REPUBLIC OF ZAMBIA

MINISTRY OF AGRICULTURE AND LIVESTOCK

THE CROP FORECASTING SURVEY REPORT FOR THE 2012/2013 AGRICULTURAL SEASON

1st JUNE, 2013

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LIST OF ACRONYMNS

CFS	Crop Forecast Survey
CSO	Central Statistical Office
FAO	Food and Agriculture Organization
FSRP	Food Security Research Project
FBS	Food Balance Sheet
FRA	Food Reserve Agency
GRZ	Government of the Republic of Zambia
MACO	Ministry of Agriculture and Cooperatives
MT	Metric Tonne
PPS	Probability Proportional to Size
PSU	Primary Sampling Units
SEA	Standard Enumeration Area
CSA	Census Supervisory Area

Executive Summary

The Ministry of Agriculture and Livestock (MAL) in conjunction with Central Statistical Office (CSO) are mandated to provide the country with estimates on production each agricultural season. The Ministry of Agriculture and Livestock through the Agricultural Statistics and Early Warning Section of the Policy and Planning Department in collaboration with the Central Statistical Office (CSO), conduct the Crop Forecasting Survey (CFS) during the first and second quarters of each agricultural season.

The information elicited from the CFS is used in planning for the country's food Security situation in a given agricultural marketing season. The main information is on production estimates that are used as input in the National Food Balance Sheet. The Balance Sheet is a tool used to analyze the country's overall food availability and requirements in order to obtain an estimate of the food deficit or surplus situation. The Food Balance Sheet also includes information on the country's strategic grain intentions for the agricultural marketing season. Further the information elicited from the CFS is used to measure the performance of the agricultural sector and its contribution to the country's Gross Domestic Product (GDP).

The 2012/2013 crop forecasting survey (CFS) shows a decline in production of some crop and a slight increase in others. For area planted to most crops continues to increase. Crops which have registered increases in production as compared to last agricultural season (2011/12) are Soya beans, sunflower, mixed beans, bambara nuts, cowpeas, sweat potatoes, wheat, popcorn and burley tobacco.

Area planted to maize has increased by three percent (3%) in the 2012/13 agricultural season as compared to the last season (2011/2012). This increase in the area planted to maize is attributed to the significant decrease in area planted to other crops particularly cotton. Despite the increase in area planted to maize, maize production has declined by 11% this season 2012/2013 as compared to the 2011/2012 season. This reduction in production is partly as a result of poor rainfall distribution, especially in Southern, Eastern, Lusaka and Central Provinces. The army worm outbreak is also another factor attributed to the decline in maize production.

Area planted to soya beans has increased by 45%. This is driven in large part by the favorable prices of soya beans on the local market and increased demand for food and livestock products.

Area planted to cowpeas has increased by 62% whilst area planted to mixed beans has increased by 17%. The area planted to cotton has reduced by 48%. The reduction in area planted to cotton is largely, due to the marketing challenges that the sub-sector experienced last season 2011/2012. For instance, the low cotton price which forced many farmers to exit the cotton sub-sector during the 2012/2013 agricultural season.

Production figures for selected crops are reported as follows;

- The wheat crop is expected to attain production of 273, 600 MT for the 2012/2013 season compared to 253,522 MT produced in the 2011/2012. This represents a projected increase of about 20,000 MT (7.9%).

- Rice production has been estimated to have declined by 1% to 44,747 MT from 45,321 MT in 2012.

- Cotton production has declined by 48% to 139,583 MT from 269,502 MT in 2012. This significant reduction in Cotton production is largely due to the reduced area planted to cotton, caused by poor selling prices farmers received last season.

- Soya beans production has increased by 28.6% to 261063 MT from 203,063 MT.

- The country is expected to achieve national maize production of 2,532,800 MT which is just marginally lower than the expected national annual maize requirements of 2,534,000 MT for human consumption, as well as strategic reserves, stock feed and the brewing industry. When carry- over stocks from the last season estimated at 455,221 MT is included to the current production, the country is expected to have a maize surplus of 453,995 MT.

- The country has also a wheat carry-over stock of 168,255 MT. This will bring the anticipated wheat availability to 441,839 MT against an anticipated total requirement of 295,000 MT. Thus the country is expected to have a surplus of wheat of 146,839 MT for the 2012/2013 marketing season.

Generally the food security situation in the country, according to findings of the crop forecasting survey (CFS) is fairly good despite having some parts of the country expected to have spatial food insecurity due to the poor rainfall, late distribution of the inputs and army worm invasion.

This seeming food insecurity can be prevented by moving food surpluses from areas with surpluses to the areas anticipating poor harvest.

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MINISTRY OF AGRICULTURE AND LIVESTOCK

1.0 Introduction

The Ministry of Agriculture and Cooperatives in conjunction with the Central Statistical Office are mandated to provide the country with estimates on crop production for each agricultural season. This information is used to provide a sound-planning base for the country's food security situation in a given year. In order to come up with this information, the Ministry of Agriculture and Cooperatives through the Agriculture Statistics and Early Warning Section, in collaboration with the Central Statistical Office, with technical assistance from the IAPRI conducted the Crop Forecasting Survey (CFS) during the first and second quarters of 2013.

The production estimates that are generated are used to determine the National Food Balance Sheet. Information derived from the Survey is also used for, among other things, to measure the performance of the agricultural sector and its contribution to the country's Gross Domestic Production (GDP). The information from the CFS is further used as a tool to analyze the country's overall food availability and requirements in order to obtain an estimate of the food deficit or surplus situation. The Food Balance Sheet includes information on the country's Strategic Grain Reserve intentions for the season.

1.1 Purpose

- The crop forecasting survey obtains estimates from agricultural holdings on the area under major crops as well as production and sales estimates during the agricultural season. This information is used to assess the expected food security situation in the country and also to produce the National Food Balance Sheet (NFBS). The food balance sheet is used to determine the food surplus or deficit situation of the country with respect to the major cereals and tubers produced in the country. The information is vital to Government, NGOs, the private sector as well as donors and is useful for strategic planning and decision making purposes. Statistics generated from the survey must be measurable for their accuracy, comparable across time as well as comparable between different countries within the region. The Survey uses an internationally recognized methodology promoted by the FAO.

1.2 Objectives of the Crop Forecasting Survey

- To provide Government with reliable, empirical annual crop production statistics for the agricultural season
- To generate the annual National Food Balance Sheet, which gives the National Food Balance

- To provide public institutions, the private sector and other stakeholders with National, Provincial and District level indicators of seasonal agricultural performance
- To provide statistics on the potential available marketable surplus for the major crops grown in the country
- To provide production statistics used for estimation of the agricultural contribution to the country's Gross Domestic Product (GDP).

2.0 Methodology

2.1 Scope and Coverage

Zambia is divided into the following administrative units; Province, District, Constituency and Ward with the Ward being the lowest administrative unit in the country. The sample for the CFS is drawn from all the 103 districts of Zambia. For the purpose of sampling, the Central Statistical Office (CSO) has further subdivided each Ward into Census Supervisory Areas (CSA) and Standard Enumeration Areas (SEA). The SEA is the smallest area with well-defined boundaries identified on a census map. Each SEA contains approximately between 100 -150 households. A total sample of 680 CSAs is allocated nationally to each province and district proportional to its size (in terms of households). Twenty households are randomly selected from each of the 680 SEA's in the sample.

