GHANA CENSUS OF AGRICULTURE

THEMATIC BRIEF

TREE CROPS

GHANA STATISTICAL SERVICE
AUGUST 2023

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FOREWORD

The 2017/18 Ghana Census of Agriculture (GCA) is the fourth census of agriculture carried out in the country. Earlier agricultural censuses were conducted in 1950, 1970 and 1984/85. Unlike the previous censuses, the 2017/18 GCA was an electronic census that deployed tablets and the Computer Assisted Personal Interview (CAPI) technique to collect nationwide information on households and institutions engaged in agricultural activities.

The GCA was conducted to provide benchmark data for planning and monitoring the national development agenda-the Coordinated Programme of Economic and Social Development Policies 2017-2024 and the Medium-Term National Development Policy Framework 2018-2021. The census will help policymakers set targets to assess progress towards the attainment of the Sustainable Development Goals (SDGs) and the African Union Agenda 2063. Additionally, the GCA will enhance the understanding of the effectiveness of the various agricultural interventions and other national policy initiatives, such as the "Planting for Food and Jobs" with its five modules by government and development partners to improve the livelihood of citizens and ensure food security for the country.

The census was a collaboration between the Ghana Statistical Service and the Ministry of Food and Agriculture. The data collection consisted of two broad phases. Phase one–the Listing Phase -entailed listing of all structures to identify all agricultural households and institutions. Phase two consisted of the administration of the core and community modules, and the collection of data on all agricultural households and institutions identified in Phase one. Appropriate statistical procedures and controls were put in place during the data collection to ensure that data from the census are of high quality.

ACKNOWLEDGEMENTS

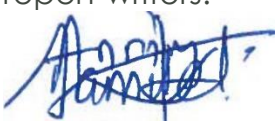
The Ghana Statistical Service (GSS) and the Ministry of Food and Agriculture (MoFA) acknowledge the invaluable contribution of institutions and individuals to the successful implementation of the 2017118 Ghana Census of Agriculture (GCA).

Special gratitude goes to the following: The Food and Agriculture Organisation (FAO), the World Bank (WB), the Government of the Netherlands, and the Department for International Development (DFID) of the United Kingdom for financial and technical support. Further gratitude goes to the Monitoring, Evaluation and Technical Support Services (METSS) of USAID for logistical support. We further acknowledge the Vice-Chancellor of the University of Ghana and the Institute of Statistical, Social and Economic Research (ISSER) of the same University, and the Birth and Death Registry for their material and technical support during the preparation and implementation of the GCA.

We acknowledge with thanks the support of the Ministry of Finance; the Ministry of Communications; the Ministry of Information; the Ministry of Fisheries and Aquaculture Development; and the Ministry of Trade and Industry. In addition, sincere thanks and acknowledgement are extended to the Ministry of Local Government and Rural Development; the Ministry of Lands, Mines and Natural Resources; the Ministry of Gender, Children and Social Protection as well as the Regional and District Management Committees of the GCA.

The Management of GSS is grateful for the exemplary and inspiring leadership provided by the National Steering Committee and in particular the Minister for Food and Agriculture, Honorable Dr. Owusu Afriyie Akoto, the Chairman of the Steering Committee and his co-chair, Honorable Vincent Sowah Odotei (MP) and Deputy Minister for Communications. The passion and technical support provided by the GSS Board made an indelible impact in ensuring the successful conduct of the GCA.

Finally, GSS is particularly grateful to Prof. Simon Mariwah whose reviews and comments have contributed to enriching this report. We are indebted to all who contributed in diverse ways to the successful implementation of the Census, especially management of GSS, the data processing and analysis team and report writers.



PROF. SAMUEL KOBINA ANNIM

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ACRONYMS

CPESDP	Coordinated Programme of Economic and Social Development Policies
FAO	Food and Agriculture Organization
FASDEP	Food and Agriculture Sector Development Policy
GCA	Ghana Census of Agriculture
MoFA	Ministry of Food and Agriculture
Mt	Metric Tons
NDPC	National Development Planning Commission
SDG	Sustainable Development Goals
SRID	Statistical, Research and Information Directorate
TC	Tree Crops
TCP	Tree Crops Policy
VC	Value Chain

1. INTRODUCTION

The Tree Crops (TC) are perennial crops grown mainly for economic benefits. It plays a significant role in agriculture, providing nutritious foods and valuable resources. The sub-sector consists of a wide variety of trees including Cashew, Citrus, Cocoa, Coconut, Coffee, Dawadawa, Kola, Mangoes, Oil Palm, Rubber Tree and Shea Nut. Other trees of economic importance under the sub-sector are acacia (Gum Arabic), avocado, baobab, and tamarind[1]. Generally, tree crops are "cash crops" since farmers cultivate them purely for income and investment. This is true for rubber, cocoa, coffee, cashew, citrus, mango and kola, which are not used particularly to satisfy household needs.

The development of a policy to support the TC sub-sector follows from the analysis of the key role played by TCs in Ghana's economy. The country has a number of comparative advantages in the production of a large number of tree crops, these include geographic location and access to large regional and European markets, adequate sea ports, good agricultural environment (arable land, forests and water resources) suitable for the cultivation of different tree crops. Indeed, the extraordinary success of the Cocoa sub-sector is an indication that a well-developed and coordinated TC sub- sector can contribute significantly to the economic growth of the economy.

The TC sub-sector provides a ready source of income for farmers and numerous job opportunities, thereby enhancing the livelihoods of a great number of farm families. It also contributes significantly to food security as well as the macro-economic stability of the country. According to the Ghana TCP, over 1.6 million farm families are engaged in the cultivation of tree crops, with a vast majority of them being small-scale farmers. TC that has made and continue to make significant contributions to the national economy include[2]:

The cultivation of TC aligns with many of the FAO's objectives and initiatives, as they contribute to sustainable agriculture, food security, nutrition, livelihood improvement, and environmental conservation. The FAO's work in promoting sustainable tree crop cultivation and agroforestry practices is crucial for achieving global food and development goals. The FAO works to improve access to and consumption of nutritious foods, and tree crops play a role in achieving this goal. TC, including fruits and nuts, are valuable sources of essential nutrients and contribute to diversified diets.

[1] Tree Crops Development Authority Act 2019, Act 1010
[2] https://leap.unep.org/countries/gh/national-legislation/tree-crops-policy | | accessed 12th July 2023

Also, the cultivation of TC contributes to several Sustainable Development Goals (SDGs). It helps to alleviate poverty by generating revenue from the sale of other tree-based products (Goal 1). More so, it contributes to food security (Goal 2) and helps improve diets leading to the promotion of sustainable development. Further, the cultivation of TC supports the reforestation agenda and biodiversity conservation to restore degraded land and provide habitats for wildlife (Goals 13 and 15). More so, the cultivation, processing, and distribution of tree crops can create employment opportunities along the value chain, from planting and harvesting to marketing and sales and this can empower women (Goal 5) by providing them with opportunities for economic engagement, decision-making, and leadership within farming communities. The cultivation, processing, and distribution of tree crops can create employment opportunities (Goal 8) along the value chain, from planting and harvesting to marketing and sales.

At the national level, Ghana, being a country with significant agricultural activities, has policies and initiatives related to the development of TC. One such policy is the Tree Crop Policy (TCP). The TCP is developed based on the Food and Agriculture Sector Development Policy (FASDEP) through an intensive stakeholder consultation process to provide a comprehensive and holistic approach to address the constraints such as inadequate supplies of improved planting materials, poor agronomic practices, and cultivation of smallholdings. With the vision and guiding principles of being competitive and sustainable in the TC sub-sector, the policy focuses on value chain development and improved technologies to create job opportunities, ensure food security, enhance the environment and improved livelihoods.

