/Steers	Calves
Central	29,328	100	68.5	6.6	3.9	1.8	15.7	2.7	0.8
Copperbelt	4,784	100	94.8	1.0	4.2	-	-	-	-
Eastern	24,581	100	61.8	8.0	6.5	0.4	22.4	0.7	0.2
Luapula	975	100	58.1	-	41.9	-	-	-	-
Lusaka	2,891	100	37.4	23.0	25.8	-	13.9	-	-
Muchinga	4,674	100	45.7	2.2	47.0	-	-	-	5.0
Northern	715	100	31.5	50.1	9.8	-	8.7	-	-
North-western	2,819	100	76.5	1.7	3.4	6.2	10.9	1.3	-
Southern	103,349	100	33.2	23.4	3.2	6.0	30.0	1.6	2.6
Western	10,789	100	36.9	4.6	8.1	4.8	37.0	2.1	6.5
<b>Zambia</b>	<b>184,905</b>	<b>100</b>	<b>45.6</b>	<b>16.1</b>	<b>5.8</b>	<b>4.1</b>	<b>24.8</b>	<b>1.5</b>	<b>2.1</b>

Note: (-) Insignificant figures

### 8.1.5. Total Value of Cattle Sales

Table 8.5 shows the value of cattle sales by type of cattle and province. The total value of proceeds from the sales of cattle was K389, 898,647.13. By type of cattle, the value of cow sales

accounted for 43.4 percent of the total cattle sales, followed by the value of trained oxen and heifer sales which accounted for 26.9 and 16.9 percent respectively.

**Table 8.5: Percentage Distribution of Value of Cattle Sales by Type of Cattle and Province, Zambia 2014-2015**

Province	Total Cattle Value (ZMW)	Total Percent	Type of Cattle						
			Cows	Heifers	Bulls	Untrained Oxen	Trained Oxen	Tollies/Steers	Calves
Central	88,178,833.69	100	75.6	4.8	4.0	0.7	12.7	1.7	0.5
Copperbelt	1,769,934.86	100	65.3	1.6	33.2	-	-	-	-
Eastern	39,788,770.39	100	59.5	6.3	6.4	0.4	26.8	0.4	0.1
Luapula	2,808,424.80	100	75.6	-	24.4	-	-	-	-
Lusaka	5,370,131.92	100	44.6	30.9	4.6	-	19.9	-	-
Muchinga	9,602,269.24	100	29.8	0.2	68.2	-	-	-	1.9
Northern	1,251,229.74	100	39.1	42.9	16.9	-	1.1	-	-
North Western	6,517,136.70	100	71.8	0.4	2.9	0.9	23.7	0.3	-
Southern	213,697,582.76	100	27.3	26.3	4.5	5.9	33.3	1.3	1.5
Western	20,914,333.03	100	32.8	4.0	8.2	3.2	43.5	1.4	6.9
<b>Zambia</b>	<b>389,898,647.13</b>	<b>100</b>	<b>43.4</b>	<b>16.9</b>	<b>6.6</b>	<b>3.6</b>	<b>26.9</b>	<b>1.2</b>	<b>1.3</b>

Note: (-) Insignificant figures

### 8.1.6. Average Cost of Cattle Sales

Table 8.6 shows the distribution of Number of Cattle Sold and Value of Sales by Cattle Type. Bulls had the highest average cost of K2, 422.21 per animal, followed by trained oxen with

an average cost of K2, 280.81 per animal. Heifers had an average cost of K2, 216.55 per animal, whereas calves recorded the lowest average cost per animal of K1, 343.27.