Table 1: Distribution of Enumeration Areas Selected for the CFS

Province	Number of CSA's Selected	Number of SEA's Selected
Central	74	74
Copperbelt	60	60
Eastern	100	100
Luapula	66	66
Lusaka	32	32
Muchinga	54	54
Northern	80	80
North-western	52	52
Southern	94	94
Western	68	68
Total	**680**	**680**

Note: One SEA is selected within each sampled CSA

2.2 Sample Selection

The primary sampling units (PSUs) were defined as the Census Supervisory Areas (CSAs) delineated for the census. The CSAs were stratified by district within each province and ordered

geographically within each district. A master sample of CSAs was selected systematically with probability proportional to size (PPS) within each district at the first sampling stage; the measure of size for each PSU was based on the number of households listed in the 2010 Census. The secondary sampling unit is the Standard Enumeration Area (SEA), defined as the segment covered by one enumerator during the census.

Only one SEA was selected within each sample CSA with PPS for the survey. Once an SEA was selected, an enumerator visited all the households within the SEA and collected basic information about the total area cultivated by the household as well as number of livestock and poultry raised. This information then forms the basis for stratifying a household as being agricultural or non-agricultural. For agricultural households further stratification categorizes them as Category A, B or C.

The first stage of field data collection involves obtaining a complete listing of basic demographic and agricultural information from all the households in the sampled SEAs. Information is collected on village name, name of household head, sex of household head, household size, whether the household planted any crops in reference period, total land under cultivation, whether the household planted any of a list of specified 'special crops' and number of Cattle, Goats, Pigs, Cattle & Chickens currently being raised by the household, After a process of stratification, twenty households are then sampled from each SEA for the detailed household interview. A stratified multi-stage sample design is used for the CFS. The current sampling frame being used is based on the mapping and data based on the 2010 Census of Population, Housing and Agriculture.

2.3 Sampling Frame

The frame of this survey is based on the 2010 Census of Population, Housing and Agriculture results. The frame was constructed by creating crop clusters in each district using Census Supervisory Area (CSAs) and Standard Enumeration Areas (SEAs) as geographical boundaries

of the crop zones. The 2010 Census mapping exercise created approximately 18,820 SEAs nationally.

2.4 Sample Design

A three stage sampling procedure was used to select work areas and households for data collection purposes. At the first stage, CSAs were selected using Probability Proportional to Size (PPS) with agricultural households as a measure of selection.

At the second stage, SEAs were selected using the same procedure described above on the selection of CSAs. At the third stage, a count of households in selected work areas was conducted by listing all households resident in these areas before selection of sample households for data collection exercise. A Linear Systematic Sampling procedure (LSS) was used to select the required number of households in each SEA.

2.5 Sample Size

A sample size of 680 SEAs were covered out of a total of approximately 16,000 SEAs in which the rural part of the country is demarcated. This means the survey represents 4.5 percent of the total number of SEAs. At household level, 20 households are covered out of a maximum total of 100-150 households per SEA. This represents approximately 20 percent of the total number of households in a SEA.

2.6 Data Collection

The survey covers three categories of agricultural households namely; Small-scale, Medium-scale and Large-scale farmers[1]. Small and Medium scale farmers are covered on a sample basis. A fixed number of 20 households are canvassed in each selected SEA. A total of 13,600 (i.e. 680 x 20) agricultural households are covered for the small & medium scale. The Large- scale farmers are captured under a separate sub-survey under the CFS on a 100 percent enumeration basis. All entities cultivating 20 hectares or more of land and/or raising over 2,000 broiler chickens are classified as large scale farming holdings.

2.7 Data Processing and Analysis

After data collection, the questionnaires are sent to the provincial CSO headquarters for editing and data entry by data entry staff and supervisors from CSO and MAL. The edited questionnaires

[1] A Small-scale household is defined as a household cultivating 4.99 hectares of crops or less. Households cultivating between 5 and 19.99 hectares of crops are classified as medium scale households. All households cultivating 20 hectares or more are classified as Large Scale farmers. For a detailed definition that includes Livestock and the cultivation of 'special crops', see the appendix.

are entered using a software package known as CSPro. The questionnaires and keyed in data are then transmitted to Lusaka for data cleaning. This involves consistency checks on the raw data using SPSS version 20 before the final weighted district estimates are produced. The survey period, from questionnaire design to data collection and analysis takes approximately 5 months. (see CFS work plan in the appendix).

Table 2: Data Collection Staff

Data Collection Staff	**Number participating**
Small & Medium Master Trainers	20
Large Scale Master Trainers	2
Field Supervision Drivers	9
Field Supervisors	85
Large Scale Enumerators	40
Enumerators	340
Enumeration Team Drivers	85
Large Scale Drivers	2
Total Core team staff	**681**

2.8 Measurement Methodology

The CFS collects information on area planted for each crop, expected production and sales, seed type, tillage method used, acquisition and usage of fertilizer etc. This information is based purely on farmer recall and estimation. The survey does not involve area measurement or direct field observation by the enumerator. No field visits are conducted. One of the reasons for relying on farmer recall and estimation is to reduce on measurement bias and error by the enumerator. The method used to collect household level data is the farmer recall method. Direct field observation by the enumerator also has significant cost implications which have generally not been commensurate with improvements in data quality. Loss of efficiency is avoided when the farmer recall method is used. Area expected to be harvested is also collected but is not used in the computation of yield. Only the area planted is used in yield computation. Yield is not calculated by the farmer but by the analysts at the data analysis stage. Yield is derived from quantity of expected production divided by the estimated area planted for each crop. All estimates are provided by the farmer

2.9 Time-schedule

	2012/2013 CROP FORECASTING SURVEY TIMESCHEDULE		2012			2013																								
	ACTIVITIES		December			January				February				March				April				May				June			
		Actual Dates	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1*	Designing of Questionnaire, Manual and Listing Books	20 Dec 2012 - 8 Jan 2013																											
2*	Pre-testing and finalisation of questionnaire	9-14 Jan 2013																											
3	Training of Master Trainers	28 -4 Jan 2013																											
4	Questionnaire, Manual and Listing Book final print setting & Printing	30 Jan - 15 Feb 2013																											
5	Development of Data Entry Scrreens																												
6	Training of Enumerators in the Provinces	17 Feb - 26 Feb 2013																											
7	Team Composition and Briefing of Supervisors	- 27 Feb 2013																											
8	Listing and stratification of households	28 Feb -1 March 2013																											
9	Field Data Collection	1 March - 20 March 2013																											
10	Final Questionnaire editing	21-23 March 2013																											
11	Data entry training	12 - 16 March 2013																											
12	Data Entry	20-30 March 2013																											
13	Data cleaning training	23 - 27 March 2013																											
14	Data cleaning, Tabulation and Calculation of Weights	30 March - 29 April 2013																											
15	Verification of Carry over stocks with the Maize Stocks Committee	15-28 April 2013																											
16	Preparation of the National Food Balance Sheet	15-28 April 2013																											
17	Presentation of CFS/NFBS results to Senior Management	1 - May 2013 (Wednesday)																											
18	Announcement of Official NFBS and CFS Estimates by Hon. Minister	1 - May 2013 (Wednesday)																											
19	Report writing and printing	3-18 May 2013																											
20	Invitation of Technical Stake Holders to CFS Results presentation	27 May 2013																											
21	Presentation of CFS/NFBS results to wider stake holders	1 June 2013																											
22	Management and Coordination	20 Dec 12 - 1 June 2013																											
Notes																													

3.0 Seasonal Weather Performance

The country experienced moderate to above normal rainfall during the 2012/2013 agricultural season. There was late onset of effective rains in many parts of the southern region of Zambia. However, the country generally received enough rains to sustain good crop performance. Nevertheless, prolonged dry spells, late distribution of farming inputs and army worms invasion greatly affected crop growth. The distribution of rainfall was also relatively good. For the period starting 1st October to 31st December 2012, the country received normal rainfall except for the Southern, Western and Eastern parts of the country- i.e Lundazi District as well as the South-Western region of the country particularly Sesheke and Kazungula districts which experienced below normal rainfall characterised by prolonged dry spells.