As a follow-up to the GCA findings on tree crops, this brief presents the results on perennial crops, such as fruit trees, cocoa and nuts grown mainly for economic benefits. The report discusses the characteristics of holders, type of cropping system practiced, size of parcels, quantity produced and sold, production in ecological zones and use of fertilizer, pesticide, and irrigation in the production of tree crops. It further examines the patterns and correlates of tree crop holdings by households and institutions and explores ways in which the identified correlates could help address national policy agendas for the TC sub-sector in Ghana.

2. DEFINITION OF CONCEPTS AND DATA SOURCES

2.1 Definition of Concepts

Agricultural activity: Agricultural activities include the cultivation of arable crops, tree crops, forest trees and the rearing of livestock, aquaculture, and capture fisheries.

Agricultural household: A household with at least one of its members engaged in an agricultural activity.

Agricultural land: This is defined as the sum of arable land, land under permanent crops and land under permanent pastures.

Agricultural institution: An institution engaged in an agricultural activity.

Agriculture: The production of plants and animals, including fresh water and marine species, for food, fuel, fibre or medicine.

Arable land: refers to all land generally under rotation whether it is under temporary crops, left temporary fallow or used as temporary pastures. Total arable land is usually classified into four categories:

i. Land under temporary crops
ii. Land under temporary pastures
iii. Land temporarily fallow
iv. All other arable land

Field: A piece of land in a parcel separated from the rest of the parcels by easily recognisable demarcation lines, such as paths, cadastral boundaries and/or hedges. A field may consist of one or more plots.

Head of household: A member of the household who takes general responsibility for the up-keep, wellbeing and security of the household and is recognized and acknowledged by the other household members as such.

Household: A person or group of persons who normally live together and are catered for as one unit. Members of the household may or may not be related.

Inheritance: It is the practice of passing property, title, debt, right and obligation of the death of an individual land received by members of collective holding for individual use

Land tenure: The relationship, whether legally or customarily defined, among individuals or groups that define how access is granted to rights to use, control, and transfer land, as well as associated responsibilities and restraints. (FAO).

Large-scale farming: Land area greater than or equal to 5 acres for arable crops and greater than or equal to 10 acres for tree crops.

Leasehold: A piece of land that can be used for a limited period of time according to the arrangement in the lease.

Literacy: Ability to read and write in any language with understanding.

Locality: A distinct population cluster (also designated as inhabited place, populated centre, settlement) which has a NAME or LOCALLY RECOGNISED STATUS. It includes fishing hamlets, mining camps, ranches, farms, market towns, villages, towns, cities and many other types of population clusters, which meet the above criteria.

Medium-scale farming: Land area greater than 2 acres but less than 5 acres for arable crops and greater than 5 acres but less than 10 acres for tree crops

Plot: The section of a parcel or field used for cultivating a specific crop or a mix of crops.

Parcel of land: A piece of land under one land tenure arrangement, surrounded by features such as other lands (not under the same land tenure arrangement), water, road, or forest. A parcel may consist of one or more fields or plots adjacent to each other.

Small-scale: Land area of sizes that are less than 2 acres for arable crops and less than or equal to 5 acres for tree crops.

Squatting: The practice where a holder is using a parcel of private or public land without any clear ownership and/or permission of the owner.

Share-cropping: A system of land-use arrangement that functions in two main prominent ways, namely, abunu and abusa. Abunu: the completed farmland is physically divided into two with the tenant and the landlord taking equal shares of the harvest or the cropped land. Abusa: the proceeds of the land are shared in the ratio of 1:2 with the landlord taking one part and the tenant two-thirds.

Tree crops: Crops that are cultivated for two or more years for fruits, without the need for replanting each year (e.g., mangoes, pears, etc.).

Trusteeship: A situation in which someone's land or property is managed by another person or organisation on behalf of the owner.

2.2 Data Sources

The statistics presented in this brief are generated from the 2017/2018 Ghana Census of Agriculture Regional Thematic Table on Tree crops.

3. JUSTIFICATION FOR THE SELECTION OF CORRELATES OF TREE CROPS

3.1 Sex

Agriculture is generally classified as men's activity. This is probably because, biologically and physically, men have more strength relative to their female counterparts which enable them to engage a lot more in physical or vigorous activities like farming than females do. Suffice to state however, that, female farmers produce less than their males not because they are less efficient in farming, but because they lack equal access to resources such as credit facilities, land and other productive inputs.

3.2 Age

The point is often made that young people in Ghana are generally disinterested in farming (Solidaridad, 2020)[3]. The situation is attributed to a lack of the enabling environment, including easy access to affordable credit, land and other inputs that will make farming attractive and profitable to the youth. It is estimated that over half of Ghanaian farmers are between 50 to 60 years old. This report, therefore, presents yet another opportunity to examine how the "age" factor interrelates specifically with tree crop holdings and would help us understand whether those earlier assertions are equally hold for tree crop farming. For sustainable tree crop farming, the youth must be very much involved. All efforts must therefore be made to attract them if they are not into it already.

3.3 Locality of Residence

Locality or place of residence has great influence on farming activities in Ghana. Generally, farming activities appear to be concentrated more in rural areas than in urban areas. This confirms the fact that, agriculture provides employment opportunities to most rural dwellers as opposed to the situation in urban areas.

3.4 Educational Attainment

There is a negative correlation between the level of educational attainment and agriculture activity. Once individuals acquire high level of education, farming becomes less attractive hence the level of participation in agricultural activity consequently or invariably declines. Educational attainment provides opportunity to learn, understand and adopt modern technological practices to improve agricultural yields, land use and sound environmental practices for the purposes of environmental conservation.

[3] https://www.solidaridadnetwork.org/news/spotlighting-youth-in-agriculture-in-ghana/

3.5 Literacy status

In times past, the discourse on literacy was mainly about language. In recent times, however, several other dimensions of literacy have evolved, including financial, digital, statistics, numeracy and environmental literacy. Even though it might make sense to assume that language literacy influences the other dimensions of literacy, the question of how these dimensions are interrelated has not been adequately addressed through empirical studies. The need to examine if, for instance, language literacy has some effects on environmental literacy and consequent actions such as tree crop farming would be of interest to this study. The specific question to answer is, "Is one to expect many more literates who have tree crop holdings than their illiterate counterparts, possibly, because literates are more likely to understand the positive effects of these tree crop holdings on the household, economy, environment, among other benefits?

3.6 Disability Status

Persons with disabilities usually face challenges including discrimination, stigmatization and even exclusion from life-sustaining opportunities in society, rendering them very vulnerable. Unless the government makes targeted policies to support people with disability, it will be difficult for them to participate or compete effectively for the limited social and economic opportunities Persons with disability are often disadvantaged in terms of ownership and access to land and other properties; a challenge that could limit their ability of engaging in tree crop farming in a way compared with persons without disability.

3.7 Scale of Production

The production capacity of tree crops varies with the scale of production depending on whether the holding is small, medium, or large scale in size. Before one engages in production, one is required to make an initial capital investment in the form of land, labour, and machinery. How large or small the size of this initial investment will determine whether the holding could be classified as large, medium, or small-scale production. Large scale production requires a large capital investment and the availability and access to capital, especially land for agriculture, is often identified as a major limiting factor for investment in many parts of this country. Persons or institutions that have access to capital are more likely to have forest plantations that are into large scale production.

