



THE UNITED REPUBLIC OF TANZANIA

2016/17 ANNUAL AGRICULTURE SAMPLE SURVEY INITIAL REPORT



Ministry of Agriculture; Ministry of Livestock and Fisheries; Ministry of Industry, Trade and Investment;
President's Office, Regional Administration and Local Governments, Ministry of Agriculture, Natural Resources,
Livestock and Fisheries, Zanzibar; National Bureau of Statistics and the Office of the Chief Government Statistician,
Zanzibar.

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ACRONYMS

AASS	Annual Agriculture Sample Survey
AfDB	African Development Bank
ASLMs	Agriculture Sector Development Programme Agriculture Sector Lead Ministries
CSPro	Census and Survey Processing System
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
NASS	National Agricultural Statistical System
NBS	National Bureau of Statistics
OCGS	Office of Chief Government Statistician Zanzibar
PMO-RALG	Prime Minister's Office, Regional Administration and Local Government
SPSS	Statistical Package for Social Science
TOT	Training of Trainers
USAID	United States Agency International Development
USDA	United States Department of Agriculture
UNSC	United Nations Statistical Commission

CHAPTER ONE

1.0 Background

Agriculture is an important economic sector of the Tanzanian Economy and contribute about 29.1 percent of Gross Domestic Product (GDP) (The Economic Survey 2016). It is the main source of food, employment, raw materials for industries and foreign exchange earnings. Since Tanzania is endowed with a diversity of climatic and geographical zones, farmers grow a wide variety of annual and permanent crops. This includes food and cash crops as well as fruits, vegetables and spices. Moreover, farmers practice livestock farming by keeping animals like cattle, goats, sheep, pigs and chicken. They also keep few numbers of turkeys, ducks, rabbits, donkeys and horses.

The importance of accurate and reliable agricultural statistics cannot be overemphasize in particular for planning and evidence based decision making. In addition, agricultural statistics are required in order to determine the growth of the sector, measure employment and reduction of poverty of the population in the rural areas, as well as to stimulate the investment in the agro based industry to support the theme of Industrialization economy.

In response to many challenges of meeting user needs for agricultural statistics in developing countries, a Global Strategy for Improving Agricultural and Rural Statistics was introduced and endorsed in February 2010 by the United Nations Statistical Commission (UNSC).

The purpose of the Global Strategy is to provide a framework and methodology that will help to improve the availability and quality of national and international food and agricultural statistics, to guide policy analysis and decision making in the 21st century. The Global Strategy is based on three pillars, namely:

- i. The establishment of a minimum set of core data that countries will provide to meet their current and emerging demands;
- ii. The integration of agriculture into their national statistical systems (NSSs) to ensure that the data is comparable across countries and over time; and

- iii. Ensuring the sustainability of the National Agricultural Statistical System (NASS) through governance and statistical capacity building.

In the framework of implementing the Global Strategy to Improve Agricultural and Rural Statistics, the Government of Tanzania in collaboration with the Food and Agriculture Organization of the United Nations (FAO), United States Agency for International Development (USAID), United States Department of Agriculture (USDA) and African Development Bank (AfDB) initiated the process of improving the agricultural statistics system of the country through Strengthening Agricultural Statistics Program. The main aim of the program is to:

- i. Develop sampling frames and sample designs appropriate for generating agricultural statistics;
- ii. Design and implement an Annual Agricultural Survey; and
- iii. Develop Capacity through upgrading skills on national staffs.

The National Bureau of Statistics (NBS) and Office of Chief Government Statistician Zanzibar (OCGS) in collaboration with Agricultural Sector Lead Ministries (ASLMs) conducted the Annual Agriculture Sample Survey (AASS) for the Agricultural year 2016/17. This is the second AASS to be conducted under this initiative, the first one was conducted during the agricultural year 2014/2015. This report covers the objective and coverage of the survey, methodology, results and recommendations.

1.1 Survey Objectives

The general objective of the Annual Agriculture Sample Survey is to provide more timely and accurate estimates of area and production for major crops, livestock number and livestock products. The size of the crops is crucial information needed by many people involved in agriculture. Estimates derived from this survey will supply basic information needed by farmers, agribusinesses, government policy makers and other stakeholders to make decisions for both short and long-term planning.

The specific objectives of AASS are to obtain:-

- i. Basic data to be utilized in the formulation and review of policies and implementation of agricultural plans at national and regional levels in between the agricultural census years;

- ii. Time series data on agricultural production & productivity at national and regional levels; and
- iii. Basic statistics for comparison on the development of the agriculture sector in the country.

1.2 Survey Coverage and Scope

The 2016/17 AASS was conducted from October to November, 2017 however the information collected was for the agricultural year 2016/ 17 covering covered farming operation in all regions of Tanzania. The interviews were conducted in detail using a well-structured questionnaire. The main topics covered were:

- i. Land Ownership
- ii. Farm Characteristics
- iii. Crop Production
- iv. Crop Prices
- v. Livestock population and production
- vi. Fish Farming

1.3 Survey Methodology

The main focus at all stages of the survey execution was on data quality. The main activities undertaken include:

- i. Survey Organization;
- ii. Sampling
- iii. Tabulation Plan Preparation;
- iv. Design of Survey Questionnaire and Other Instruments;
- v. Training of Trainers /Supervisors, and Enumerators;
- vi. Data Collection;
- vii. Field Supervision and Consistency Checks;
- viii. Data Processing;
- ix. Manual Data Entry Application
- x. Tabulation Preparation.

1.1.1 Survey Organization

The survey was carried out by NBS and OCGS in collaboration with ASLMs under technical support from USDA-NASS. Implementation of the survey at the National level was headed by NBS.

The National Team had the responsibility of overseeing the operational aspects of the survey and the team comprised of staff from the Department of Agricultural Statistics of NBS and OCGS; Ministries responsible for Agriculture, Livestock and Fisheries from Mainland and Zanzibar.

Furthermore, the Regional Statistical Officers from NBS and OCGS, –in a collaboration with Staff responsible for agricultural statistics from the Regional Secretariats supervised the implementation of the survey activities at Regional level

1.1.2 Tabulation Plan Preparation

The tabulation plan was developed following a National Team meeting which discussed the information and data needs of the end users. It also considered the tabulations from other agricultural surveys to allow trend analysis and comparisons as well as the needs of end users.

1.1.3 Questionnaire design and other instruments

A structured questionnaire was developed to focus on inventory, production and productivity of crop, livestock and fisheries. Several features were included into the design of the questionnaire to improve the quality of data collection during field work data collection. Among others, the following features were included:

- i. Where feasible, all variables were extensively coded to reduce post enumeration coding errors.
- ii. Skip patterns were used to reduce unnecessary and incorrect coding of sections which do not apply to the respondent.
- iii. Each section was clearly numbered to facilitate the use of skip patterns and provide a reference for data type coding for the programming of CSPro and SPSS.

1.1.4 Training of Trainers/Supervisors and Enumerators

The training was organized for field work supervisors and enumerators which focused on survey methodology, concepts and definitions. Training of Trainers and Enumerators were conducted for 5 days each in September 2017 prior to enumeration process for Mainland and Zanzibar. During the training of enumerators, the issue of consistency checks in order to enhance the quality of the data was also emphasized. The trainers were members of the National Team in collaboration with the Regional Statistical Managers.

1.1.5 Data Collection

The actual data collection activity for the survey took one month from October to November 2017. The only method used for data collection was face to face interview by using the structured questionnaire. Field work was monitored through a hierarchical system of supervisors that began with the National Team, followed by the regional supervisors and enumeration team supervisors. The National Team included two senior supervisors who were responsible for overall guidance of field operations and responding towards queries raised outside the scope of subordinates.

1.1.6 Field Supervision and Consistency Checks

The enumerators were trained on techniques on how to probe the respondents, so as to get reliable responses and finally record them correctly in the questionnaire. Enumerators made the first check of the questionnaire after completion of the interview, while the second check was done by their team supervisors, followed by regional and national supervisors. Supervisory visits at all levels of supervision, focused on consistency checks of the questionnaires. Inconsistencies encountered were corrected, and where necessary, a return visit to the respondent was made by the enumerator to correct the information. Further quality control checks were made through a major post enumeration checking exercise whereby, all questionnaires were checked for consistencies by editing staff in the National office.

1.1.7 Data Processing

Data processing consisted of the following activities:

- i. Data entry
- ii. Data structure formatting
- iii. Batch validation
- iv. Tabulation.

1.1.8 Data Entry

Prior to data entry, all questionnaires were cleaned manually to maintain the quality of the data. The process involved checking the completeness of questionnaire, correctness of identification details and other information, thereafter data were entered manually using CPro.

1.1.9 Tabulation

Subsequent to data entry, tables were prepared based on a predesigned tabulation plan. The plan focused on the objective of the survey in relation to the data needs of the stakeholders.

1.1.9 Analysis and Report Preparation

The analysis in this report focuses on regional comparisons and national production estimates. Statistical Package for Social Sciences (SPSS) was used to produce the survey tables .CPro was used for data entry and Microsoft excel was used to produce tables; whereas Microsoft word was used to compile the report in general.

1.1.10 Data Quality

The data quality was kept in mind throughout the entire exercise, from survey planning, questionnaire design, training, supervision, data entry, validation and data cleaning/editing. As a result of this process, it is believed that the survey data presented in this report are sufficiently accurate and representative of what was collected from the field.

1.4 Survey Limitation

1.4.1 Coverage

The Survey covered 30 regions of Tanzania out of which, 25 regions are from Tanzania Mainland and 5 regions are from Zanzibar. During sampling, the 2010 area frame was used, this is when Songwe was a part of Mbeya Region. For this case all data of Songwe region are within the Mbeya Region. This survey can only produce statistically acceptable estimates at national and regional level only. The sampling design is not meant for District level estimates.

1.4.2 Data collection

Crop Production Data

This survey collected information on more than 150 types of perennial and non-perennial crops. Due to the objective of this survey, analysis concentrated on limited number of main crops grown in Tanzania so as to get minimum core data in responding to the global strategy to improve agriculture and rural statistics for comparison purposes.

Livestock and Fisheries Production Data

The Sampling design for this survey was based on area frame. Due to nature of pastoralist communities in the country, suitability of this sampling design favors crops rather than livestock related data.

CHAPTER TWO

2.0 Operators and Farm Characteristics

Characteristics of farms and operators provide important information for evaluating performance of the sector. Therefore this chapter discusses in detail the findings of the survey on land ownership, number of operators in crop production in relation to rainy seasons and irrigation practices.

2.1 Land Ownership, Planted Area and Harvested

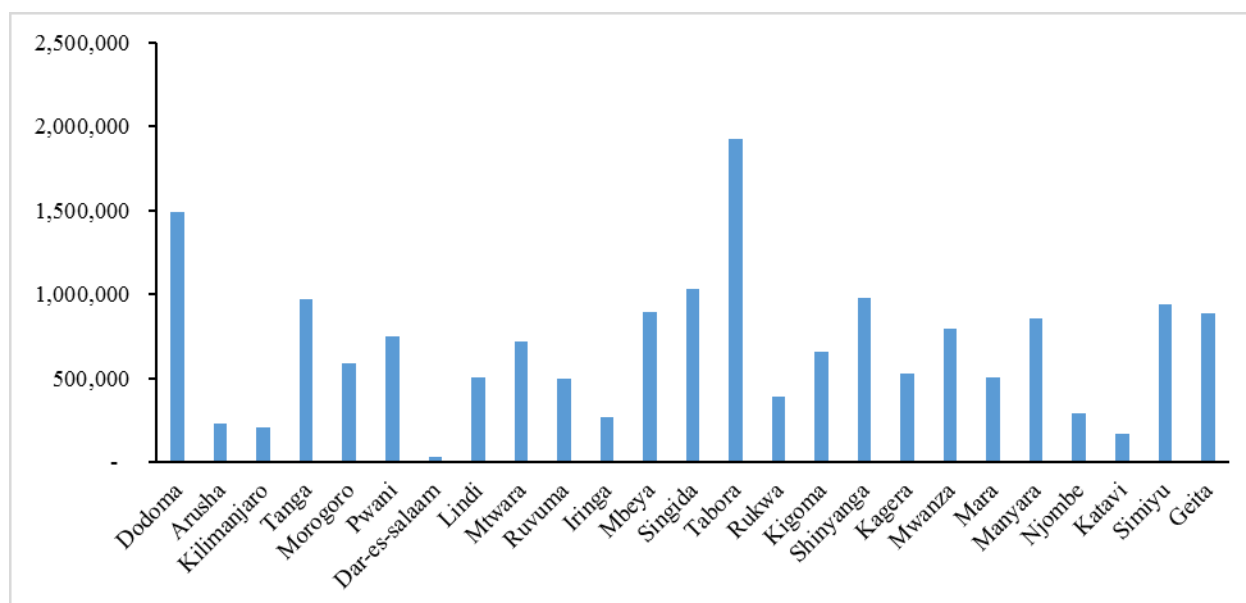
Land Ownership refers to the arrangements or rights under which the holder holds or uses the land. This sub chapter discusses how much land was available for farming activities and engaged in crop production which involved planted area and harvested area during 2016/17 Agricultural year.

2.1.1 Area of land in farms

During the 2016/2017 Agricultural year, the total area of land in farms engaged in crop production were 17,120,571 ha of which 16,977,740 ha (99 percent) were in Tanzania mainland and 142,831 ha (1 percent) in Zanzibar.

In Mainland, Tabora region has the largest area with total land in farms of 1,926,174 ha (11.3 percent), followed by Dodoma with 1,487,065 ha (8.8 percent). The least region was Dar es Salaam with the total land in farms of 31,761 ha (0.19 percent). On the other hand, the leading region with largest land in farms in Zanzibar was Kaskazini Pemba with 37,710 ha (26.4 percent), while Mjini Magharibi had the least land in farms with 9,913 ha (6.9 percent) (Figure 2.1.1).

Figure 2.1.1: Area of land in farms by region, 2016/17 AASS



2.1.2 Planted Area for Long Rainy, Short Rainy and Permanent Crops

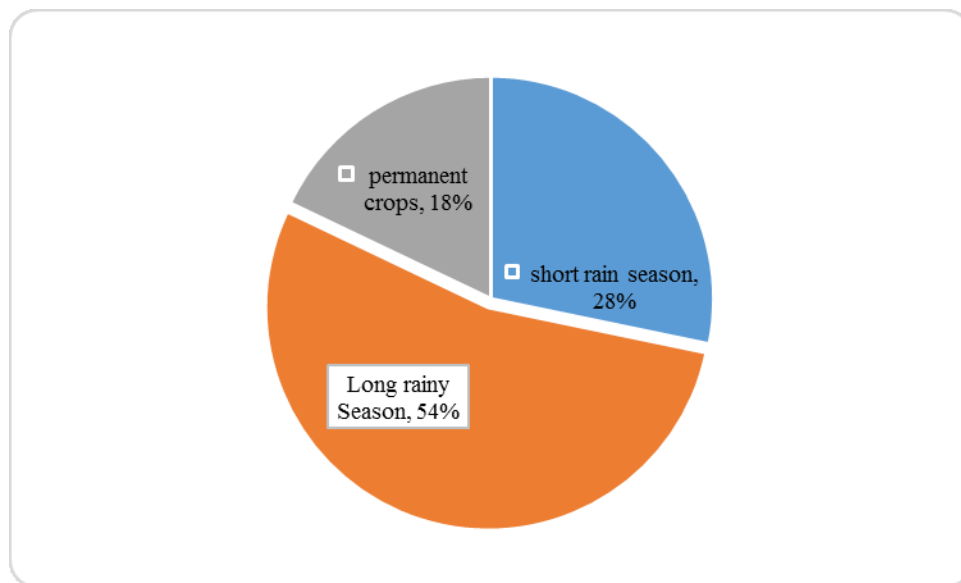
In Tanzania there are two rainy seasons namely short rainy season and long rainy season. The former one begins in October to January of the following year while the later one begins in March to May of the same year. Moreover, planted area refers to the total area in hectares that the operator was able to plant and permanent crops are crops which are produced from plants that last for many seasons, rather than being replanted after each harvest.

The total planted area during the 2016/17 Agricultural year was 15,028,841 ha whereby 8,088,843 ha (54 percent) were planted in the long rainy season; 4,246,219 ha (28 percent) were planted in the short rainy season. Out of the total area under crop production, only 2,693,778 ha (18 percent) with permanent crops.

For Mainland the total planted area was 14,888,738 ha which is equivalent to 99.1 percent of the total planted area while in Zanzibar 140,103 ha (0.9 percent). Among regions in Mainland, Tabora had the largest planted area of about 1,520,658 ha (10.2 percent) out of the total planted area followed by Dodoma (1,178,262 ha; 7.9 percent) and Mwanza (794,252 ha; 5.8 percent). The least region was Dar es Salaam with the total planted area of 30,761 ha (0.2 percent) out of the total planted area in mainland.

On the other hand, the leading region with largest planted area in Zanzibar; was Kaskazini Pemba with 36,441 ha (26 percent) of the total planted area, followed by Kusini Pemba (35,935 ha; 25.6 percent) and Kaskazini Unguja (35,549 ha; 25.0 percent) respectively. The least planted area was Mjini Magharibi with 10,615 ha (7.6 percent) (Figure 2.1.2).

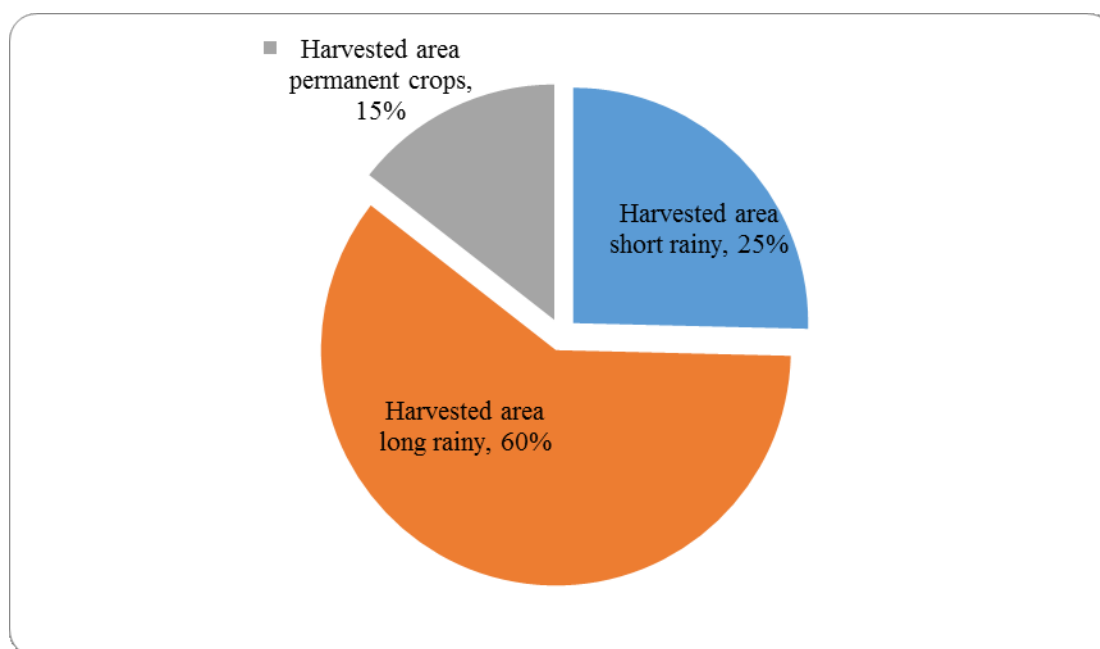
Figure 2.1.2: Percentage Share of Planted Area (ha) by Season in Tanzania, 2016/17, AASS



2.1.3 Harvested area for Long Rainy, Short Rainy and Permanent Crops

Harvested area refers to the total area in hectares that the operator produced crops from. This is equal to the area planted less the area that was not harvested due to pests and diseases, wild animals, drought, maturity and the likes. During 2016/17 Agriculture year, the total harvested area was 11,599,014 ha which is approximately to 77.2 percent of the total planted area during the year. Out of the harvested area; 6,978,510 ha (60.2 percent) were harvested in the long rainy season; 2,944,289 ha (25.3 percent) in short rainy season; and only 1,676,215 ha (14.5 percent) were harvested from area with Permanent crops (Figure 2.1.3).

Figure 2.1.3: Percentage Share of Harvested Area (ha) by Season in Tanzania, 2016/17 AASS



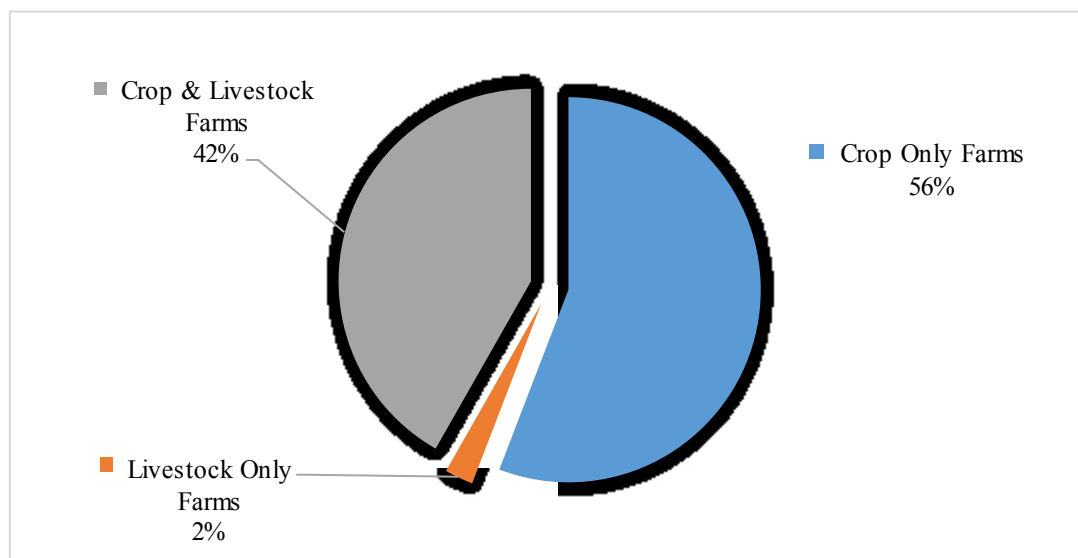
2.2 Farm Operators

An operator refers to an individual or organization that exercises management control over the agricultural operation and who makes major decisions regarding resources utilization (i.e. funding/disbursements).

2.2.1 Operators and Types of Farming

A total of 8,763,267 operators were engaged in agricultural activities of which 8,574,452 (97.8 percent) were in Tanzania Mainland and 188,814 (2.1 percent) in Zanzibar. The results disclose, 4,886,825 operators (55.9 percent) engaged in growing crops only, livestock only were 213,600 (2.4 percent) and those who kept 3,662,842 (41.8 percent) crop and livestock (Figure 2.2.1).

Figure 2.2.1: Percentage Share of Number of Operators by Type of Farming, 2016/17 AASS



2.2.1.1 Operators in Crop Farming

In Tanzania 4,912,274 operators were engaged in crop farming only of which 4,802,979 (97.8 percent) were in Tanzania Mainland and 109,295 (2.2 percent) in Zanzibar. In Tanzania Mainland, at regional level, Kigoma region had more operators practicing crop farming only (617,520; 86.8 percent) followed by Mtwara region with 307,326 (86.3 percent) and Lindi region with 247,079 (80.9 percent). In Zanzibar, the highest region with this practice is Kaskazini Unguja with 32,010 (73.3 percent) and Mjini Magharibi had the lowest numbers of operators under this practice with 9,612 (39.8 percent) (Table 2.2.3).

2.2.1.2 Operators in Livestock Farming

In Tanzania 210,810 operators were engaged in livestock farming only of which 199,263(94.5 percent) were in Tanzania Mainland and 11,547 (5.5 percent) in Zanzibar. Arusha region was leading in practicing livestock only in Mainland with 111,103 operators (45.2 percent) while four regions; Dodoma, Katavi, Ruvuma and Njombe had no operator reported to practice such farming system. For the case of Zanzibar, Kusini Pemba recorded a higher number of operators at 9,126 (20.1 percent) for such farming practice (Table 2.2.3).

2.2.1.3 Operators in Crops and Livestock Farming

Survey findings reveal that, 3,672,005 operators were engaged in both crop and livestock farming in Tanzania of which 3,604,032 (98.1 percent) were in Mainland and 67,972 (1.9 percent) in Zanzibar. Moreover, Manyara was leading in Mainland with 256,453 operators (77.6 percent) followed by Kilimanjaro region 130,709 (71.1 percent) and then Simiyu 166,371 (64.8 percent). Furthermore, this practice is more common in Mjini Magharibi region in Zanzibar with 14,337 (59.4 percent) and Kaskazini Unguja had the lowest participation with 11,661 (26.7 percent) (Table 2.2.3).

Table 2.2.3: Number of Operators engaged in crop farming, livestock, both livestock and crop farming by Region, 2016/17 AASS

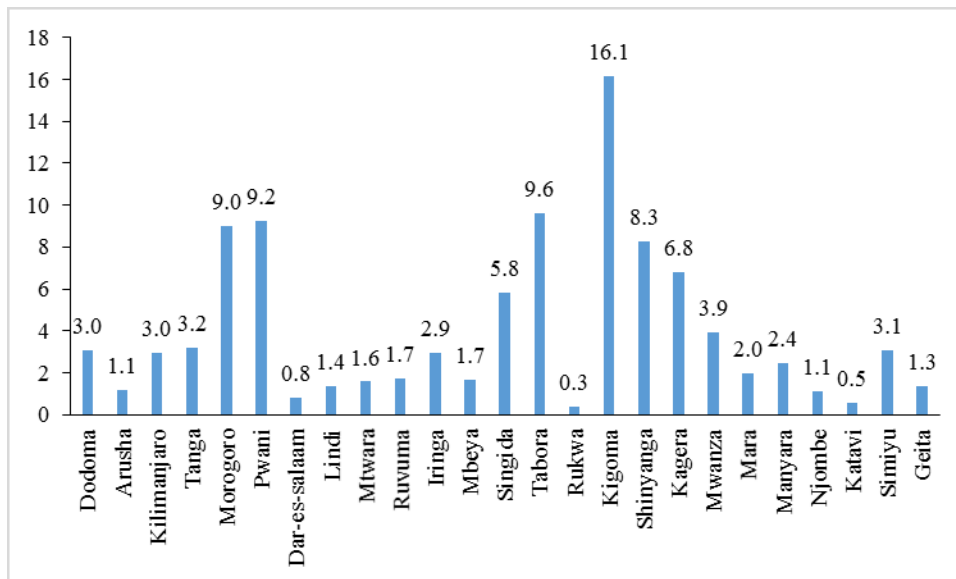
Region	Number			Percent		
	Crop Only Farms	Livestock Only Farms	Crop & Livestock Farms	Crop Only Farms	Livestock Only Farms	Crop & Livestock Farms
Dodoma	286,123	0	182,329	61.1	0.0	38.9
Arusha	29,478	111,103	105,091	12.0	45.2	42.8
Kilimanjaro	49,602	3,409	130,709	27.0	1.9	71.1
Tanga	327,831	385	114,716	74.0	0.1	25.9
Morogoro	198,824	10,603	77,198	69.4	3.7	26.9
Pwani	435,917	4,936	107,911	79.4	0.9	19.7
Dar-es-salaam	28,402	3,507	7,477	72.1	8.9	19.0
Lindi	247,079	202	58,091	80.9	0.1	19.0
Mtwara	307,326	2,099	46,857	86.3	0.6	13.2
Ruvuma	114,850	0	101,942	53.0	0.0	47.0
Iringa	77,453	986	43,782	63.4	0.8	35.8
Mbeya	168,643	3188	254,886	39.5	0.7	59.7
Singida	123,141	3,289	210,785	36.5	1.0	62.5
Tabora	340,756	15,840	307,013	51.3	2.4	46.3
Rukwa	67,941	303	94,282	41.8	0.2	58.0
Kigoma	617,520	10,053	84,019	86.8	1.4	11.8
Shinyanga	163,524	6,745	247,969	39.1	1.6	59.3
Kagera	176,909	1,862	192,596	47.6	0.5	51.9
Mwanza	338,109	6,032	328,512	50.3	0.9	48.8
Mara	113,451	6,253	169,170	39.3	2.2	58.6
Manyara	68,110	5,879	256,453	20.6	1.8	77.6
Njombe	154,523	0	72,146	68.2	0.0	31.8
Katavi	61,972	0	26,509	70.0	0.0	30.0
Simiyu	90,151	317	166,371	35.1	0.1	64.8
Geita	189,896	5,064	208,054	47.1	1.3	51.6
Mainland	4,777,530	202,053	3,594,870	55.7	2.4	41.9
Kaskazini-Unguja	32,010	0	11,661	73.3	0.0	26.7
Kusini Unguja	13,266	2,129	8,567	55.4	8.9	35.8
Mjini Magharibi	9,612	188	14,337	39.8	0.8	59.4
Kaskazini-Pemba	32,641	103	18,978	63.1	0.2	36.7
Kusini-Pemba	21,767	9,126	14,429	48.0	20.1	31.8
Zanzibar	109,295	11,547	67,972	57.9	6.1	36.0

2.2.2 Operators with Registered Farms

During data collection a respondent was asked about the registration of the farm where the point has fallen. A registered farm means owner of the farm has an official certificate of ownership of the farm land area and its land is known to be registered.

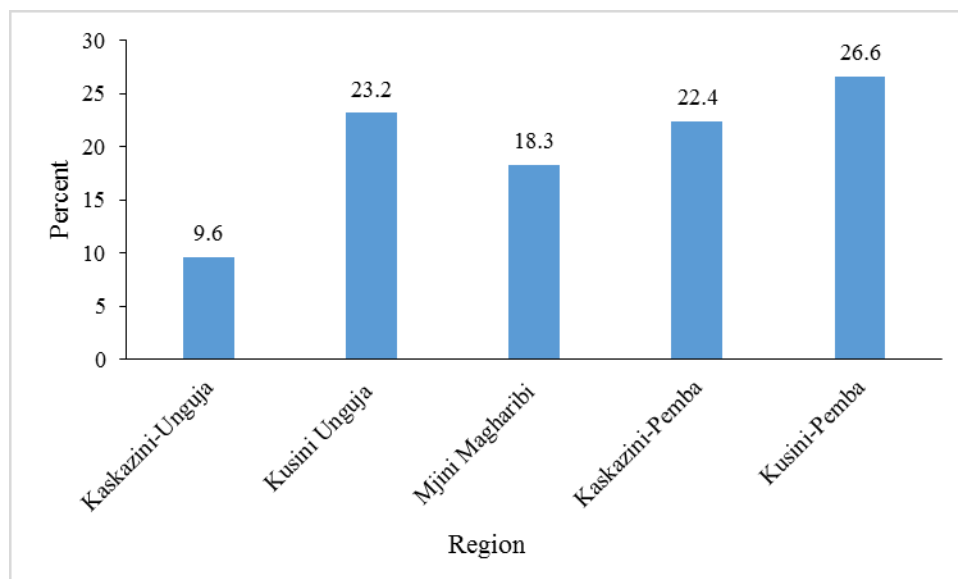
The total number of farms collected during the survey was 8,795,088 farms out of which, 1,576,235 (17.9 percent) were registered. Out of the total registered farm, 1,529,984 (97.1 percent) were in Mainland and 46,251 (2.9 percent) in Zanzibar. In Mainland, Kigoma region had the highest percent of registered farms (16.1 percent), followed by Tabora region (9.6 percent) and Pwani (9.2 percent). The lowest percentage of registered farms was observed in Rukwa region (0.3 percent) region (Figure 2.2.2(a)).

Figure 2.2.2(a): Percentage of operators reported to register their farms by Region in Tanzania Mainland, 2016/17 AASS



In Zanzibar, Kusini Pemba is leading with 26.6 percent followed by Kusini Unguja (23.2 percent) and the lowest was Kaskazini Unguja with 9.6 percent (Figure 2.2.2).