The second half of the rainy season from 1st January to 31st March 2013 was characterized by dry spells in the Southern parts and normal rainfall across the rest of the country. More rains concentrated to the Eastern parts while much of the western half remained dry. There was a reduction in rainfall in the month of February due to the dry winds which had affected the country. Prolonged dry spells were also reported in February 2013. This resulted in moisture stress and wilting of some crops such as maize in some parts of the country. The northern half of the country received above normal rainfall.

4.0 National Food Balance

The National Food Balance sheet for the 2013/2014 marketing season based on the crop forecasting survey covering 2012/2013 agricultural seasonal shows that the country has produced sufficient maize for both human consumption and industrial use. Total maize production in the 2012/2013 agricultural season has been estimated to be 2,532,800 Metric Tonnes (MT). Maize carry-over stocks have been estimated at 455,221 MT.

Table 3: Carry-over stocks as at 1st May 2013

Source	Maize	Wheat	Rice	Sorghum & Millet
Farm Stocks captured by CFS (Large Scale and Small & medium	129,968	50,844	564	3,700
FRA	626,252	-	3,647	
Millers Association of Zambia	66,366	21,007		
Grain Traders Association of Zambia	26,020	-	430	1,503

Most of this maize was in storage with the FRA as at 1st May, 2013. Private traders, Large Scale farmers as well as Small & Medium scale Farmers. When the maize carry-over stock from last season is added to the maize production for the 2012/2013 agricultural season the total supply of maize available for the 2013/2014 marketing season is 2,988,021 MT.

For an estimated population of 13.4 million people, the food balance sheet shows that total maize required for human consumption amounts to 1,429,739 MT[2]. The estimated maize requirement for industrial use, specifically stock-feed and breweries is 223,300 and 100,000 MT respectively. Post-harvest physical losses have been estimated at 5 per cent of current national production. Structural informal cross-border trade estimates have also been factored into the balance sheet. A provision of 120,000 MT of maize has been made. This provision does not include formal exports out of Zambia.

2 Human staple food consumption represents 70% (1,470 kCal/person) from a total diet of 2,100 kCal/person/day (National Food and Nutrition Commission)

When total maize requirements are netted out from total maize availability, a net surplus of 453,995 MT is estimated. Total maize requirements include anticipated government strategic reserve stock of **500,000** MT to be held by the Food Reserve Agency (FRA).

Table 4: 2013/2014 National Food Balance Sheet

National Food Balance for Zambia for the 2013/2014 Agricultural Marketing Season								
Based on the 2012/2013 MAL/CSO Crop Forecasting Surver and MAL/Private Sector Utilization Estimates (Metric Tonnes)								
		Maize	Paddy rice	Wheat	Sorghum & Millet	Sweet and Irish potatoes	Cassava flour	Total (maize equivalent)
A. Availability:								
(i) Opening stocks (1st May 2013)	1/	455,221	2,737	168,255	6,036	0	0	629,556
(ii) Total production (2012/13)	2/	2,532,800	44,747	273,584	38,914	210,392	1,114,583	3,984,553
Total availability		2,988,021	47,484	441,839	44,950	210,392	1,114,583	4,614,109
B. Requirements:								
(i) Staple food requirements:								
Human consumption	3/	1,429,739	55,769	281,321	40,540	199,872	721,901	2,533,816
Strategic reserve stocks (net)	4/	500,000	0	0	0	0	0	500,000
(ii) Industrial requirements:								
Stockfeed	5/	223,300	0	0	0	0	0	223,300
Breweries	6/	100,000	0	0	0	0	0	100,000
Grain retained for other uses	7/	34,347	4,478	0	2,464	0	0	41,088
(iii) losses	8/	126,640	2,237	13,679	1,946	10,520	55,729	199,228
(iv) Structural cross-border trade	9/	120,000	0	0	0	0	0	120,000
Total requirements		2,534,026	62,484	295,000	44,950	210,392	777,630	3,717,432
C. Surplus/deficit (A-B)	10/	453,995	-15,000	146,839	0	0	336,953	896,677
D. Commercial imports/exports	11/	-453,995	15,000	-146,839	0	0	0	0
E. Food aid import requirements	12/	0	0	0	0	0	0	0

5.0 Crop Performance

In general production of most crops declined while a few recorded an increase depending on their resilience to hazards namely army worms, dry-spells and excessive rainfall experienced during the growing season. Production of sunflower, soyabeans, mixed beans, bambaranuts, cowpeas, wheat, popcorn, sweet potatoes and burley tobacco increased compared to last season. Production increased by 29 percent for soya beans, 65 percent for sunflower, 2 percent for mixed beans, 3 percent for bambara nuts, 94 percent for cow peas, 15 percent for sweet potatoes, 61 percent for paprika, 235 percent for popcorn, 8 percent for wheat, and 23 percent for burley tobacco.

Maize, sorghum, rice, millet cotton, irish potatoes, paprika, barley and virginia tobacco recorded reduction in production compared to the 2011/2012 agricultural season.

5.1 Maize

Total maize production in the 2012/2013 season was estimated to be 2,532,800 MT down by 11 percent compared to 2011/2012 output of 2,852,687 MT. The total area planted to maize by farmers increased by 3 percent to 1,312,402 hectares from 1, 274,983 hectares.

National maize yield reduced by 14 percent from 2.24 MT per hectares to 1.93 MT per hectare.

Expected maize sales reduced by 15 percent from 1,567,256 MT to 1,336,141 MT over the same period.

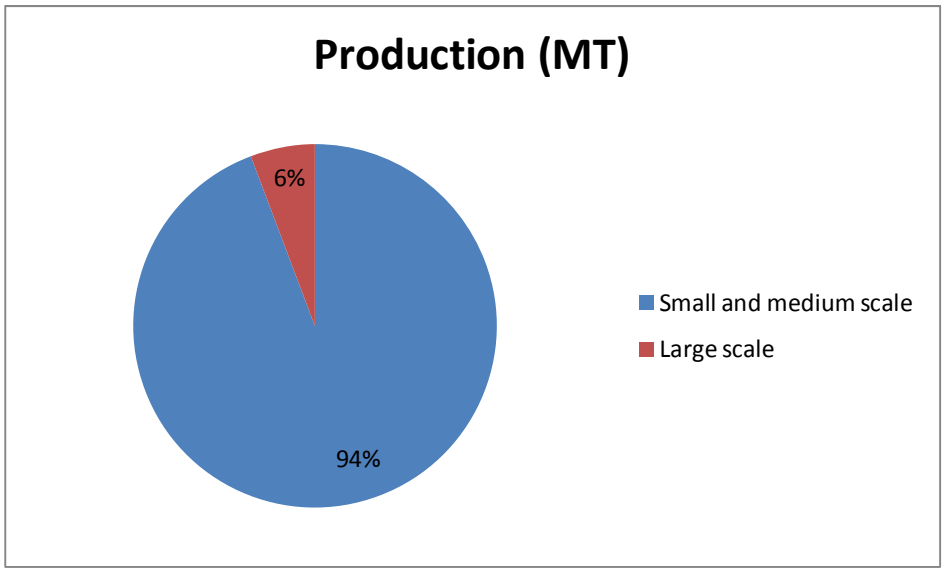
Maize area planted, production yield, sales and number of households growing it by Province