3.8 Land Tenure Arrangement

The type of tenure arrangement through which one gains access to land may inform the decision on what the land is used for. Some tenure arrangements may

be more favourable for long term investment than others. For instance, it may be deemed riskier to use land accessed through trusteeship, renting and squatting for tree crops which is a long-time investment, compared to freehold, inheritance and others. An assessment of the various tenure arrangements will help determine which form of arrangements are suitable and commonly used for tree crops.

3.9 Cropping System

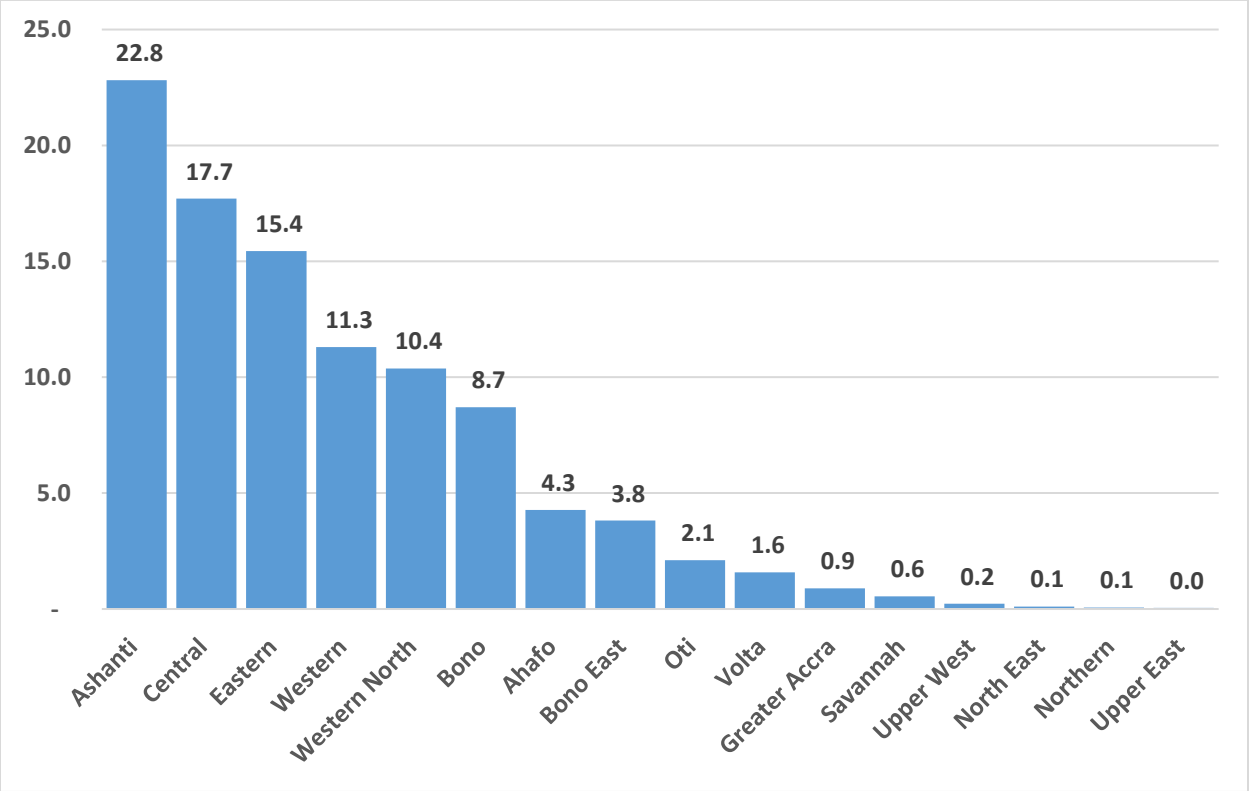
Mono cropping and mixed cropping are the main cropping systems used under tree crop cultivation. Trees draw soil nutrients at different levels of the soil depending on their root systems. Information on the cropping system provides a useful guide on the optimum combination of trees, especially in the case of mixed tree cropping to inform the right combination of tree types that would maximize benefits on crop lands and crop yields.

4. KEY FINDINGS

4.1 Patterns

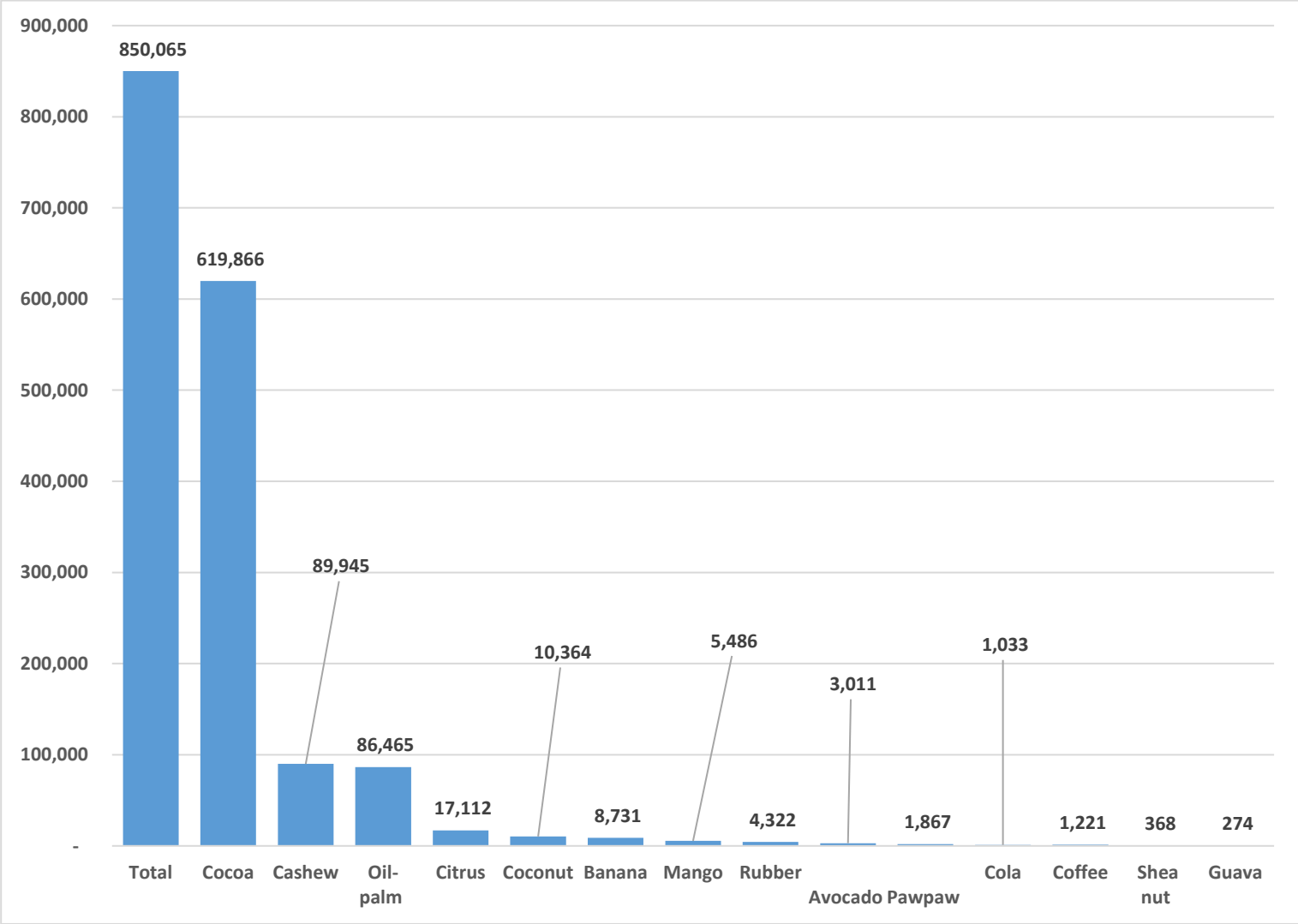
Tree crop production is dominated by Ashanti (22.8%), Central (17.7%), Eastern (15.4%), Western (11.3) and Western North (10.4%) regions.