**Table 8.6: Distribution of Number of Cattle Sold and Value of Sales by Cattle Type, Zambia 2014-2015**

Cattle Type	Number	Value of Sales	Mean Cost/Animal
	Cattle Sold	ZMW	ZMW
Cows	84,249	169,215,806.13	2,008.52
Heifers	29,762	65,968,936.29	2,216.55
Bulls	10,661	25,823,130.10	2,422.21
Untrained Oxen	7,578	14,071,923.95	1,856.94
Trained Oxen	45,932	104,762,100.35	2,280.81
Tollies/Steers	2,835	4,836,787.36	1,706.10
Calves	3,886	5,219,962.95	1,343.27

## 8.2. Pigs

### 8.2.1. Households Raising Pigs and Number of Pigs Held

Table 8.7 shows the number of pig-raising households, and the number of pigs held as at the opening (1<sup>st</sup> October, 2014) and as at the close (30<sup>th</sup> September, 2015) of the agriculture season. A total of 178,802 households reported to be raising pigs country-wide during the season. Eastern Province recorded the highest percentage of households, accounting for 44.0 percent of the total. Northern Province accounted for 12.3 percent while Lusaka Province had the smallest number of pig raising households accounting for 1.6 percent of the total.

The Table further shows that the population of Pigs as at 30<sup>th</sup> September 2015 was estimated at 1,010,301 compared to 1,085,094 that were held at 1<sup>st</sup> October 2014, indicating a percentage decrease of 6.9 in the number of pigs.

Eastern Province recorded the highest number of pigs held as at 30<sup>th</sup> September, 2015 accounting for 46.7 percent of the total held, followed by Muchinga Province with 9.4 percent. Luapula Province had the lowest number of pigs held as at the close of the season, accounting for 2.4 percent of the total.

**Table 8.7: Percentage Distribution of Households Pig Raising and Number of Pigs Raised by Province, Zambia 2014-2015**

Province	Pig Raising Households		Pigs Held on 1st October, 2014		Pigs Held on 30th September, 2015	
	Number	Percent	Number	Percent	Number	Percent
Central	9,100	5.1	52,706	4.9	48,947	4.8
Copperbelt	6,623	3.7	67,393	6.2	66,770	6.6
Eastern	78,670	44	514,326	47.4	471,427	46.7
Luapula	7,317	4.1	20,830	1.9	24,178	2.4
Lusaka	2,798	1.6	90,180	8.3	36,651	3.6
Muchinga	19,558	10.9	76,627	7.1	94,722	9.4
Northern	22,007	12.3	90,976	8.4	91,356	9
North Western	4,909	2.7	22,207	2.0	32,479	3.2
Southern	21,075	11.8	102,537	9.4	91,471	9.1
Western	2,745	3.8	47,312	4.4	52,300	5.2
<b>Zambia</b>	<b>178,802</b>	<b>100</b>	<b>1,085,094</b>	<b>100.0</b>	<b>1,010,301</b>	<b>100</b>

### 8.2.2. Number of Pigs Slaughtered

Table 8.8 shows the distribution of pigs slaughtered during the season by province. The Table shows that a total of 172,024 Pigs were slaughtered and the highest number of these was in Eastern Province which accounted for

35.9 percent of the total. Lusaka Province accounted for 22.3 percent, followed by Northern Province at 10.6 percent. While all the remaining provinces recorded less than 10 percent.

**Table 8.8: Distribution of Number of Pigs Slaughtered by Province, Zambia 2014-2015**

Province	Number Slaughtered	Percent
Central	7,743	4.5
Copperbelt	9,746	5.7
Eastern	61,747	35.9
Luapula	5,586	3.2
Lusaka	38,300	22.3
Muchinga	15,510	9.0
Northern	18,259	10.6
North Western	3,352	1.9
Southern	8,905	5.2
Western	2,876	1.7
<b>Zambia</b>	<b>172,024</b>	<b>100.0</b>

### 8.2.3. Number of Pigs Sold by Value of Sales

Table 8.9 shows the distribution of number of pigs sold by value of sales and province. A total of 268,922 pigs were sold during the season. Lusaka and Eastern provinces recorded the

highest number of sales accounting for 23.8 percent and 20.9 percent, respectively. Luapula Province recorded the lowest number of pigs sold during the season, accounting for 2.2 percent.

The Table also shows that the value of proceeds from the sale of pigs was K93,972,929.64. Lusaka Province accounted for 35.0 percent of this value followed by Southern and Eastern

provinces at 15.5 percent and 12.4 percent respectively. Luapula Province recorded the lowest value of sales.