Maize	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Number of households growing crops
Central	217,001	159,371	478,734	2.21	291,971	154,261
Copperbelt	80,196	71,070	208,544	2.60	138,910	74,256
Eastern	297,394	267,227	572,289	1.92	237,063	266,584
Luapula	37,116	32,927	94,033	2.53	62,241	79,748
Lusaka	43,667	36,334	96,907	2.22	57,375	42,261
Muchinga	71,066	64,356	205,412	2.89	118,854	99,714
Northern	80,429	72,038	210,479	2.62	124,869	118,045
NorthWestern	59,198	51,052	132,527	2.24	77,614	85,282
Southern	330,234	195,587	453,532	1.37	196,674	180,336
Western	96,101	47,918	80,343	0.84	30,570	129,641
National	1,312,402	997,880	2,532,800	1.93	1,336,141	1,230,128

Small and medium scale farmers maize production declined by 12 percent from 2,710,431 MT to 2,386,786 while large scale farmers output increased by 3 percent from 142,256 MT to 146,014 MT over the two seasons.

Small and medium scale farmers contributed 94 percent and large scale farmers' contribution was only 6 percent to the total maize production this season.

Contribution to national maize production by type of farmer



Area planted to maize by small and medium scale farmers increased by 3 percent from 1,245,656 hectares to 1,283,683 while large scale total planted reduced by 2 percent from 29,328 hectares to 28,719 between the two agricultural seasons of 2012/2013 and 2011/2012, respectively . Small and medium scale farmers have achieved an average yield rate of 2 Metric Tonnes per hectare compared to an average yield rate of 5 Metric Tonnes per hectare recorded by large scale farmers during the season.

Small and Medium vs Large Scale Farmers' Area Planted, Expected Production and Sales.

Maize		Area planted (Ha)	Expected production (MT)	Expected Sales (MT)
2011/2012	LS	29,328	142,256	120,993
	SM	1,245,656	2,710,431	1,446,262
	Total	1,274,983	2,852,687	1,567,256
2012/2013	LS	28,719	146,014	121,943
	SM	1,283,683	2,386,786	1,214,198
	Total	1,312,402	2,532,800	1,336,141
%age Change	LS Change(%)	(2)	3	1
	SM Change(%)	3	(12)	(16)
	Total Change (%)	3	(11)	(15)

5.2 Cassava

National cassava production for the 2012/2013 season has been estimated to be 1,114,583 MT of cassava flour equivalent, which is a marginal increase of 0.75 percent from the 2011/2012 season production of 1,106,292 MT.

The total area planted to cassava for the 2012/2013 also increased marginally by the same proportion to 381,054 hectares from 378,219 hectares during the 2011/2012 season.

5.3 Rice

Rice production has been estimated to be 44,747 MT during the 2012/2013 season. This is a decline of 1 percent compared to the production of 45,321 MT recorded during the 2011/2012 season.

The total area planted to rice for the 2012/2013 increased by 23 percent to 38,520 hectares from 31,388 hectares during the 2011/2012 season.

5.4 Wheat

The wheat crop for the 2012/2013 season is currently being planted. However, estimates based on forecast area to be planted, indicate that the country is likely to attain a production of 273,600 MT of wheat for the 2012/2013 season, compared to 253,522 MT produced in 2011/2012. This represents a projected increase of about 7.9 percent (20,000 MT). These estimates will be verified later this very year, when the wheat survey will be undertaken.

5.5 Sorghum & Millet

Sorghum production has reduced by 3 percent to 14,971 MT in the 2012/2013 season from 15,379 MT in the previous season. The total area planted to Sorghum for the 2012/2013 increased by 24 percent to 23,112 hectares from 18,685 hectares during the 2011/2012 season.

Millet production has also declined by 15 percent to 23,942 MT during the 2012/2013 season from 28,446 MT in the 2011/2012 season. The total area planted to millet for the 2011/2012 decreased by 6 percent to 33,834 hectares from 35,828 hectares during the 2011/2012 season.

5.6 Sunflower

Sunflower production has increased by 65 percent to 33,733 MT during the 2012/2013 season from 20,468 MT in the 2011/2012 season.

The total area planted to sunflower for the 2012/2013 increased by 63 percent to 66,515 hectares from 40,870 hectares during the 2011/2012 season.

5.7 Groundnuts

Groundnuts production has declined by 5 percent to 106,792 MT in the 2012/2013 season from 113,026 MT in the 2011/2012 season. The total area planted to groundnuts for the 2012/2013 season increased by 13 percent to 207,249 hectares from 184,397 hectares during the 2011/2012 season.

5.8 Soya-beans

Soya-beans production has increased by 29 percent to 261,063 MT in the 2012/2013 season from 203,038 MT in the 2011/2012 season.

The total area planted to soya-beans for the 2012/2013 season increased by 45 percent to 124,858 hectares from 86,223 hectares during the 2011/2012 season.

5.9 Seed cotton

Cotton production has declined by 48 percent to 139,583 MT during the 2012/2013 season compared to 269,502 MT during the 2011/2012 season.

The total area planted to seed cotton for the 2012/2013 season declined by 46 percent to 172,160 hectares from 314,497 hectares during the 2011/2012 season.

5.10 Irish potatoes

Irish potato production has declined by 31 percent to 22,038 MT in the 2012/2013 season from 32,066 MT in the previous season.

The total area planted to Irish potatoes for the 2012/2013 season declined by 8 percent to 1,757 hectares from 1,903 hectares during the 2011/2012 season.

5.11 Virginia tobacco

Virginia tobacco production decreased by 13 percent to 21,195 MT during the 2012/2013 season from 24,250 MT during the 2011/2012 season.

The total area planted to Virginia tobacco for the 2012/2013 season increased by 6 percent to 11,348 hectares from 10,725 hectares during the 2011/2012 season.

5.12 Burley tobacco

Burley tobacco production has increased by 23 percent to 8,704 MT during the 2012/2013 season from 7,067 MT during the 2011/2012 season.

The total area planted to burley tobacco for the 2012/2013 season increased by 124 percent to 7,091 hectares from 3,161 hectares during the 2011/2012 season.

5.13 Mixed beans

Mixed beans production has increased by 2 percent to 56,411 MT during the 2012/2013 season from 55,301 MT during the 2011/2012 season.

The total area planted to mixed beans for the 2012/2013 season increased by 17 percent to 104,177 hectares from 88,673 hectares during the 2011/2012 season.

5.14 Sweet potatoes

Sweet potato production has increased by 15 percent to 188,355 MT during the 2012/2013 season from 163,484 MT during the 2011/2012 season.

The total area planted to sweet potatoes for the 2012/2013 season increased by 13 percent to 48,454 hectares from 42,847 hectares during the 2011/2012 season.

5.15 Paprika

Paprika production has reduced by 37 percent to 605 MT during the 2012/2013 season from 965MT during the 2011/2012 season.

The total area planted to paprika for the 2012/2013 season decreased by 39 percent to 418 hectares from 680 hectares during the 2011/2012 season.

5.17 Popcorn

Popcorn production has increased by 235 percent to 7,203 MT during the 2012/2013 season from 2,150 MT during the 2011/2012 season.