Figure 1: Percentage of Tree crop holders 15 years or older by region



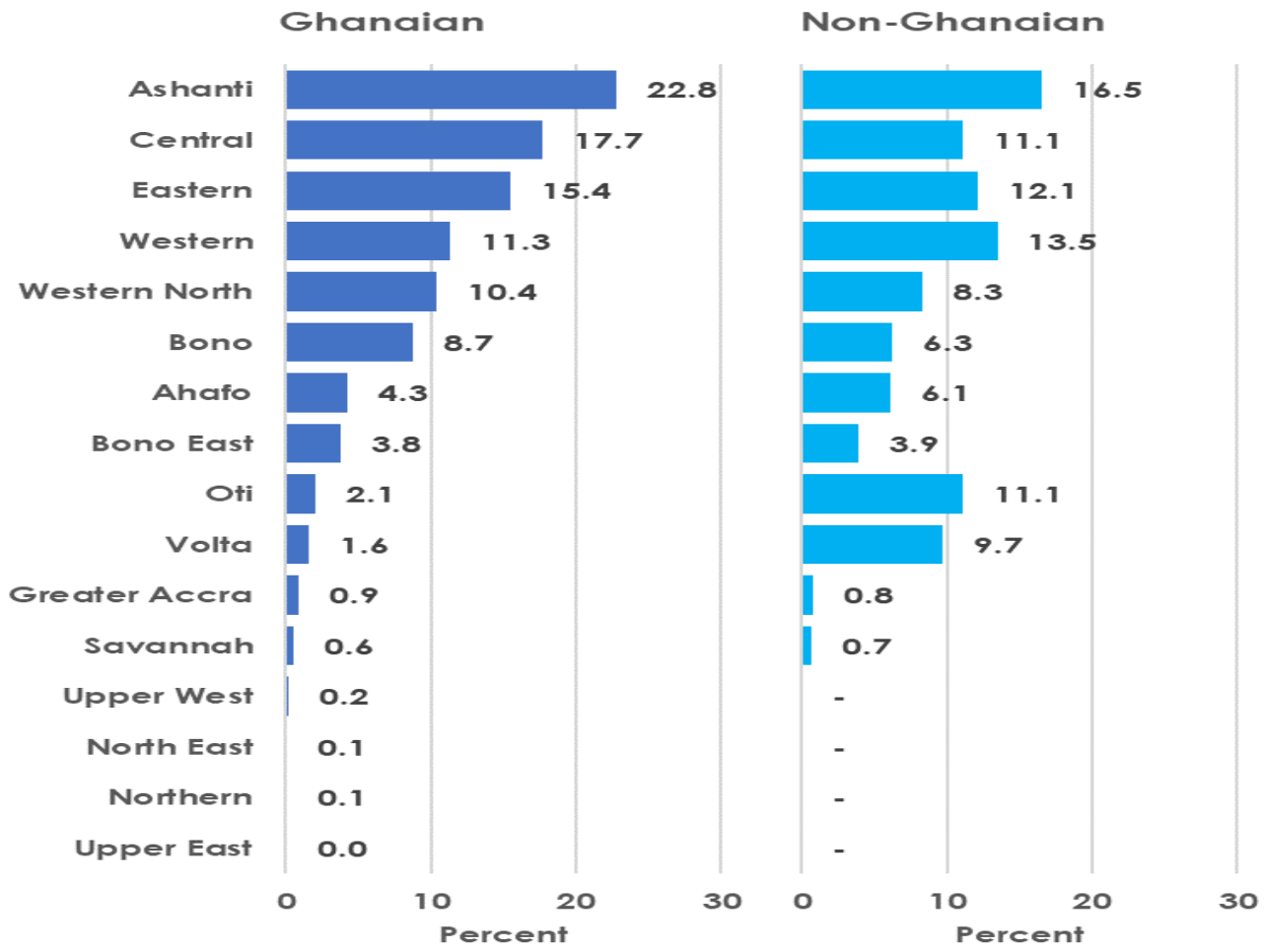
Cocoa is the dominant tree crop in Ghana, followed distantly by cashew, oil palm and citrus.

Figure 2: Number of Tree crop holders 15 years or older by type of crop



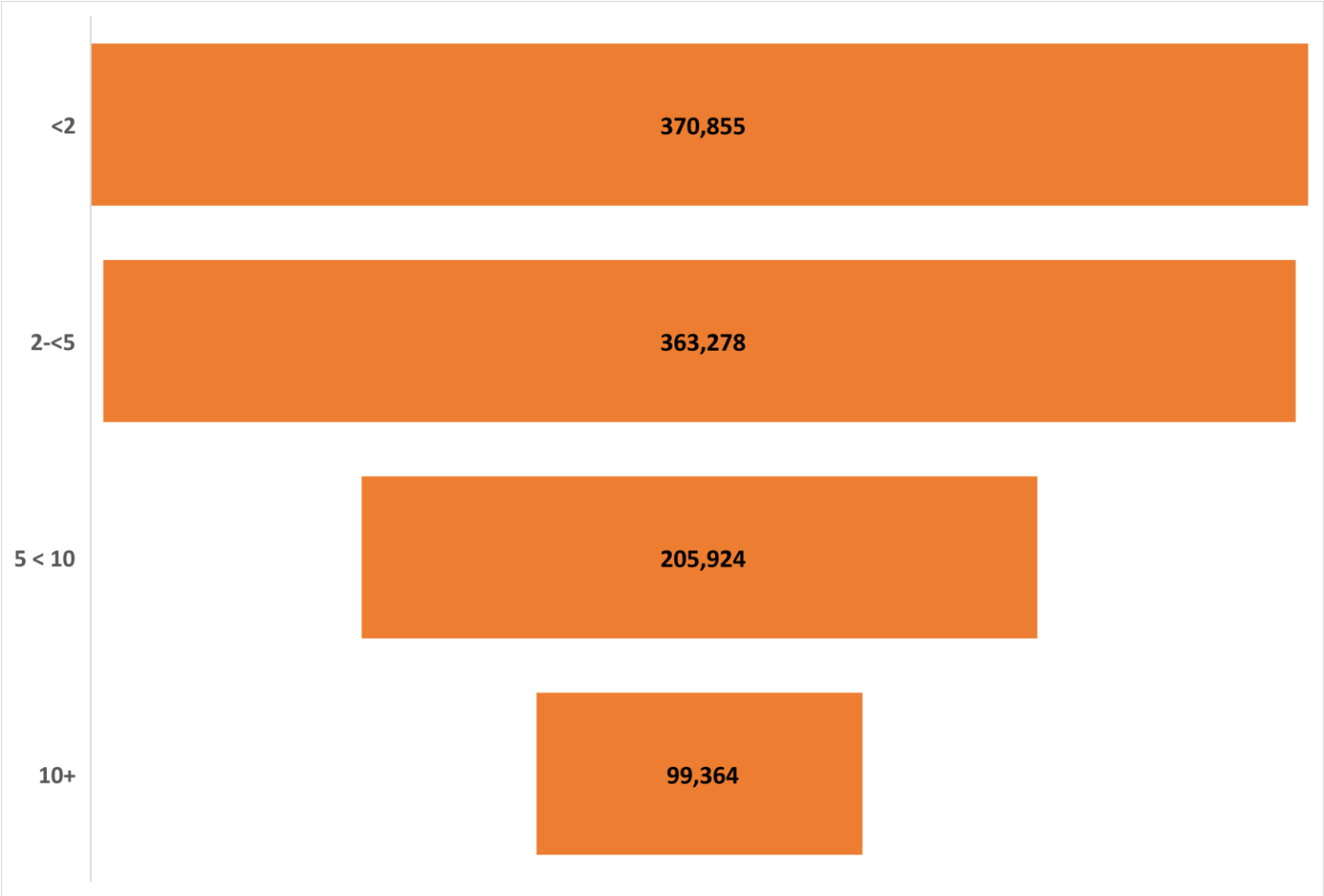
Ashanti Region has the highest proportion (16.5%) of tree crop holders who are non-Ghanaian. This is followed by Western region (13.5%).