**Table 8.9: Distribution of Number of Pigs Sold by Value of Sales and Province, Zambia 2014-2015**

Province	Pig Sales		Value of Pig Sales	
	Number	Percent	ZMW	Percentage Share
Central	13,512	5	2,893,067.73	3.1
Copperbelt	22,360	8.3	10,634,582.93	11.3
Eastern	56,294	20.9	11,651,957.27	12.4
Luapula	5,878	2.2	16,423.153	-
Lusaka	64,080	23.8	32,870,032.23	35.0
Muchinga	17,679	6.6	8,493,951.26	9.0
Northern	22,680	8.4	7,261,019.27	7.7
North Western	7,791	2.9	2,921,414.22	3.1
Southern	49,294	18.3	14,548,651.76	15.5
Western	9,354	3.5	2,681,829.82	2.9
<b>Zambia</b>	<b>268,922</b>	<b>100</b>	<b>93,972,929.64</b>	<b>100.0</b>

Note: (-) Insignificant figures

### 8.3. Goats

#### 8.3.1. Households Raising Goats and Number of Goats Raised

Table 8.10 shows the number of goat-raising households, and the number of goats held as at 1<sup>st</sup> October, 2014 and 30th September, 2015. A total of 426,813 households raised goats during the season. The highest percentage of these households was in Southern Province which accounted for 22.9 Percent of the total followed by Eastern and Central provinces at 16.2 and 14.3 percent, respectively. Western Province

had the lowest percentage accounting for 1.5 Percent of the total.

The Table further shows that the Goat population as at 30th September, 2015 was estimated at 3,267,901 indicating a 3.1Percent age decrease from 3,371,774 goats that were held at the start of the season. Southern Province accounted for the highest percentage of goats held as at 30th September, 2015, at 33.8 Percent of the total followed by Central Province at 18.4 Percent whereas Western Province had the lowest percentage at 1.1 Percent.

**Table 8.10: Percentage Distribution of Households Raising Goats and Number of Goats Raised, by Province, Zambia 2014-2015**

Province	Households Raising Goats		Goats Held on 1st October, 2014		Goats Held on 30th September, 2015	
	Number	Percent	Number	Percent	Number	Percent
Central	60,963	14.3	682,676	20.2	601,751	18.4
Copperbelt	20,113	4.7	168,532	5.0	155,505	4.8
Eastern	69,132	16.2	409,213	12.1	387,736	11.9
Luapula	47,098	11	224,262	6.7	212,185	6.5
Lusaka	12,790	3	134,487	4.0	176,692	5.4
Muchinga	30,498	7.1	147,042	4.4	166,278	5.1
Northern	51,965	12.2	252,519	7.5	244,489	7.5
North Western	30,366	7.1	177,971	5.3	180,840	5.5
Southern	97,617	22.9	1,128,078	33.5	1,105,190	33.8
Western	6,271	1.5	46,994	1.4	37,235	1.1
<b>Zambia</b>	<b>426,813</b>	<b>100</b>	<b>3,371,774</b>	<b>100.0</b>	<b>3,267,901</b>	<b>100</b>

### 8.3.2. Number of Goats Slaughtered

During the season, an estimated 339,830 Goats were slaughtered as shown in Table 8.11. The highest percentage of goats slaughtered was recorded in Southern Province accounting for 23.1 Percent of the total

followed by Central and Eastern Provinces at 16.6 and 13.9 Percent respectively. Western Province had the smallest percentage of goats slaughtered at 0.3 Percent of the total.

**Table 8.11: Distribution of Number of Goats Slaughtered by Province, Zambia 2014-2015**

Province	Goats slaughtered	
	Number	Percent
Central	56,541	16.6
Copperbelt	26,436	7.8
Eastern	47,331	13.9
Luapula	27,002	7.9
Lusaka	17,746	5.2
Muchinga	19,366	5.7
Northern	41,551	12.2
North Western	24,404	7.2
Southern	78,402	23.1
Western	1,051	0.3
<b>Zambia</b>	<b>339,830</b>	<b>100.0</b>



### 8.3.3. Number of Goats Sold and Value of Sales

Table 8.12 shows that 590,253 Goats were sold during the season. The highest number of goats sold was recorded in Southern Province which accounted for 36.0 Percent of the total followed by Central Province at 20.5 Percent. Western Province had the smallest number of goats sold accounting for 1.3 Percent.