Figure 2.2.2 (b): Percentage of operators reported to register their farms by Region in Zanzibar, 2016/17 AASS



2.4 Irrigation

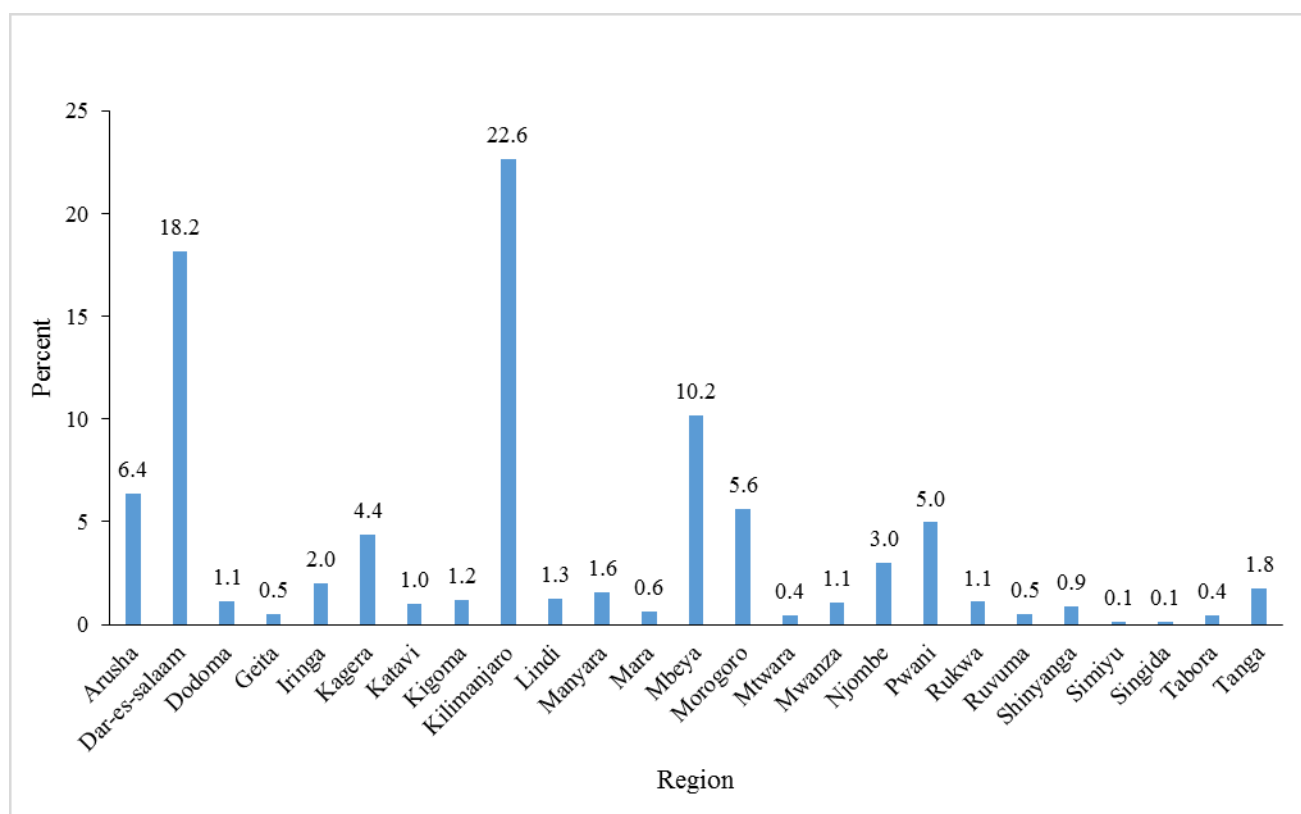
Irrigation is an important alternative to dependence on rainfall for farming activities, this practice ensures availability of crops in absence of rainfall. This section presents information on area under irrigation, source and methods used for irrigation.

2.4.1 Irrigated Area

Total number of operators using irrigation from different sources during the 2016/17 agricultural year was 437,112 of which 407,190 (93.2 percent) operators were in Tanzania Mainland and 29,922 (6.8 percent) operators in Zanzibar.

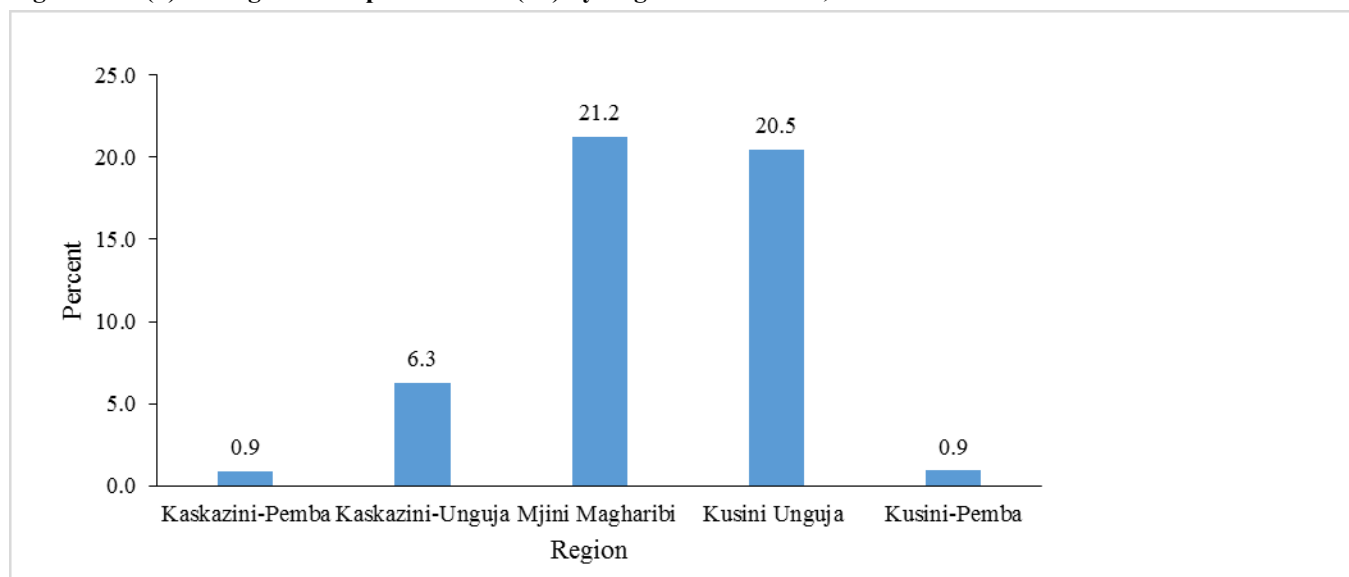
The total planted area under irrigation in Tanzania was 351,831 ha (2.5 percent) whereby in Tanzania Mainland had 342,199 ha (97.3 percent) and Zanzibar 9,632 ha (2.7 percent). In Mainland, Kilimanjaro was leading by 22.6 percent of the total planted area within the region, followed by Dar es Salaam (18.2 percent) and Mbeya (10.2 percent) while the least irrigated regions were Singida and Simiyu (0.1 percent) each (Figure 2.3.1(a)).

Figure 2.3.1(a): Irrigated and planted area (ha) by Region in Tanzania Mainland, 2016/17 AASS



For Zanzibar, Mjini Magharibi and Kusini Unguja region were leading on irrigated area (21.2 and 20.5 percent respectively (Figure 2.3.1(b)).

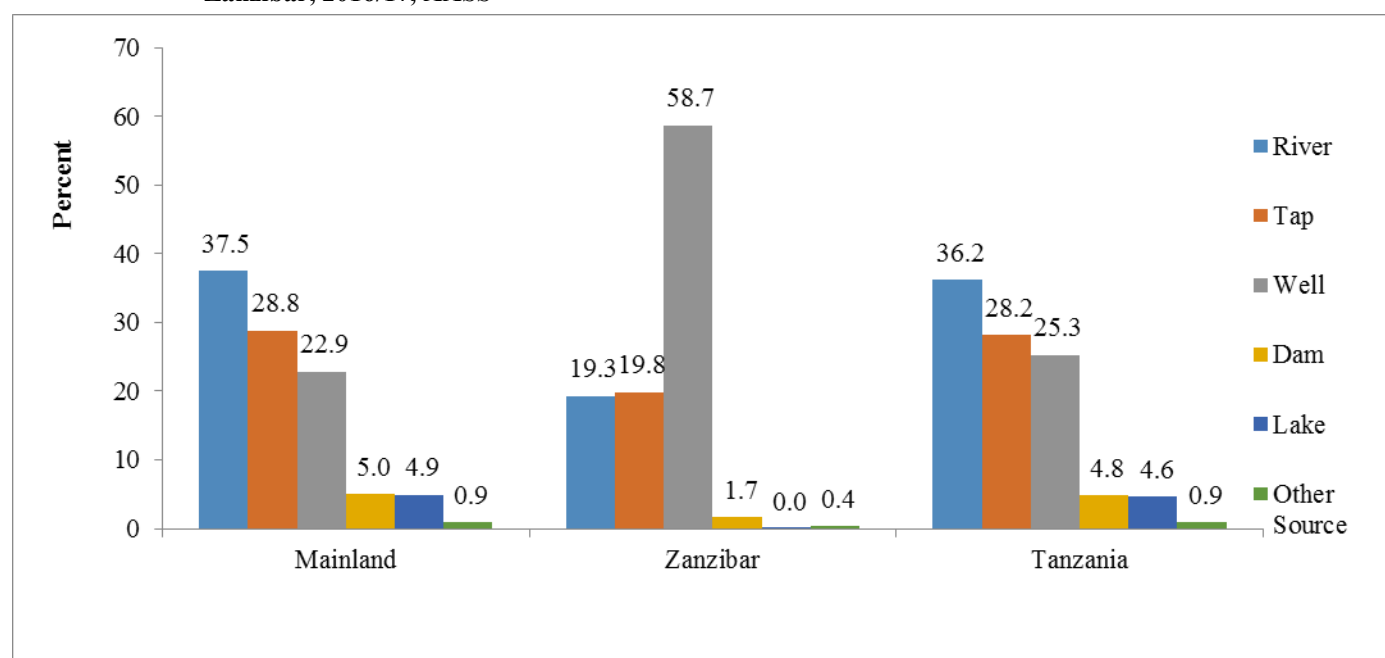
Figure 2.3.1(b): Irrigated and planted area (ha) by Region in Zanzibar, 2016/17 AASS



2.4.2 Sources of Irrigation

The main sources of water for irrigation in Tanzania were rivers as reported by 161,261 operators, which is equivalent to 36.2 percent, followed by tap water with 125,541 (28.2 percent) operators and wells (112,618; 25.3 percent). Few operators, 21,259 (4.8 percent) used dams and 20,452 (4.6 percent) used lakes. The main source of water for irrigation in the Mainland was rivers with 155,405 operators (37.5 percent) followed by 119,519 operators (28.8 percent) who used tap water and (94,806; 22.9 percent) used wells. In Zanzibar, the main source of water for irrigation was wells which was reported by 17,812 operators (58.7 percent) followed by tap water (6,022; 19.8 percent) and rivers (5,857; 19.3 percent) (Figure 2.3.2).

Figure 2.3.2: Percentage of Operators by different sources of Irrigation in Tanzania Mainland and Zanzibar, 2016/17, AASS

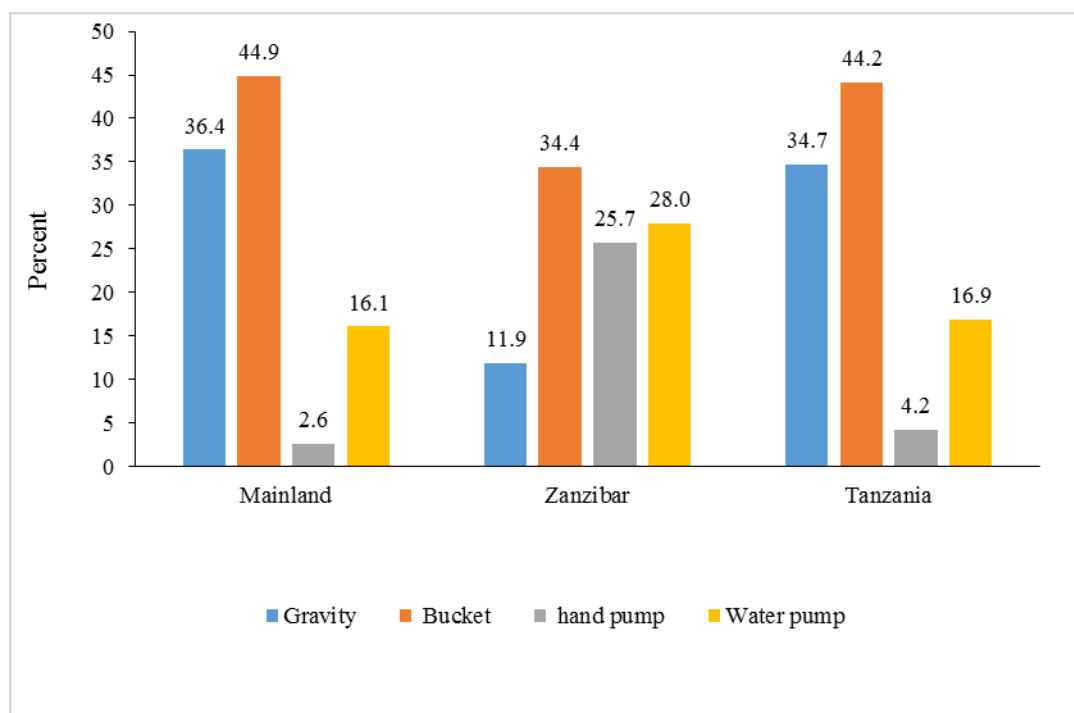


2.4.3 Methods of Irrigation

The main methods of obtaining water for irrigation commonly practiced in Tanzania by farm operators include gravity, buckets, hand pumps and water pump. Survey findings show that, in Tanzania, bucket was the main method of obtaining water for irrigation used by 194,230 (44.2 percent of all operators) followed by gravity (152,475; 34.7 percent) and water pump (74,353;

16.9 percent). In Tanzania Mainland, bucket was the main method of obtaining water for irrigation 183,705 (44.9 percent) followed by gravity (148,833; 36.4 percent) and water pump (65,796; 16.1 percent). In Zanzibar, bucket was the main method of obtaining water for irrigation 10,525 (34.4 percent) followed by water pumps (8,557; 28.0 percent) and hand pumps (7,877; 25.7 percent) (Figure 2.3.3)

Figure 2.3.3 Percentage of Operators by different methods of Irrigation in Tanzania Mainland and Zanzibar, 2016/17 AASS



CHAPTER THREE

3.0 Crop Production

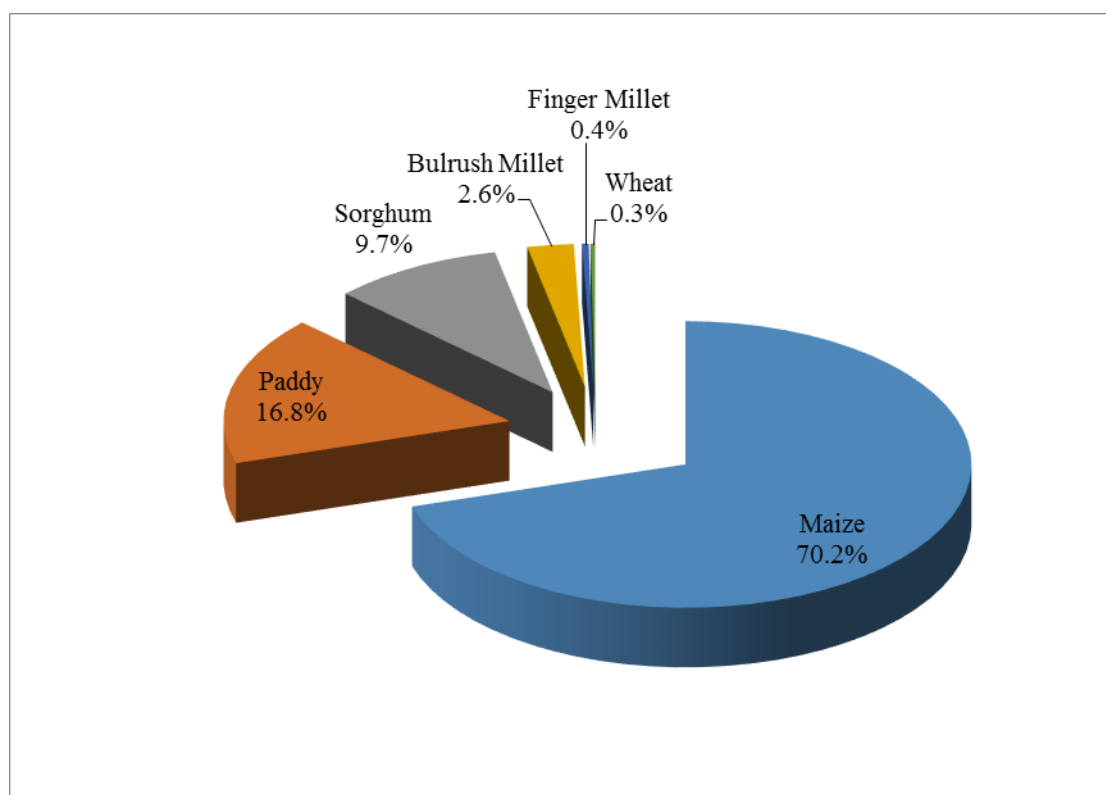
This chapter discusses in detail the findings of the survey on different crop types, number of operators, area planted and harvested, crop production and crop yield. Findings on crop production are presented by considering different groups of crops namely; cereals, roots and tuber, pulses, Oil and nuts, Fruits and vegetables, Fiber crops, Spices and permanent crops.

3.1 Cereal Crop Production

Cereal Crops are annual plants grown to produce grains which among others are used as food and animal feed. The important cereal crops produced in Tanzania are maize, paddy, sorghum, finger millet, bulrush millet, and wheat. The total planted area with cereals was 8,638,771 of which 8,608,727 ha (99.7percent) were in Tanzania Mainland and 30,045 ha (0.3 percent in Zanzibar. From the total planted area of cereals, only 6,855,270 ha (79.4 percent) were harvested out of which 6,827,902 ha (99.6 percent) were in Mainland and only 27,367 ha (0.4 percent) in Zanzibar.

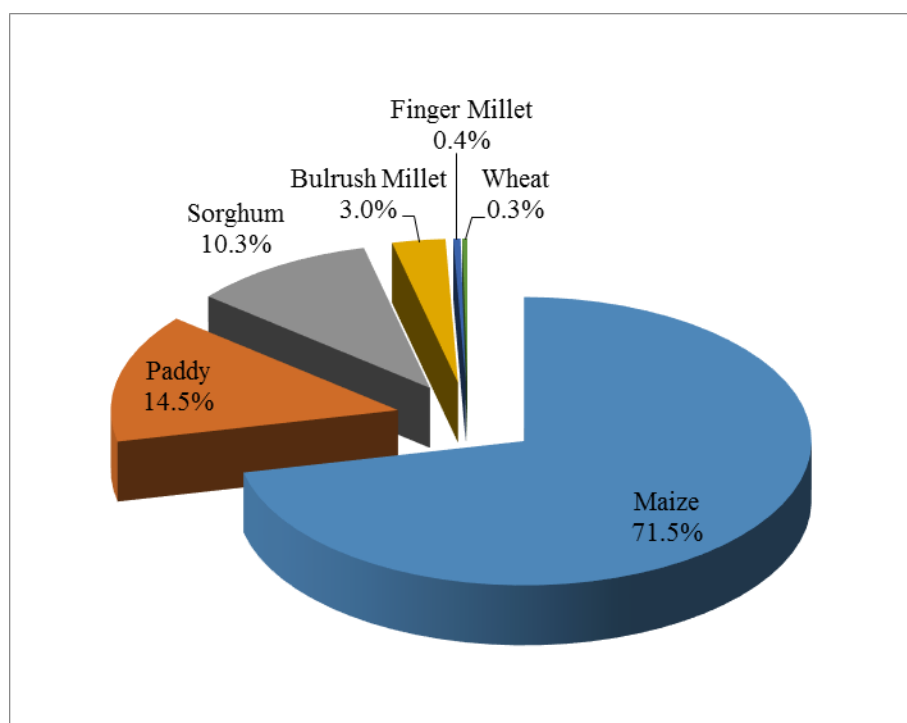
Furthermore, maize occupied the largest portion of the planted area with 6,067,996 ha (70.2 percent), followed by paddy (1,455,564 ha; 16.8 percent), sorghum (835,042 ha; 9.7 percent), bulrush millet (226,013 ha; 2.6 percent), finger millet (32,364 ha; 0.4 percent), and wheat (21,793 ha; 0.3 percent).

Figure 3.1(a): Percentage share of Planted Area (ha) with Cereals in Tanzania, 2016/17 AASS



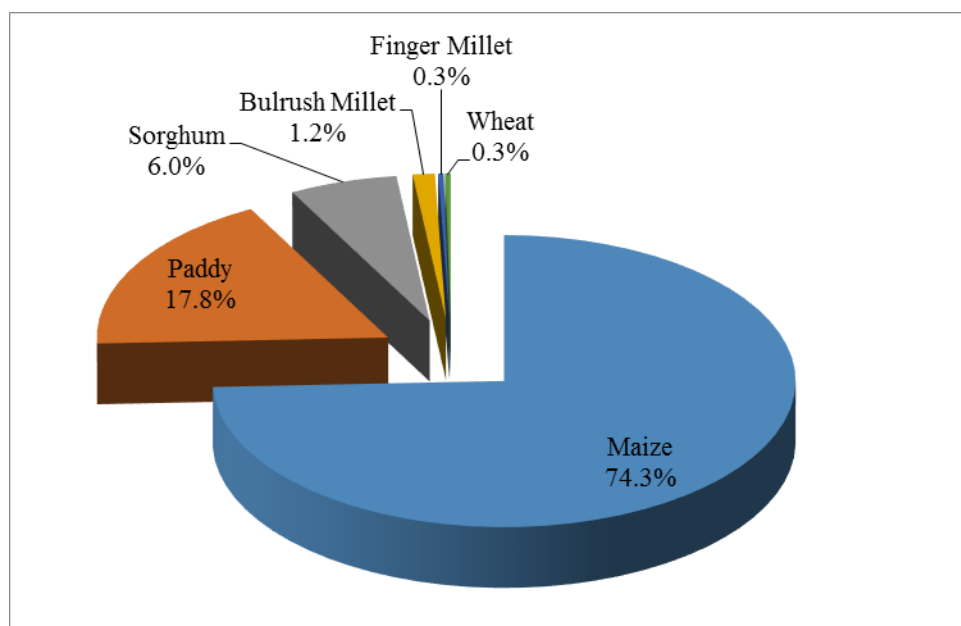
Variation was also noticed in harvested area for cereals, whereby, maize had the largest harvested area with 4,901,222 ha (71.5 percent) of which 4,896,306 ha were in the Mainland and 4,916 ha in Zanzibar. It was followed by paddy with 991,909 ha (14.5 percent) of which 970,141 ha were in the Mainland and 21,768 ha in Zanzibar, sorghum with 708,471 ha (10.3 percent) of which 707,910 ha were in Mainland and 560 in Zanzibar, bulrush millet with 205,838 ha (3.0 percent) of which 205,714 ha were in Mainland and 124 ha in Zanzibar, finger millet with 28,259 ha (0.4 percent) in Mainland and wheat with 19,571 ha (0.3 percent) in Mainland as well (Figure 3.1(b)).

Figure 3.1(b): Percentage share of Area (Ha) Harvested with Cereals, in Tanzania, 2016/17 AASS



Likewise, maize production was the highest amongst the cereals harvested with 5,766,984 tons (74.3 percent) in Tanzania where 5,759,863 tons from the Mainland and 7,120 tons in Zanzibar. This was followed by paddy (1,382,794 tons; 17.8 percent) of which 1,353,957 tons were harvested in Mainland and 28,837 tons in Zanzibar, sorghum (465,078 tons; 6.0 percent) of which 464,806 tons from Mainland and 272 tons from Zanzibar, bulrush millet (103,605 tons; 1.3 percent) of which 103,476 tons were harvested in Mainland and 127 tons in Zanzibar, wheat (24,385 tons; 0.3 percent) and finger millet (22,727 tons; 0.3 percent) in Mainland (Figure 3.1(c)).

Figure 3.1(c): Percentage share of Cereal production (Tons) in Tanzania, 2016/17 AASS



3.1.1 Maize

Maize was the most widely produced crop in Tanzania being grown by 7,431,144 operators of which 7,406,070 (99.7 percent) were in Tanzania Mainland and 25,074 (0.3 percent) in Zanzibar. Results also indicate that 4,485,445 operators (60.4 percent) engaged in maize production during long rainy season and 2,945,669 operators (39.6 percent) during short rainy season.

The total planted area for maize in Tanzania was 6,067,996 ha of which 6,062,433 ha (99.9 percent) in Tanzania Mainland and 5,563 ha (0.1 percent) in Zanzibar. Among regions in Tanzania Mainland, Tabora had the largest maize planted area with 690,340 ha (11.4 percent), followed by Tanga (494,683 ha; 8.2 percent) and Manyara (420,938 ha; 7.0 percent). Dar es Salaam region recorded the lowest maize planted area with 2,713 ha (0.04 percent).

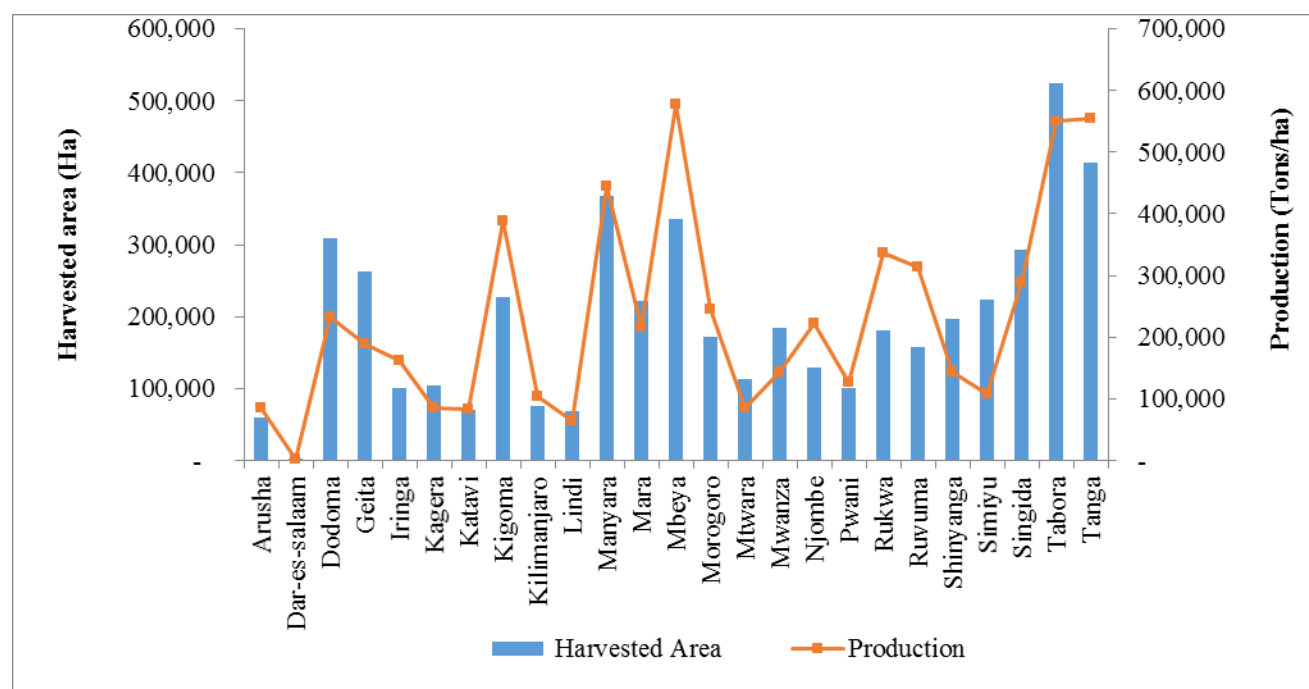
In Zanzibar, Kaskazini Unguja was leading with 2,353 ha (42.3 percent) planted area with maize followed by Kaskazini Pemba with 2,008 ha (36.1 percent) whereas Mjini magharibi had the lowest maize planted area (316 ha; 5.7 percent).

On the other hand, the area harvested with maize was 4,901,222 ha (80.5 percent of planted area) whereby 4,896,306 ha were in Tanzania Mainland and 4,916 ha in Zanzibar. Furthermore, a total

of 1,424,220 ha of maize were harvested during short rainy season and 3,477,002 ha in long rainy season.