The total area planted to popcorn for the 2012/2013 season increased by 174 percent to 5,562 hectares from 2,033 hectares during the 2011/2012 season.

5.18 Fertilizer use

Maize crop has continued to be the number one crop in terms of quantity of fertilizer (basal and top) applied in crops. The largest share of fertilizer used during the 2012/2013 agricultural season was applied in the maize crop. During the 2012/2013 agricultural season, the quantity of fertilizer applied in the maize crop remained almost the same as last season 2011/2012 though it declined slightly by 6% (14,076 MT) to 216,456 MT during 2012/2013 season from 230 532 MT during 2011/2012 season. The decline is largely due to late delivery of the inputs experienced in 2012/2013 agricultural season.

6. Conclusion

From the finding of the crop forecasting survey (CFS), it is observed that, generally the food security of the country is fairly good at the national level. However, there are some areas in the country which show anticipated poor harvest. These areas particularly in provinces which experienced dry spells, poor rainfall distribution coupled with heavy rainfall, and attacks by army worms. Provinces in picture are; Southern, Lusaka, Central, Eastern, Western provinces.

For more details as far as estimates of crop production, area cultivated and fertilizer use in the country at national and provincial levels are concerned, see the appendixes 1, 2, and 3.

APPENDIXES

Appendix 1: National Crop Production Tables

Table 5: Area planted Estimates based on the 2012/2013 CFS

Crop	Area planted (ha)		
	2011/2012	**2012/2013**	**% change**
Maize	1,274,983	1,312,402	***2.93***
Maize (for seed)	5,511	6,903	***25.26***
Maize (for silage)	1,928	1,682	***(12.75)***
Green Maize	331	293	***(11.45)***
Sorghum	18,685	23,112	***23.69***
Rice	31,388	38,520	***22.72***
Millet	35,828	33,834	***(5.57)***
Sunflower	40,870	66,515	***62.75***
Groundnuts	184,397	207,249	***12.39***
Soyabeans	86,223	124,858	***44.81***
Cotton	314,497	172,160	***(45.26)***
Irish potatoes	1,903	1,757	***(7.67)***
Mixed beans	88,673	104,177	***17.48***
Bambara nuts	5,181	5,155	***(0.51)***
Cowpeas	4,869	7,873	***61.70***
Sweet potatoes	42,847	48,454	***13.09***
Paprika	680	418	***(38.57)***
Wheat	37,230	41,810	***12.30***
Barley	2,142	1,528	***(28.66)***
Popcorn	2,033	5,562	***173.61***
Virginia Tobacco	10,725	11,348	***5.81***
Burley Tobacco	3,161	7,091	***124.35***

Table 6: Area expected to be harvested and Percentage change based on the 2012/2013 CFS by crop (national)

Crop	Area to be harvested (ha)		
	2011/2012	**2012/2013**	**% change**
Maize	1,074,658	997,880	***(7.14)***
Maize (for seed)	5,470	6,837	***24.98***
Maize (for silage)	1,869	1,668	***(10.76)***
Green Maize	325	290	***(10.84)***
Sorghum	15,714	15,611	***(0.66)***
Rice	26,265	31,621	***20.39***
Millet	29,295	29,230	***(0.22)***
Sunflower	38,297	63,089	***64.74***
Groundnuts	176,162	194,099	***10.18***
Soyabeans	84,809	121,351	***43.09***
Cotton	299,814	154,512	***(48.46)***
Irish potatoes	1,898	1,724	***(9.19)***
Mixed beans	86,828	98,619	***13.58***
Bambara nuts	4,925	4,787	***(2.80)***
Cowpeas	4,235	6,694	***58.07***
Sweet potatoes	41,725	46,420	***11.25***
Paprika	676	418	***(38.16)***
Wheat	37,209	41,810	***12.37***
Barley	2,142	1,528	***(28.66)***
Popcorn	1,969	4,730	***140.27***
Virginia Tobacco	10,501	11,167	***6.34***
Burley Tobacco	3,067	7,071	***130.58***

Table 7: Expected Production based on the 2012/2013 CFS by crop (national)

Crop	Expected Production		
	2011/2012	**2012/2013**	**% change**
Maize	2,852,687	2,532,800	***(11.21)***
Maize (for seed)	30,003	35,190	***17.29***
Sorghum	15,379	14,971	***(2.65)***
Rice	45,321	44,747	***(1.27)***
Millet	28,446	23,942	***(15.83)***
Sunflower	20,468	33,733	***64.81***
Groundnuts	113,026	106,792	***(5.52)***
Soyabeans	203,038	261,063	***28.58***
Cotton	269,502	139,583	***(48.21)***
Irish potatoes	32,066	22,038	***(31.27)***
Mixed beans	55,301	56,411	***2.01***
Bambara nuts	4,712	4,842	***2.76***
Cowpeas	2,139	4,143	***93.69***
Sweet potatoes	163,484	188,355	***15.21***
Paprika	965	605	***(37.28)***
Wheat	253,522	273,584	***7.91***
Barley	15,295	11,524	***(24.66)***
Popcorn	2,150	7,203	***234.95***
Virginia Tobacco	24,250	21,195	***(12.60)***
Burley Tobacco	7,067	8,704	***23.16***

Table 8: Yield rates (MT/ha) based on the 2012/2013 CFS by crop (national)

Crop	Yield (MT/ha)		
	2011/2012	**2012/2013**	**% change**
Maize	2.24	1.93	***(13.74)***
Maize (for seed)	5.44	5.10	***(6.32)***
Sorghum	0.82	0.65	***(21.03)***
Rice	1.44	1.16	***(19.66)***
Millet	0.79	0.71	***(10.57)***
Sunflower	0.50	0.51	***1.83***
Groundnuts	0.61	0.52	***(15.16)***
Soyabeans	2.35	2.09	***(11.25)***
Cotton	0.86	0.81	***(5.48)***
Irish potatoes	16.85	12.54	***(25.59)***
Mixed beans	0.62	0.54	***(13.41)***
Bambara nuts	0.91	0.94	***3.37***
Cowpeas	0.44	0.53	***20.64***
Sweet potatoes	3.82	3.89	***1.95***
Paprika	1.42	1.45	***2.28***
Wheat	6.81	6.54	***(3.96)***
Barley	7.14	7.54	***5.58***
Popcorn	1.06	1.30	***22.89***
Virginia Tobacco	2.26	1.87	***(17.30)***
Burley Tobacco	2.24	1.23	***(44.99)***

Table 9: Expected Sales based on the 2012/2013 CFS by crop (national)

Crop	Expected Sales		
	2011/2012	**2012/2013**	**% change**
Maize	1,567,256	1,336,141	***(14.75)***
Maize (for seed)	29,505	29,671	***0.56***
Sorghum	4,145	4,000	***(3.49)***
Rice	22,999	21,432	***(6.81)***
Millet	7,057	6,959	***(1.39)***
Sunflower	303	659	***117.74***
Groundnuts	45,701	44,661	***(2.28)***
Soyabeans	182,790	244,882	***33.97***
Irish potatoes	31,428	20,983	***(33.23)***
Mixed beans	28,934	29,733	***2.76***
Bambara nuts	1,545	1,245	***(19.42)***
Cowpeas	520	1,176	***126.14***
Sweet potatoes	89,059	85,473	***(4.03)***
Wheat	250,629	267,317	***6.66***
Barley	15,295	11,524	***(24.66)***
Popcorn	1,660	5,475	***229.90***
Virginia Tobacco	17,315	14,315	***(17.33)***
Burley Tobacco	509	521	***2.42***