The Table further shows that the proceeds from Goats sales were valued at K106, 283,463.00 Southern Province accounted for 31.2 Percent of the total followed by Central Province at 19.4 Percent. Western province had the lowest value of goat sales accounting for 0.7 Percent of the total.

**Table 8.12: Distribution of Number of Goats Sold and Value of Sales by Province, Zambia 2014-2015**

Province	Goats Sales		Value of Goats Sales	
	Number	Percent	ZMW	Percent
Central	120,757	20.5	20,668,689.20	19.4
Copperbelt	44,554	7.5	8,960,119.70	8.4
Eastern	48,085	8.1	7,456,048.50	7.0
Luapula	33,817	5.7	7,856,051.50	7.4
Lusaka	24,476	4.1	4,638,831.50	4.4
Muchinga	24,577	4.2	5,531,970.40	5.2
Northern	35,115	5.9	7,620,562.60	7.2
North Western	38,652	6.5	9,618,083.80	9.0
Southern	212,719	36.0	33,172,625.90	31.2
Western	7,501	1.3	760,479.90	0.7
<b>Zambia</b>	<b>590,253</b>	<b>100.0</b>	<b>106,283,463.00</b>	<b>100.0</b>

## 8.4. Sheep

### 8.4.1. Households Raising Sheep and Numbers Raised

The Distribution of sheep raising households and the number of sheep held on 1<sup>st</sup> October 2014 and 30<sup>th</sup> September 2015 is shown in Table 8.13. The Table shows that 15,335 households raised sheep during the season. The highest percentage of households was recorded in Eastern Province, which accounted for 40.4 percent of the total. Southern Province accounted for 28.4 percent while Western Province had the smallest number of sheep raising households, accounting for 0.5 percent of the total.

The Table further shows that the sheep population as at 30<sup>th</sup> September, 2015 was estimated at 138,068 indicating a 4.4 percentage increase from 132,187 sheep that were held at the start of the season. At the end of the season (30<sup>th</sup> September, 2015), Southern Province accounted for the highest percentage of sheep held, at 34.9 percent followed by Eastern Province at 31.4 percent. Western Province recorded the lowest percentage of sheep held, accounting for 0.1 percent.

**Table 8.13: Percentage Distribution of Households Raising Sheep and Sheep Raised by Province, Zambia 2014-2015**

Province	Households Raising Sheep		Sheep held on 1 <sup>st</sup> October, 2014		Sheep held on 30 <sup>th</sup> September, 2015	
	Number	Percent	Number	Percent	Number	Percent
Central	1,008	6.6	9,813	7.4	16,302	11.8
Copperbelt	1,172	7.6	14,664	11.1	12,952	9.4
Eastern	6,189	40.4	46,881	35.5	43,349	31.4
Luapula	802	5.2	3,396	2.6	2,683	1.9
Lusaka	318	2.1	3,285	2.5	7,305	5.3
Muchinga	552	3.6	2,150	1.6	1,599	1.2
Northern	816	5.3	4,868	3.7	4,038	2.9
North Western	39	0.3	1,311	1.0	1,495	1.1
Southern	4,355	28.4	45,151	34.2	48,178	34.9
Western	84	0.5	668	0.5	167	0.1
<b>Zambia</b>	<b>15,335</b>	<b>100.0</b>	<b>132,187</b>	<b>100.0</b>	<b>138,068</b>	<b>100.0</b>

#### 8.4.2. Number of Sheep Slaughtered

Table 8.14 shows the distribution of sheep slaughtered by province. Of the total of 10,195 Sheep that were slaughtered during season, the highest number was recorded in Eastern

Province which accounted for 46.4 percent followed by Southern Province at 27.6 percent. The lowest number was recorded in North-western Province which accounted for 0.7 percent.