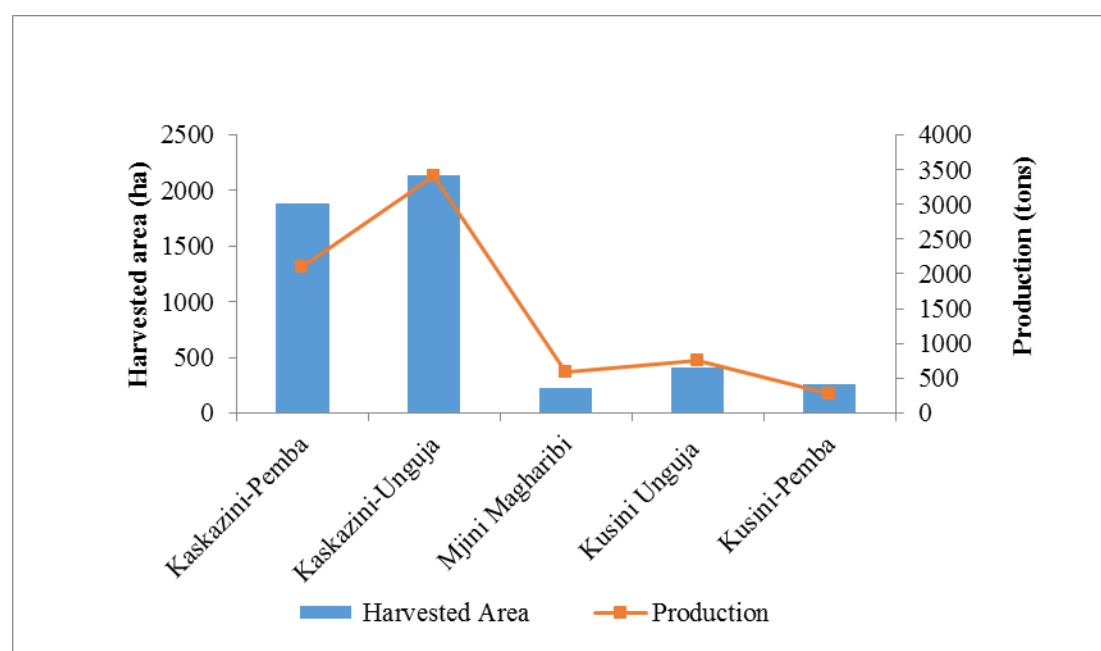
Results also reveal that, production of maize in Tanzania was 5,766,984 tons where 5,759,863 tons (99.9 percent) were produced in Tanzania Mainland (yield of 2.2tons/ha) and 7,120 tons (0.1 percent) in Zanzibar (.yield of 3.1 tons/ha) In Mainland, Mbeya region recorded the highest maize production of 578,230 tons (10.0 percent) with crop yield 3.7 tons/ha, followed by Tanga 555,222 tons(9.6 percent) with yield 2.3 tons/ha and Tabora was 551,343 tons(9.5 percent) with yield 2.2 tons/ha while Dar es Salaam region reported the lowest maize production of 2,004 tons(0.03 percent) with crop yield of 1.9 tons/ha (Figure 3.1.1(a))

Figure 3.1.1(a): Maize Production and Yield by Region, Tanzania Mainland, 2016/17 AASS



Moreover, Kaskazini Unguja region recorded the highest maize production in Zanzibar with 3,411 tons (47.9 percent) with crop yield of 3.3 tons/ha, followed by Kaskazini Pemba 2,099 tons (29.5 percent) with yield of 2.4 tons/ha) while the lowest production was reported in Kusini Pemba with 269 tons (3.8 percent) and yield of 2.1 tons/ha (Figure 3.1.1(b))

Figure 3.1.1(b): Maize Production and Yield by Region in Zanzibar, 2016/17 AASS



3.1.2 Paddy

Paddy was the second most produced cereal crop in the country with 1,676,859 operators of which 1,597,123 (95.3 percent) were in Tanzania Mainland and 79,736 (4.7 percent) in Zanzibar. Paddy is commonly cultivated during the short rainy season involving 1,085,844 operators (64.8 percent) compared to long rainy season with 591,016 operators (35.2 percent)

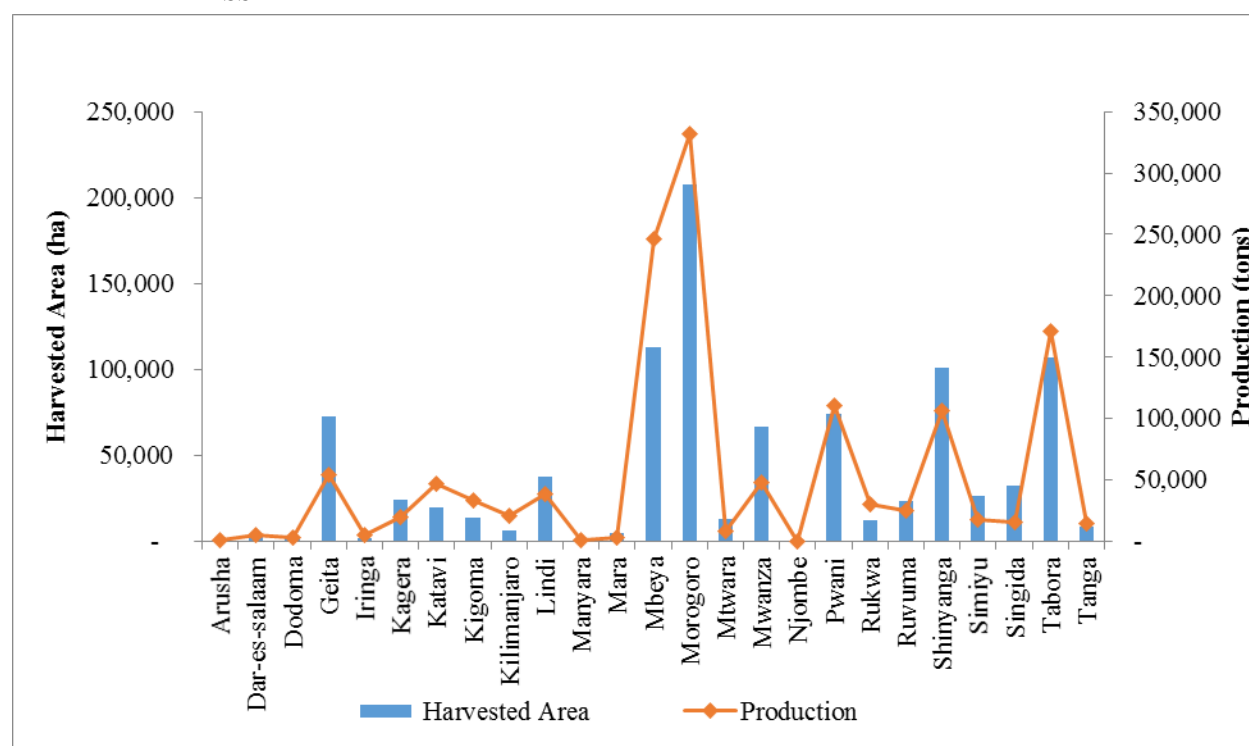
Furthermore, the total planted area with paddy in Tanzania was 1,455,564 ha whereby 1,431,996 ha (98.4 percent) were planted in Mainland and 23,567 ha (1.6 percent) in Zanzibar. Among regions in Mainland, Tabora had the largest planted area with paddy which was 248,703 ha (17.0 percent), followed by Morogoro (221,864 ha; 15.2 percent) and Shinyanga (212,990 ha; 14.5 percent). Arusha region recorded the lowest planted area with paddy accounting for 163 ha (0.01 percent).

On the other hand, Kusini Pemba was leading in Zanzibar with 8,196 ha (34.8 percent) planted area with paddy followed by Kaskazini Pemba 5,983ha (25.4 percent) while Mjini Magharibi had the lowest area planted with paddy (971 ha; 4.1 percent)

The total harvested area with paddy in Tanzania was 991,909 ha of which 970,141 ha (97.8 percent) were harvested in Mainland and 21,768 ha (2.2 percent) in Zanzibar. Total production of paddy in Tanzania was 1,382,794 tons whereby 1,353,957 tons (97.9 percent) were in Mainland and 28,837 tons (2.1 percent) in Zanzibar, with average yields of 2.5 and 3.1 respectively.

Morogoro region recorded the highest paddy production in Mainland with 332,280 tons (24.0 percent) and crop yield 4.0 tons/ha, followed by Mbeya with 246,649 tons (17.8 percent) with yield 2.2 tons/ha and Tabora was 171,150 tons (12.4 percent) with yield 2.9 tons/ha while Njombe region had the lowest paddy production of 235 tons (0.02 percent) with crop yield of 4.0 tons/ha (Figure 3.1.2).

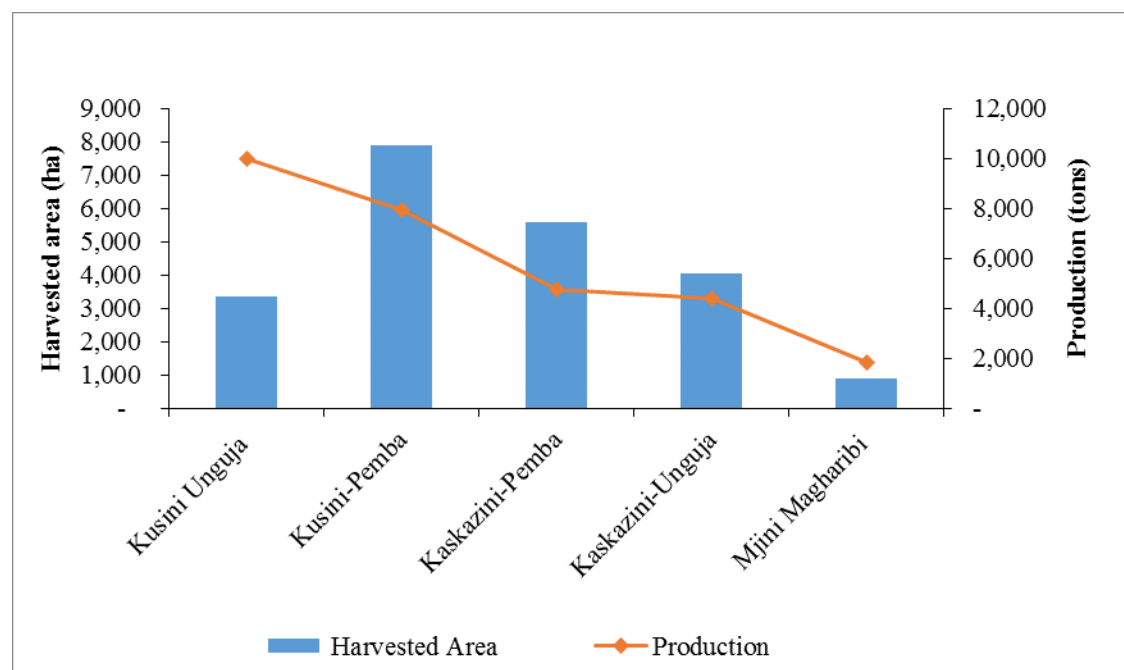
Figure 3.1.2: Harvested area (ha) and production (tons) of paddy by Region in Tanzania Mainland, 2016/17 AASS



In Zanzibar, the total area planted with paddy was 23,567 ha of which 21,768 ha were harvested resulting to a total production of 28,837 tons of paddy with an average yield of 3.1 ton/ha. The highest production of paddy was recorded in Kusini Unguja with 9,990 tons followed by Kusini

Pemba (7,912 tons). Mjini Magharibi was the least producer of paddy with a total production of 1,823 tons (Figure 3.1.2).

Figure 3.1.2: Area Planted and production (tons) of paddy by Region in Zanzibar, 2016/17 AASS



3.1.3 Sorghum

A total of 1,112,487 operators in Tanzania were engaged in growing sorghum where by 1,108 752 (99.7 percent) were in Tanzania Mainland and 3,735 (0.3 percent) in Zanzibar. During the short rainy season, the numbers of operators engaged in growing sorghum were 343,030 (30.8 percent) while in the long rainy season were 769,457 (69.2 percent).

The total planted area with sorghum was 835,042 ha in which 834,284 ha (99.9 percent) were in Tanzania Mainland and 758 ha (0.1 percent) in Zanzibar. The total production of sorghum was 465,078 tons of which 464,806 tons (99.9 percent) were in Tanzania Mainland and 272 tons (0.1 percent) was in Zanzibar.

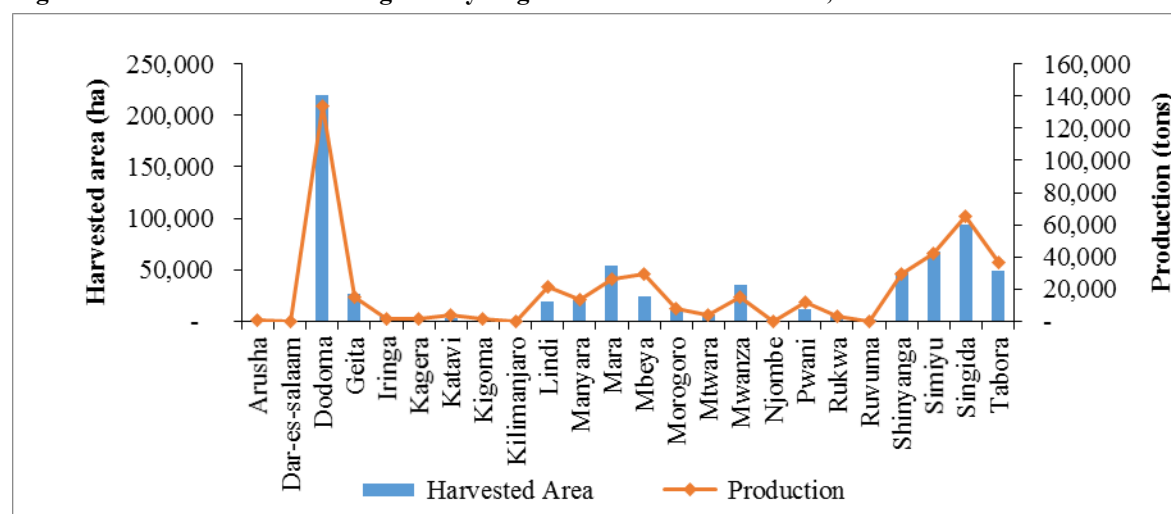
Among regions in Tanzania Mainland, Dodoma had the largest planted area with sorghum which is (257,690 ha; 31.0 percent), followed by Singida (98,263 ha; 12.0 percent) and Simiyu (76,619

ha; 9.2 percent). Dar es Salaam region recorded the lowest sorghum planted area with 38 ha (less than 1 percent). In Zanzibar, four regions cultivated sorghum whereby Kaskazini Pemba was leading with (653 ha; 86.1 percent) planted area with sorghum while Kaskazini Unguja had the lowest planted area with sorghum (18 ha; 2.4 percent)

On the other hand, area harvested with sorghum was 708,471 ha (84.5 percent) of planted area in Tanzania, of which 707,910 ha were in Mainland and 560 ha in Zanzibar. A total amount of 173,685 ha of sorghum were harvested during short rainy season and 534,786 ha in long rainy season. Total production of sorghum in Tanzania was 465,078 tons of which 464,806 tons (99.9 percent) were in Tanzania Mainland (yield of 0.6 tons/ha) and 272 tons (0.1 percent) in Zanzibar (.yield of 0.5 tons/ha)

Among regions in Mainland, Dodoma was leading in sorghum production, accounted for 133,976 tons (29.0 percent) followed by Singida (65,533 tons; 14.1 percent) and Simiyu (42,167 tons; 9.1 percent). The least production of sorghum was realized in Dar es Salaam region with only 9 tons which is less than one percent while Zanzibar had a total production of 272 tons (Figure 3.1.3).

Figure 3.1.3: Production of Sorghum by Region in Tanzania Mainland, 2016/17 AASS



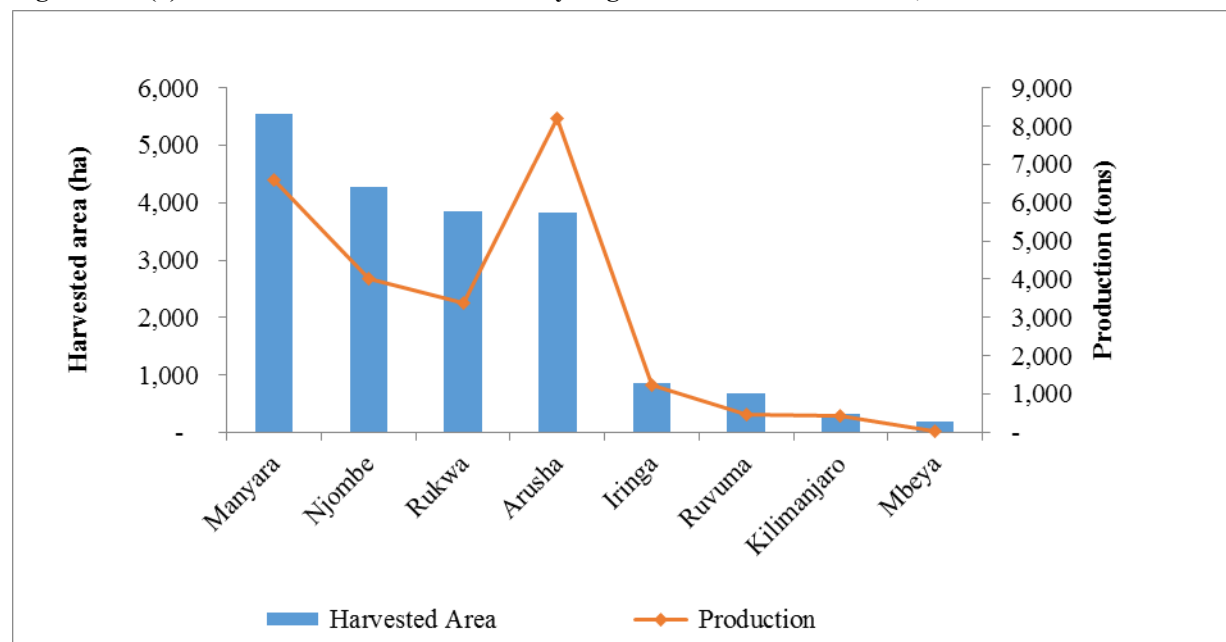
3.1.4 Wheat

Wheat was the cereal crop produced only in Tanzania Mainland covering Arusha, Kilimanjaro, Njombe, Ruvuma, Iringa, Mbeya, Rukwa, and Manyara regions. It was grown by 30,254 operators of which 824 operators were engaged in production during short rainy season and 29,429 during long rainy season.

The total planted area with wheat was 21,793 ha in Tanzania, of which 914 ha (4.2 percent) were planted during short rainy season and 20,879 ha (95.8 percent) in long rainy season. Manyara region recorded the highest land area planted with wheat 6,198 ha (28.4 percent). It was followed by Njombe (5,306 ha; 24.3 percent) and Rukwa region (4,131 ha; 18.9 percent). Mbeya region had the lowest area planted with wheat 187 ha (0.9 percent).

Area harvested with wheat was 19,571 ha which is equivalent to 89.8 percent of total area planted with wheat. In production a total of 24,385 tons of wheat were produced with average yield of 1.2 tons/ha. Arusha region recorded the highest wheat production of 8,221 tons with crop yield of 1.2 tons/ha followed by Manyara (6,589 tons; 4.1 tons/ha), Njombe (4,006 tons; 1.4 tons/ha) and Rukwa (3,382 tons; 3.6 tons/ha) (Figure 3.1.4 (a))

Figure 3.1.4(a): Wheat Production and Yield by Region in Tanzania Mainland, 2016/17 AASS



3.1.5 Bulrush Millet

Bulrush millet was another cereal crop produced by few regions in Tanzania. The total number of operator engaged in bulrush millet production were 258,045 of which 257,351 were in Tanzania Mainland and 694 in Zanzibar.

During the 2016/17 agriculture year, bulrush millet was planted in the total area of 226,013 ha of which 225,857 ha were in Tanzania Mainland and 157 ha in Zanzibar. In Tanzania Mainland, Dodoma had the largest planted area with bulrush millet which is 123,788 ha (54.8 percent), followed by Singida (58,834 ha; 26.0 percent) and Shinyanga (24,874 ha; 11.0 percent). Simiyu region recorded the lowest area planted with bulrush millet 338 ha (0.1 percent).

Findings shows that two regions cultivated bulrush millet in Zanzibar whereby Kaskazini Pemba was leading with 142 ha (90.7 percent) while Kaskazini Unguja had the lowest area planted with bulrush millet 15 ha (9.3 percent).

Area harvested with bulrush millet was 205,838 ha which is 91.1 percent of planted area of which 205,714 ha were in Mainland and 124 123 ha in Zanzibar. A total number of 23,112 ha of bulrush millet were harvested during short rainy season and 182726 ha in long rainy season.

The results also disclose that, in Mainland a total production of 103,605 tons with an average yield of 0.5 tons/ha of which 11,032 11,108 tons were produced during short rainy and 92,443 92,496 tons in long rainy season. Dodoma was leading in terms of production with 43,800 tons (42.3 percent) followed by Singida (34,836 tons; 33.7 percent) and Shinyanga (6,027 tons; 5.8 percent). The least production of bulrush millet was in Kagera 39 tons (0.04 percent). Bulrush millet is practiced in only two regions of Zanzibar, where Kaskazini Pemba had 127 tons and only 2 tons were produced in Kaskazini Unguja (Table 3.1.5).

Table 3.1.5: Bulrush millet Production and Yield by Region in Tanzania, 2016/17 AASS

Region	Planted Area (ha)	Harvested Area (ha)	Quantity Harvest (tons)	Yield (tons/ha)
Dodoma	123,788	116,654	43,800	0.4
Singida	58,834	56,182	34,836	0.6
Tabora	4,382	4,018	10,601	2.6
Kigoma	3,530	3,530	2,303	0.7
Shinyanga	24,874	18,046	6,027	0.3
Kagera	466	466	39	0.1
Mwanza	8,243	5,371	4,765	0.9
Mara	652	652	625	1
Simiyu	338	338	434	1.3
Geita	456	456	46	0.1
Mainland	225,857	205,714	103,476	0
Kaskazini-Unguja	15	15	2	0.1
Kaskazini-Pemba	142	109	127	1.2
Zanzibar	157	123	129	1.00
Tanzania	226,013	205,838	103,605	0.5

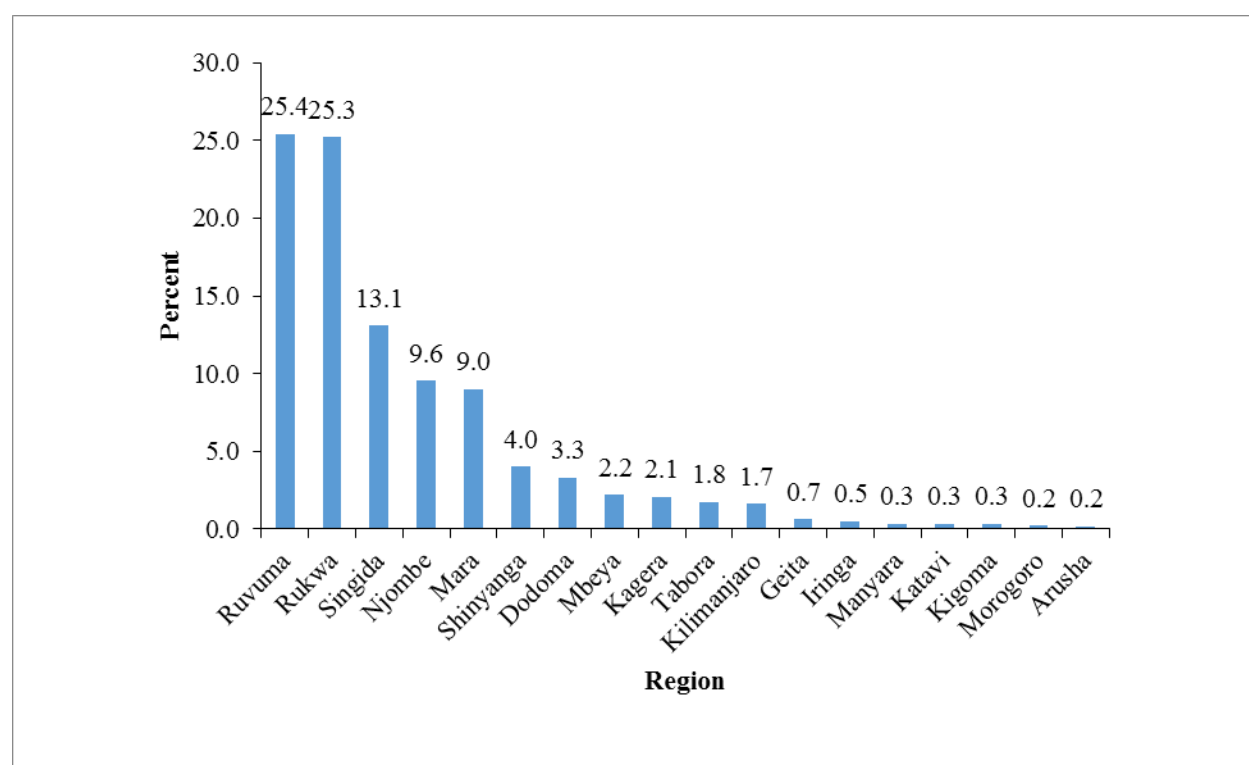
3.1.6 Finger Millet

Finger Millet was only grown in Tanzania Mainland with a total of 74,086 operators engaged in production of which 26,245 operators were engaged during the short rainy season and 47,841 in the long rainy season.

Finger millet had a total planted area of 32,364 ha of which 10,335 ha (31.9 percent) was planted during the short rainy season and 22,029 ha (68.1 percent) in long rainy season. The results also show that, 28,259 ha which is equivalent to 87.3 percent of the planted area were harvested with a total of 22,727 tons with an average yield of 0.8 tons/ha.

Ruvuma region was leading in finger millet production, accounted for 5,778 tons equivalent to 25.5 percent of the total production in the country, it was followed by Rukwa (5,740 tons; 25.3 percent) and Singida (2,978tons; 13.1 percent). The region with small production was Arusha with 43 tons (0.2 percent) of the total production (Figure 3.1.6).

Figure 3.1.6: Percentage production of Finger Millet by Region, 2016/17 AASS



3.2 Roots and Tuber Crop Production

Roots and tuber crops grown in Tanzania include cassava, sweet potatoes, irish potatoes, yams and cocoyams. These crops were produced during both, short and long rainy seasons but predominantly in the later for both Tanzania Mainland and Zanzibar. Considering the two rainy seasons, the total number of operators engaged in roots and tuber productions were 3,365,780 of which 3,202,615 operators (95.1 percent) were in Tanzania Mainland and 163,165 (4.9 percent) in Zanzibar.

The total planted area with roots and tuber was 1,292,942 ha among these 1,248,444 ha (96.6 percent) were planted in Mainland and 44,497 ha (3.4 percent) in Zanzibar. Furthermore, the total harvested area was reported to be 692,028 ha of which 662,454 ha (95.7 percent) were in Mainland and 29,575 ha (percent) in Zanzibar. In addition, the total quantity harvested was 1,122,637 tons of which 1,051,218 tons (93.6 percent) were in Mainland and 71,419 tons (6.4 percent) in Zanzibar.

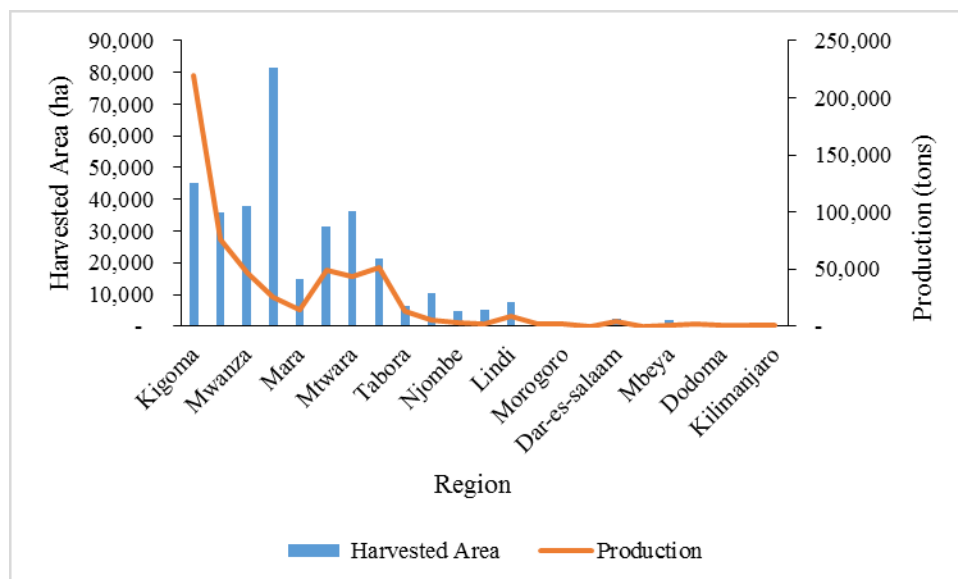
3.2.1 Cassava

Cassava was the major crop among root and tuber group of crops in Tanzania. It engaged 2,072,914 operators of which 1,960,298 were in Tanzania Mainland and 112,616 in Zanzibar. The total planted area for cassava was 888,355 ha of which 853,015 ha (96.0 percent) were in Tanzania Mainland and 35,340 ha (4 percent) in Zanzibar. Among regions in Tanzania Mainland, Kigoma had the largest planted area with cassava which is 138,251 ha (16.2 percent), followed by Geita (127,807 ha; 15.0 percent) and Mwanza (114,654 ha; 13.4 percent). Kilimanjaro region recorded the lowest cassava planted area with 296 ha (less than 1 percent). Furthermore, Kaskazini Pemba region was leading in Zanzibar with 11,564 ha (32.7 percent) planted area with cassava while Mjini Magharibi had the lowest area (1,616 ha; 4.6 percent)

Furthermore, the total harvested area for cassava was 369,405 ha (58.8 percent of planted area) of which 347,499 ha were in Mainland and 21,906 ha in Zanzibar. Among regions in Mainland, Kigoma region had the largest harvested area with cassava occupying 138,251 ha (16.2 percent), followed by Geita (127,807 ha; 15.0 percent) and Mwanza (114,654 ha; 13.4 percent). Kilimanjaro region recorded the lowest cassava harvested area 296 ha (less than 1 percent). Findings also reveal that Kaskazini Pemba in Zanzibar was leading with 11,564 ha (32.7 percent) harvested area with cassava while Mjini Magharibi had the lowest area (1,616 ha; 4.6 percent)

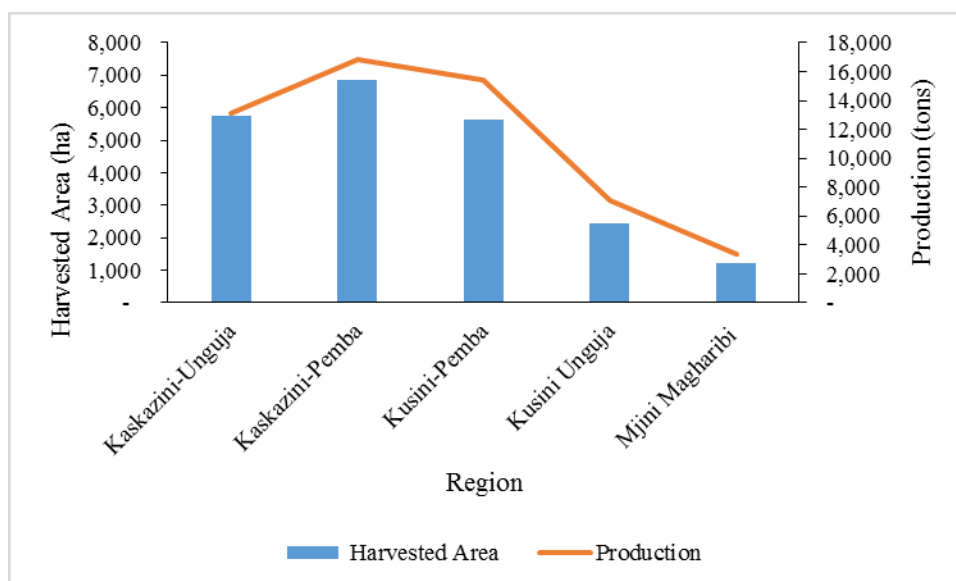
Furthermore, production of cassava in Tanzania amounted to 628,610 tons of which 572,727 tons (91.1 percent) were produced in Tanzania Mainland and 55,884 tons (8.9 percent) in Zanzibar. The highest production of cassava was reported in Kigoma region (219,708 tons; 38.4 percent of the Mainland total) followed by Geita (76,434 tons; 13.3 percent) and Mwanza (46,415 tons; 8.3 percent). Results also show that the lowest production were in Kilimanjaro (384 tons; 0.07percent) (Figure: 3.1.2 (a)).

Figure 3.1.2(a): Harvested Area (ha) and Production (tons) of cassava by region in Tanzania Mainland, 2016/17 AASS



In Zanzibar, the highest cassava production was reported in Kaskazini Pemba region (16,865 tons; 30.2 percent of the Zanzibar total) followed by Kusini Pemba (15,438 tons; 27.2 percent) and Kaskazini Unguja (13,119 tons; 23.5 percent). The lowest production was in Mjini Magharibi (3,374 tons; 6.0 percent) (Figure: 3.1.2 (b)).

Figure 3.1.2(b): Harvested Area (ha) and Production (tons) of cassava by region in Zanzibar, 2016/17 AASS



Results show that the average yield of cassava in Mainland was 2.0 tons/ha where as Kigoma region had the highest yield of 4.8 tons/ha followed by Rukwa (3.0 tons/ha) and the least was Pwani region (0.3 tons/ha). On the other hand, the average yield for this crop in Zanzibar was 2.6 tons/ ha with highest producing region being Kusini Unguja (2.9 tons/ha) followed by Kusini Pemba (2.74 tons/ha) while the least region was Kaskazini Unguja (2.3 tons/ha)

3.2.2 Sweet potatoes

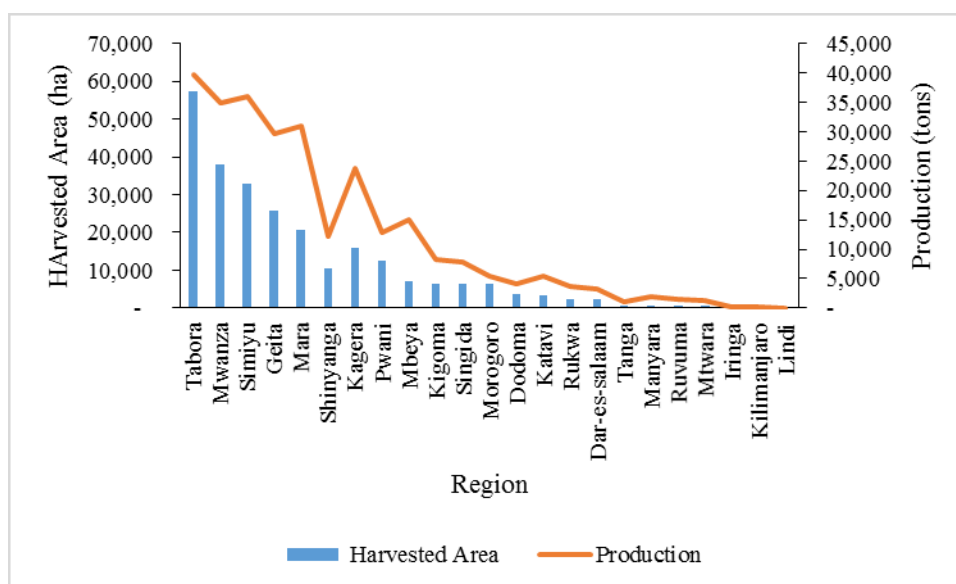
A total of 1,076,320 operators were engaged in sweet potatoes' production in Tanzania, of which 1,040,772 operators (96.7 percent) were in Mainland and 35,549 (3.3 percent) in Zanzibar. Results further indicate that, 426,253 operators engaged in sweet potatoes production during short rainy season and 614,519 operators during long rainy season. The crop was also grown in Zanzibar whereby 18,885 and 16,663 operators were engaged during short and long rainy seasons, respectively.