Figure 3: Tree crop holders 15 years or older by nationality



Most tree crops are cultivated on parcels that are less than 5 acres. Only 99,364 holders cultivate on more than 10 acres.

Figure 4: Tree crop holding by land size (acres)



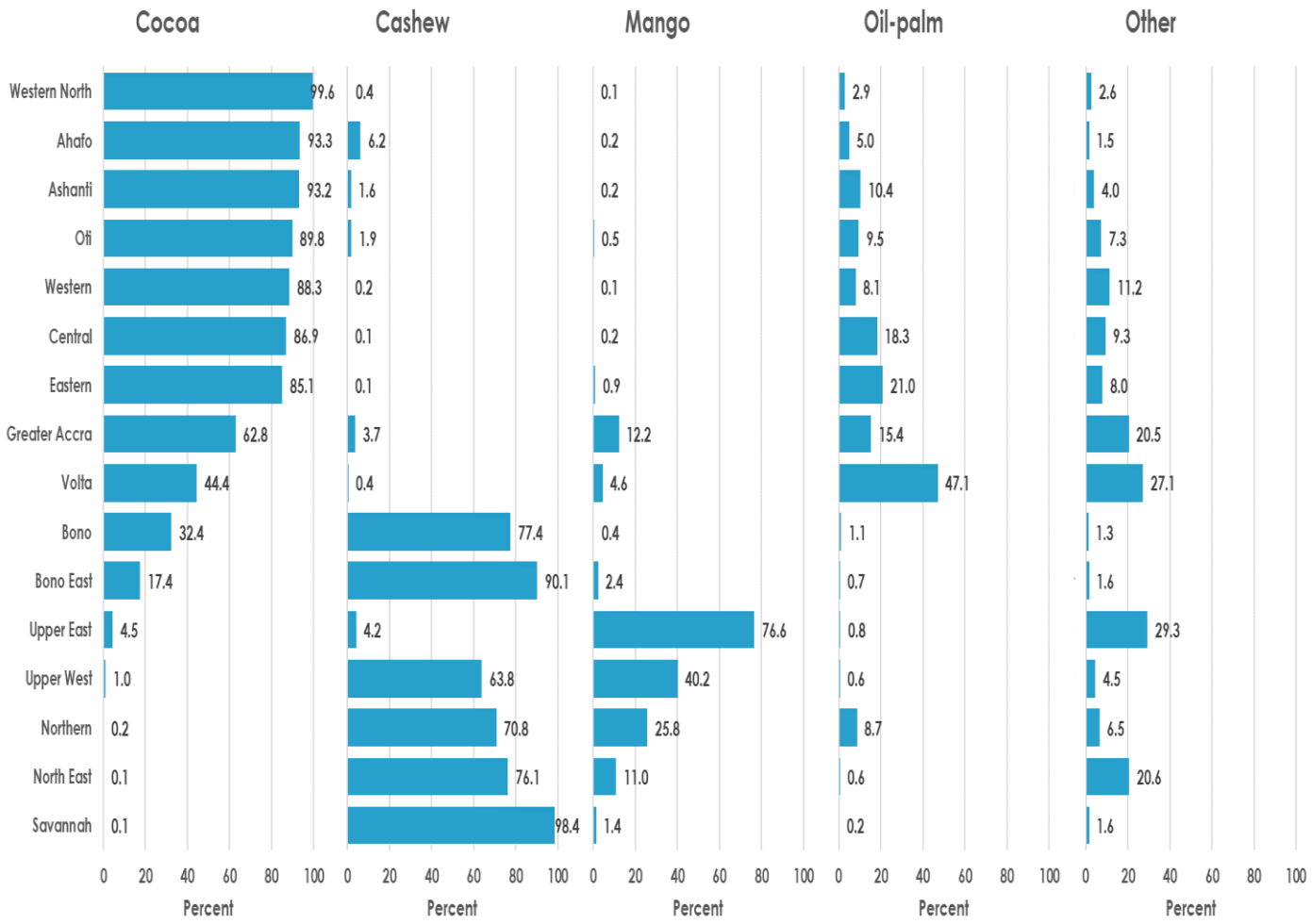
Approximately, 77 percent of all parcels (795,903) are used for cultivating cocoa while Guava has the least, about 280 parcels.

Table 1: Type of tree crop by land size (acres)

	<2	2 -<5	5 <10	10+
Total	370,855	363,278	205,924	99,364
Cocoa	285,378	275,674	161,575	73,276
Oil-palm	40,290	40,559	24,676	16,231
Cashew	13,671	32,334	13,461	5,837
Citrus	10,189	4,895	1,897	1,010
Coconut	6,962	2,516	1,152	662
Banana	5,017	2,472	898	644
Mango	2,948	1,416	614	542
Rubber	2,315	1,152	582	496
Avocado	1,367	873	461	327
Pawpaw	957	560	271	151
Coffee	755	401	129	100
Cola	510	333	162	48
Shea nut	286	60	27	22
Guava	210	33	19	18