**Table 8.14: Distribution of Number of Sheep Slaughtered by Province, Zambia 2014-2015**

Province	Number	Percent
Central	1,020	10.0
Copperbelt	774	7.6
Eastern	4,734	46.4
Luapula	-	-
Lusaka	352	3.5
Muchinga	230	2.3
Northern	196	1.9
North Western	73	0.7
Southern	2,816	27.6
Western	-	-
<b>Zambia</b>	<b>10,195</b>	<b>100.0</b>

Note: (-) Insignificant figures

#### 8.4.3. Number of Sheep Sold and Value of Sales

Table 8.15 shows that 12,121 sheep were sold during the season. The highest number of sheep sales was recorded in

Southern Province which accounted for 49.5 percent of the total sales. This was followed by Eastern Province at 19.7 percent.

The Table further shows that the total value of sales of Sheep was K3,093,736.79. The highest value of sales was recorded in Southern Province, accounted for 58.8 percent of total. The Copperbelt Province followed at 12.7

percent while Eastern and Lusaka provinces recorded below 2.0 percent each.

**Table 8.15: Distribution of Number of Sheep Sold by Value of Sales and Province, Zambia 2014-2015**

Province	Sheep Sales		Value of Sheep Sales	
	Number	Percent	ZMW	Percentage Share
Central	389	3.2	124,115.94	4.0
Copperbelt	986	8.1	391,544.38	12.7
Eastern	2,383	19.7	49,700.33	1.6
Luapula	625	5.2	223,282.42	7.2
Lusaka	174	1.4	39,990.95	1.3
Muchinga	483	4.0	144,946.91	4.7
Northern	859	7.1	214,732.00	6.9
North Western	219	1.8	87,425.43	2.8
Southern	6,003	49.5	1,817,998.43	58.8
<b>Zambia</b>	<b>12,121</b>	<b>100.0</b>	<b>3,093,736.79</b>	<b>100.0</b>

## Chapter 9: Livestock Management

### 9.0. Introduction

Livestock management refers to all activities pertaining to the control and organization of livestock production. It is a very important aspect in raising livestock because the output depends on the management system employed. This chapter highlights the reasons farmers give for keeping cattle and methods through which they keep the livestock healthy and productive. This includes several management practices such as de-worming, vaccination and tick-control.

### 9.1. Cattle

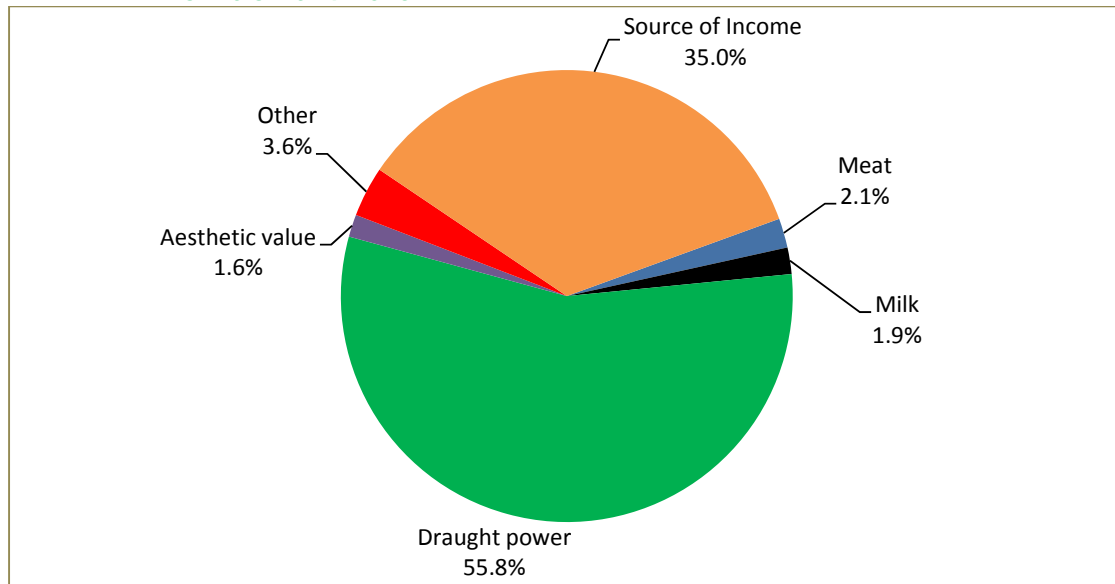
#### 9.1.1. Purposes of Raising Cattle

The distribution of Cattle-raising households that gave reason for raising cattle is shown in Table 9.1 and Figure 9.1. During the 2014-2015 Agriculture Season, a total number of 257,685 agricultural households responded to questions of livestock management. Agricultural households raise cattle for different purposes among which are: provision of meat, milk, draught power, skins, for aesthetic value and others. About 56 percent of the responding agricultural households raised cattle for draught power followed by those who raised cattle for meat at 35.0 percent. None of the agricultural households reported to have raised cattle for hides/skins.