The planted area for sweet potatoes in Tanzania was 331,475 ha of which 324,229 ha (97.8 percent) were reported in Mainland and 7,246 ha (2.2 percent) in Zanzibar. Among regions in Mainland, Tabora region had the largest planted area with sweet potatoes 75,469 ha (23.3 percent), followed by Mwanza (52,914 ha; 16.3 percent) and Simiyu (38,530 ha; 11.9 percent). Lindi region recorded the lowest area planted with sweet potatoes at 47 ha (less than 1 percent). Results also reveal that Kaskazini Pemba region was leading in Zanzibar with 3,168 ha (43.7 percent) planted area with sweet potatoes while Kusini Pemba had the lowest planted area (188 ha; 2.6 percent)

The total harvested area for sweet potatoes was 260,299 ha of which 254,177 ha (97.6 percent) were reported in Mainland and 6,121 ha (2.4 percent) in Zanzibar. Among regions in Mainland, Tabora had the largest harvested area with sweet potatoes which is 57,365 ha (22.6percent), followed by Mwanza (38,051 ha; 15.0 percent) and Simiyu (32,940 ha; 13.0 percent). Lindi region recorded the lowest harvested area with sweet potatoes 38 ha (less than 1 percent). Results also reveal that Kaskazini Pemba region was leading in Zanzibar with 2,740 ha (44.8 percent) harvested area for sweet potatoes while Kusini Pemba had the lowest area (79 ha; 1.3 percent).

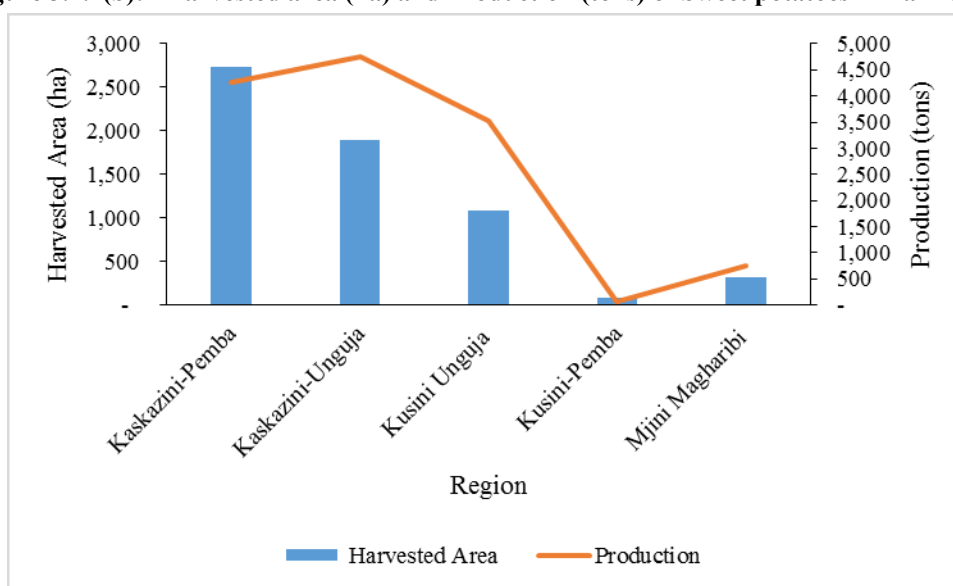
The total of 292,363 tons was produced of which 279,010 tons (95.4 percent) were in Mainland and 13,353 tons (4.6 percent) in Zanzibar. The highest production of sweet potatoes was reported in Tabora region 39,839 tons (14.3 percent of the Mainland total) followed by Simiyu (35,030 tons; 12.3 percent) and Simiyu (35,977 tons; 12.9 percent) while the lowest production was in Lindi (59 tons; 0.02 percent) (Figure 3.2.2 (a)).

Figure 3.2.2(a): Harvested area (ha) and Production (tons) of Sweet potatoes in Tanzania Mainland, 2016/17 AASS



In Zanzibar, the highest sweet potatoes production was reported in Kaskazini Unguja region (4,752 tons; 35.6 percent), followed by Kaskazini Pemba (4,270 tons; 32.0 percent) and Kusini Unguja (3,516 tons; 26.3 percent), whereas the lowest production was reported in Kusini Pemba (74 tons; 0.6 percent) (Figure 3.2.2(b)).

Figure 3.2.2(b): Harvested area (ha) and Production (tons) of Sweet potatoes in Zanzibar, 2016/17 AASS



In Mainland, the highest average yield of sweet potatoes was reported in Manyara with an average crop yield of 4.6 tons/ha, followed by Mbeya (4.2 tons/ha) and Kigoma (3.9 tons/ha), while the highest sweet potatoes yield in Zanzibar was reported in Kusini Unguja region (6.6 tons/ha) followed by Kaskazini Unguja (5.0 tons/ha) (Figure 3.2.2).

3.2.3 Irish potatoes

Irish potatoes are grown in Tanzania Mainland. The total number of operators engaged in growing Irish potatoes was 173,772 of which 64,239 operators engaged during short rainy season and 109,533 operators in long rainy season.

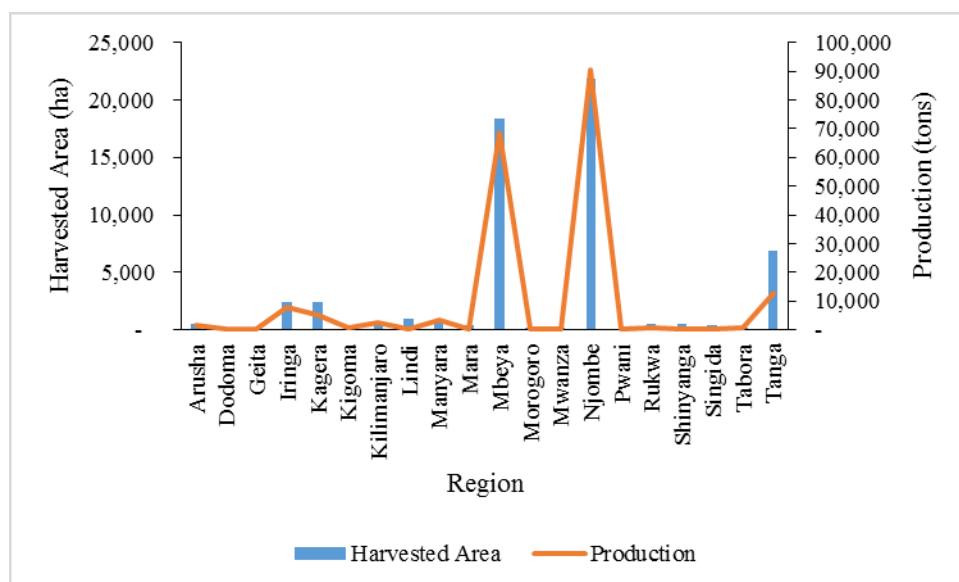
Planted area for irish potatoes in Tanzania was 66,356 ha of which among region, Njombe had the largest planted area with irish potatoes which is 26,727 ha (40.3 percent), followed by Mbeya (18,436 ha; 27.8 percent) and Tanga (8,326 ha; 12.5 percent). The lowest area planted was recorded in Dodoma region with 110 ha (less than 1 percent).

The harvested area for Irish potatoes was 57,458 ha of which among regions in Mainland, Njombe region had the largest harvested area with irish potatoes which is 21,822 ha (38.0 percent), followed by Mbeya (18,436 ha; 32.1 percent) and Tanga (6,845 ha; 12.5 percent) and the lowest was in Dodoma region with 110 ha (less than 1 percent) (Figure 3.2.3).

A total of 195,324 tons was produced of which the highest production was reported in Njombe region 90,646 tons (46.4 percent of the Tanzania Mainland total) followed by Mbeya (68,800 tons, 35.2 percent) and Tanga (12,722 tons, 6.5 percent), while the lowest production were reported in Dodoma (138 tons, 0.07 percent).

In Mainland the highest average yield of Irish potatoes was reported in Kilimanjaro (8.9 tons/ha) followed by Njombe (8.5 tons/ha) and Iringa (8.3 tons/ha).

Figure 3.2.3: Harvested Area (ha) and Production (tons) of Irish potatoes in Tanzania Mainland, 2016/17 AASS



3.2.4 Yams

A total of 11,903 operators were engaged in Yams production of which 3,002 (25.2 percent) were in Tanzania Mainland and 8,901 (74.8 percent) in Zanzibar. Furthermore, 9,061 operators (76.1 percent) in Tanzania Mainland were engaged during short rainy season and 2,842 (23.9 percent) in the long rainy season.

Yams were planted in the total area of 2,256 ha of which 1,015 ha (45 percent) in Tanzania Mainland and 1,241 ha (55 percent) in Zanzibar. Among regions in Mainland, Shinyanga had the largest planted area with yams which was 369 ha (36.4 percent), followed by Mtwara (225 ha;

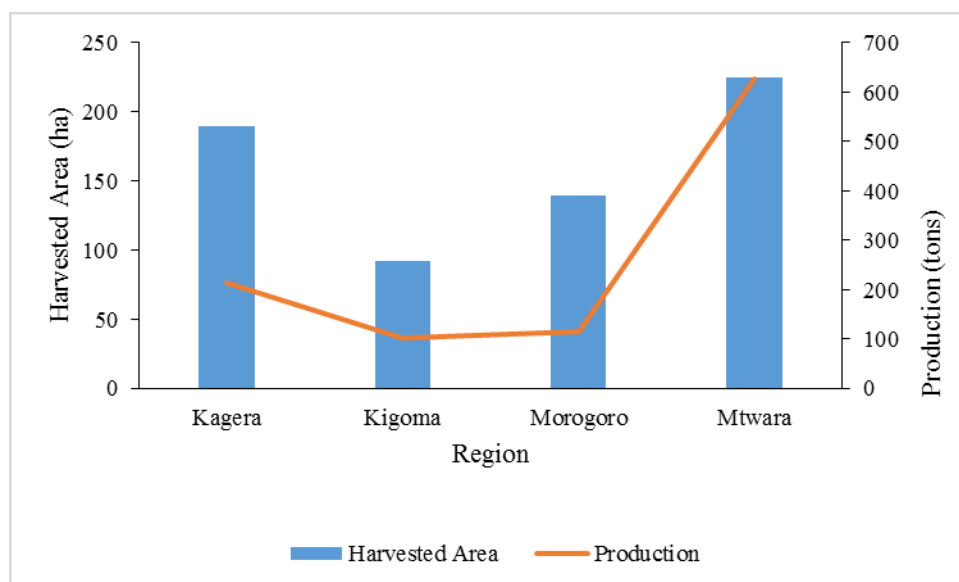
22.2 percent) and Kagera (189 ha; 18.7 percent). Kigoma region recorded the lowest planted area with Yams 92 ha (9.1 percent).

In Zanzibar, Kaskazini Unguja was leading with 981 ha (79.1 percent) planted area with Yams followed by Kusini Unguja 142 (11.5 percent) while Mjini Magharibi had the lowest (84 ha; 6.8 percent)

The results also disclose that 1,678 ha were harvested, of which 646 ha (38.5 percent) in Tanzania Mainland and 1,032 ha (61.5 percent) in Zanzibar. Total production of yams in Tanzania was 2,598 tons of which 1,058 tons (40.7 percent) were in Mainland and 1,541 tons (58.3 percent) in Zanzibar, with average yields of 3.2 and 3.9 respectively.

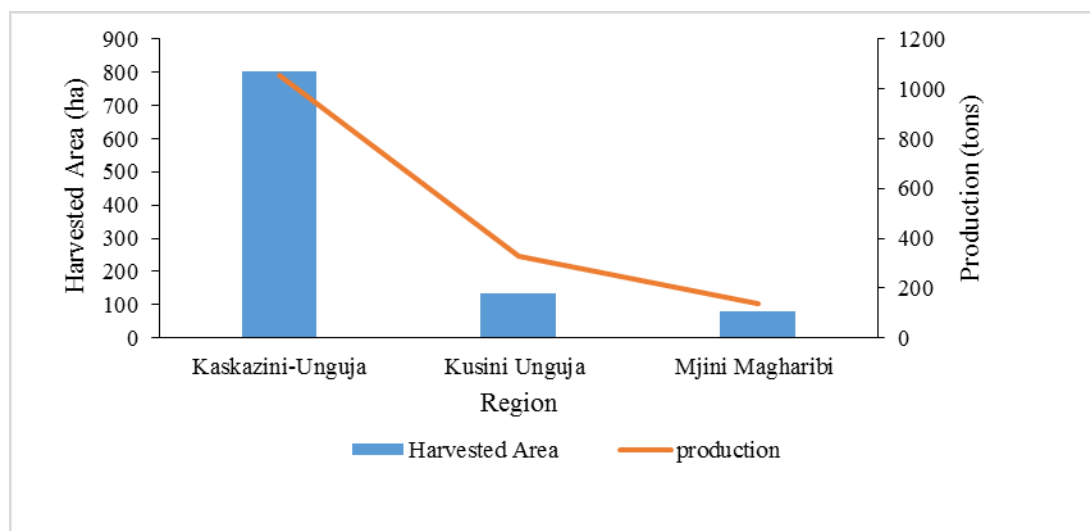
In Tanzania Mainland, Mtwara region recorded the highest yams production of 626 tons (59.2 percent) with crop yield 2.8 tons/ha, followed by Kagera 214 tons (20.2 percent) with yield 1.1 tons/ha and Morogoro was 115 tons (10.9 percent) with yield 0.8 tons/ha while Kigoma region reported the lowest yams production of 102 tons (9.7 percent) with crop yield of 1.1 tons/ha (Figure 3.1.7.4(b)).

Figure 3.2.4(a): Areas Harvested (ha) and Production (tons) of yams by Regions in Tanzania Mainland, 2016/17 AASS



For the case of Zanzibar Kaskazini Unguja was leading with production of 1,054 tons of yams, followed by Kusini Unguja (328 tons), while Mjini Magharibi recorded the lowest production of yams with a total production of 138 tons. (Figure 3.1.4(b)).

Figure 3.2.4(b): Areas Harvested (ha) and Production (tons) of yams by regions in Zanzibar during, 2016/17 AASS



3.2.5 Cocoyams

Cocoyam was grown by few regions in Tanzania Mainland and all regions in Zanzibar. It engaged a total of 30871 operators of which 24845 (80.5 percent) were in Tanzania Mainland and 6026 (19.5 percent) in Zanzibar. During the short rainy season, the number of operators planted Cocoyam were 11646(37.7 percent) while in the long rainy season were 19224(62.3 percent).

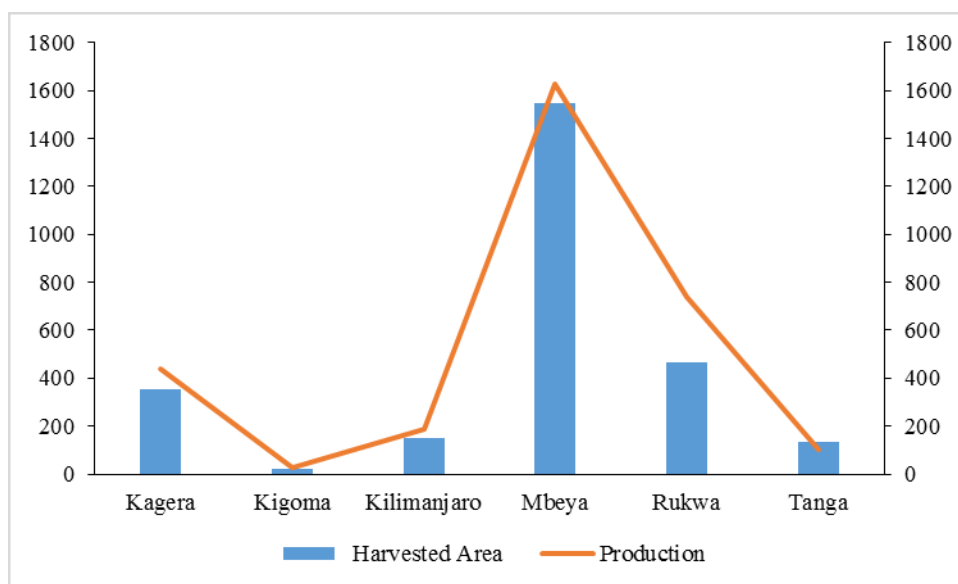
The total planted area for Tanzania was 4500 ha of which 3843 ha (80.4 percent) in Tanzania Mainland and 657ha (14.6 percent) in Zanzibar. Among regions in Mainland, Mbeya had the largest planted area with Cocoyam which was 1607 ha (41.8 percent), followed by Kagera (1435 ha; 37.3 percent) and Rukwa (467 ha; 12.2percent). Kigoma region recorded the lowest planted area with Cocoyam 21 ha (0.5 percent).

In Zanzibar, Kusini unguja was leading with 390 ha (59.4 percent) planted area with cocoyam followed by Kaskazini Unguja 115(17.4 percent) while Kaskazini Pemba had the lowest (25 ha; 3.9 percent)

The total harvested area with cocoyam in Tanzania was 3189 ha of which 2688 ha (84.3 percent) in Tanzania Mainland and 501 ha (15.7 percent) in Zanzibar. Total production of Cocoyam in Tanzania was 3742 tons of which 3144 tons (84 percent) were in Mainland and 598 tons (16 percent) in Zanzibar, with average yields of 2.5 and 1.8 respectively.

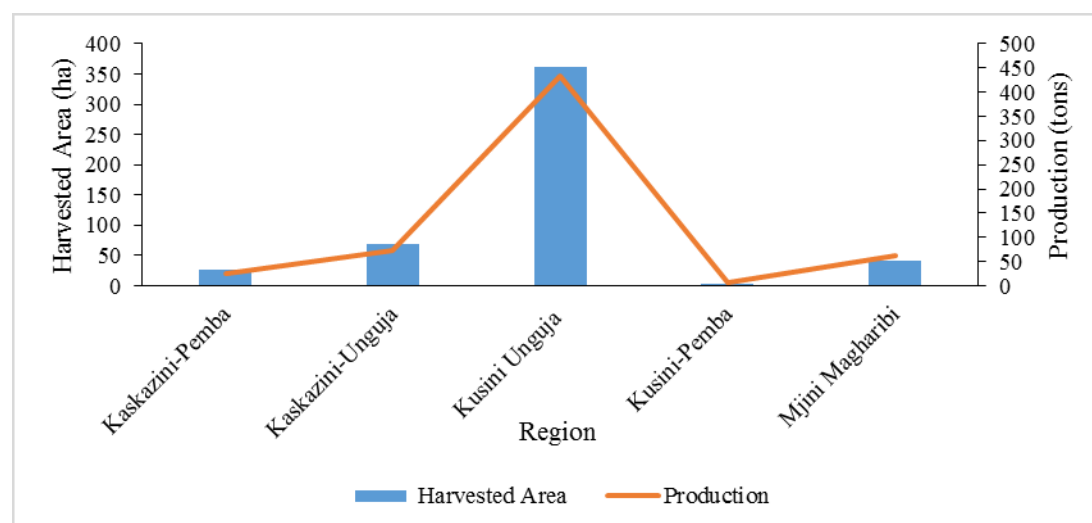
In Tanzania Mainland, Mbeya region recorded the highest Cocoyam production of 1629 tons (51.8 percent) with crop yield 1.1 tons/ha, followed by Rukwa 739 tons (23.5 percent) with yield 1.6 tons/ha and Kagera was 438 tons (13.9 percent) with yield 1.0 tons/ha while Kigoma region reported the lowest Cocoyam production of 27 tons (0.9 percent) with crop yield of 1.3 tons/ha (Figure 3.1.7.4(a)).

Figure 3.2.5(a): Harvested Area (ha) and Production (tons) of cocoyam by region in Tanzania Mainland during 2016/17, AASS



In Zanzibar, the total area planted with Cocoyam was 657 ha of which 501 ha were harvested resulting to a total production of 598 tons of Cocoyam with an average yield of 1.8 ton/ha. The highest production of Cocoyam was recorded in Kusini Unguja with 433 tons followed by Kaskazini Unguja (72 tons). Kusini Pemba was the lowest producer of cocoyam with a total production of 7 tons. (Figure 3.1.4(b)).

Figure 3.2.5(b): Harvested Area (ha) and Production (tons) of cocoyam by region in Zanzibar, 2016/17 AASS



3.3 Pulses

Pulses which were found in this survey were mainly beans, pigeon peas, cow peas and green grams. Others were bambaranuts, chick peas, field peas and soya beans. Total numbers of Operators engaged in growing pulses was 3,120,929 of which 2,970,496 operators (95.2 percent) were in Tanzania Mainland and 26,366 (4.8 percent) were in Zanzibar. All pulses were produced from both short and long rainy seasons. The total planted area with pulses was 1,194,801 ha of which 1,190,047 ha (99.6 percent) was in Tanzania Mainland and 4,754 ha (0.4 percent) in Zanzibar. The total quantity harvested was 541,470 tons with 540,822 tons (99.9 percent) in Mainland and 648 tons (0.1 percent) in Zanzibar.

3.3.1 Beans

Beans was amongst pulse crops produced in the country with a total of 1,945,607 operators of which 1,945,229 (99.9 percent) was in Mainland and 378 (0.1 percent) was in Zanzibar. During the short rainy season, the number of operators planted beans were 861,290 (44.3 percent) while in the long rainy season were 1,084,317 (55.7 percent).

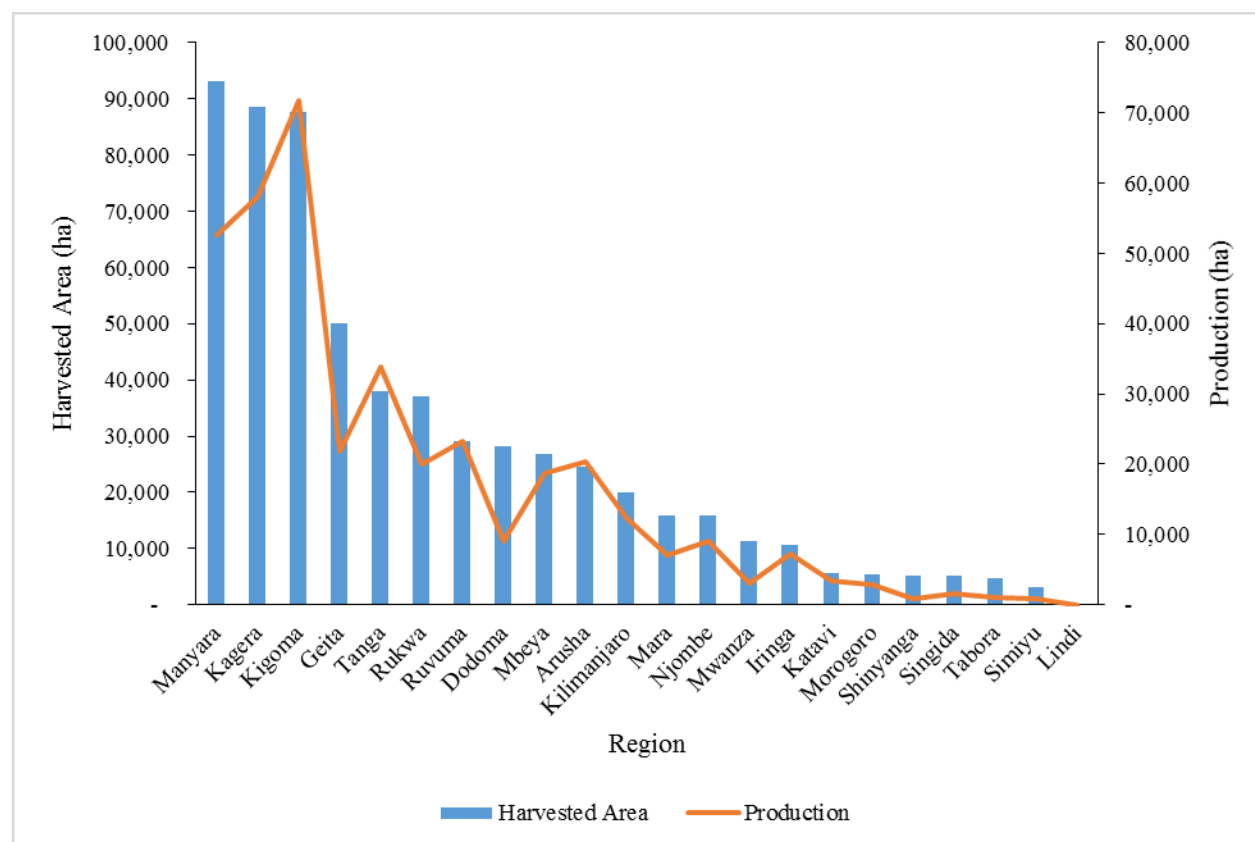
The total planted area with beans was 732,531 ha of which 732,495 ha (99.9 percent) in Mainland and 37 ha (0.1 percent) in Zanzibar. Among regions in Mainland, Kagera had the largest planted area with beans which was 124,142 ha (16.9 percent), followed by Kigoma

(99,753 ha; 13.6 percent) and Manyara (97,567 ha; 13.3 percent). Lindi region recorded the lowest planted area of 5 ha (less than one percent). In Zanzibar, Kaskazini Unguja was leading with 30 ha (72.0 percent) planted area with beans followed by Kusini Pemba (7 ha; 28.0 percent) while none cultivation was reported in the remaining regions in Zanzibar.

The total harvested area with beans was 605,751 ha of which 605,722 ha (99.9 percent) in Mainland and 30 ha (less than one percent) in Zanzibar. Among the regions in Mainland, Manyara region had the largest harvested area with beans which is 93,030 ha (15.4 percent), followed by Kagera (88,672 ha; 14.6 percent) and Kigoma (87,589 ha; 14.5 percent). Lindi region recorded the lowest area harvested with beans, 5 ha (less than one percent). In Zanzibar, only Kaskazini Unguja region had harvested area of 30 ha with beans.

Total production of beans in Tanzania was 378,893 tons of which 378,890 tons (99.9 percent) were in Mainland and 3 tons (less than one percent) in Zanzibar, with average yields of 0.6 and 0.1 tons/ha respectively. In Mainland, Kigoma region recorded the highest beans production of 71,812 tons (19.0 percent) with yield of 0.8 tons/ha, followed by Kagera (58,068 tons; 15.3 percent) with yield 0.6 tons/ha and Manyara was 52,647 tons (12.8 percent) with yield 0.6 tons/ha while Lindi region reported the lowest beans production of 0.2 tons (less than one percent) and Zanzibar only 3 tons were produced with an average yield of 0.1 tons/ha (Figure 3.1.2).

Figure 3.1.2: Harvested Area (ha) and Production (tons) of beans by Region in Tanzania Mainland, 2016/17 AASS



3.3.2 Cowpeas

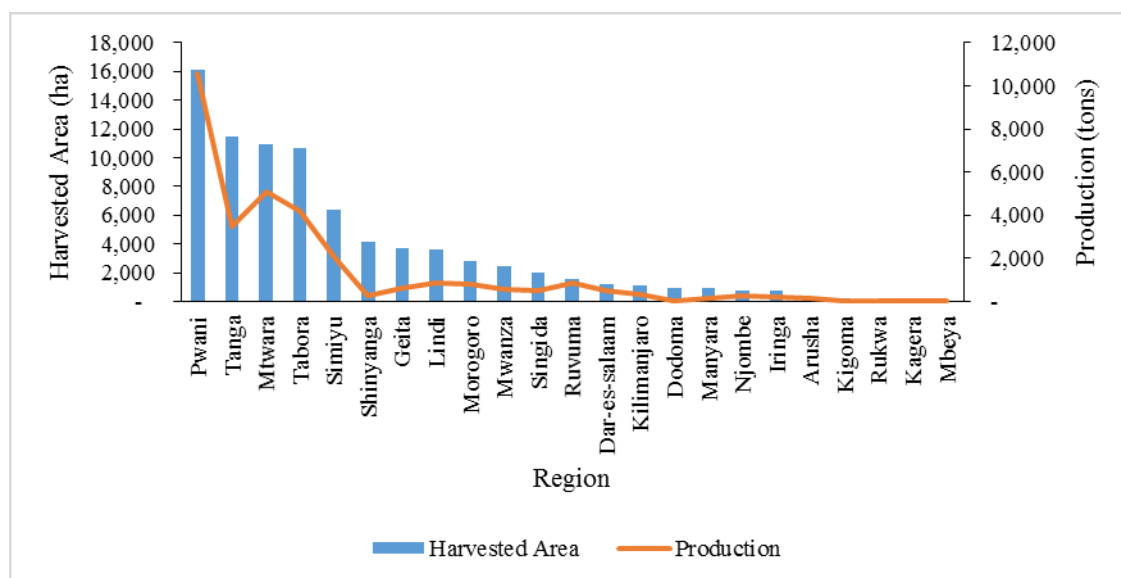
Cowpeas was produced by 412,727 operators of which 392,833 (95.2 percent) were in Tanzania Mainland and 19,894 (4.8 percent) in Zanzibar. During the short rainy season, the number of operators planted cowpeas were 142,663 (34.6 percent) while in the long rainy season were 270,064 (65.4 percent).

The total planted area with cowpeas was 102,716 ha of which 98,982 ha (96.4 percent) in Mainland and 3,734 ha (3.6 percent) in Zanzibar. In Tanzania Mainland, Tanga recorded the highest planted area with cowpeas with 18,599 ha (18.8 percent), followed by Pwani (17,007 ha; 17.2 percent) and Tabora (11,813 ha; 11.9 percent). Mbeya region recorded the lowest planted area with cowpeas, 56 ha (0.1 percent). In Zanzibar, Kaskazini Pemba was leading with 1,384 ha (37.1 percent) planted area with cowpeas followed by Kusini Pemba 1,355 ha (36.3 percent) while Mjini Magharibi had the lowest (7 ha; 0.2 percent).

The total harvested area with cowpeas was 85,283 ha of which 82,620 ha (96.9 percent) in Mainland and 2,662 ha (3.1 percent) in Zanzibar. In Mainland, Pwani region had the largest harvested area with cowpeas which is 16,140 ha (19.5 percent), followed by Tanga (11,516 ha; 13.9 percent) and Mtwara (10,929 ha; 13.2 percent). Mbeya region recorded the lowest area harvested with cowpeas, 56 ha (less than one percent). In Zanzibar, Kusini Pemba had the largest harvested area (1,080 ha; 37.0 percent) followed by Kaskazini Pemba (962 ha; 33.0 percent) while Mjini Magharibi had the lowest harvested area (5 ha; 0.2 percent) region had harvested area of 30 ha with cowpeas.