Appendix 2: Provincial Production Statistics

Table 10: Area, production of Cassava based on the 2012/2013 CFS by province

Cassava	Area under cassava	Area under mature cassava	Cassava root production (11.7 MT/Ha)	Conversion to flour - 25% extraction rate
Central	12,264	6,032	143,490	35,872
Copperbelt	3,357	1,294	39,273	9,818
Eastern	1,283	275	15,006	3,752
Luapula	121,799	51,551	1,425,049	356,262
Lusaka	292	118	3,416	854
Muchinga	39,999	15,959	467,992	116,998
Northern	106,380	47,368	1,244,649	311,162
NorthWestern	50,351	20,016	589,102	147,275
Southern	642	316	7,506	1,876
Western	44,688	24,875	522,851	130,713
Total	381,054	167,804	4,458,333	1,114,583

Table 11: 2012/2013 CFS Maize Production, Expected sales, Fertilizer usage, Number of households growing crop & household crop production retained as seed by province

Maize	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)	Number of households growing crops
Central	217,001	159,371	478,734	2.21	291,971	22,266	21,779	154,261
Copperbelt	80,196	71,070	208,544	2.60	138,910	8,871	9,389	74,256
Eastern	297,394	267,227	572,289	1.92	237,063	21,238	21,701	266,584
Luapula	37,116	32,927	94,033	2.53	62,241	4,802	4,793	79,748
Lusaka	43,667	36,334	96,907	2.22	57,375	5,320	5,274	42,261
Muchinga	71,066	64,356	205,412	2.89	118,854	8,254	7,988	99,714
Northern	80,429	72,038	210,479	2.62	124,869	10,082	9,952	118,045
NorthWestern	59,198	51,052	132,527	2.24	77,614	4,935	5,000	85,282
Southern	330,234	195,587	453,532	1.37	196,674	19,956	19,922	180,336
Western	96,101	47,918	80,343	0.84	30,570	2,534	2,548	129,641
National	1,312,402	997,880	2,532,800	1.93	1,336,141	108,258	108,348	1,230,128

Table 12: 2012/2013 CFS Maize Hybrid Seed Production, expected sales and Fertilizer usage by Province

Maize for Seed	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)
Central	4,125	4,062	20,307	4.92	19,521	1,432	1,927
Copperbelt	46	46	250	5.43	240	15	14
Eastern	.	.	.		.	.	.
Luapula	.	.	.		.	.	.
Lusaka	1,645	1,645	9,370	5.69	4,671	518	519
Muchinga	.	.	.		.	.	.
Northern	2	2	1	0.88	1	0	0
NorthWestern	4	2	1	0.21	1	0	0
Southern	1,081	1,080	5,261	4.87	5,237	334	335
Western	.	.	.		.	.	.
National	6,903	6,837	35,190	5.10	29,671	2,299	2,796

Table 13: 2012/2013 CFS Maize for silage Production, expected sales and Fertilizer usage by Province

Maize for Silage	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)
Central	242	229	.		.	114	48
Copperbelt	28	28	0	0.00	0	0	0
Eastern	20	20	.		.	5	4
Luapula	.	.	.		.	.	.
Lusaka	508	508	0	0.00	0	199	16
Muchinga	26	26	.		.	8	9
Northern	.	.	.		.	.	.
NorthWestern	3	3	.		.	0	0
Southern	856	855	.		.	509	489
Western	.	.	.		.	.	.
National	1,682	1,668	0	0.00	0	835	565

Table 14: 2012/2013 CFS Sorghum Production, Expected sales, Fertilizer usage, Number of households growing crop & household crop production retained as seed by province

Sorghum	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)	Number of households growing crop
Central	715	674	964	1.35	364	32	19	2,044
Copperbelt	639	543	520	0.81	93	14	11	1,523
Eastern	66	16	18	0.28	9	.	.	162
Luapula	188	181	232	1.24	81	.	.	727
Lusaka	1,300	1,072	883	0.68	258	12	11	1,877
Muchinga	2,909	2,909	3,442	1.18	255	.	.	9,029
Northern	77	77	47	0.61	17	0	0	236
NorthWestern	1,460	1,338	1,429	0.98	424	0	0	3,694
Southern	13,316	7,413	6,561	0.49	2,460	39	32	12,903
Western	2,442	1,387	875	0.36	40	2	0	6,532
National	23,112	15,611	14,971	0.65	4,000	98	73	38,726

Table 15: 2012/2013 CFS Rice Production, Expected sales, Fertilizer usage, Number of households growing crop & household crop production retained as seed by province

Rice	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)	Number of households growing crop
Central	3	3	2	0.81	0	.	.	21
Copperbelt	27	27	30	1.09	20	.	.	55
Eastern	1,283	1,125	2,424	1.89	660	6	.	4,908
Luapula	1,814	1,715	3,537	1.95	2,228	10	7	6,038
Lusaka	21	21	23	1.09	8	.	.	72
Muchinga	6,204	6,121	9,267	1.49	4,164	14	14	13,804
Northern	13,544	12,465	13,557	1.00	7,554	60	27	14,070
NorthWestern	238	221	401	1.68	195	12	5	897
Southern	43	4	17	0.39	12	1	1	179
Western	15,342	9,919	15,490	1.01	6,591	25	12	24,376
National	38,520	31,621	44,747	1.16	21,432	128	67	64,420

Table 16: 2012/2013 CFS Millet Production, Expected sales, Fertilizer usage, Number of households growing crop & household crop production retained as seed by province

Millet	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)	Number of households growing crop
Central	2,639	2,511	2,312	0.88	921	9	8	8,036
Copperbelt	145	142	155	1.07	82	.	.	423
Eastern	995	945	459	0.46	88	.	.	2,698
Luapula	1,115	1,115	1,019	0.91	586	.	.	4,396
Lusaka	18	18	36	1.98	36	0	0	
Muchinga	7,757	7,705	7,515	0.97	2,388	26	19	32,211
Northern	11,787	11,644	8,975	0.76	2,488	21	10	35,803
NorthWestern	159	159	201	1.26	137	0	0	621
Southern	2,355	887	821	0.35	45	1	1	4,008
Western	6,865	4,103	2,449	0.36	190	.	.	16,164
National	33,834	29,230	23,942	0.71	6,959	58	38	104,361

Table 17: 2012/2013 CFS Sunflower Production, Expected sales, Fertilizer usage, Number of households growing crop by province

Sunflower	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)	Number of households growing crop
Central	1,987	1,898	965	0.49	268	30	3	2,480
Copperbelt	116	86	71	0.61	15	4	2	197
Eastern	49,079	47,837	25,149	0.51	27	11	11	103,812
Luapula	68	68	79	1.16	2	0	0	653
Lusaka	409	403	470	1.15	15	1	.	329
Muchinga	1,348	1,331	911	0.68	3	0	0	5,299
Northern	1,635	1,591	620	0.38	0	0	0	4,833
NorthWestern	28	26	14	0.51	.	.	.	106
Southern	11,831	9,835	5,443	0.46	329	42	3	19,971
Western	15	15	11	0.72	.	.	.	37
National	66,515	63,089	33,733	0.51	659	88	20	137,716

Table 18: 2012/2013 CFS Groundnuts Production, Expected sales, Fertilizer usage, Number of households growing crop & household crop production retained as seed by province