**Table 9.1: Distribution of Households raising Cattle by Reason for Raising Cattle, Zambia 2014-2015**

Reason	Agricultural Households Raising Cattle	
	Responding Household	Percent
Meat	5,445	2.1
Milk	4,958	1.9
Draught power	143,772	55.8
Aesthetic value	4,061	1.6
Other	9,153	3.6
Source of Income	90,296	35.0
<b>Total</b>	<b>257,685</b>	<b>100.0</b>

**Figure 9.1: Distribution of Households raising Cattle by Reason for Raising Cattle, Zambia 2014-2015**



### 9.1.2. Tick Control Methods

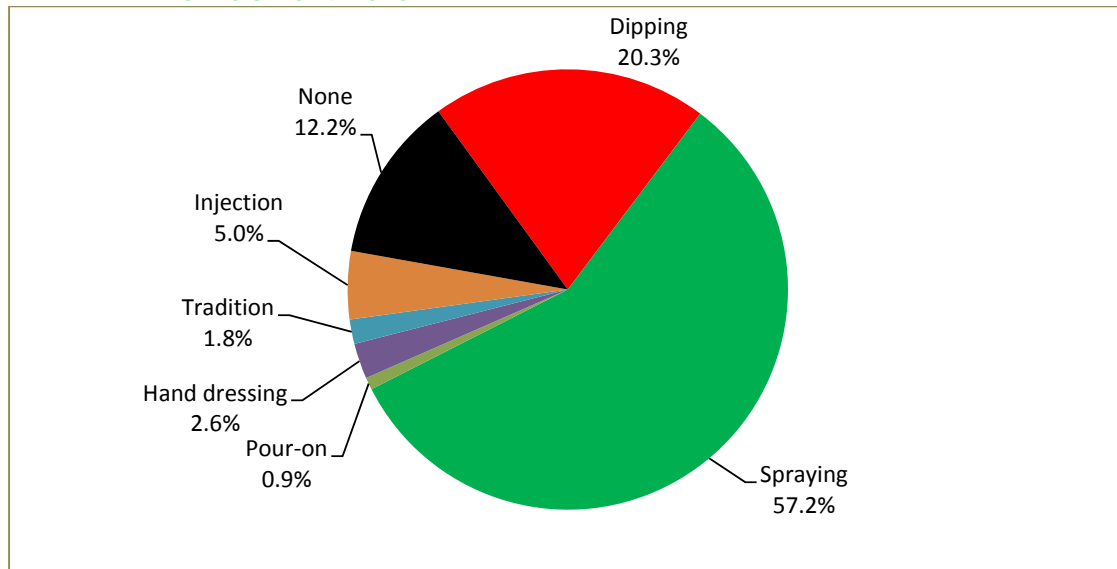
Tick control on cattle is done in many different ways such as dipping, spraying, pour-on, hand dressing, traditional, and injection. From the total number of 257,684 cattle-raising households that responded to questions of livestock management, 57.3 percent used spraying as a tick control method.

This was followed by those who used dipping at 20.3 percent. The administration of injections as a tick control method was at 5.0 percent. The least used tick control method was 'pour-on' at 0.9 percent of the cattle-raising households that responded.