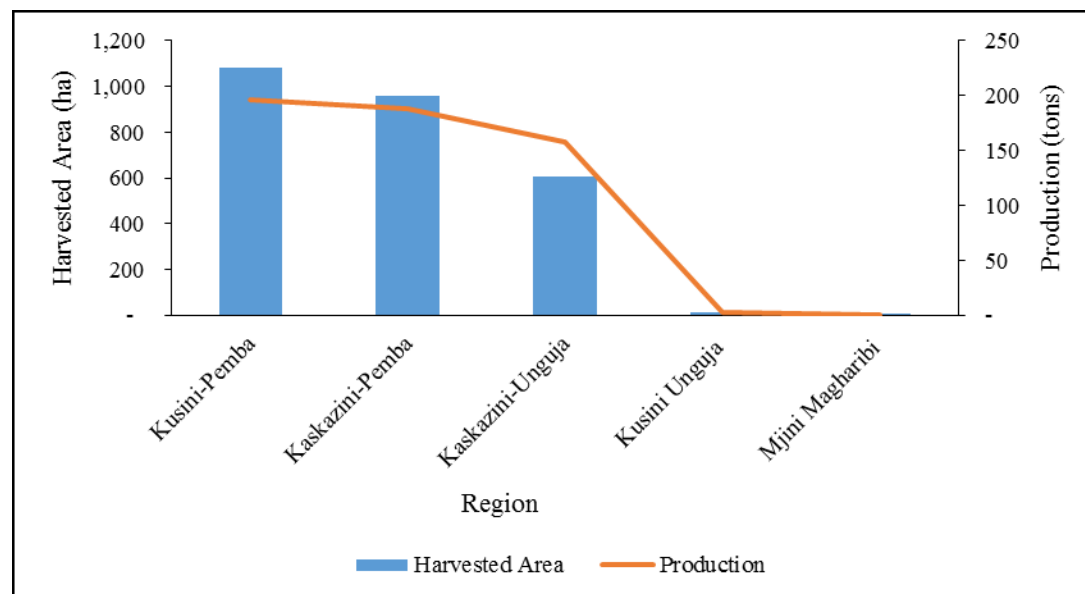
Total production of cowpeas in Tanzania was 32,105 tons of which 31,560 tons (98.3 percent) were in Mainland and 625 tons (1.7 percent) in Zanzibar, with average yields of 0.4 and 0.3 respectively. In Mainland, Pwani region recorded the highest cowpeas production with 10,546 tons (33.4 percent) and a crop yield of 0.7 tons/ha, followed by Mtwara 5,114 tons (16.2 percent) with a yield of 0.5 tons/ha and Tabora 4,183 tons (13.3 percent) with a yield of 0.4 tons/ha while Rukwa region reported the lowest cowpeas production of 32 tons (0.1 percent) with a yield of 0.2 tons/ha (Figure 3.3.2(a)).

Figure 3.3.2(a): Harvested Area (ha) and production (tons) of cowpeas by Region in Tanzania Mainland, 2016/17 AASS



In Zanzibar, the total area of 2,662 ha were harvested resulting to a total production of 545 tons of cowpeas with an average yield of 0.2 ton/ha. The highest production of cowpeas was recorded in Kusini Pemba with 197 tons (36.1 percent) followed by Kaskazini Pemba (188 tons; 34.4 percent). Kusini Unguja was the least producer of cowpeas with a total production of 3 tons (0.6 percent). (Figure 3.1.2(b)).

Figure 3.1.2(b): Harvested Area (ha) and Production (tons) of cowpeas by Region in Zanzibar, 2016/17 AASS



3.3.3 Green grams

Green gram was amongst pulses produced in the country with a total of 517,704 operators of which 511,985 (98.9 percent) were in Tanzania Mainland and 5,719 (1.1 percent) in Zanzibar. During the short rainy season, the number of operators planted green gram were 223,175 (43.1 percent) while in the long rainy season were 294,529 (56.9 percent).

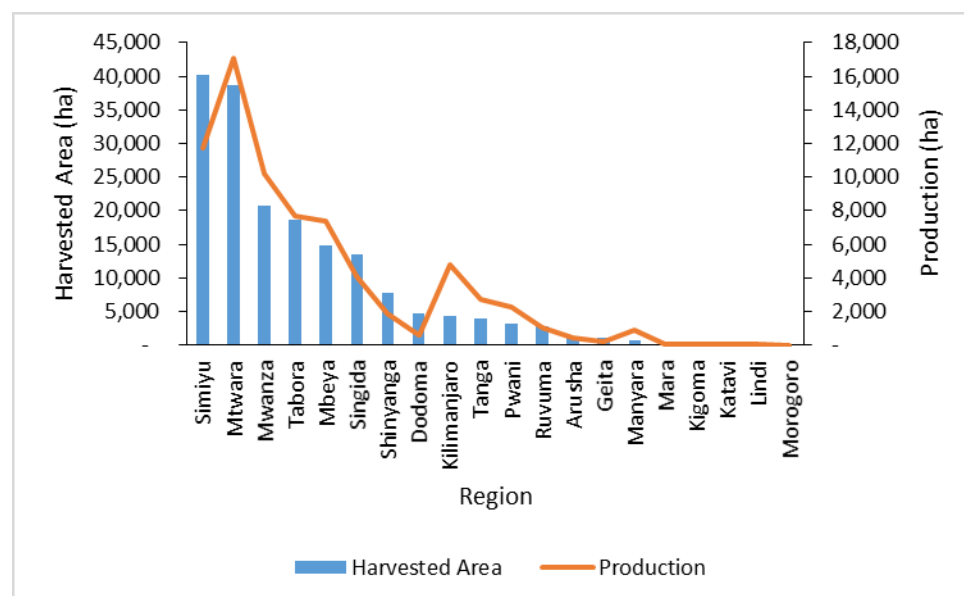
The total planted area with green gram was 217,473 ha of which 216,521 ha (99.6 percent) in Mainland and 952 ha (0.4 percent) in Zanzibar. Among regions in Mainland, Simiyu had the largest planted area with green gram which was 46,819 ha (23.2 percent), followed by Mtwara (40,885 ha; 20.3 percent) and Mwanza (36,294 ha; 18 percent). Morogoro region recorded the lowest planted area with green gram 1.0 ha (less than one percent). In Zanzibar, Kaskazini

Unguja was leading with 591 ha (62.1 percent) planted area with green gram followed by Kusini Pemba 343 ha (36.1 percent) while Mjini Magharibi had the lowest (5 ha; 0.5 percent).

The total harvested area with green gram was 177,465 ha of which 176,861 ha (99.7 percent) in Mainland and 604 ha (0.3 percent) in Zanzibar. In Mainland, Simiyu region had the largest harvested area with green gram which is 40,236 ha (22.8 percent), followed by Mtwara (38,764 ha; 22.0 percent) and Mwanza (20,786 ha; 11.8 percent). Morogoro region recorded the lowest area harvested with green gram, 1 ha (less than one percent). In Zanzibar, Kaskazini Unguja region had the largest harvested area of (522 ha; 86.4 percent) with green gram followed by Kusini Pemba (72 ha; 11.9 percent) while Kusini Unguja had the lowest harvested area (10 ha; 1.7 percent) with green gram.

Total production of green gram in Tanzania was 73,073 tons of which 72,990 tons (99.9 percent) were in Mainland and 83 tons (0.1 percent) in Zanzibar, with average yields of 0.4 and 0.1 tons/ha respectively. In Mainland, Mtwara region recorded the highest green gram production with 17,054 tons (27.1 percent) with crop yield 0.4 tons/ha, followed by Simiyu 11,738 tons (18.6 percent) with a yield of 0.3 tons/ha and Mwanza was 10,203 tons (14.0 percent) with a yield of 0.4 tons/ha while Morogoro region reported the lowest green gram production of 1 tons (less than one percent) with a yield of 0.7 tons/ha (Figure 3.3.3).

Figure 3.3.3: Harvested Area (ha) and production (tons) for green gram by Region in Tanzania Mainland 2016/17 AASS



In Zanzibar, the highest production of green gram was recorded in Kaskazini Unguja with 75 tons (90.1 percent) followed by Kusini Pemba (7 tons; 8 percent). Kusini Unguja was the least producer of green gram with a total production of 2 tons (1.9 percent) (Table 3.3.3).

Table 3.3.3: Harvested Area (ha) and Production (tons) for green gram by Region in Zanzibar, 2016/17 AASS

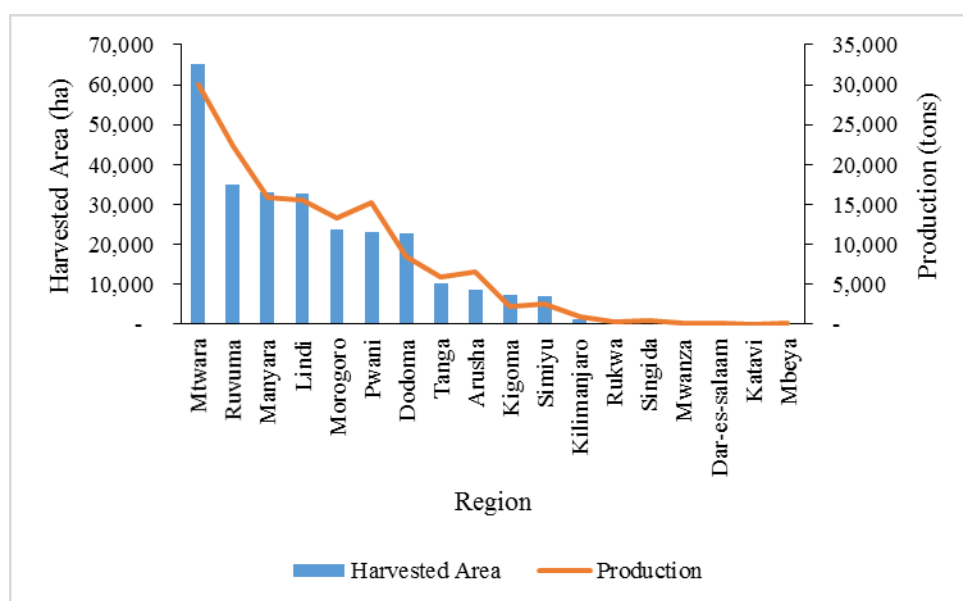
Region	Harvested Area (ha)	Production (tons)
Kusini Unguja	10	2
Kusini-Pemba	72	7
Kaskazini-Unguja	522	75
Zanzibar	604	83

3.3.4 Pigeon Peas

Pigeon peas were found in both Mainland and Zanzibar. A total number of operators of 727,484 were involved, of which 718,400 (98.8 percent) were from the Mainland and 9,044 (1.2 percent) were from Zanzibar. The entire area which was planted with pigeon peas was 335,397 ha of which 333,559 ha (99.5 percent) were in Mainland and 1,838 ha (0.5 percent) were in Zanzibar.

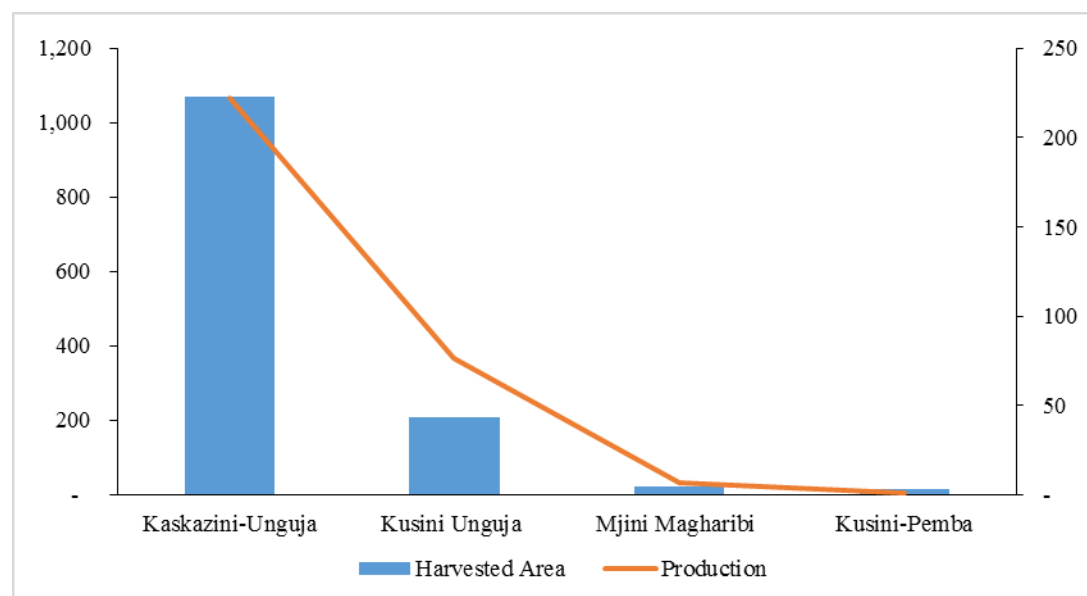
Among regions in Tanzania Mainland, Mtwara had the largest planted area with pigeon peas which is 69,780 ha (20.9 percent), followed by Ruvuma (42,472 ha; 12.7 percent) and Manyara (41,971 ha; 12.6 percent). Mbeya region recorded the lowest area planted with pigeon peas (98 ha; 0.1 percent). In Zanzibar, Kaskazini Unguja was leading with 1,565 ha (84.9 percent) planted area with pigeon peas followed by Kusini Unguja 209 ha (11.3 percent) while Kusini Pemba had the lowest (14 ha; 0.8 percent) (Figure 3.3.4(a)).

Figure 3.3.4(a): Harvested Area (ha) and Production (tons) of Pigeon peas by region in Mainland, 2016/17 AASS



Furthermore, the total harvested area with pigeon peas was 273,488 ha, of which 272,173 ha (99.5 percent) were in Mainland and 1,314 ha (0.5 percent) were in Zanzibar. Among the regions in Tanzania Mainland, Mtwara had the largest harvested area with pigeon peas which is 65,113 ha (23.9 percent), followed by Ruvuma (34,854 ha; 12.8 percent) and Manyara (33,100 ha; 12.7 percent). Mbeya region recorded the lowest area harvested with pigeon peas 98 ha (0.04 percent). In Zanzibar, Kaskazini Unguja was leading with 1,070 ha (81.4 percent) harvested area with pigeon peas followed by Kusini Unguja 207 ha (15.8 percent) while Kusini Pemba had the lowest (14 ha; 1.1 percent) (Figure 3.3.4(b)).

Figure 3.3.4(b): Harvested Area (ha) and Production (tons) of Pigeon peas by region in Zanzibar, 2016/17 AASS



The total quantity harvested was 140,672 tons of which 140,366 tons (99.8 percent) was from Mainland and 306 tons (0.2 percent) was in Zanzibar. Among regions in Mainland, Mtwara has recorded the highest pigeon peas production of 30,006 tons (21.3 percent), followed by Ruvuma 22,384 tons (15.9 percent) and Manyara was 15,925 tons (11.3 percent). Katavi region reported the lowest pigeon peas production of 53 tons (0.04 percent).

3.3.5 Other pulses

Other pulses were chick peas, bambaranuts and field peas. All these, were produced during both short and long rainy season. A total of 244,890 operators were involved in cultivating other pulses of which 244,516 (99.8 percent) were in Tanzania Mainland and 375 (0.2 percent) in Zanzibar. The total planted area for bambaranuts, chick peas and field peas was 142,081 ha of which 142,049 ha (99.9 percent) were in Mainland and 32 ha (0.1 percent) in Zanzibar.

A total harvested area for all other pulses was 122,743 ha of which 122,712 ha (99.9 percent) were in Mainland and 31 ha (0.1 percent) in Zanzibar. Among these other pulses, bambaranuts was the only crop which was planted in both Mainland and Zanzibar. Chick peas and field peas were not planted in Zanzibar.

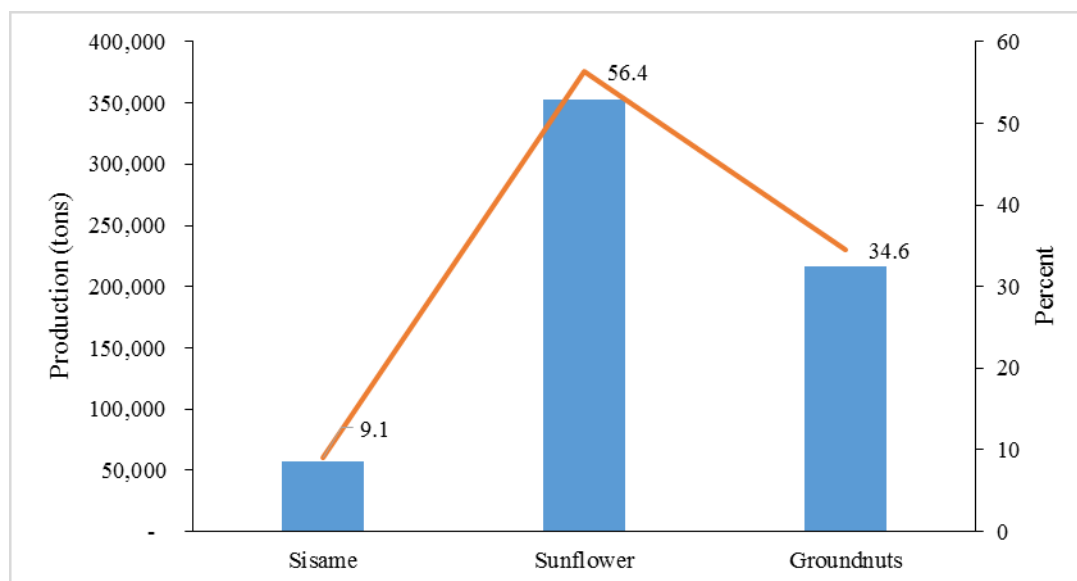
3.4 Oil Seeds and Oil nuts Crops

Oil seeds and nuts which are grown in Tanzania include groundnuts, sunflower and Sesame. The total operators engaged in oil seeds and nuts production were 2,075,721 in which 2,071,014 (99.8 percent) were Tanzania Mainland and 4,707 (0.2 percent) in Zanzibar.

Total planted area was 1,433,693 ha of which 1,433,088 ha (99.9 percent) was in Tanzania Mainland and 605 ha (0.1 percent) in Zanzibar.

The total production of oils seeds and nuts was 626,187 tons of which 625,915 tons (99.9 percent) were in Tanzania Mainland and 272 tons (0.1 percent) in Zanzibar. The production of sunflower was higher than other oil seeds and nuts with the total production of 352,908 tons (68.9 percent) of which 352,902 tons (99.9 percent) were produced in Tanzania Mainland and 6 tons (0.1 percent) in Zanzibar (Figure 3.4).

Figure 3.4: Production of Oil seeds and Nuts in Tanzania, 2016/17 AASS



3.4.1 Sunflower

Sunflower ranks the first in Oil seeds and Nuts production in Tanzania with total number of 661,809 operators of which 661,718 (99.9 percent) were in Tanzania Mainland and 91 (0.1 percent) in Zanzibar. In Tanzania, during the short rainy season, the number of operators planted

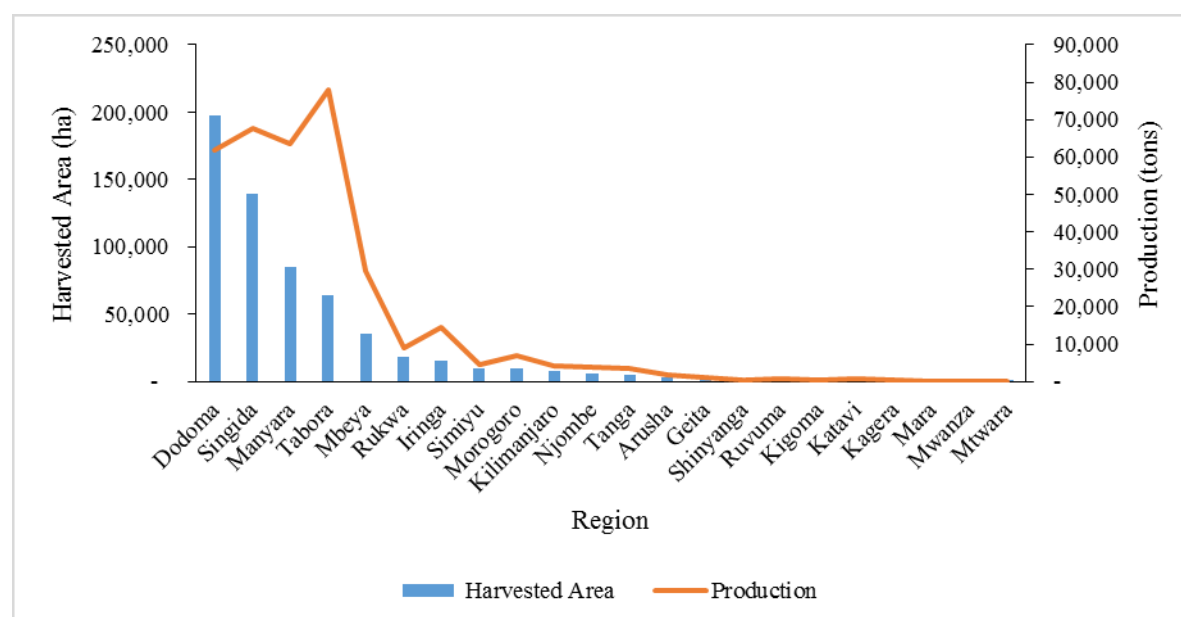
sunflower were 79,774 (12. 1 percent) while in the long rainy season were 582,036 (87.9 percent).

The total planted area for Tanzania was 706,926 ha of which 706,913 ha (99.9 percent) was in Tanzania Mainland and 13 ha (less than 0.1 percent) in Zanzibar. Among the regions in Tanzania Mainland, Dodoma had the largest planted area with sunflower which was 227,901 ha (33.3 percent), followed by Singida (156,134 ha; 22.8 percent) and Tabora (95,253 ha; 13.9 percent). Mtwara region recorded the lowest planted area with sunflower 50 ha (less than 0.1 percent).

The total harvested area with sunflower in Tanzania was 605,859 ha of which 605,853 ha (99.9 percent) in Tanzania Mainland and 6 ha (0.1 percent) in Zanzibar. Total production of sunflower in Tanzania was tons 352,908 tons of which 352,902 tons (99.9 percent) were in Tanzania Mainland and 6 tons (0.1 percent) in Zanzibar, both with an average yield of 1.0 tons/ha.

In Tanzania Mainland, Tabora region recorded the highest sunflower production of 77,826 tons (22.1 percent) with crop yield 1.7 tons/ha, followed by Singida 67,682 tons (19.2 percent) with yield 0.5 tons/ha and Manyara was 63,612 tons (18.0 percent) with yield 0.7 tons/ha while Mtwara region reported the lowest Sunflower production of 13 tons (0.01 percent) with crop yield of 0.3 tons/ha (Figure 3.4.1).

Figure 3.4.1: Harvested area (ha) and Production (tons) of Sunflower by Region in Tanzania, 2016/17 AASS



3.4.2 Groundnuts

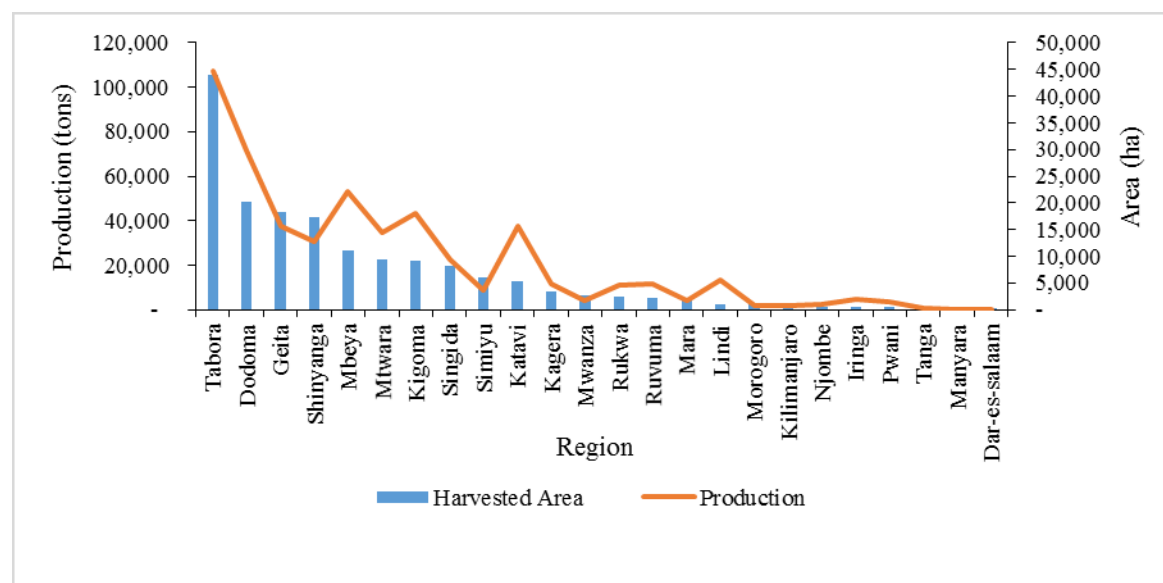
Groundnuts ranks the second in oil seeds and Nuts production in Tanzania with total number of 1,131,217 operators of which 1,126,601 (99.6 percent) were in Tanzania Mainland and 4,616 (0.4 percent) in Zanzibar. In Tanzania, during the short rainy season, the number of operators planted groundnuts were 538,623 (47.6 percent) while in the long rainy season were 592,594 (52.4 percent).

The total planted area in Tanzania was 494,113 ha of which 493,522 ha (99.9 percent) was in Tanzania Mainland and 591 ha (less than 0.1 percent) in Zanzibar. Among the regions in Tanzania Mainland, Tabora had the largest planted area with groundnuts of 147,618 ha (29.8 percent), followed by Dodoma (53,067 ha; 10.8 percent) and Geita (52,655 ha; 10.7 percent). Dar es Salaam region recorded the lowest planted area with groundnuts 179 ha (0.04 percent), while in Zanzibar, the total planted area was 591 ha (0.1 percent)

The total harvested area with groundnuts in Tanzania was 398,438 of which 397,977 ha (99.9 percent) in Mainland and 462 ha (0.1 percent) in Zanzibar. Total production of groundnuts in Tanzania was 216,433 tons of which 216,167 tons (99.9 percent) were in Mainland and 266 tons (0.1 percent) in Zanzibar, with average yield of 1 tons/ha and 1.3 tons/ha respectively.

In Tanzania Mainland, Tabora region recorded the highest groundnuts production of 44,811 tons (20.7 percent) with crop yield 2.14 tons/ha, followed by Dodoma 29,715 tons (13.7 percent) with yield 1.72 tons/ha and Mbeya was 22,163 tons (10.2 percent) with yield 1.56 tons/ha while Dar es Salaam region reported the lowest groundnuts production of 39 tons (0.02 percent) with crop yield of 0.23 tons/ha (Figure 3.1.5)

Figure 3.1.5: Harvested area (ha) and Production (tons) of Groundnuts by Region in Tanzania, 2016/17 AASS



3.4.3 Sesame

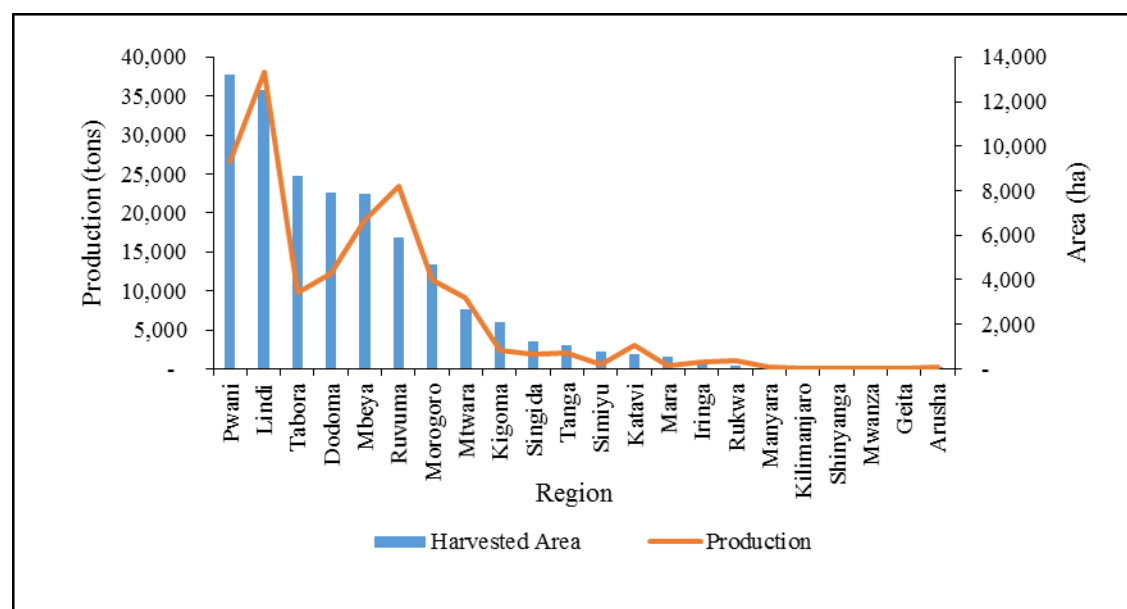
Sesame was grown only in Tanzania mainland and it ranks the third in Oil seeds and Nuts production with total number of 282,695 operators. In the short rainy season, the number of operators planted Sesame were 38,269 (13.5 percent) while in the long rainy season were 244,425 (86.5 percent).

The total planted area in Tanzania was 232,653 ha of which 49,848 ha (21.4 percent) were planted during the short rain season and 182,805 ha (78.6 percent) in long rain season. Among the regions in Tanzania Mainland, Lindi had the largest planted area with sesame which was 44,531 ha (19.1 percent), followed by Pwani (40,874 ha; 17.6 percent) and Dodoma (34,473 ha; 14.8 percent). Arusha region recorded the lowest planted area with Sesame 143 ha (0.06 percent).

The total harvested area with sesame in Tanzania was 201,169 ha of which 46,350 ha (20.0 percent) were harvested in short rain season and 154,819 ha (80.0 percent) in long rain season. Total production of Sesame in Tanzania was 56,846 tons of which 4,774 tons (8.4 percent) were produced in short rain season and 52,072 tons (91.6 percent) in long rain season, with average yields of 0.1tons/ha and 0.3 tons/ha respectively.

In Tanzania Mainland, Lindi region recorded the highest Sesame production of 13,300 tons (23.4 percent) with crop yield 0.4 tons/ha, followed by Pwani 9,314 tons (16.4 percent) with yield 0.6 tons/ha and Ruvuma was 8,198 tons (14.4 percent) with yield 0.5 tons/ha while Shinyanga region reported the lowest Sesame production of 22 tons (0.04 percent) with crop yield of 0.2 tons/ha (Figure 3.4.3).

Figure 3.4.3: Harvested area (ha) and Production (tons) of Sesame by Region in Tanzania, 2016/17 AASS.



3.5 Fruits and Vegetables

The fruits and vegetables that are presented in this section include cabbage, amaranth, pumpkin, cucumber, eggplant, watermelon, okra and tomatoes. The number of operators growing various fruits and vegetable was 423,906 of which 373,355 (88.1 percent) were in Mainland and 50,551 operators (11.9 percent) in Zanzibar. The total planted area was 124,361 ha of which 114,488 ha (92.1 percent) were in Mainland and 9,873 ha (7.9 percent) in Zanzibar. The total harvested area of all fruits and vegetables was 107,888 ha of which 99,226 ha (92.0 percent) were in Mainland and 8,663 ha (8.0 percent) in Zanzibar. The annual total production of various fruits and vegetables was 419,006 tons of which 382,594 tons (91.3 percent) were in Mainland and 36,412 tons in Zanzibar (8.7 percent).

3.5.1 Tomato

Tomato was planted by 184,567 operators of which 163,916 (88.8 percent) were in Tanzania Mainland and 20,651 (11.2 percent) in Zanzibar. During the short rainy season, the number of operators planted tomato were 90,275 (48.9 percent) while in the long rainy season were 94,293 (51.1 percent).