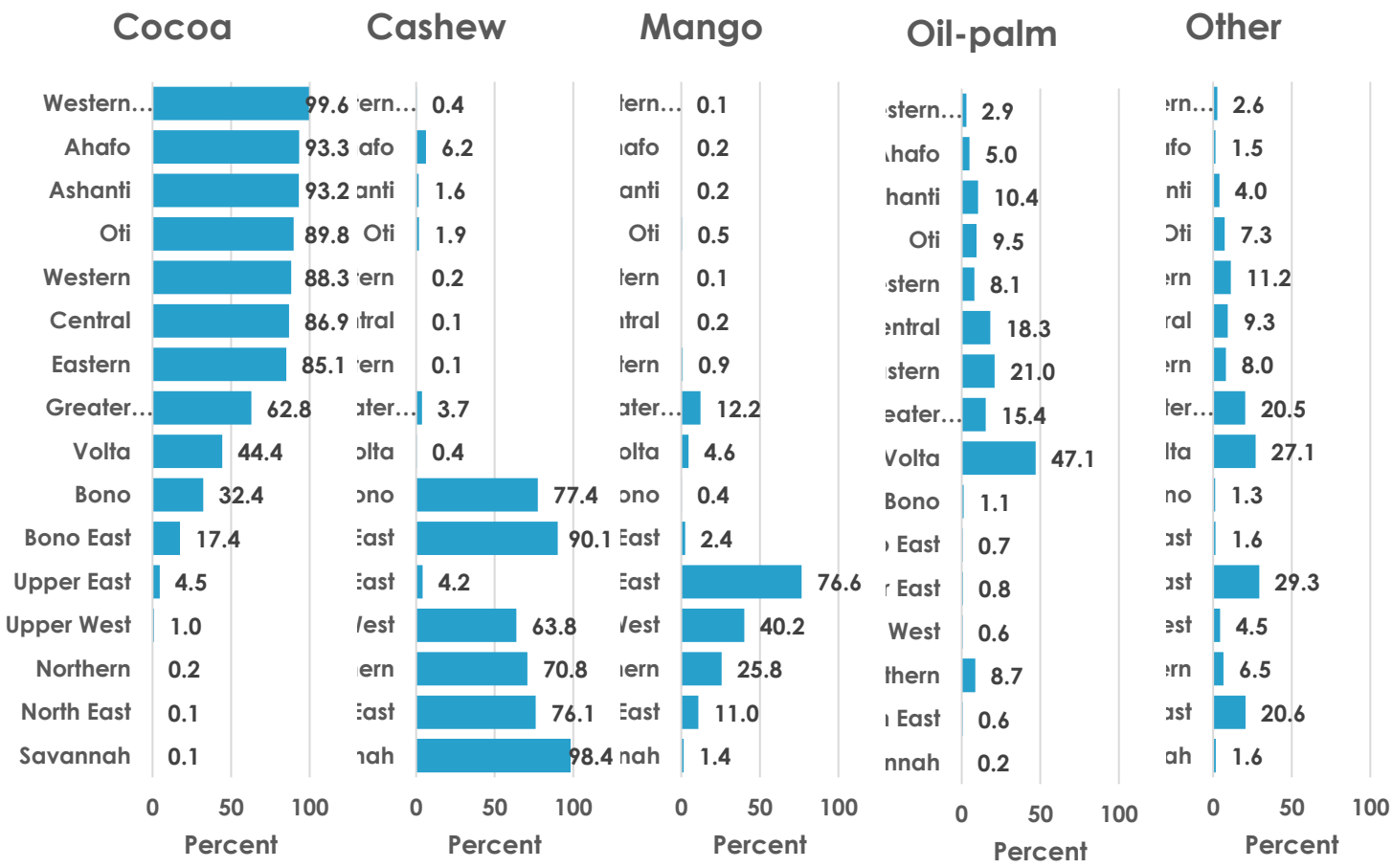
Tree crop holders mostly use fertilizer for cocoa plantations than any other crop. Other tree crops with significant use of fertilizer among holders include cashew (98.4%) in Savannah region, mango (76.6%) in Upper East region and oil palm (47.1%) in Volta region.

Figure 6: Tree crop holders 15 years or older by sex and type of crop, and by use of fertilizer



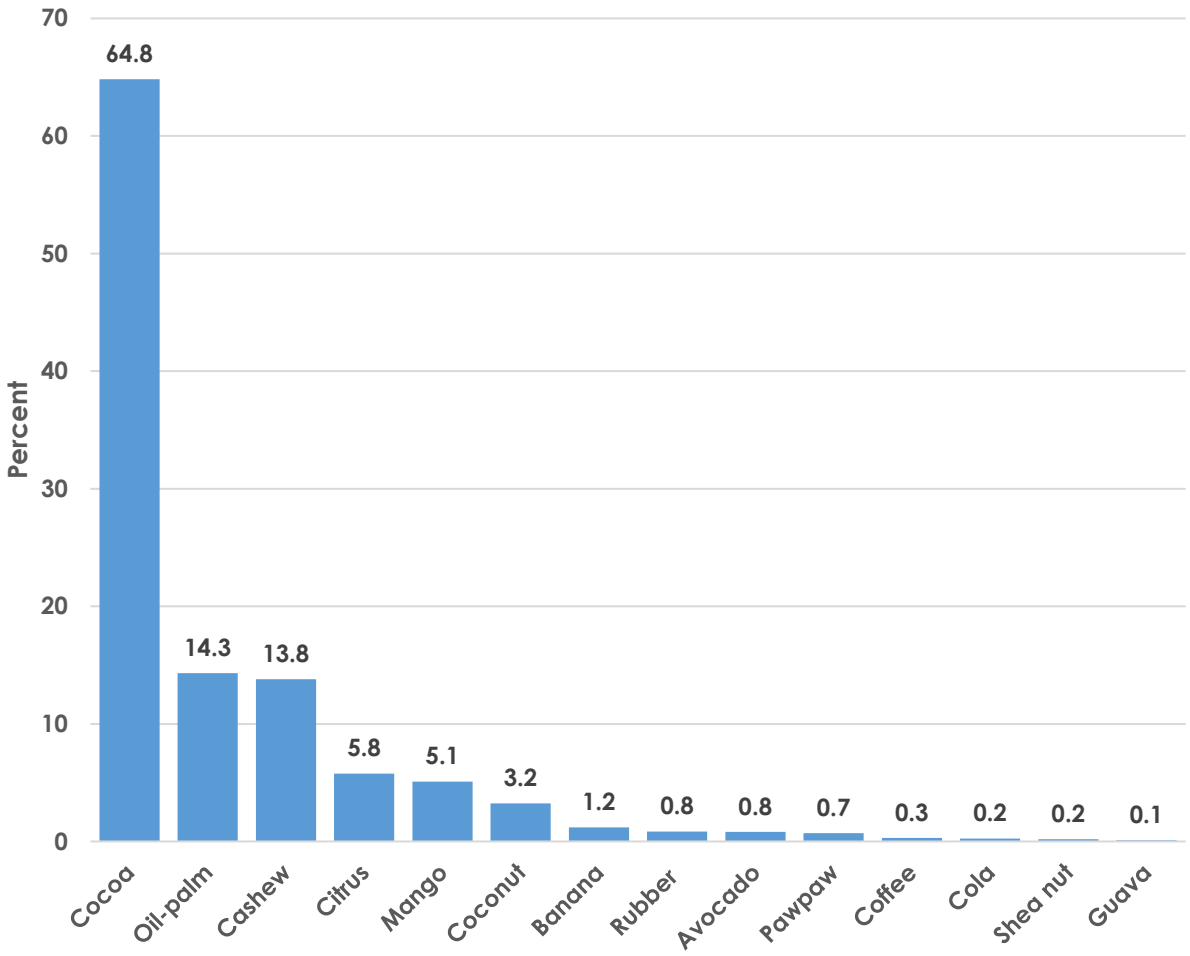
There is significant use of farm inputs including fertilizer, pesticide, and Irrigation in cocoa cultivation. The combined use of inputs is also high for cashew, accounting for 98.8 percent in Savannah Region and 90.1 percent in Bono East Region.

Figure 7: Tree crop holders 15 years or older by type of crop and by use of selected inputs (fertilizer, pesticide and Irrigation)