Groundnuts	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)	Number of households growing crop
Central	19,364	18,135	12,696	0.66	6,403	6	4	55,710
Copperbelt	9,356	9,106	6,095	0.65	3,279	14	0	29,086
Eastern	69,344	67,321	30,658	0.44	11,737	29	28	165,872
Luapula	17,995	17,358	11,479	0.64	6,289	21	21	72,779
Lusaka	2,716	2,518	1,498	0.55	522	2	2	10,860
Muchinga	16,766	16,219	10,681	0.64	4,066	4	3	66,235
Northern	27,038	26,215	13,814	0.51	5,736	30	30	92,982
NorthWestern	8,467	8,166	6,889	0.81	3,809	2	0	27,081
Southern	30,171	24,555	10,748	0.36	2,297	8	3	76,099
Western	6,032	4,506	2,234	0.37	523	0	0	22,599
National	207,249	194,099	106,792	0.52	44,661	115	91	619,303

Table 19: 2012/2013 CFS Soya-beans Production, Expected sales, Fertilizer usage, Number of households growing crop & household crop production retained as seed by province

Soyabeans	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)	Number of households growing crop
Central	60,260	58,482	141,356	2.35	135,833	10,060	2,030	15,353
Copperbelt	15,325	15,267	44,931	2.93	43,442	4,389	72	4,793
Eastern	17,265	16,643	14,286	0.83	10,452	7	0	31,522
Luapula	712	699	766	1.08	404	18	8	3,545
Lusaka	12,094	11,970	29,699	2.46	28,729	2,059	210	1,615
Muchinga	3,454	3,292	2,251	0.65	1,451	14	0	11,837
Northern	3,358	3,288	3,295	0.98	2,284	189	50	9,292
NorthWestern	1,210	1,178	1,210	1.00	717	20	0	2,683
Southern	10,968	10,357	23,056	2.10	21,399	1,805	200	3,507
Western	212	175	212	1.00	171	7	0	233
National	124,858	121,351	261,063	2.09	244,882	18,568	2,570	84,379

Table 20: 2012/2013 CFS Seed Cotton Production, Expected sales, Fertilizer usage, Number of households growing crop by province

Seed Cotton	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)	Number of households growing crop
Central	48,210	40,347	30,715	0.64	217	107	94	38,417
Copperbelt	78	63	48	0.61	3	.	4	69
Eastern	90,393	87,273	84,567	0.94	48	15	8	121,749
Luapula	.	.	.		.	.	.	
Lusaka	1,107	1,076	1,201	1.08	0	0	0	1,344
Muchinga	6,873	6,755	9,333	1.36	.	4	.	13,115
Northern	.	.	.		.	.	.	
NorthWestern	.	.	.		.	.	.	
Southern	25,403	18,939	13,661	0.54	22	26	26	21,620
Western	96	60	60	0.62	.	.	.	140
National	172,160	154,512	139,583	0.81	290	151	133	196,453

Table 21: 2012/2013 CFS Irish Potatoes Production, Expected sales, Fertilizer usage, Number of households growing crop by province

Irish Potatoes	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)	Number of households growing crop
Central	202	202	5,464	27.03	5,424	398	149	210
Copperbelt	33	31	67	2.06	40	.	.	239
Eastern	372	359	949	2.55	648	18	11	1,573
Luapula	36	35	142	3.90	101	3	3	196
Lusaka	385	385	12,619	32.80	12,619	473	183	
Muchinga	82	82	180	2.20	2	.	.	307
Northern	49	49	63	1.27	47	2	2	195
NorthWestern	492	476	2,351	4.78	1,942	1	1	2,129
Southern	106	106	203	1.91	160	11	2	444
Western	.	.	.		.	.	.	
National	1,757	1,724	22,038	12.54	20,983	906	350	5,294

Table 22: 2012/2013 Virginia Tobacco Production, Fertilizer usage, Number of households growing crop by province

Virginia Tobacco	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)	Number of households growing crop
Central	4,027	4,014	9,555	2.37	8,211	2,154	856	867
Copperbelt	.	.	.		.	.	.	
Eastern	1,118	1,092	1,256	1.12	17	255	133	1,820
Luapula	.	.	.		.	.	.	
Lusaka	294	294	784	2.67	609	92	21	
Muchinga	.	.	.		.	.	.	
Northern	.	.	.		.	.	.	
NorthWestern	.	.	.		.	.	.	
Southern	4,888	4,769	8,118	1.66	5,446	1,701	591	2,965
Western	1,022	999	1,481	1.45	34	193	176	1,552
National	11,348	11,167	21,195	1.87	14,315	4,397	1,776	7,204

Table 23: 2012/2013 Burley Tobacco Production, Fertilizer usage, Number of households growing crop by province

Burley Tobacco	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)	Number of households growing crop
Central	736	726	953	1.29	375	125	102	1,247
Copperbelt	0	0	0	1.50	.	.	.	10
Eastern	6,085	6,076	7,548	1.24	146	1,332	1,141	8,374
Luapula	.	.	.		.	.	.	
Lusaka	.	.	.		.	.	.	
Muchinga	190	190	186	0.98	.	31	27	306
Northern	.	.	.		.	.	.	
NorthWestern	.	.	.		.	.	.	
Southern	79	79	17	0.22	.	16	2	79
Western	.	.	.		.	.	.	
National	7,091	7,071	8,704	1.23	521	1,503	1,272	10,017

Table 24: 2012/2013 CFS Mixed beans Production, Expected sales, Fertilizer usage, Number of households growing crop & household crop production retained as seed by province

Mixed Beans	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)	Number of households growing crop
Central	7,823	7,178	6,143	0.79	3,612	26	8	21,869
Copperbelt	2,763	2,622	1,883	0.68	681	23	13	12,207
Eastern	6,387	5,810	3,373	0.53	1,441	15	1	20,016
Luapula	7,967	7,803	4,362	0.55	2,025	9	9	29,591
Lusaka	640	569	246	0.39	116	2	0	2,150
Muchinga	15,693	14,375	7,504	0.48	3,040	10	2	55,691
Northern	55,196	53,244	28,520	0.52	16,528	51	26	96,865
NorthWestern	5,232	5,044	3,556	0.68	2,104	3	3	18,735
Southern	2,216	1,826	719	0.32	166	20	20	7,482
Western	260	149	104	0.40	20	5	6	795
National	104,177	98,619	56,411	0.54	29,733	165	88	265,402

Table 25: 2012/2013 CFS Cow-pea Production, Expected sales, Fertilizer usage, Number of households growing crop & household crop production retained as seed by province

Cow Peas	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)	Number of households growing crop
Central	1,034	947	633	0.61	328	3	2	3,318
Copperbelt	77	71	38	0.49	14	1	.	446
Eastern	369	369	189	0.51	59	0	0	1,306
Luapula	58	58	20	0.34	13	.	.	553
Lusaka	192	163	73	0.38	11	2	0	413
Muchinga	303	303	183	0.60	82	.	.	1,190
Northern	133	133	170	1.28	137	0	0	450
NorthWestern	369	350	214	0.58	140	.	.	1,624
Southern	3,788	3,061	1,654	0.44	221	34	0	14,605
Western	1,550	1,240	969	0.63	170	0	0	6,304
National	7,873	6,694	4,143	0.53	1,176	40	3	30,209

Table 26: 2012/2013 CFS Sweet potato Production, Expected sales, Fertilizer usage, Number of households growing crop by province