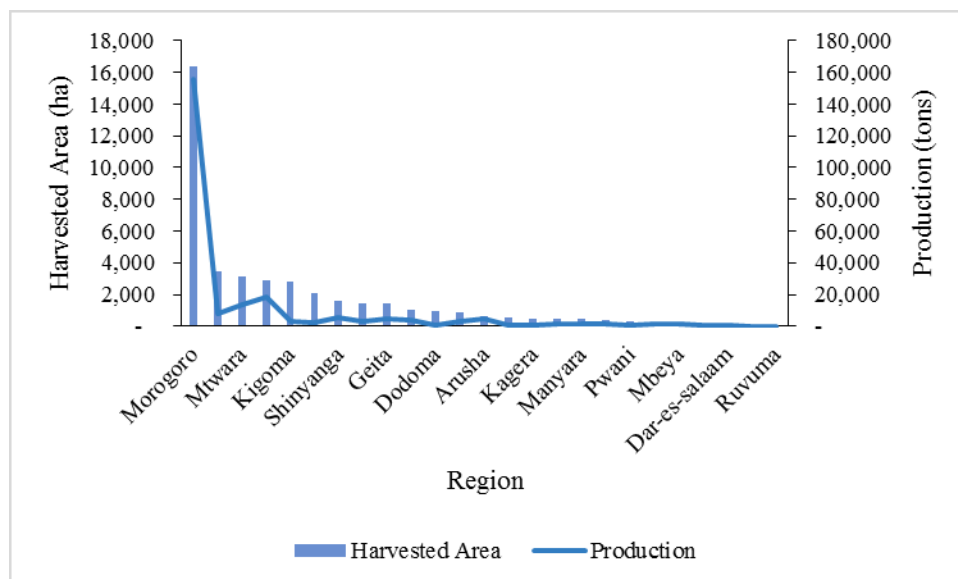
The total planted area for Tanzania was 54,520 ha of which 50,645 ha (92.9 percent) were in Mainland and 3,876 ha (7.1 percent) in Zanzibar. Among regions in Mainland, Morogoro had the largest planted area with tomato which was 19,195 ha (37.9 percent), followed by Iringa (3,890 ha; 7.7 percent) and Kilimanjaro (3,890 ha; 7.7 percent). Singida region recorded the lowest planted area with tomato 78 ha (0.2 percent).

In Zanzibar, Kaskazini Unguja was leading with 1,423 ha (36.7 percent) planted area with tomato followed by Kusini Unguja 890 ha (23.0 percent) while the lowest planted area was in, Kusini Pemba (208 ha; 5.4 percent)

The total harvested area with tomato in Tanzania was 45,604 ha of which 42,318 ha (92.8 percent) was in Mainland and 3,286 ha (7.2 percent) in Zanzibar. Total production of tomato in Tanzania was 247,135 tons of which 237,465 tons (96.1 percent) were in Tanzania Mainland and 9,670 tons (3.9 percent) in Zanzibar, with an average yield of 5.6 tons/ha and 2.9 tons/ha respectively.

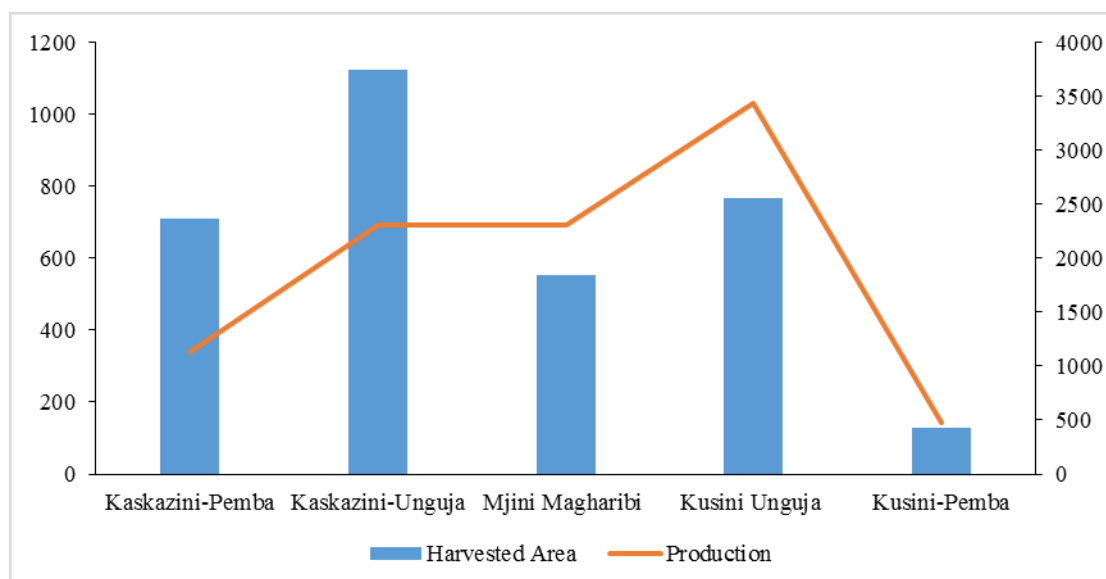
In Mainland, Morogoro region recorded the highest tomato production of 155,745 tons (65.6 percent) with crop yield of 9.5 tons/ha, followed by Kilimanjaro 18,630.5 tons (7.8 percent) with yield 6.5 tons/ha and Mtwara was 13,336 tons (5.6 percent) with a yield of 6.5 tons/ha while Singida region reported the lowest tomato production of 83 tons (0.04 percent) with crop yield of 1.1 tons/ha (Figure 3.5.1(a)).

Figure 3.5.1(a): Harvested Area (ha) and Production (tons) of Tomato by Region of Tanzania Mainland, AASS 2016/17



In Zanzibar, the total area planted with tomato was 3,876 ha of which 3,286 ha were harvested resulting to a total production of 9,670 tons of tomato with an average yield of 2.9 ton/ha. The highest production of tomato was recorded in Kusini Unguja with 3,444 tons followed by Kaskazini Unguja (2,311 tons), Mjini Magharibi (2,308 tons). Kusini Pemba was the least producer of tomato with a total production of 477 tons (Figure 3.5.1 (b)).

Figure 3.5.1 (b): Harvested Area (ha) and Production (tons) of Tomato by Region in Zanzibar, 2016/17 AASS



3.5.2 Cabbage.

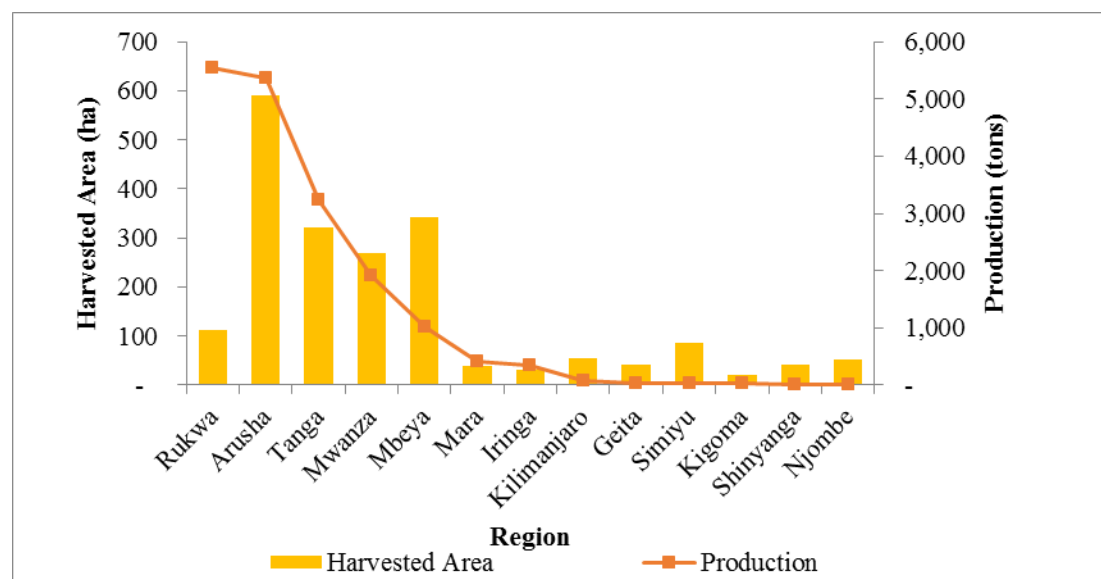
Cabbage was planted by 18,886 operators of which 18760 (99.3 percent) were in Tanzania Mainland and 126 (0.7 percent) in Zanzibar. During the short rainy season, the number of operators planted cabbage were 9,632 (51.0percent) while in the long rainy season were 9,254 (49.0 percent).

The total planted area for Tanzania was 3,580 ha of which 3,565 ha (99.6 percent) in Mainland and 15 ha (0.4 percent) in Zanzibar. Among regions in Mainland, Morogoro had the largest planted area with Cabbage which was 1,168 ha (32.8 percent), followed by Arusha (592 ha; 16.6 percent) and Mwanza (344 ha; 9.6 percent). Katavi region recorded the lowest planted area with cabbage 12 ha (0.3 percent). In Zanzibar the crop was only cultivated into two regions namely Kusini Unguja nad Mjini Magharibi with 2 ha and 13 ha respectively.

The total harvested area with cabbage in Tanzania was 2,013 ha of which 2,006 ha (99.7 percent) was in Mainland and 7 ha (0.3 percent) in Zanzibar. Total production of cabbage in Tanzania was 18,060 tons of which 18,034 tons (99.9 percent) were in Mainland and 26 tons (0.1 percent) in Zanzibar, with average yields of 9.0 tons/ha and 3.9 tons/ha respectively.

In Mainland, Rukwa region recorded the highest Cabbage production of 5,534 tons (30.7 percent) with crop yield of 49.2 tons/ha, followed by Arusha 5,362 tons (29.7 percent) with a yield of 9.1 tons/ha and Tanga was 3,232 tons (17.9 percent) with yield 10.1 tons/ha whilst, Njombe region reported the lowest cabbage production of 2 tons (0.01 percent) with crop yield of 0.05 tons/ha (Figure 3.5.2).

Figure 3.5.2: Harvested Area (ha) and Production (tons) of Cabbage by Region of Tanzania Mainland, 2016/17 AASS



In Zanzibar, the total area planted with Cabbage was only 15ha of which 7 ha were harvested resulting to a total production of 26 tons of cabbage with an average yield of 3.9 ton/ha. The highest production of cabbage was recorded in Mjini Magharibi with 25 tons.

3.5.3 Amaranth

Number of operators engaged in Amaranth production was 90,088 of which 82,535 (91.6 percent) was in Mainland and 7,554 (8.4 percent) operators in Zanzibar). During short rainy season, the number of operators planted amaranths were 46,781 (51.9 percent) while in the long rainy season were 43,308 (48.1 percent).

The total planted area for Tanzania was 23,573 ha of which 22,776 ha (96.6 percent) in Tanzania Mainland and 798 ha (3.4 percent) in Zanzibar. Among regions in Tanzania Mainland, Tanga had the largest planted area with amaranths which was 15,982 ha (70.2 percent), followed by Lindi (2,021 ha; 8.9 percent) and Kagera (904 ha; 4.0 percent). Simiyu region recorded the lowest planted area with amaranths 1 ha (less than one percent).

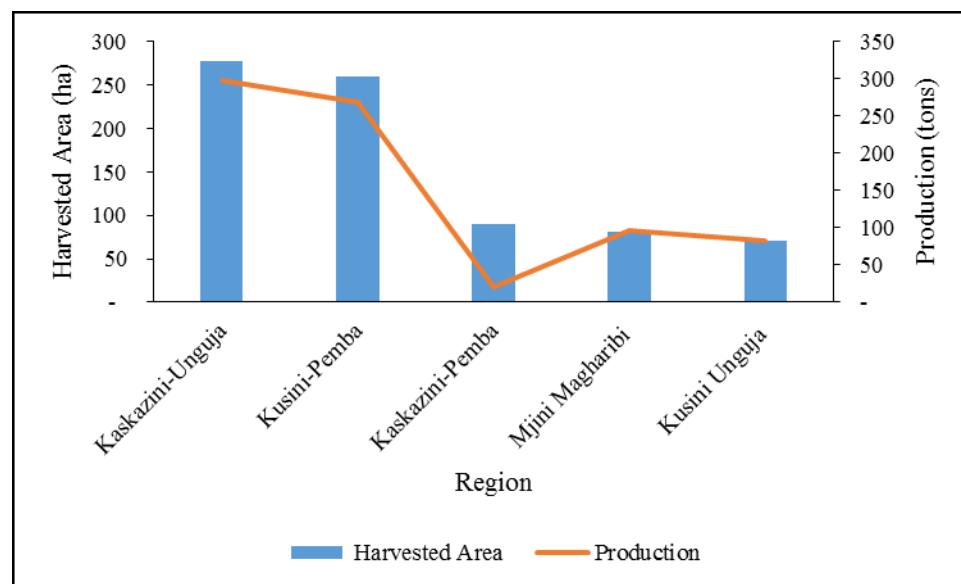
In Zanzibar, Kaskazini Unguja was leading with 279 ha (35.0 percent) planted area with amaranths followed by Kusini Pemba 260 ha (32.5 percent) while Kusini Unguja had the lowest (71 ha; 8.9 percent)

The total harvested area with amaranths in Tanzania was 23,228 ha of which 22,449 ha (96.6 percent) in Tanzania Mainland and 779 ha (3.4 percent) in Zanzibar. Total production of amaranths in Tanzania was 51,605 tons of which 50,841 tons (98.5 percent) were in Tanzania Mainland and 764 tons (1.5 percent) in Zanzibar, with average yields of 2.3 and 1.0 respectively.

In Mainland, Tanga region recorded the highest amaranths production of 46,150 tons (90.8 percent) with crop yield of 2.9 tons/ha, followed by Mwanza 1,301 tons (2.6 percent) with a yield of 2.0 tons/ha and Njombe was 872 tons (2.6 percent) with a yield of 1.5 tons/ha while Simiyu region recorded the lowest amaranths production of 0.05 tons (less than one percent) with crop yield of 0.06 tons/ha.

In Zanzibar, the total area planted with amaranths was 798 ha of which 779 ha were harvested resulting to a total production of 764 tons of amaranths with an average yield of 1.0 ton/ha. The highest production of amaranths was recorded in Kaskazini Unguja with 297 tons followed by Kusini Pemba (268 tons). Kusini Unguja was the least producer of amaranths with a total production of 82 tons (Figure 3.5.3).

Figure: 3.5.3: Harvested Area (ha) and Production (tons) of Amaranth by Region of Zanzibar, 2016/17 AASS



3.5.4 Watermelon

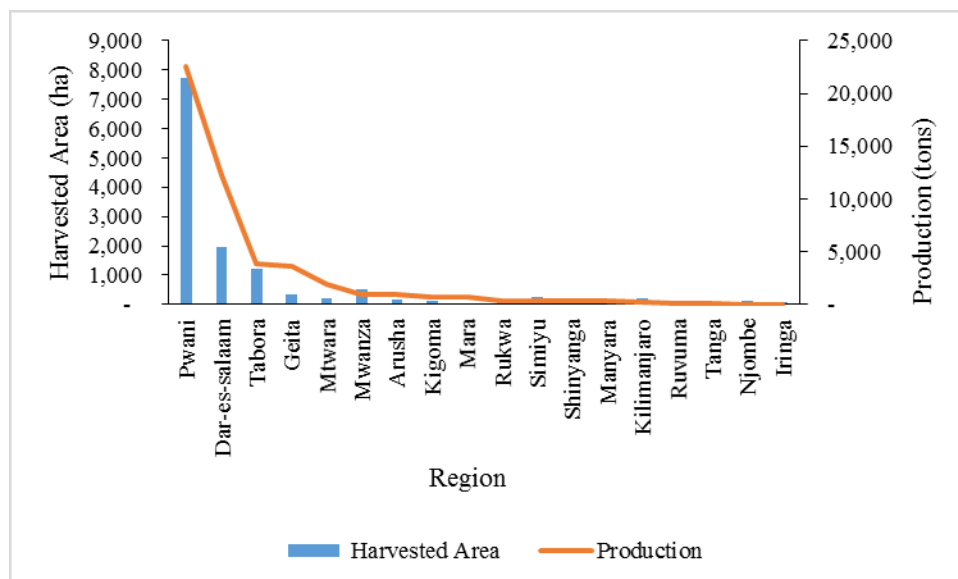
A total of 32,203 operators were engaged in watermelon production of which 28,446 (88.3 percent) were in Tanzania Mainland and 3,758 (11.7 percent) in Zanzibar. During the short rainy season, the number of operators planted watermelon were 20,948 (65.0 percent) while in the long rainy season were 11,255 (35.0 percent).

The total planted area for Tanzania was 18,556 ha of which 17,074 ha (92.0 percent) in Mainland and 1,482 ha (8.0 percent) in Zanzibar. Among regions in Mainland, Pwani had the largest planted area with watermelon which was 8025 ha (47.0 percent), followed by Dar es Salaam (2191 ha; 12.8 percent) and Tabora (1,922 ha; 11.3 percent). Ruvuma region recorded the lowest planted area with watermelon of 43 ha (0.3 percent). In Zanzibar, Kaskazini Unguja was leading with 810 ha (54.7 percent) planted area with watermelon followed by Kusin Unguja 517 ha (34.9 percent) while Kusini Pemba had the lowest (21 ha; 1, 4 percent)

The total harvested area with watermelon in Tanzania was 14,585 ha of which 13,214 ha (90.6 percent) in Mainland and 1372 ha (9.4 percent) in Zanzibar. Total production of watermelon in Tanzania was 65,100 tons of which 49,342 tons (75.8 percent) were in Mainland and 17,686 tons (24.2 percent) in Zanzibar, with average yields of 4.5 and 11.5 respectively.

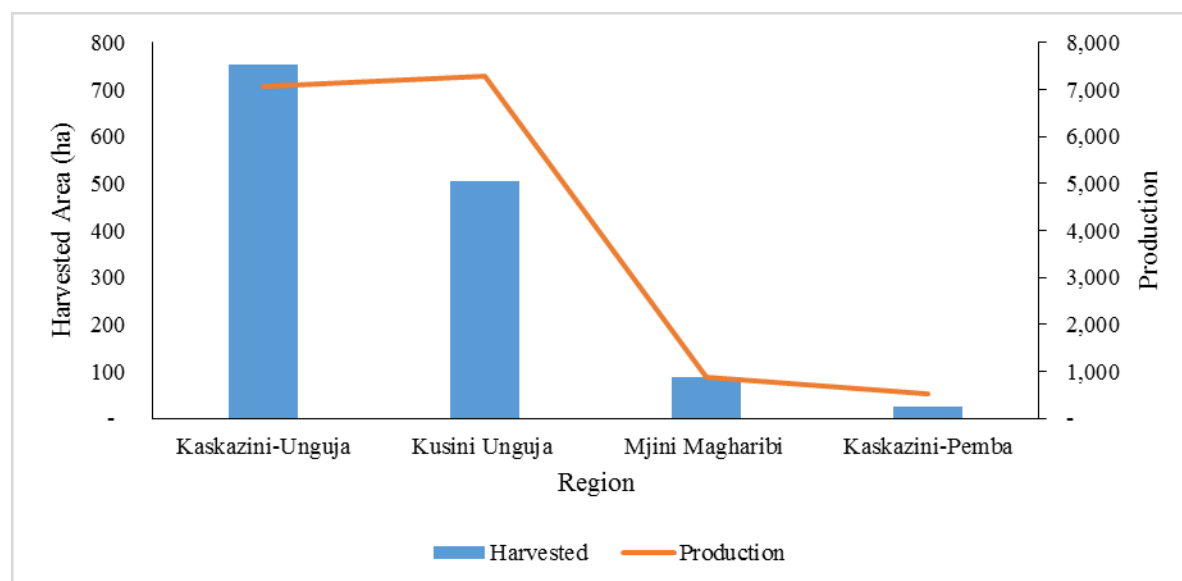
In Tanzania Mainland, Pwani region recorded the highest watermelon production of 22,605 tons (45.8 percent) with a crop yield of 2.9 tons/ha, followed by Dar es Salaam 12,198 tons (24.7 percent) with yield 6.3 tons/ha and Tabora was 3911 tons (7.9 percent) with yield 3.2 tons/ha while Iringa region reported the lowest watermelon production of one tons (0.001 percent) with crop yield of 0.1 tons/ha (Figure 3.5.4(a)).

Figure 3.5.4 (a): Harvested Area (ha) and production (tons) of Watermelon by Region in Tanzania Mainland, 2016/17 AASS



In Zanzibar, the total area planted with watermelon was 1,482 ha of which 1,372 ha were harvested resulting to a total production of 17,686 tons of watermelon with an average yield of 12.9 ton/ha. The highest production of watermelon was recorded in Kaskazini Unguja with 7,076 tons followed by Kusini Unguja 7,286 tons. Kaskazini Pemba was the least producer of watermelon with a total production of 516 tons (Figure 3.5.4(b)).

Figure 3.5.4 (b): Harvested Area (ha) and production (tons) of watermelon by Region in Zanzibar, 2016/17 AASS



3.5.5 Cucumber

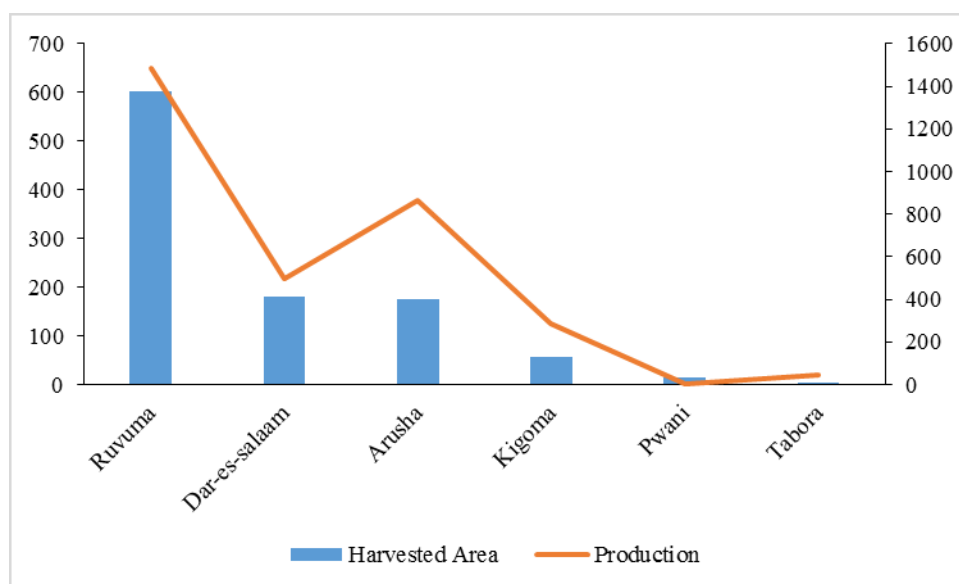
Cucumber was among the vegetable produced in the country with 6,780 operators of which 3,680 (54.3 percent) were in Tanzania Mainland and 3,100 (45.7 percent) in Zanzibar. During the short rainy season, the number of operators planted Cucumber were 2,230 (32.9 percent) while in the long rainy season were 4550 (67.1 percent).

The total planted area for Tanzania was 1,948 ha of which 1,242 ha (63.8 percent) in Mainland and 706 ha (36.2 percent) in Zanzibar. Among regions in Mainland, Ruvuma had the largest planted area with Cucumber which was 602 ha (48.5 percent), followed by Arusha (231 ha; 18.6 percent) and Dar es Salaam (222 ha; 17.9 percent). Tabora region recorded the lowest planted area with Cucumber of 5 ha (0.4 percent). In Zanzibar, Kusini Unguja was leading with 285 ha (40.4 percent) planted area with Cucumber followed by Kaskazini Unguja 260 ha (36.8 percent) while Kusini Pemba had the lowest (6 ha; 0.9 percent)

The total harvested area with Cucumber in Tanzania was 1,594 ha of which 1034 ha (64.9 percent) in Mainland and 560 ha (35.1 percent) in Zanzibar. Total production of Cucumber in Tanzania was 5,197 tons of which 3,182 tons (61.2 percent) were in Mainland and 2,015 tons

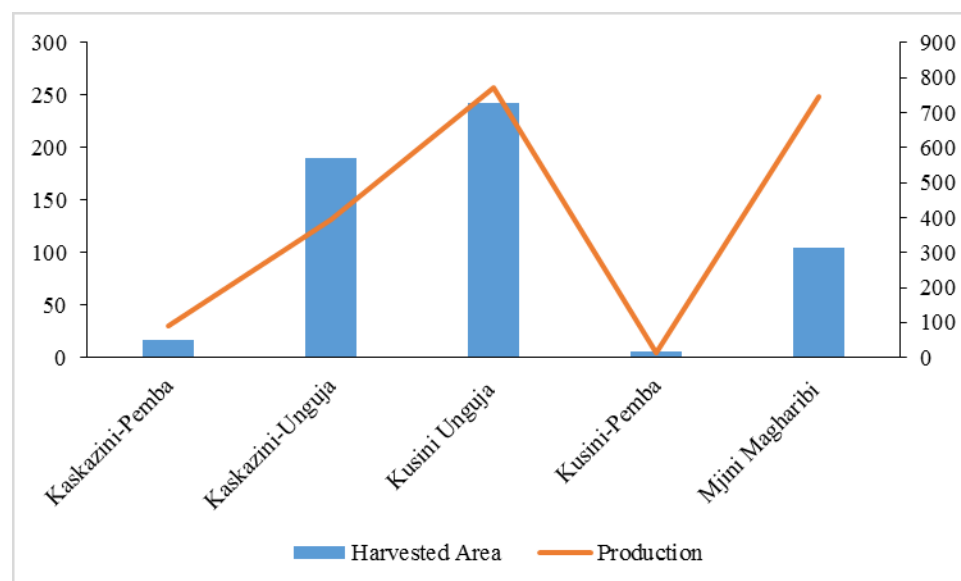
(38.8 percent) in Zanzibar, with average yields of 3.3 and 3.6 respectively. In Tanzania Mainland, Ruvuma region recorded the highest Cucumber production of 1,487 tons (44.2 percent) with a crop yield of 2.5 tons/ha, followed by Arusha 867 tons (25.8 percent) with a yield of 5.0 tons/ha and Dar es Salaam was 683 tons (20.3 percent) with a yield of 3.8 tons/ha while Pwani region reported the lowest Cucumber production of 1 ton (0.04 percent) with a crop yield of 0.1 tons/ha (Figure 3.5.5(a)).

Figure 3.5.5 (a): Harvested Area (ha) and production (tons) of Cucumber by Region in Tanzania Mainland, 2016/17 AASS



In Zanzibar, the total area planted with Cucumber was 706 ha of which 560 ha were harvested resulting to a total production of 2015 tons of Cucumber. The highest production of Cucumber was recorded in Kusini Unguja with 773 tons followed by Mjini Magharibi 745 tons. Kusini Pemba was the least producer of Cucumber with a total production of 14 tons. (Figure 3.5.5 (b)).

Figure 3.5.5 (b): Harvested Area (ha) and production (tons) of Cucumber by Region in Zanzibar, 2016/17 AASS



3.5.6 Pumpkins

Number of operators engaged in Pumpkin production was 33,020 of which 28,079 (86.8 percent) Operators in Tanzania Mainland and 4,941 (15.0 percent) operators in Zanzibar. The survey results further revealed that, the number of operators involved in growing Pumpkin during short rainy season were 3,445 (10.4 percent) and 29,582(89.9 percent) operators in long rain season.

The total planted area for Tanzania was 7,411 ha of which 6,430 ha (86.8 percent) in Tanzania Mainland and 980 ha (13.2 percent) in Zanzibar. Among regions in Mainland, Pwani recorded the largest planted area with pumpkins which was 3,059 ha (47.6 percent), followed by Mtwara (1,822 ha; 28.3percent) and Tanga (529 ha; 8.2 percent). Tabora region recorded the lowest planted area with Pumpkin 1 ha (less than one percent).

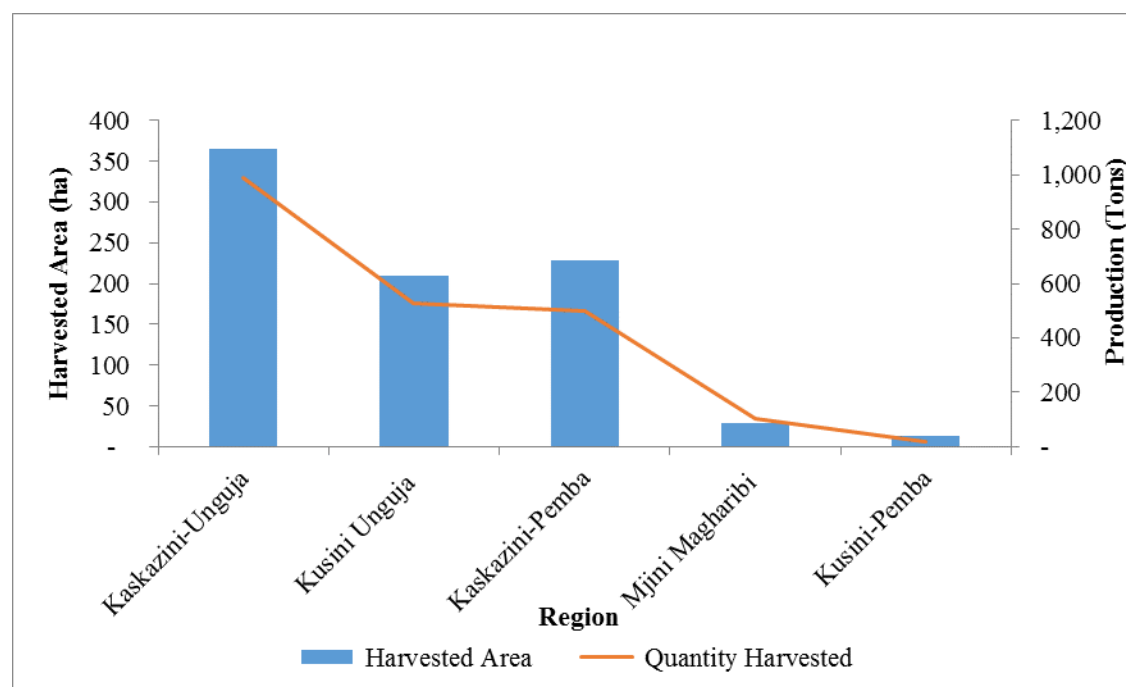
In Zanzibar, Kaskazini Unguja recorded the largest planted area of pumpkins with 450 ha (45.9 percent) followed by Kaskazini Pemba 254 ha (25.9 percent). Kusini Pemba recorded the lowest (14 ha; 1.4 percent)

The total harvested area with pumpkins in Tanzania was 6,677 ha of which 5,833 ha (87.4 percent) in Mainland and 845 ha (12.6 percent) in Zanzibar. Total production of pumpkins in Tanzania was 5,548 tons of which 3,405 tons (61.4 percent) were in Mainland and 2,143 tons (38.6 percent) in Zanzibar, with average yields of 4.4 and 2.5 respectively.

In Mainland, Tanga region recorded the highest pumpkins production of 1,627 tons (47.8 percent) with crop yield 4.1 tons/ha, followed by Mtwara 710 tons (20.9 percent) with yield 0.4 tons/ha and Ruvuma was 483 tons (14.2 percent) with yield 1.6 tons/ha while Simiyu region reported the lowest pumpkins production of 5 tons (0.1 percent) with crop yield of 1.2 tons/ha.

In Zanzibar, the total area planted with pumpkins was 980 ha of which 845 ha were harvested resulting to a total production of 2,143 tons of pumpkins. The highest production of pumpkins was recorded in Kaskazini Unguja with 990 tons followed by Kusini Unguja (527 tons). Kusini Pemba was the least producer of pumpkins with a total production of 21 tons. (Figure 3.5.6).

Figure 3.6.6: Harvested Area (ha) and production (tons) of Pumpkins by Region in Zanzibar, 2016/17 AASS



3.5.7 Egg Plant

Eggplant was among the vegetable produced in the country with 11,421 operators of which 5,680 (49.7 percent) were in Mainland and 5,741 (50.3 percent) in Zanzibar. During the short rainy season, the number of operators planted eggplant were 8,133 (71.2 percent) while in the long rainy season were 3,288 (28.8 percent).