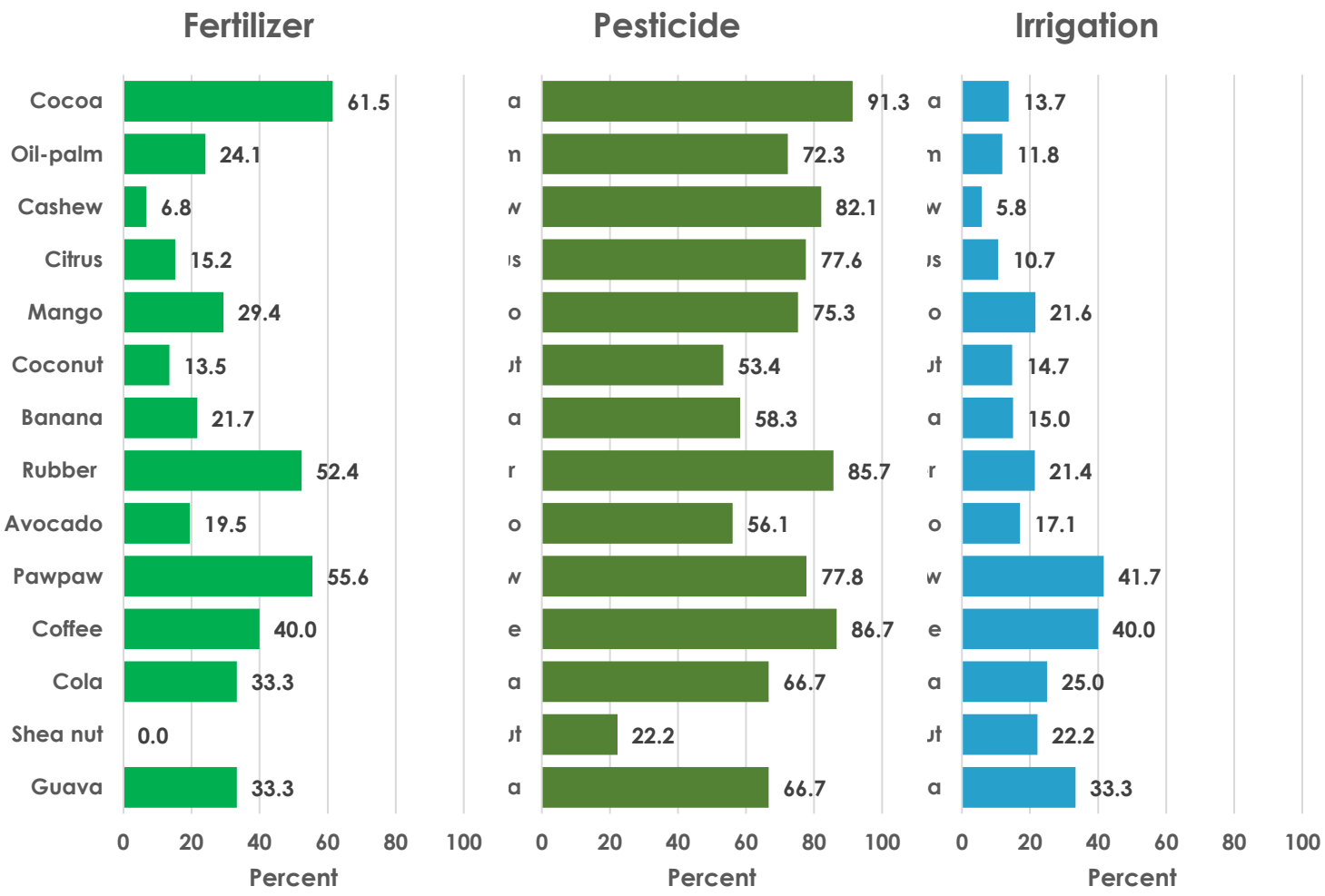
Institutions into tree crops cultivation who combined the use of fertilizer, pesticides and irrigation are more dominant for the cultivation of cocoa (64.8%), followed distantly by oil palm (14.3%). Other tree crops including banana, rubber, avocado, pawpaw, coffee, shea nut and guava together account for just about 4.0 percent (4.3%).

Figure 8: Tree crop institutions by type of tree crop, and by use of fertilizer, pesticide and irrigation



For all tree crops, there is higher use of pesticides compared with fertilizer and irrigation.

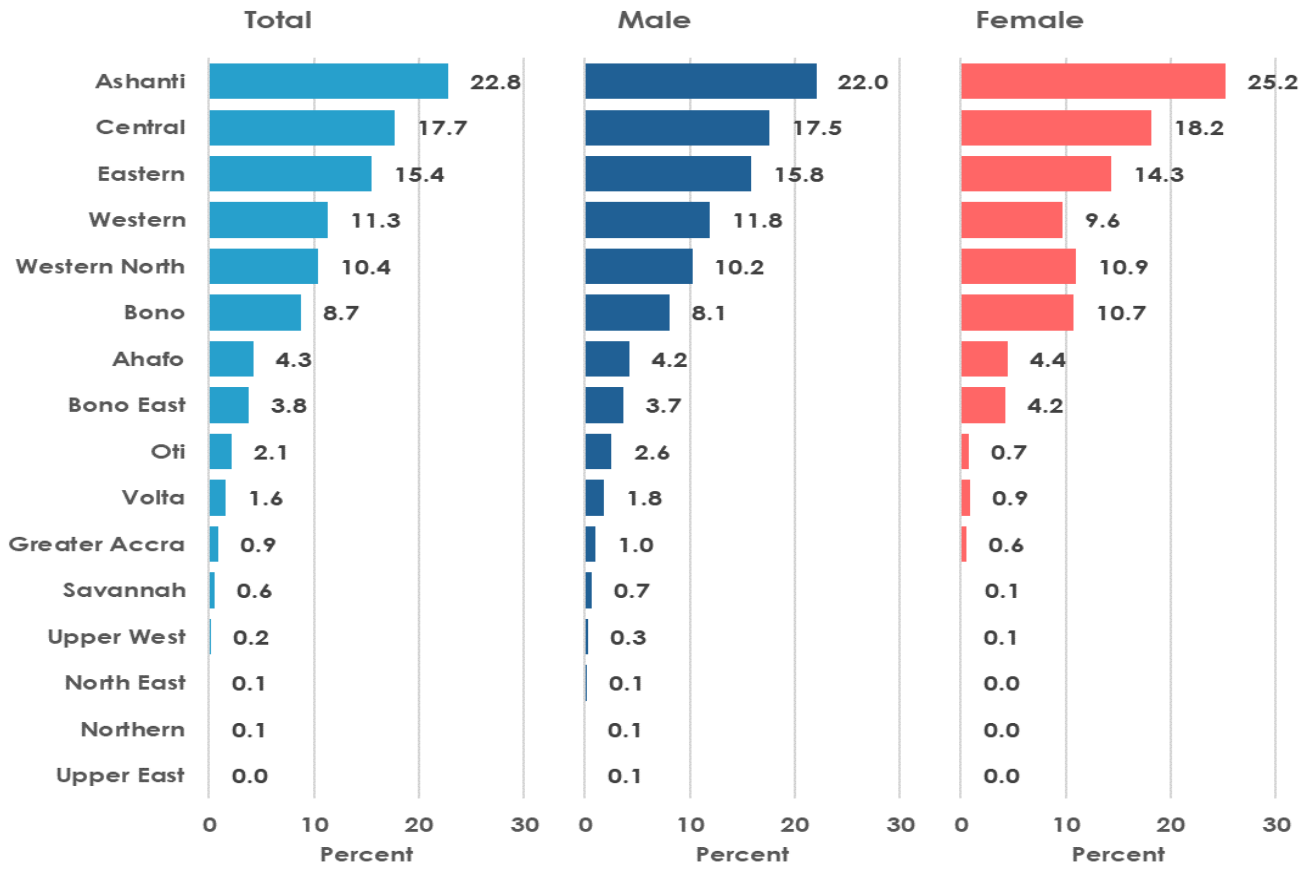
Figure 9: Tree crop institutions by type of tree crop, and by use of fertilizer, pesticide and irrigation