**Table 9.2: Distribution of Households raising Cattle by Tick Control Method Used, Zambia 2014-2015**

Tick Control Method	Households	
	Number	Percent
Dipping	52,193	20.3
Spraying	147,581	57.3
Pour-on	2,196	0.9
Hand dressing	6,820	2.6
Tradition	4,521	1.8
Injection	13,006	5.0
None	31,367	12.2
<b>Total</b>	<b>257,684</b>	<b>100.0</b>

**Figure 9.2: Distribution of Households raising Cattle by Tick Control Method Used, Zambia 2014-2015**



### 9.1.3. Challenges faced by Households Raising Cattle

Cattle raising households faced various challenges during the 2014-2015 Agriculture Season. Among these were diseases, lack of livestock extension services, inadequate pasture and

distance to water points. The highest percentage of households reported diseases as a challenge at 20.9 percent followed by those who reported inadequate pasture at 17.9 percent.

**Table 9.3: Distribution of Responding Households raising Cattle by Challenges Faced in Raising Cattle, Zambia 2014-2015**

Challenges Faced	Households	
	Number	Percent
Disease	34,961	20.9
Lack of livestock extension services	20,352	12.2
Inadequate pasture	29,939	17.9
Distance to water points	27,489	16.4
Distance to dip tanks	8,696	5.2
Lack of credit	4,297	2.6
Lack of market	893	0.5
Lack of handling facilities(crash pens)	4,158	2.5
Theft	6,933	4.1
Lack of access to veterinary drugs	16,086	9.6
Distance to Livestock service centres	6,471	3.9
Other	6,990	4.2
<b>Total</b>	<b>167,265</b>	<b>100.0</b>

#### 9.1.4. Households reporting Infected Cattle

Table 9.4 shows the percentage distribution of cattle raising households that reported having cattle that were

infected during the season. The Table shows that 122,221 households reported cattle that were infected. Of these, 89.8 percent treated their cattle while 10.2 percent did not treat them.

**Table 9.4: Distribution of Households Reporting Infected Cattle by whether they Treated them or not, Zambia 2014-2015**

Treatment Status	Households	
	Number	Percent
Cattle Infected	122,221	100.0
Treated	109,804	89.8
Not Treated	12,417	10.2

#### 9.1.5. Sources of Drugs and Vaccines

Table 9.5 shows the percentage distribution of cattle-raising households that treated their cattle by source of Vaccine and drugs. During the 2014-2015 Agriculture Season, 109,804 households managed to treat their

cattle and gave information on the sources of the drugs and vaccines they used. Veterinary departments were the major sources of drugs at 50.2 percent households followed by Traders at 40.8 percent of cattle raising households.

**Table 9.5: Percentage Distribution of Households raising Cattle by Source of Vaccine and Drugs, Zambia 2014-2015**

Source of Drugs and Vaccines	Households	
	Number	Percent
Another Farmer	5,766	5.3
Veterinary Department	55,122	50.2
Traders	44,785	40.8
NGOs	43	-
Other	4,089	3.7
<b>Total</b>	<b>109,805</b>	<b>100.0</b>

**Note:** (-) Insignificant figures

#### 9.1.6. Production Systems

Farmers raising cattle use various types of production systems, namely industrial-intensive, semi-intensive, extensive/pastoral, free-range and backyard systems.

Industrial-Intensive is a commercial method of raising livestock, which often requires a high level of intensive management (Zero grazing). Semi-

intensive is a commercial method of raising livestock that combines free-range and supplementary feeding. In extensive/pastoral, animals are allowed to graze on natural pastures without supplementary feeding, while in free-range, animals are left to fend for themselves. In backyard system, animals are raised within the premises of the residence and food is brought to them.

During the 2014-2015 Agriculture Season, the free-range production system was found to have been the most widely used at 51.5 percent of the responding households. This was

followed by extensive/pastoral system used at 39.8 percent of the households.

Production System	Households	
	Number	Percent
Industrial - intensive	251	0.1
Semi-intensive	19,063	7.4
Extensive/pastoral	102,517	39.8
Free-range	132,811	51.5
Backyard	3,021	1.2
<b>Total</b>	<b>257,663</b>	<b>100.0</b>



## Chapter 10: Household Agricultural Assets

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### 10.0. Introduction

This chapter presents information on the types of assets and number of households owning them, number of assets in working condition as at the opening of the season (1<sup>st</sup> October 2014) and at the close of the season (30<sup>th</sup> September, 2015) and the average re-sale value of the assets as determined by the main respondent.