The total planted area for Tanzania was 3,408 ha of which 2,041 ha (59.9 percent) in Mainland and 1,367 ha (40.1 percent) in Zanzibar. Among regions in Mainland, Lindi had the largest planted area with eggplant which was 1,934 ha (94.8 percent), followed by Mtwara (47 ha; 2.3 percent) and Kilimanjaro (36 ha; 1.8 percent). Dar es Salaam region recorded the lowest planted area with eggplant 24 ha (1.2 percent).

In Zanzibar, Kusini Unguja was leading with 615 ha (45.0 percent) planted area with eggplant followed by Mjini Magharibi 407 ha (29.8 percent) while Kusini Pemba had the lowest (54 ha; 3.9 percent)

The total harvested area with eggplant in Tanzania was 3,251 ha of which 2041 ha (62.8 percent) in Mainland and 1210 ha (37.2 percent) in Zanzibar. Total production of eggplant in Tanzania was 9,783 tons of which 5,408 tons (55.3 percent) were in Mainland and 4,375 tons (44.7 percent) in Zanzibar, with average yields of 2.6 and 3.6 respectively.

In Mainland, Lindi region recorded the highest eggplant production of 5,161 tons (95.4 percent) with crop yield 2.7 tons/ha, followed by Kilimanjaro 180 tons (3.3 percent) with yield 4.9 tons/ha and Mtwara produced 37 tons (0.7 percent) with yield of 0.8 tons/ha while Dar es Salaam region reported the lowest eggplant production of 29 tons (0.5 percent) with crop yield of 1.2 tons/ha (Table 3.5.7(a)).

Table 3.5.7(a): Harvested area and production (tons) of Eggplant by Region in Tanzania Mainland, 2016/17 AASS

Region	Harvested Area (ha)	Production (tons)
Mtwara	47	37
Lindi	1934	5161
Kilimanjaro	36	180
Dar-es-salaam	24	29
Mainland	3,251	9,783

In Zanzibar, the total area planted with eggplant was 1,367 ha of which 1,210 ha were harvested resulting to a total production of 4,375 tons of eggplant. The highest production of eggplant was recorded in Kusini Unguja with 1,837 tons followed by Mjini Magharibi 1,609 tons. Kusini Pemba was the least producer of eggplant with a total production of 73 tons. (Table 3.5.7(b)).

Table 3.5.7(b): Harvested Area and production (tons) of Eggplant by Region in Zanzibar, 2016/17 AASS

Region	Harvested Area (ha)	Production(tons)
Kaskazini-Unguja	290	856
Kusini Unguja	470	1837
Kusini-Pemba	54	73
Mjini Magharibi	396	1609
Zanzibar	1,210	4,375

3.5.8 Okra

A total of 46,939 operators were engaged in okra production of which 42,259 (90.0 percent) were in Tanzania Mainland and 4,680 (10.0 percent) in Zanzibar. During the short rainy season, the number of operators planted Okra were 14,599 (31.1 percent) while in the long rainy season were 32,340 (68.9 percent).

The total planted area for Tanzania was 11,366 ha of which 10,716 ha (94.3 percent) in Mainland and 650 ha (5.7 percent) in Zanzibar. Among regions in Mainland, Njombe had the largest planted area with Okra which was 3,197 ha (29.8 percent), followed by Pwani (2,108 ha; 19.7

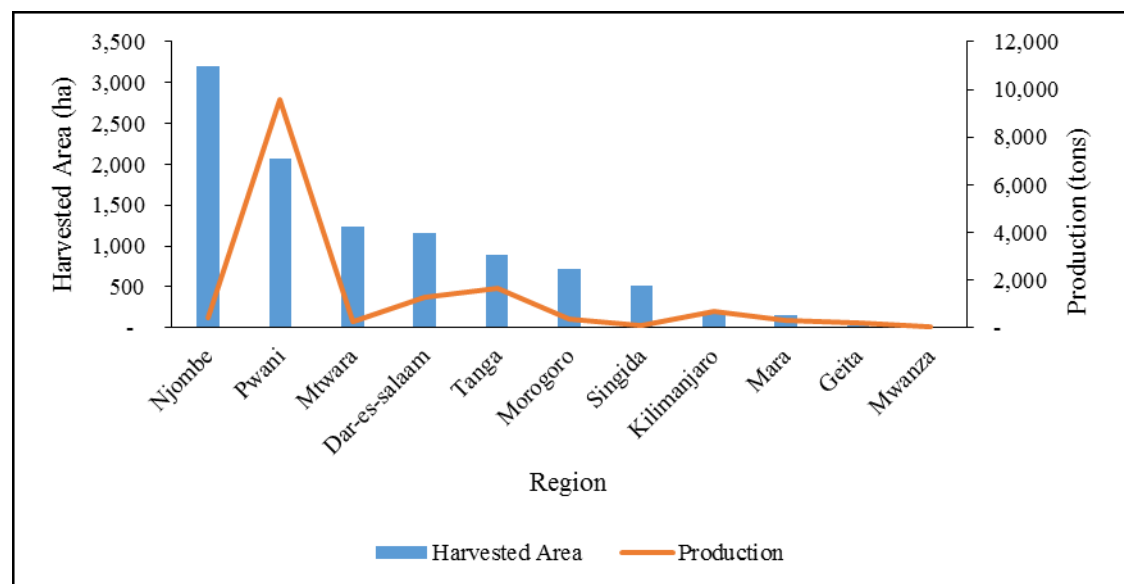
percent) and Dar es Salaam (1,342 ha; 12.5 percent). Simiyu region recorded the lowest planted area with Okra 4 ha (0.0 percent).

In Zanzibar, Mjini Magharibi was leading with 312 ha (48.0 percent) planted area with Okra followed by Kaskazini Unguja 244 (37.5 percent) while Kusini Pemba had the lowest (30 ha; 1.9 percent)

The total harvested area with Okra in Tanzania was 10,936 ha of which 10,331 ha (97.9 percent) in Mainland and 605 ha (2.1 percent) in Zanzibar. Total production of okra in Tanzania was 16,844 tons of which 15,183 tons (90 percent) were in Mainland and 1,661 tons (10 percent) in Zanzibar, with average yields of 1.5 tons/ha and 2 tons/ha respectively.

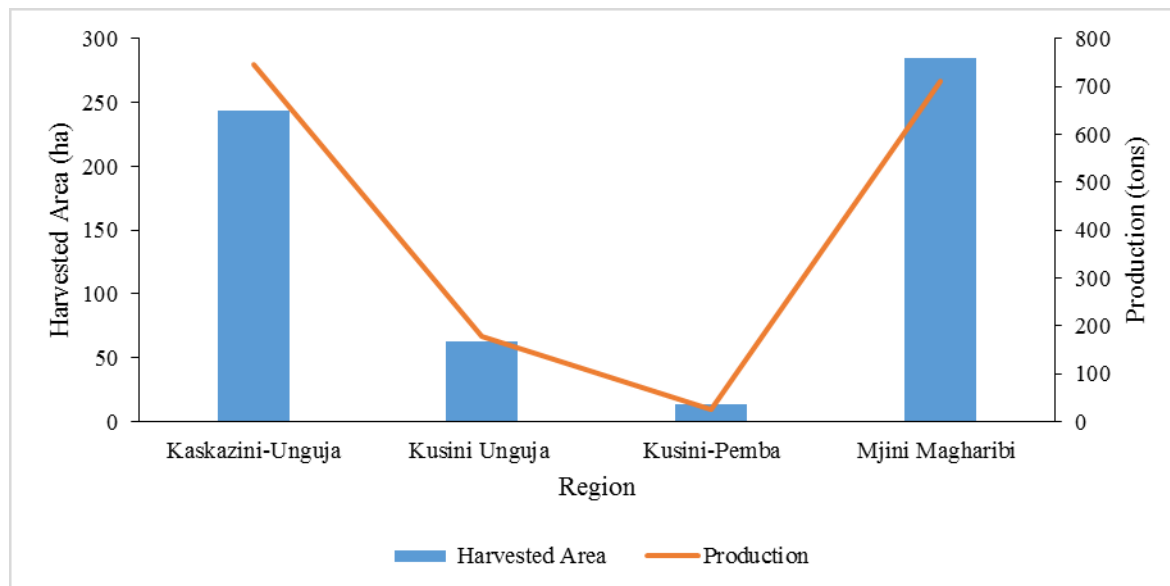
In Tanzania Mainland, Pwani region recorded the highest Okra production of 9,600 tons (19.7 percent) with crop yield of 4.6 tons/ha, followed by Tanga 1,634 tons (8.4 percent) with yield 1.8 tons/ha and Dar es salaam was 1,297 tons (12.5 percent) with yield 1.1 tons/ha while Rukwa region reported the lowest Okra production of 1 tons (0.1 percent) with crop yield of 0.1 tons/ha (Figure 3.5.10(a)).

Figure 3.5.10 (a): Harvested Area (ha) and production (tons) of Okra by Region in Mainland, 2016/17 AASS



In Zanzibar, the total area planted with Okra was 650 ha of which 605 ha were harvested resulting to a total production of 1,239 tons of Okra with an average yield of 2.0 ton/ha. The highest production of Okra was recorded in Kaskazini Unguja with 746 tons followed by Mjini Magharibi (712 tons). Kusini Pemba was the least producer of Okra with a total production of 25 tons. (Figure 3.5.10(b)).

Figure 3.5.10 (b): Harvested Area (ha) and production (tons) of Okra by Region in Zanzibar, 2016/17 AASS



3.6 Fiber Crops

Fiber crops are plants that are grown for the production of fibers or fibrous materials with different uses such as paper making, cloth and rope. Cotton and sisal are among the fiber crops that are grown in Tanzania.

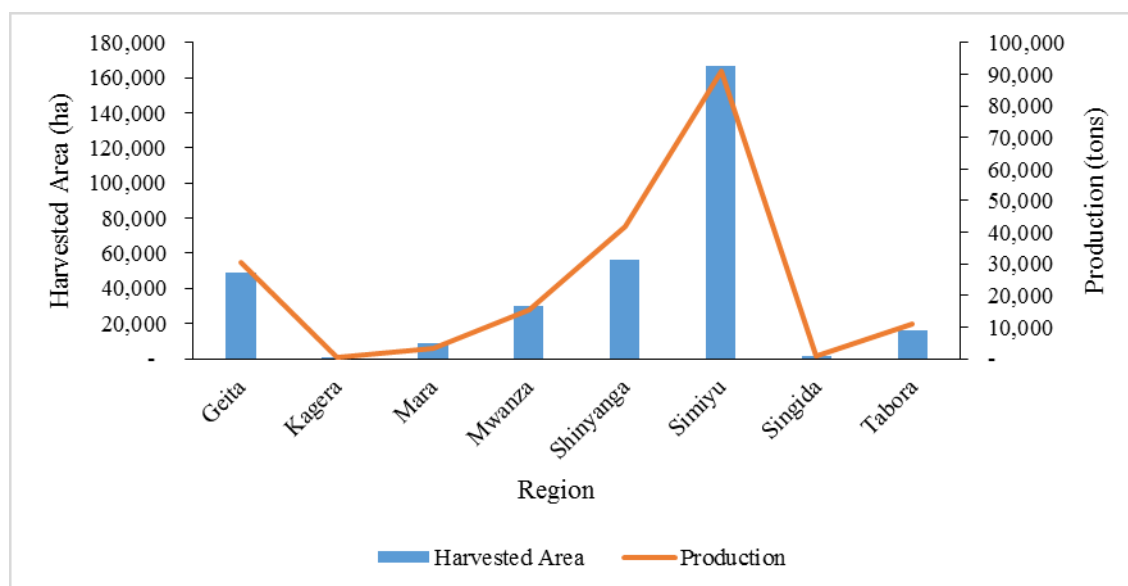
3.6.1 Cotton

Cotton is among the major cash crops in Tanzania and it is only grown in Tanzania Mainland. A total of 381,021 operators were engaged in growing cotton in the agricultural year 2016/17. The total area planted with cotton was 397,491 ha. Among regions in Mainland, Simiyu had the largest planted area with cotton which is 179,728 ha (45.2 percent), followed by Shinyanga (77,540 ha; 19.5 percent) and Geita (57,918 ha; 14.6 percent). The lowest area planted was recorded in Kagera region with 288 ha (0.1 percent).

A total of 328,751 ha was harvested which is equivalent to 82.7 percent of the total area planted with cotton. 17.3 percent of the area planted was not harvested due various reasons. Some of the reasons for not harvesting were crop not ready for harvesting, drought, rain/flood damage, theft and animal damage. Among regions in Mainland, Simiyu region had the largest harvested area with cotton which is 166,512 ha (50.6 percent), followed by Shinyanga (56,418 ha; 17.2 percent) and Geita (49,374 ha; 15.0 percent) and the lowest was in Kagera region with 288 ha (less than 1 percent).

Furthermore, total production for cotton was 194,626 tons. Simiyu region had the highest quantity of cotton harvested 91,190 tons (50.6 percent) followed by Shinyanga (42,015 tons; 17.2 percent) and Geita (30,460 tons; 15.0 percent) and while the lowest was in Kagera region with 352 tons (0.1 percent). The average yield for cotton was 1.2 tons/ha (Figure 3.6.1).

Figure 3.6.1: Harvested Area (ha) and Production (tons) of Cotton by region in Tanzania, 2016/17 AASS



3.6.2 Sisal

Sisal was reported to be grown in only four regions of Tanzania Mainland. The total number of operators that were engaged in growing sisal was 5,475. The total area planted with sisal was 81,197 ha. Among regions in Mainland, Tanga region had the largest planted area with sisal

which is 50,174 ha (61.8 percent), followed by Pwani (25,350 ha; 31.2 percent) and Kilimanjaro (2,550 ha; 3.1 percent) and the lowest was in Arusha region with 1,142 ha (1.4 percent).

A total of 71,585 ha was harvested which is equivalent to 88.2 percent of the total area planted with sisal, however 11.8 percent of the area planted was not harvested due various reasons. Among regions in Mainland, Tanga region had the largest harvested area with sisal which is 42,336 ha (59.1 percent), followed by Pwani (25,350 ha; 35.4 percent) and Kilimanjaro (1,939 ha; 2.7 percent) and the lowest was in Arusha region with 1,142 ha (1.6 percent).

Moreover, a total production of 63,824 tons was realized from 81,197 ha planted. Tanga region recorded the highest production of 51,356 tons (80.5 percent of the total production of sisal) while the lowest production was in Kilimanjaro region with 878 tons (less than one percent). Additionally, the average yield for sisal was 0.9 tons/ha (Table 3.6.2).

Table 3.6.2: Harvested Area (ha) and Production (tons) of Sisal by Region, 2016/17 AASS

Region	Planted Area (ha)	Harvested Area (ha)	Production (tons)	Yield (tons/ha)
Arusha	1,142	1,142	5,704	5.0
Kilimanjaro	2,550	1,939	878	0.5
Pwani	25,350	25,350	5,858	0.2
Tanga	50,174	42,336	51,356	1.2
Tanzania	81,197	71,585	63,824	0.9

3.7 Permanent Crops

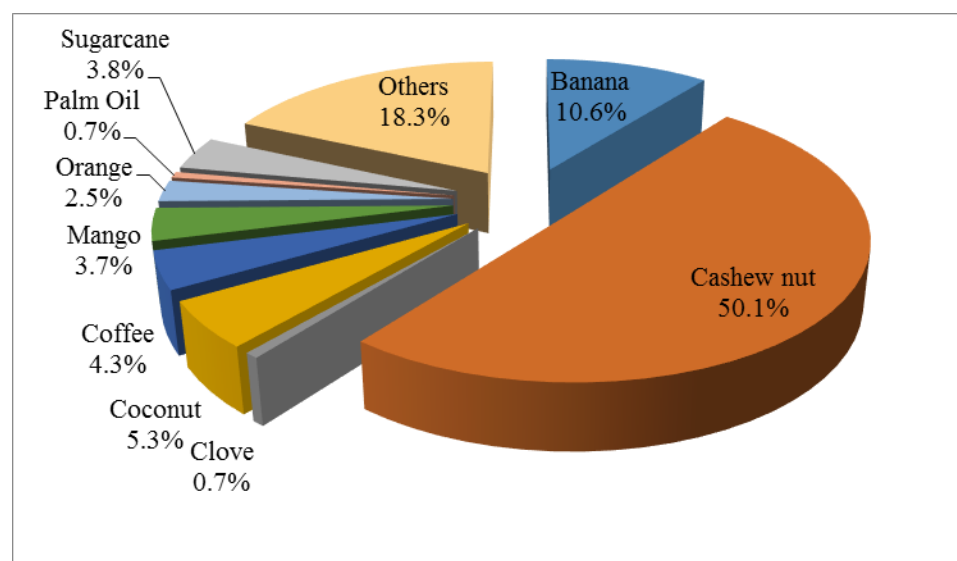
Perennial or permanent crops refer to crops that normally take over a year to mature and/or once matured can be harvested for a number of years. The important permanent crops produced in Tanzania are cashew nuts, banana, sugar cane, oil palm, coffee, tea, orange, mango and cloves. A total number of 2,476,004 operators were engaged in growing permanent crops of which 2,230,292 were in Mainland and 245,712 in Zanzibar.

The total planted area with permanent crops was 1,389,768 ha of which 1,342,410 ha (97 percent) were in Tanzania Mainland and 47,357 ha (3 percent) in Zanzibar. From the total

planted area with permanent crops, only 961,493 ha (69 percent) were harvested, out of which 923,750 ha (96 percent) were in Mainland and 37,743 ha (39 percent) in Zanzibar.

From the total planted area of permanent crops, cashew nuts occupied the largest portion which is 695,779 ha (50 percent), followed by banana (147,074 ha; 11 percent), coconut (74,316 ha; 5 percent), coffee (60,370 ha; 4 percent), sugar cane (53,398 ha; 3.8 percent), mangoes (51,917 ha; 3.7 percent), oranges (34,085 ha; 2.5 percent), oil palm (9,742 ha; 0.7 percent), and cloves (9,087 ha; 0.65 percent). There were other permanent crops which occupy 254,000 ha which 18 percent of total area planted with permanent crops in Tanzania (Figure 3.7(a)).

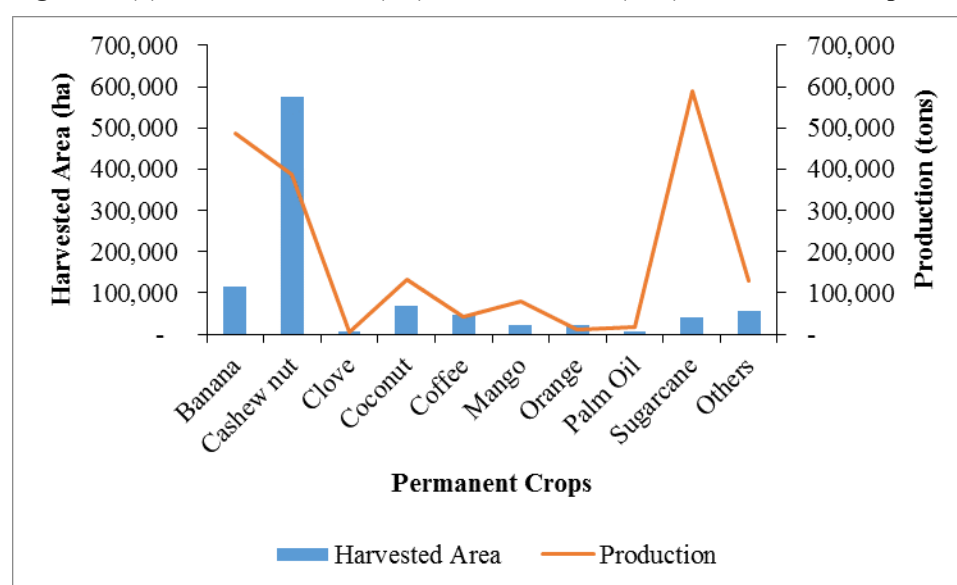
Figure 3.7(a): Percentage share of Planted Area (ha) with Permanent crops, 2016/17 AASS



For harvested area of permanent crops, cashew nut occupied the largest portion which is 574,072 ha (60 percent), followed by banana (114,612 ha; 12 percent), coconut (69,117 ha; 7 percent), coffee (47,731 ha; 5 percent), sugar cane (39,541 ha; 4 percent), mangoes (23,066 ha; 2.4 percent), oranges (21,375 ha; 2.2 percent), oil palm (7,717 ha; 0.8 percent) and cloves (7,384 ha; 0.8 percent). Area harvested with other types of permanent crops was 56,878 ha equaling to 6 percent of total harvested area.

With respect to production, sugar cane was the highest amongst the permanent crops harvested with 590,895 tons (31 percent) of the total permanent crop production in Tanzania. This was followed by banana (487,500 tons; 26 percent), cashew nuts (387,970 tons; 21 percent), coconut (133,596 tons; 7 percent), mangoes (78,427 tons; 4 percent), coffee (42,940 tons; 2 percent), palm oil (16,593 tons; 0.9 percent), oranges (9,839 tons; 0.5 percent) and cloves (6,307 tons; 0.3 percent) Other permanent crops were able to produce 128,012 tons which is 7 percent of total harvested quantity for permanent crops in Tanzania (Figure 3.7(b))

Figure 3.7(b): Area Harvested (Ha) and Production (tons) of Permanent crops, 2016/17 AASS



3.7.1 Cashew nuts

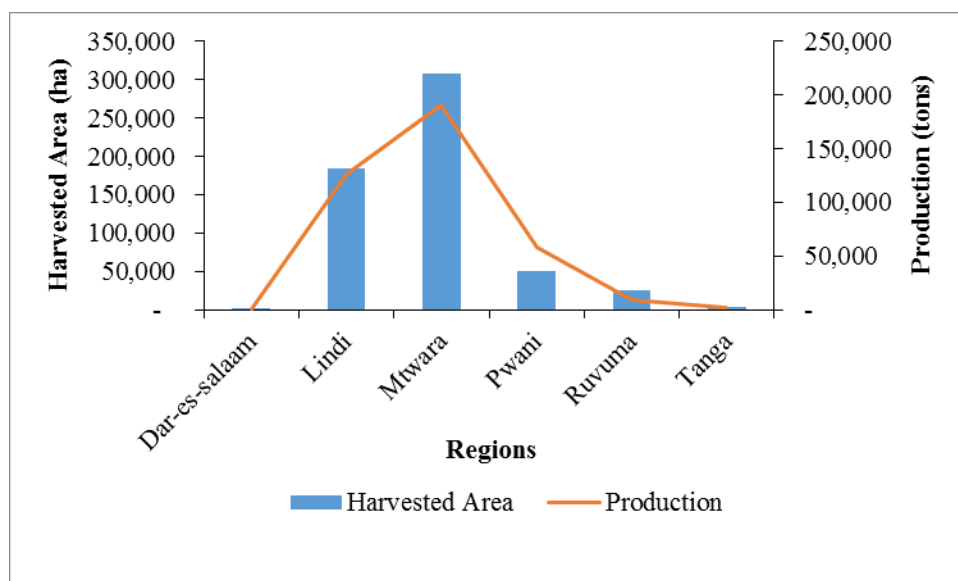
Cashew nuts were cultivated by ten regions in Tanzania Mainland only and operators engaged in cashew nuts cultivation was 666,848 with planted area of 695,779 ha. The Results disclosed that 90 percent of planted area with cashew nuts was found in three regions of Mainland which were Mtwara, Lindi and Pwani.

Mtwara had the largest planted area with 327,281 ha (47 percent), followed by Lindi 207,951 ha, (30 percent) and Pwani 91,815 ha, (13 percent). The least region was Dar es Salaam 1,292 ha, (0.2 percent). Furthermore, the results revealed that 574,072 ha (83 percent of planted area) was harvested with the average yield of 0.6 tons/ha. Mtwara regions having the highest harvested

areas of 308,835 ha (53.8 percent), followed by Lindi 185,065 ha, (32.2 percent) and Pwani 49,908 ha, (8.7 percent). Again Dar es Salaam had the least area harvested with 1,078 ha, (0.2 percent).

The total quantity of cashew nuts produced was 387,970 tons with all the production coming from six regions of Mainland. Mtwara region was leading with 191,025 tons (49 percent), followed by Lindi 126,353 tons, (33 percent) and Pwani 58,337 tons, (15 percent) while the least producing region was Dar es Salaam with 523 tons (0.1 percent) (Figure 3.7.1).

Figure 3.7.1: Harvested Area (ha) and Production (tons) of Cashew nuts by region in Tanzania Mainland, 2016/17 AASS



3.7.2 Banana

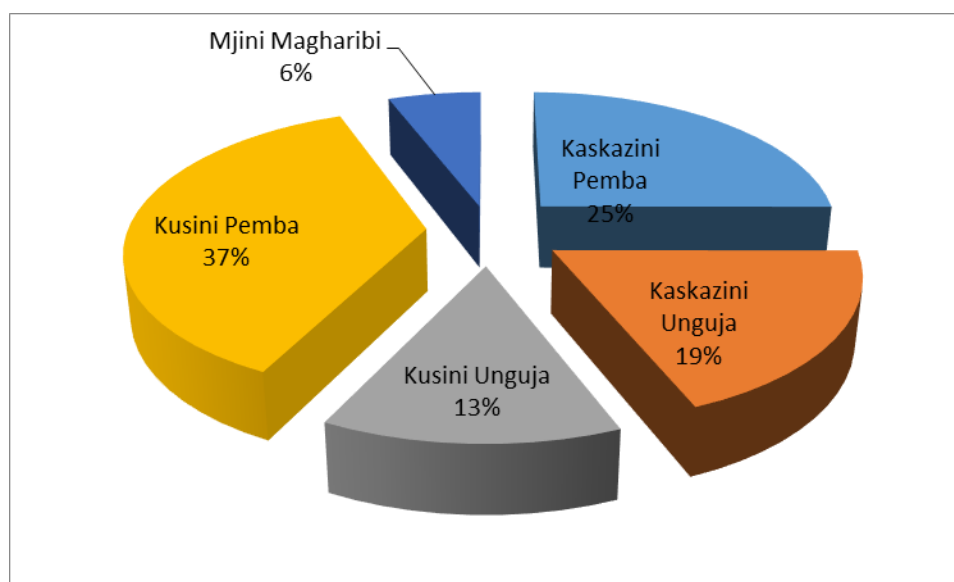
The total number of operators engaged in banana production was 597,452 (533,733 in Tanzania Mainland and 63,719 in Zanzibar). The total planted area was 147,074 ha (134,792 ha in Mainland and 12,282 ha Zanzibar). In Mainland Kagera had the largest planted area 53,504 ha (38.9 percent), followed by Kilimanjaro 16,665 ha (12.1 percent), Mbeya region is next with 13,991 ha (11.9 percent) while Singida had the lowest area planted only 34 ha. In Zanzibar Kusini Pemba had the largest planted area 4,265 ha (34.7 percent), followed by Kaskazini Unguja with 2,872 ha (23.3 percent) while Mjini Magharibi had the lowest 818 ha (6.6 percent).

Out of the total area planted with banana, 114,612 ha (78 percent of planted area) was harvested whereby 104,210 ha was in Mainland and 10,402 ha in Zanzibar. In Mainland, Kagera had the largest harvested area 34,261 ha (33 percent), followed by Kilimanjaro with 14,672 ha (14 percent) and Mbeya 13,672 ha (13 percent) while Shinyanga had the least area harvested of 23 ha. In Zanzibar Kusini Pemba had the largest harvested area 3,620 ha (35 percent) followed by Kaskazini Unguja 2,428 ha (23 percent) and Kaskazini Pemba 2,309 ha (22 percent), while Mjini Magharibi had the lowest harvested area 685 ha (7 percent).

The total production was 487,500 tons (458,975 tons; 94 percent in Tanzania Mainland and 28,524; 6 percent in Zanzibar). In Mainland, Kagera had the highest production of 196,511 tons (43 percent); followed by Mbeya 76,797 tons (17 percent), and next was Kilimanjaro 69,714 tons; (15 percent). The least production was Iringa with only 4 tons. Yields were highly variable between regions in Tanzania Mainland with average yield recorded to be 2.7 tons/ha, while the highest yield was 5.7 tons/ha recorded in Kagera and the least yield was 0.1 tons/ha in Iringa.

In Zanzibar, total banana production was 28,524 tons of which Kusini Pemba 10,498 tons; (37 percent) having the highest production in the islands, followed by Kaskazini Pemba (7,141 tons; 25 percent), and Kaskazini Unguja 5,393.3 tons; (19 percent). The least producing region in Zanzibar was Mjini Magharibi with 1,673 tons; (6 percent). The average yield of banana in Zanzibar was 2.7 tons/ha, with the highest yield found to be 3.1 tons/ha in Kaskazini Pemba (Figure: 3.7.2).

Figure 3.7.2: Percentage of production of bananas by region in Zanzibar, 2016/17 AASS



3.7.3 Coconuts

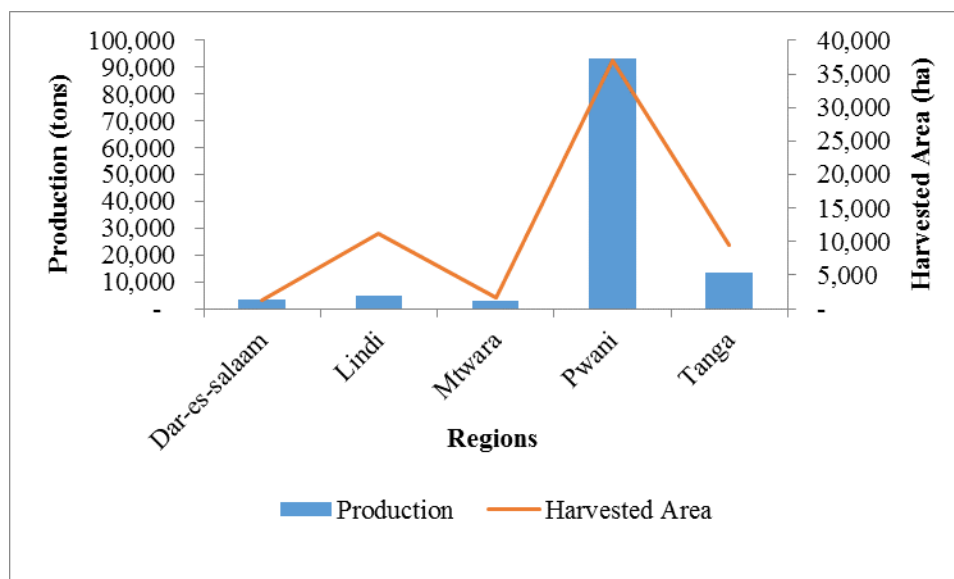
Coconut production is mainly grown along the eastern coast of the country. Total number of operators engaged in the cultivation of the crop in the country was 227,827 (177,043 operators in Tanzania Mainland and 50,784 operators in Zanzibar). The total planted area was 74,316 ha (63,373 ha, 85 percent in Tanzania Mainland and 10,943 ha, 15 percent in Zanzibar). Coconut was cultivated in five regions of Mainland, with three regions of Pwani, Lindi and Tanga contributing to 95 percent of the total cultivated area. Pwani had the largest planted area of 37,805 ha (60 percent), followed by Lindi with 11,249 ha (17 percent) and Tanga (10,649 ha; 18 percent).

Total harvested area with coconuts in Tanzania was 69,117 ha (60,905 ha in Mainland and 8,212 ha in Zanzibar) with the average yield of 2 tons/ha on each side. In Mainland, the three regions also contributed 95 percent of the total harvested area with coconut in. Pwani was also leading in having the largest harvested area 37,098 ha (61 percent) followed by Lindi 11,249 ha (18 percent) and Tanga 9,396 ha (15 percent).