Sweet Potatoes	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)	Number of households growing crop
Central	8,759	8,515	34,598	3.95	25,435	3	2	27,520
Copperbelt	3,656	3,577	17,754	4.86	12,704	0	0	16,502
Eastern	2,510	2,474	6,383	2.54	2,888	1	0	10,914
Luapula	3,325	3,290	11,594	3.49	7,046	.	.	22,670
Lusaka	1,189	1,186	3,423	2.88	1,297	3	.	6,226
Muchinga	7,543	7,491	25,987	3.45	8,114	4	2	37,957
Northern	7,066	6,983	21,532	3.05	10,223	0	0	31,708
NorthWestern	2,295	2,278	11,466	5.00	6,187	0	0	15,386
Southern	10,997	9,594	50,958	4.63	10,309	39	17	42,130
Western	1,114	1,031	4,661	4.18	1,270	0	0	4,392
National	48,454	46,420	188,355	3.89	85,473	50	21	215,404

Table 27: 2012/2013 CFS Paprika Production, Expected sales, Fertilizer usage, Number of households growing crop by province

Paprika	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)	Number of households growing crop
Central	263	263	108	0.41	1	8	6	768
Copperbelt	.	.	.		.	.	.	
Eastern	.	.	.		.	.	.	
Luapula	3	3	0	0.03	.	.	.	44
Lusaka	.	.	.		.	.	.	
Muchinga	.	.	.		.	.	.	
Northern	2	2	0	0.03	.	.	.	33
NorthWestern	14	14	0	0.01	.	.	.	61
Southern	132	132	495	3.74	167	53	53	
Western	4	4	2	0.49	.	.	.	20
National	418	418	605	1.45	168	61	59	927

Table 28: 2012/2013 CFS Wheat Production, Expected sales, Fertilizer usage by province

Wheat	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)
Central	23,202	23,202	144,120	6.21	138,493	8,050	7,902
Copperbelt	6,583	6,583	49,021	7.45	48,842	2,624	2,426
Eastern	.	.	.		.	.	.
Luapula	.	.	.		.	.	.
Lusaka	6,629	6,629	42,002	6.34	41,581	2,237	2,262
Muchinga	.	.	.		.	.	.
Northern	.	.	.		.	.	.
NorthWestern	.	.	.		.	.	.
Southern	5,395	5,395	38,441	7.13	38,400	2,045	1,902
Western	.	.	.		.	.	.
National	41,810	41,810	273,584	6.54	267,317	14,955	14,493

Table 29: 2012/2013 CFS Barley Production, Expected sales, Fertilizer usage by province

Barley	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)
Central	548	548	3,931	7.17	3,931	215	119
Copperbelt	436	436	3,500	8.03	3,500	174	153
Eastern	.	.	.		.	.	.
Luapula	.	.	.		.	.	.
Lusaka	449	449	3,476	7.75	3,476	199	153
Muchinga	.	.	.		.	.	.
Northern	.	.	.		.	.	.
NorthWestern	.	.	.		.	.	.
Southern	95	95	617	6.47	617	33	27
Western	.	.	.		.	.	.
National	1,528	1,528	11,524	7.54	11,524	622	452

Table 30: 2012/2013 CFS Popcorn Production, Expected sales, Fertilizer usage, Number of households growing crop by province

Popcorn	Area planted (Ha)	Area Harvested (Ha)	Expected production (MT)	Yield (MT/ha)	Expected Sales (MT)	Basal Fert Applied (MT)	Top Fert Applied (MT)	Number of households growing crop
Central	3,946	3,239	5,449	1.38	4,290	144	185	5,206
Copperbelt	1,226	1,189	1,363	1.11	1,002	48	51	1,338
Eastern	37	37	153	4.07	.	.	.	92
Luapula	56	40	41	0.72	26	3	3	329
Lusaka	166	121	117	0.70	80	1	1	372
Muchinga	39	39	78	2.00	74	5	5	62
Northern	.	.	.		.	.	.	
NorthWestern	.	.	.		.	.	.	
Southern	92	65	4	0.04	1	10	.	326
Western	.	.	.		.	.	.	
National	5,562	4,730	7,203	1.30	5,475	210	244	7,726

Appendix 3: Fertilizer Use

Table 31: Fertilizer Used By Crop & Mean Quantity Applied Per Hectare By Crop Sorted In Order Of Highest Total Quantity Used

crop	Area planted (ha)	Basal fert used (MT)	Top fert used (MT)	Basal Fert (Kg) Applied per/ha	Top Fert (Kg) Applied per/ha
Maize	1,312,402	108,258	108,348	82.49	82.56
Maize for seed	6,903	2,299	2,796	333.08	405.00
Maize for silage	1,682	835	565	496.55	335.72
Green Maize	293	65	56	221.07	190.02
Sorghum	23,112	98	73	4.26	3.16
Rice	38,520	128	67	3.32	1.74
Millet	33,834	58	38	1.72	1.13
Sunflower	66,515	88	20	1.32	0.30
Groundnuts	207,249	115	91	0.56	0.44
Soyabeans	124,858	18,568	2,570	148.71	20.58
Seed Cotton	172,160	151	133	0.88	0.77
Irish Potatoes	1,757	906	350	515.74	199.44
Mixed Beans	104,177	165	88	1.58	0.84
Bambara nuts	5,155	3	3	0.50	0.50
Cowpeas	7,873	40	3	5.05	0.33
Sweet Potatoes	48,454	50	21	1.03	0.42
Cassava	532	-	-	0.00	0.00
Paprika	418	61	59	145.82	140.55
Wheat	41,810	14,955	14,493	357.69	346.64
Barley	1,528	622	452	407.11	295.50
Popcorn	5,562	210	244	37.84	43.95

Table 32: Quantity of Fertilizer Applied to Maize by Province and Mean quantity of Fertilizer applied per hectare by Category

Maize LS=Large scale MS=Medium Scale		Area planted (Ha)	Basal Fert Applied (MT)	Top Fert Applied (MT)	Qty of basal fert(Kg) applied per/ha	Qty of Top Fert(Kg) Applied per/ha
Central	LS	10,989	2,804	2,665	255	242
	SM	206,012	19,461	19,114	94	93
	Total	217,001	22,266	21,779	103	100
Copperbelt	LS	4,700	1,351	1,424	288	303
	SM	75,496	7,519	7,965	100	106
	Total	80,196	8,871	9,389	111	117
Eastern	LS	2,146	462	454	215	211
	SM	295,248	20,776	21,248	70	72
	Total	297,394	21,238	21,701	71	73
Luapula	LS	297	63	62	211	209
	SM	36,820	4,740	4,731	129	128
	Total	37,116	4,802	4,793	129	129
Lusaka	LS	2,794	800	710	286	254
	SM	40,873	4,520	4,565	111	112
	Total	43,667	5,320	5,274	122	121
Muchinga	LS	316	72	69	228	220
	SM	70,750	8,182	7,919	116	112
	Total	71,066	8,254	7,988	116	112
Northern	LS	285	56	53	196	186
	SM	80,144	10,026	9,899	125	124
	Total	80,429	10,082	9,952	125	124
NorthWestern	LS	38	9	7	225	186
	SM	59,160	4,926	4,993	83	84
	Total	59,198	4,935	5,000	83	84
Southern	LS	6,561	1,423	1,242	217	189
	SM	323,673	18,533	18,681	57	58
	Total	330,234	19,956	19,922	60	60
Western	LS	594	121	120	204	203
	SM	95,507	2,413	2,428	25	25
	Total	96,101	2,534	2,548	26	27
Total	LS	28,719	7,161	6,805	249	237
	SM	1,283,683	101,096	101,542	79	79
	Total	1,312,402	108,258	108,348	82	83