### 10.1. Type of Assets and Number of Households owning Assets

Table 10.1 shows the distribution of agricultural households that own assets by type and number of assets owned, condition of the assets, and re-sale value of the assets. The Table shows that most households owned hoes, bicycles, radios, solar panels, ploughs, television sets and sprayers.

### 10.1.1. Households Owning Ploughs

The total number of households owning ploughs was 332,515. The number of ploughs that households had in working condition as at 1<sup>st</sup> October 2014 were 509,591 and by 30<sup>th</sup> September, 2015, households reported that 703,693 ploughs were in working condition. The average re-sale value of ploughs was K506.06.

### 10.1.2. Households Owning Hoes

The number of households that reported owning hoes during the season was 1,443,580. At the beginning of the season, 6,380,100 hoes were in working condition, while 6,346,483 hoes were reported to be in working condition by the end of the season. The average re-sale value of a hoe was K36.94.

**Table 10.1: Distribution of Agricultural Households Owning Assets by Type of Asset, Number Owned and Re-sale Value of the Assets, Zambia 2014-2015**

Assets	Number of Households Reporting	Number of Assets in Working Condition as of 1st October 2014	Number of Assets in Working Condition as of 30th September 2015	Average Price if Sold (ZMW)
Ploughs	332,515	509,591	703,693	506.06
Harrows	62,076	75,378	72,364	700.70
Cultivators	46,586	57,638	124,200	335.95
Rippers	29,059	32,566	33,228	583.12
Tractors	3,121	2,907	3,311	55,407.49
Hand driven tractor	219	219	219	110,971.53
Scotch carts	131,261	141,694	1,132,554	345.02
Water pumps	14,066	158,861	17,227	6,473.82
Trucks/Lorries	4,597	5,507	5,924	80,993.11
Pick-ups/ Vans/Cars	31,902	40,589	40,624	27,599.84
Motorcycles	32,786	33,980	35,291	5,370.55
Bicycles	849,116	1,176,702	1,179,626	674.18
Hammer mills	17,559	19,820	19,905	10,331.30
Hand hammer mills	11,986	13,097	19,243	1,639.26
Rump press/ Oil expeller	864	827	864	2,670.50
Sprayers	237,749	308,940	371,690	628.42
Sheller	2,061	3,477	2,124	16,584.67
Radio	726,393	962,528	1,047,308	530.79
Television	259,638	328,140	391,587	979.63
Treadle pump	8,950	9,660	9,372	5,586.15
Solar panel	372,191	575,406	815,957	249.41
Hoe	1,443,580	6,380,100	6,346,483	36.94
Castration equipment	8,175	10,720	10,476	422.26
Feed mixer	911	3,798	3,798	46.19
Milking equipment	3,848	6,813	6,756	43.03
Branding equipment	32,265	34,095	33,977	366.12
Vet related tools and equipment	11,005	35,750	40,089	50.42

## APPENDIX: LIST OF PERSONNEL INVOLVED IN THE REPORT PREPARATION

### EDITORS

John Kalumbi	-	Director, Census and Statistics
Goodson Sinyenga	-	Deputy Director, Economic Statistics Division
Daniel Daka	-	Deputy Director, Agriculture & Environment Statistics
Sheila Mudenda	-	Deputy Director, Information, Research & Dissemination
Iven Sikanyiti	-	Deputy Director, Social Statistics
Richard Banda	-	Chief Statistician
Batista Chilopa	-	Head, Research and Dissemination

### ANALYSTS

Patrick Chuni	-	Head, Agriculture & Environment Statistics
Sooka Masiliso	-	Senior Statistician
Linda Chonya	-	Senior Statistician
Greenson Samaliya	-	Senior Statistician
Likezo Musobani	-	Senior Statistician
Harold Musonda	-	Statistician
Brenda Nakamba	-	Statistician
Cynthia Tigere	-	Statistician
Dennis Bwalya	-	Statistician
Chanda Bwalya	-	Statistician
Pasco Mumba	-	Statistician

### REPORT FORMATTING & ILLUSTRATIONS

Perry Musenge	-	Desktop Publishing Officer
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