The total production of coconut in the country was 133,596 tons with Mainland contributing 118,017 tons and Zanzibar 15,579 tons. In Mainland Mtwara was leading with production of

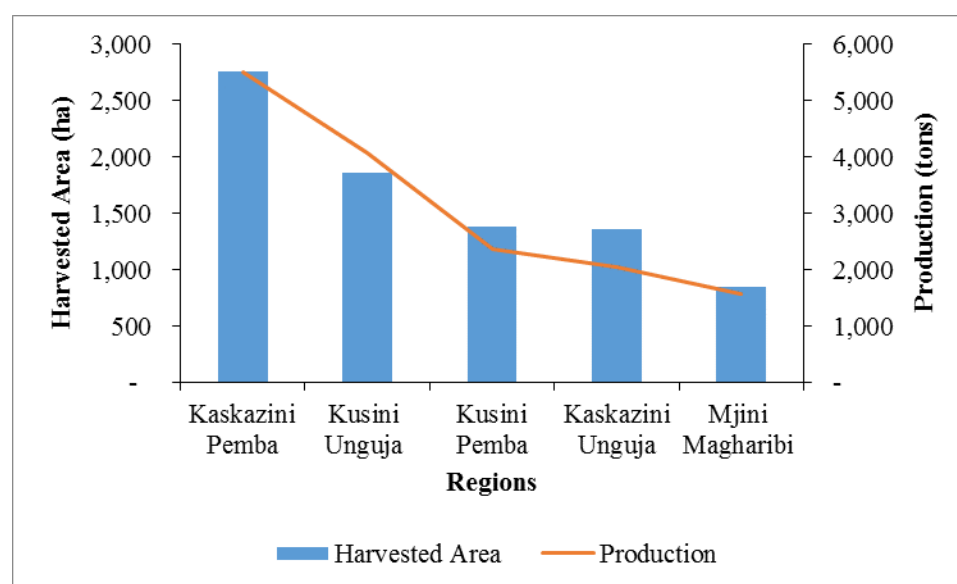
93,244 tons (80 percent), followed by Tanga 13,488 ha (12 percent) and Lindi 4,920 tons (4 percent) (Figure 3.8.3(a)).

Figure 3.7.3(a): Harvested area and production of coconut by region in Tanzania Mainland, 2016/17 AASS



In Zanzibar coconut was produced in all 5 regions where Kaskazini Pemba had the largest planted area of 3,986 ha (36 percent) in the Islands, followed by Kusini Unguja 2,544 ha (23 percent), and Kusini Pemba 1,966 ha, (18 percent) while Mjini Magharibi with the lowest planted 874 ha (8 percent). The largest harvested area with coconut in Zanzibar was also found in Kaskazini Pemba with 2,763 ha (34 percent) followed by Kusini Unguja 1,862 ha (23 percent) while Mjini Magharibi was the lowest with 843 ha (10.2 percent). Kaskazini Pemba had the highest production of 5,512 tons (35 percent), followed by Kusini Unguja (4,080 tons; 26 percent) and Kusini Pemba (2,370 tons; 15 percent). Mjini Magharibi has the lowest production 1,568 tons (10 percent).

Figure 3.7.3(b): Area harvested (ha) and production (tons) of coconuts in Zanzibar by regions, 2016/17 AASS

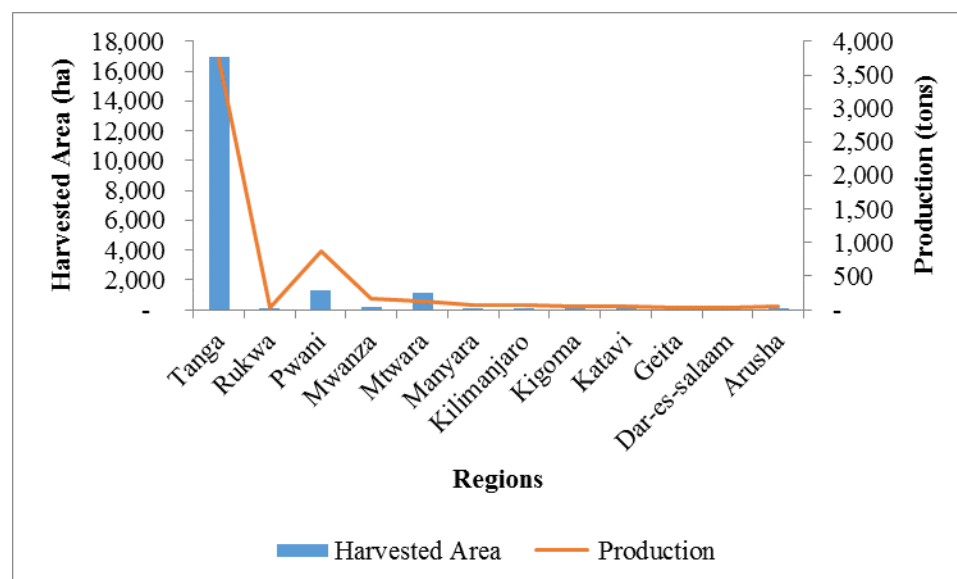


3.7.4 Oranges

Oranges are grown in all regions of Tanzania though in different proportions. Orange cultivation involved 79,570 operators in the country, of which 63,356 operators were found in Tanzania Mainland and 16,214 operators in Zanzibar. The total planted area with oranges in Tanzania was 34,085 ha (32,129 ha in Tanzania Mainland and 1,955 ha in Zanzibar). In Tanzania Mainland, two regions of Tanga and Pwani provide 90% of the total area planted with oranges. Tanga having the largest planted area 26,230 ha (82 percent) and Pwani 2,592 ha (8 percent), whereas Mtwara was next with 1173 ha (4 percent) while Simiyu had the lowest planted area recorded of 1 ha. Total area harvested for oranges in the country was 21,375 ha (63 percent of the planted area), with 19,879 ha coming from Mainland and 1,496 ha in Zanzibar. In Tanzania Mainland, Tanga was leading with 18,994 ha, (85 percent), followed by Pwani 1,307 ha (7 percent) and Mtwara 1,173 ha (6 percent) while Kagera lowest harvested area of 2 ha. The average yield of oranges in Tanzania Mainland was 3.88 tons/ha.

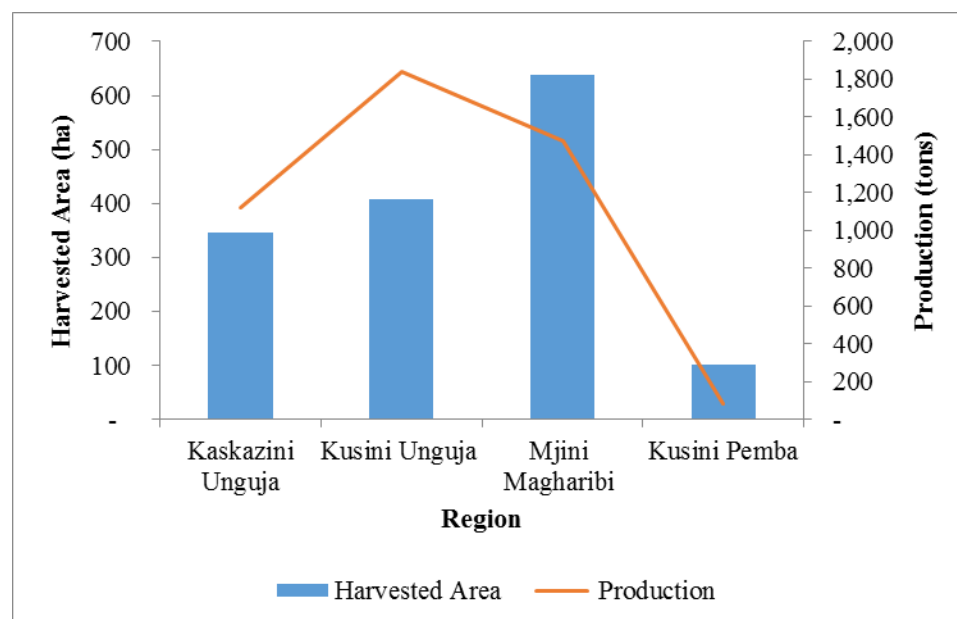
The results showed that 9,839 tons of oranges were produced in the country, where Mainland contributed 5,321 tons (54 percent) and Zanzibar 4,518 tons (46 percent). Tanga was the leading region in orange production in Mainland with 3,731 tons (70 percent) followed by Pwani (880 tons; 17 percent). Kagera recorded the lowest production of 3 tons (Figure 3.7.4(a)).

Figure 3.7.4(a): Harvested Area (ha) and Production (tons) of Oranges in Tanzania Mainland by Regions, AASS 2016/17



In Zanzibar, oranges were produced in all regions except Kaskazini Pemba. The leading region in area planted with oranges in Zanzibar is Mjini Magharibi with 677.4 ha (36.4 percent), followed by Kusini Unguja 408 ha (32.1 percent) while Kusini Pemba had the planted area of 180 ha (9.2 percent). Total harvested area in Zanzibar was 1,496 ha (76.5 percent of the planted area). Mjini Magharibi had the largest harvested area 639.0 ha (34.6 percent), followed by Unguja 408 ha (32.1 percent) and Kusini Pemba had the lowest harvested area 103 ha (9.2 percent) with the average yield of 9.47 tons/ha. The total production of oranges in Zanzibar was 21,769 tons; Mjini Magharibi had the highest production 18,724 tons (86 percent), followed by Kusini Unguja 1,840 tons (8.4 percent) while Kusini Pemba had the lowest production 84 tons (0.4 percent) (Figure 3.7.4(b)).

Figure 3.7.4(b): Area harvested (ha) and Production (tons) of Oranges in Zanzibar by Regions, AASS 2016/17



3.7.5 Sugar cane

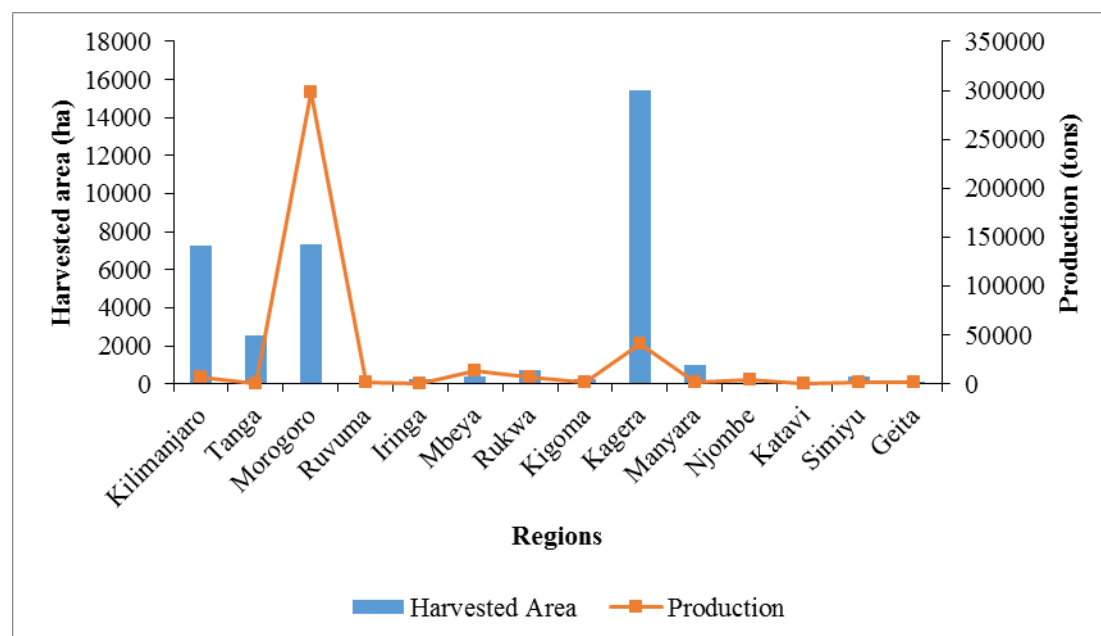
Sugar cane was grown by 61,362 operators in Tanzania where in Mainland there were 59,045 (96.2 percent) and in Zanzibar 2,316 (3.8 percent). The total area planted with sugar cane was 53,398 ha of which 50,288 ha (90.4 percent) were in Mainland and 3,192 ha (9.6 percent) in Zanzibar.

In Mainland, Kagera had the largest planted area with sugar cane 23,961 ha (47.7 percent), followed by Morogoro with 7,888 ha (15.7 percent) and Kilimanjaro third with 7,299 ha (14.5 percent) while Shinyanga had the lowest area planted with sugar cane 21ha (0.04 percent). In Zanzibar, Kaskazini Unguja is leading with 1,733 ha (54.3 percent) planted area followed by Kusini Unguja 1,406 ha (44 percent) while Mjini Magharibi had the lowest 5 ha (0.2 percent). The total area harvested was 39,541 ha of which 36,755 ha (93 percent) in Tanzania Mainland and 2,786 ha (7 percent) in Zanzibar.

The total sugar cane production was 446,708 tons of which 381,720 tons (85.4 percent) were in Mainland and 64,988 (14.6 percent) in Zanzibar. In Mainland the crop is mostly produced in 2

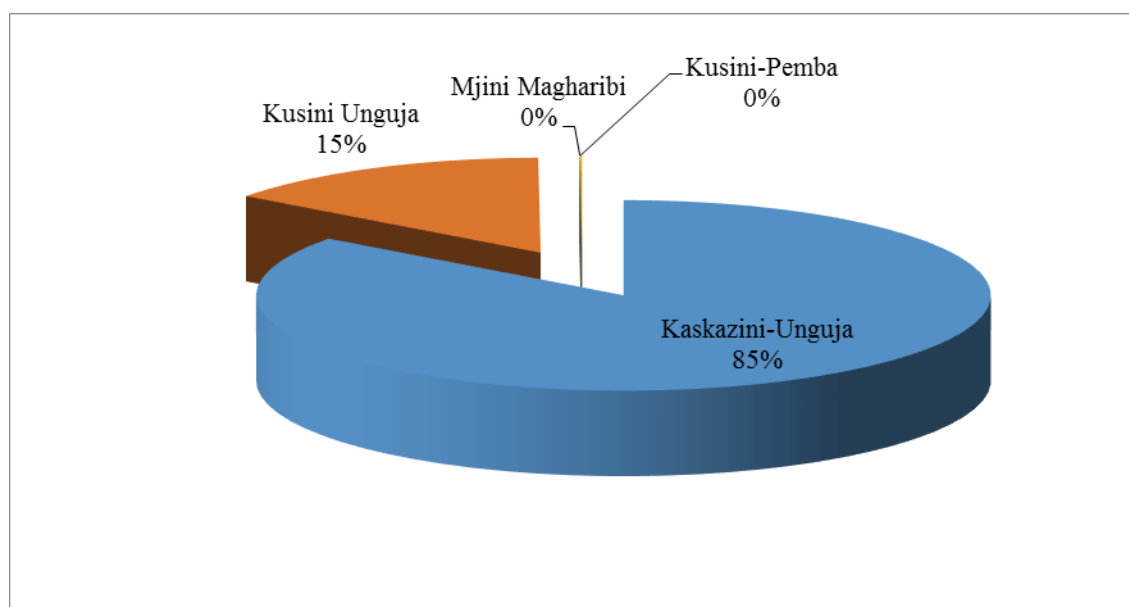
regions of Kagera and Morogoro which have sugar factories. Morogoro had the highest production of 298,461 tons (78.2 percent) from 7,333 ha harvested, followed by Kagera 40,738 tons (10.7 percent) from 15,455 ha harvested while Mbeya is third with 13,489 tons (3.5 percent) from 363 ha harvested (Figure 3.7.5(a)).

Figure 3.7.5(a): Harvested area (ha) and Production (tons) of Sugar cane by region in Tanzania Mainland, 2016/17 AASS



All regions in Zanzibar grow sugarcane except Kaskazini Pemba. The area planted was 3,192 ha (6 percent to the national area under sugar cane cultivation) whereby Kaskazini Unguja had the largest planted area 1,733 ha (54.3 percent), followed by Kusini Unguja with 1,406 ha (44 percent). Moreover, Kaskazini Unguja produced 55,340 tons (85.2 percent) from 1,334 ha, harvested area followed by Kusini Unguja with 9,576 tons (14.7 percent) from 1,399 ha harvested area (Figure 3.7.5(b)).

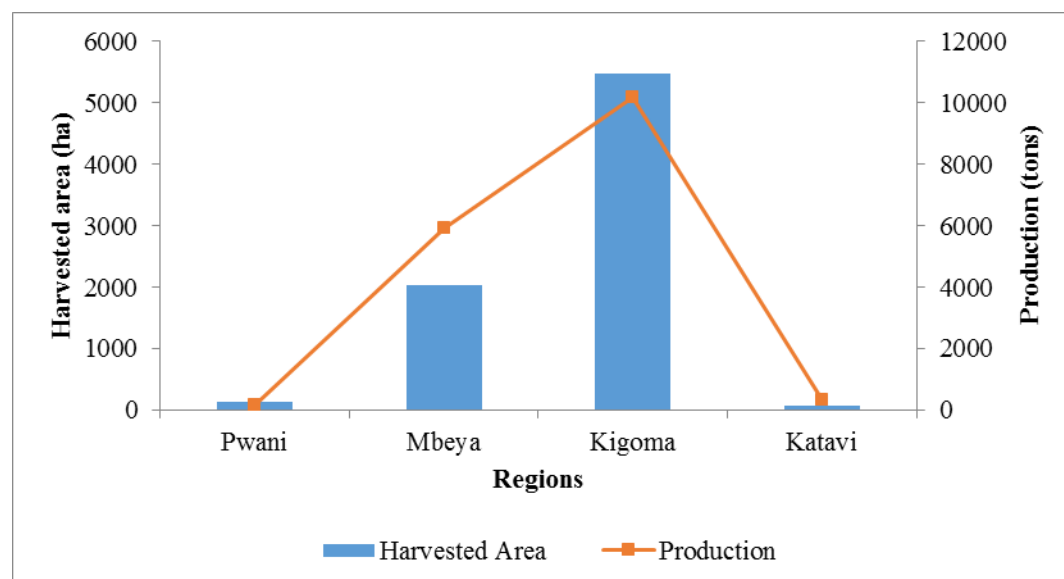
Figure 3.7.5 (b): Percentage of Sugar cane Production by region in Zanzibar, 2016/17 AASS



3.7.6 Oil Palm

Oil palm is produced in only 4 regions of Tanzania Mainland. A total of 27,698 operators cultivate 10,108 ha. The total area planted with oil palm was 10,108 ha of which 8,071 ha were harvested (79.8 percent of planted area). Kigoma region is the most important region for oil palm production in the country it had 6,819 ha planted (67.5 percent), followed by Mbeya with 2,102 ha (20.8 percent). The other two oil palm producing regions are Pwani and Katavi with 4 percent and 3 percent of planted area respectively. The total production was 17,624 tons from 8,071 ha harvested (average yield 2.6 tons/ha). Kigoma had the highest production 17,624 tons (57.8 percent) from 5,487 ha harvested, followed by Mbeya 5,918 tons (33.6 percent) from 2,031 ha harvested, while Pwani recorded the lowest production of 156 tons (0.9 percent) from 126 ha harvested.

Figure 3.7.6: Harvested Area (ha) and Production (tons) of Palm oil by Region in Tanzania Mainland, 2016/17 AASS

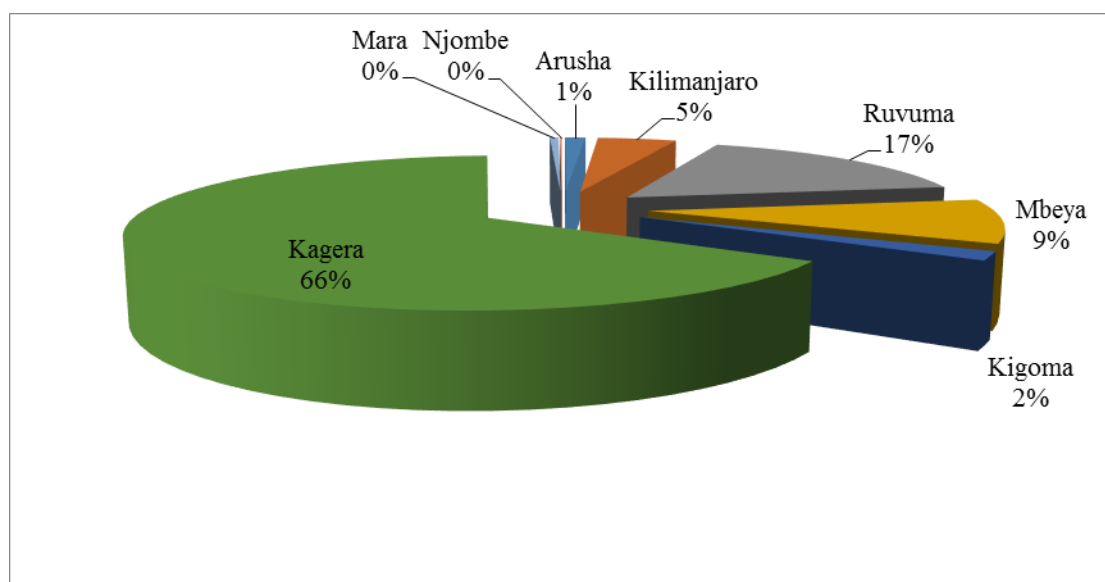


3.7.7 Coffee

Coffee is among the major cash crops grown in Tanzania and is mostly produced in 7 regions of Tanzania Mainland. There was 183,343 operators growing the crop. A total of 61,763 ha were under coffee production where 42,245 tons were harvested from 48,910 ha.

The total area planted with coffee was 60,370 ha of which 47,731 ha were harvested (79 percent of planted area). The results further shows that, Kagera had the largest area planted with coffee 31,384 ha (51.9 percent) with production of 28,170 tons (65.5 percent of the total production) from 22,306 ha harvested, Ruvuma followed with planted area of 12,362 ha (20.4 percent) and produced 7,171 tons (17 percent). Furthermore, Mbeya region planted 7,996 ha (13.2 percent) and production was 4,092 tons (9.5 percent). However, Njombe region has the lowest production of 60 tons (0.1 percent).

Figure 3.7.7: Percentage Production of coffee by Region in Tanzania Mainland, 2016/17 AASS



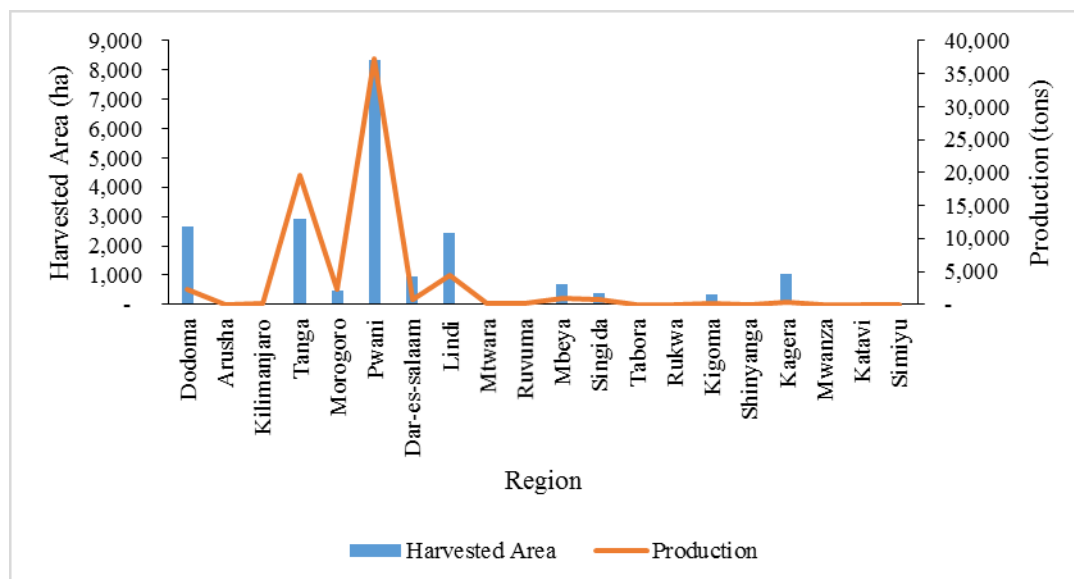
3.7.8 Mango

Mango is among the most important fruits in Tanzania and is grown almost in all regions though with varying proportions. There are 202,679 operators growing mango in the country, where Tanzania Mainland had 183,602 (90.5 percent) and Zanzibar 19,077 (9.5 percent). The total planted area with mangoes was 51,917 ha of which Mainland had 48,657 ha (93.7 percent) and Zanzibar had 3,260 ha (6.3 percent).

The total mango production in Tanzania was 78,427 tons whereby 88.6 percent from Tanzania Mainland and 11.4 percent in Zanzibar. The area harvested in Tanzania was 20,660 ha mainland and 2,406 ha Zanzibar. The average yield for mangoes in Tanzania Mainland was 1.9 tons/ha while in Zanzibar was 3.1 ton/ha.

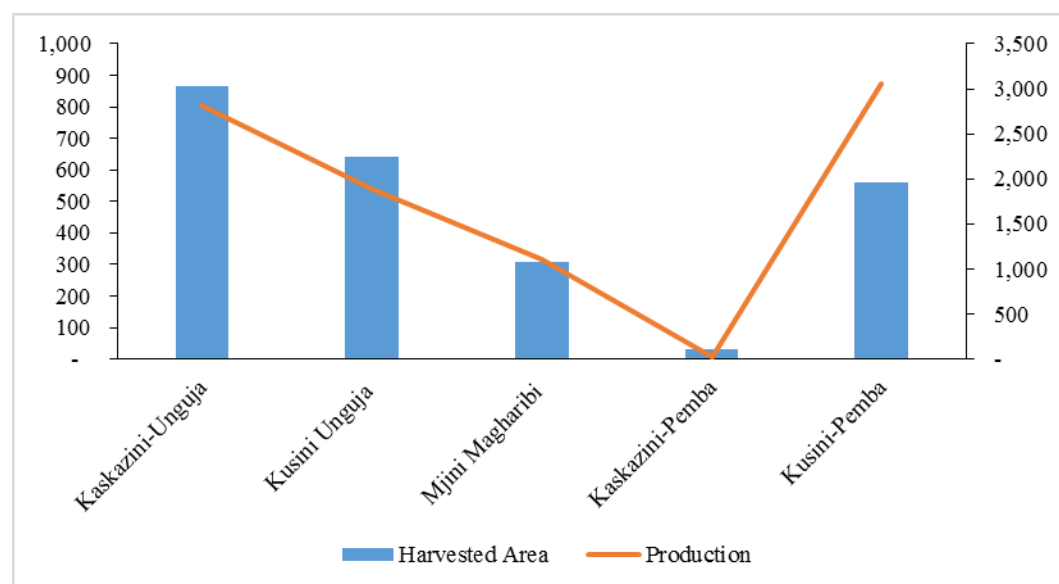
In Mainland, Pwani region had the largest mangoes planted area with 23,895 ha (49.1 percent) and produced 37,270 tons (53.6 percent) from 8,358 ha harvested area. Tanga was the second region with 9,064 ha (18.6 percent) planted area and produced 19,681 tons (28.3 percent) from 2,932 ha harvested area. Dodoma region followed with a planted area of 2,666 ha (5.5 percent) and produced 2,239 tons (12.8 percent) from harvested area of 2,655 ha. Katavi recorded the lowest mango production of 11 tons.

Figure 3.7.8(a): Harvested Area (ha) and production (tons) of mangoes by region in Tanzania Mainland, 2016/17 AASS



All five regions in Zanzibar were involved in production of mangoes. Kaskazini Unguja had the largest planted area of 1,122 ha (34.4 percent), followed by Kusini Unguja with 926 ha (28.4 percent). The total production of mangoes in Zanzibar was 8,886 tons whereby Kusini Pemba had the highest production of 3,060 tons (34.4 percent) from 530 ha harvested, followed by Kaskazini Unguja 2,812 tons (31.6 percent) from 867 ha harvested while and Kaskazini Pemba has the lowest production of 18 tons (0.2 percent) from 29 ha harvested.

Figure 3.7.8(b): Harvested Area (ha) and production (tons) of mangoes by region in Zanzibar, 2016/17 AASS

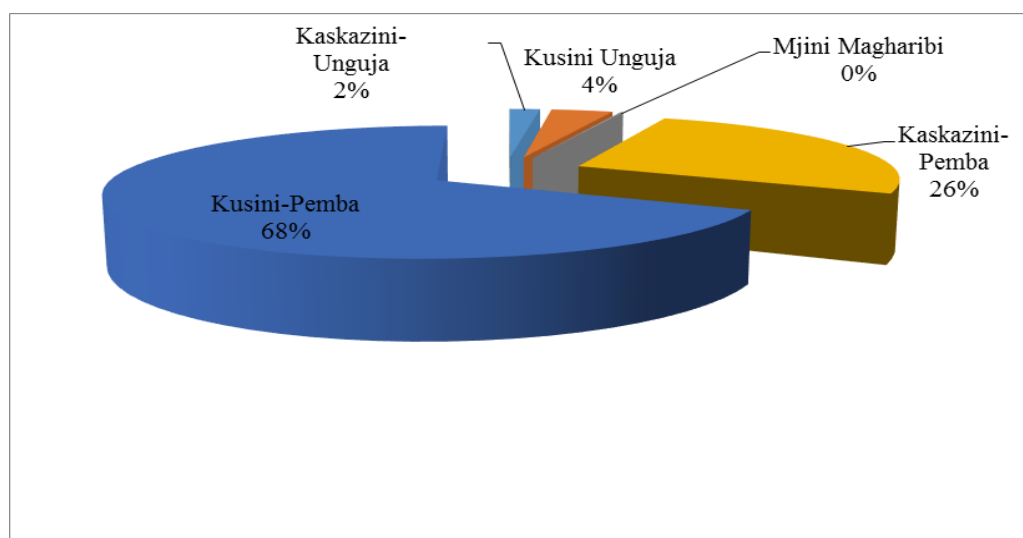


3.7.9 Cloves

There were 32,591 operators in Tanzania, out of which 462 (1.4 percent) were in Tanzania Mainland and 32,130 (98.6 percent) in Zanzibar. The total planted area with cloves in Tanzania was 9,087 ha of which 157 ha (1.7 percent) were in Mainland and 8,930 ha (98.3 percent) in Zanzibar. The total production of cloves was 6,307 tons. In Mainland cloves was only produced in Morogoro region where only 16 tons.

Cloves are the most important cash crops in Zanzibar. The crop is grown in all five regions where Kusini Pemba was leading with planted area of 4,966 ha (55.6 percent) and produced 4,276 tons (68 percent) from 4,296 ha harvested area. Kaskazini Pemba followed with 2,722 ha planted (30.5 percent) and production of 1,651 tons (26.2 percent) from 2,218 ha harvested. Mjini Magharibi region had the lowest production 11 tons (0.2 percent of total production) from 39 ha harvested.

Figure 3.7.9: Percentage Production of cloves by region in Zanzibar, 2016/17 AASS



3.7.10 Other Permanent crops

There are about 40 other permanent crops grown in Tanzania and which were included in the Annual Agriculture Sample Survey 2016/17. Among them, important ones worth mentioning are avocado, tea and pineapples. Tea was cultivated in Tanzania Mainland only and involved 3,687 operators who planted 3,568 ha of land and harvested 27,967 tons.

There were 25,256 operators engaged in the production of avocado whereby 23,834 were in Mainland and 1,423 operators in Zanzibar with a total planted area of 5,504 ha which produced 19,449 tons of which 19,287 tons (99 percent) were in Mainland. However, 36,461 operators engaged in pineapple production of which 25,925 operators (71 percent) were in Mainland and 10,536 operators (29 percent) in Zanzibar. The total planted area in Tanzania was 8,789 ha of which 7,416 ha (84 percent) in Mainland and 1,373 ha (16 percent) in Zanzibar. A total of 11,540 tons of pineapple were produced of which 5,572 tons (48 percent) were in Mainland and 5,968 tons (52 percent) in Zanzibar (Table 3.7.10).

Table 3.7.10: Area planted/harvested and production for other permanent crops, AASS 2016/17

Crop	Planted Area (ha)		Harvested Area (ha)		Production (tons)	
	Mainland	Zanzibar	Mainland	Zanzibar	Mainland	Zanzibar
Tea	3,568		3,568		27,967	
Avocado	5,344	160	3,745	99	19,287	162
Pineapple	7,416	1,373	4,896	1,001	5,572	5,968
Total	12,760	1,532	8,640	1,100	52,827	6,130