4.2 CORRELATES

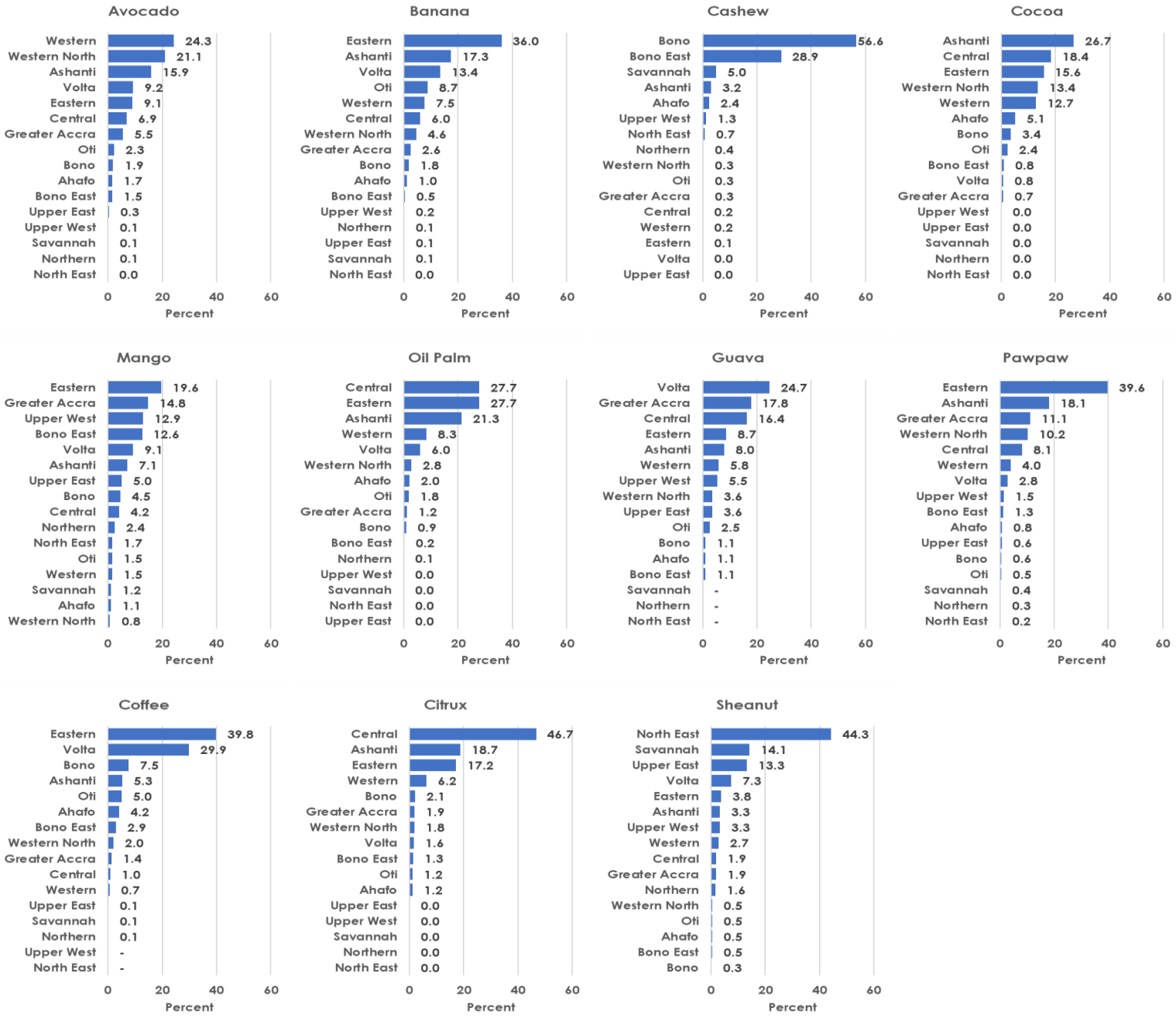
Over a quarter (25.2%) of tree crop holders in Ashanti Region are females as compared to their male counterparts. This pattern is generally reflected in some other regions of the country

Figure *10*: Tree crop holders: 15 years or older by sex and region



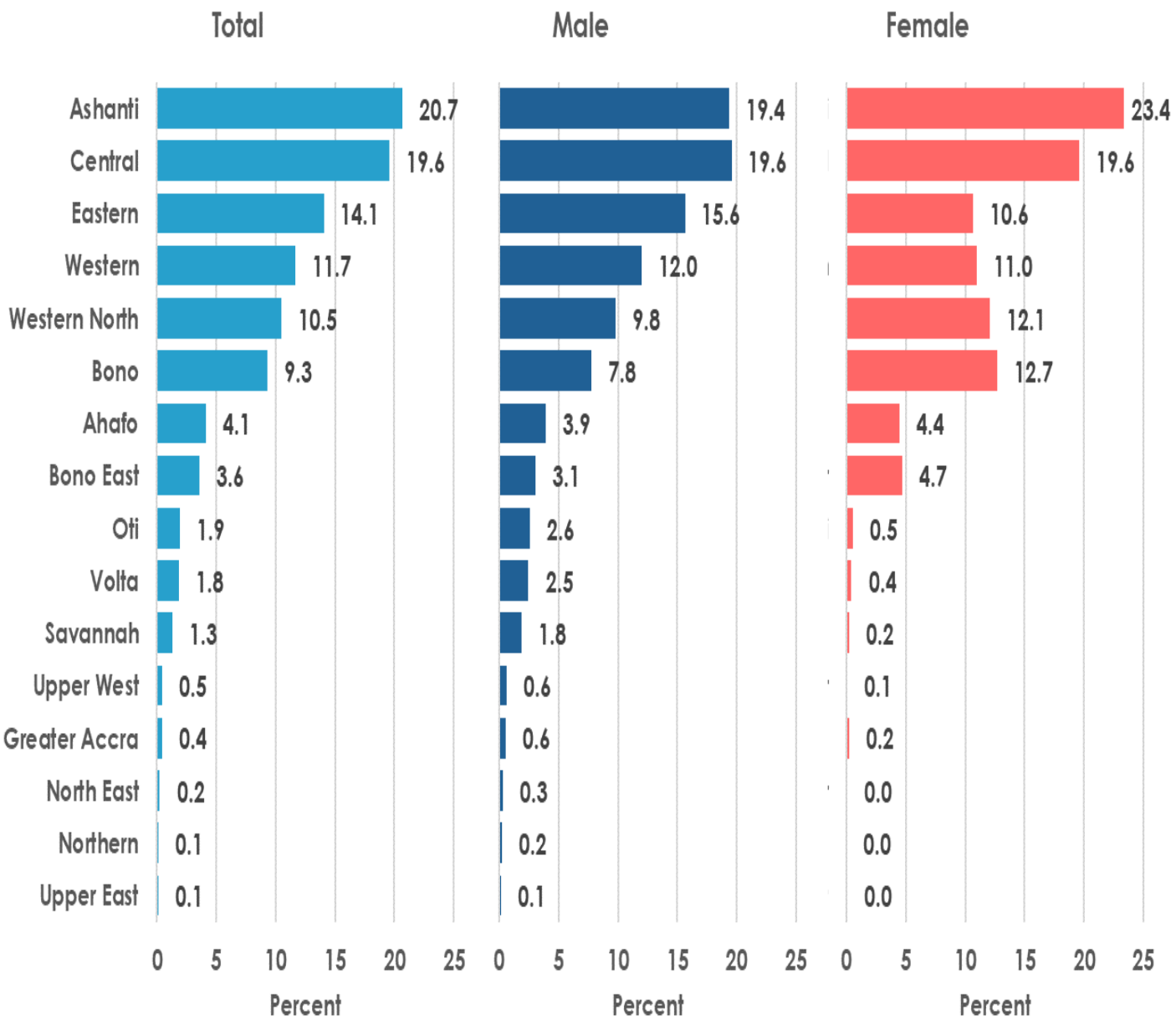
The Bono region has the highest proportion of youth aged 15-35 years in the cultivation of cashew. Mango on the other hand accounts for the least proportion of youth in tree crop cultivation.

Figure *11*: Tree crop holders 15-35 years (youth) by sex and age, and by type of crop



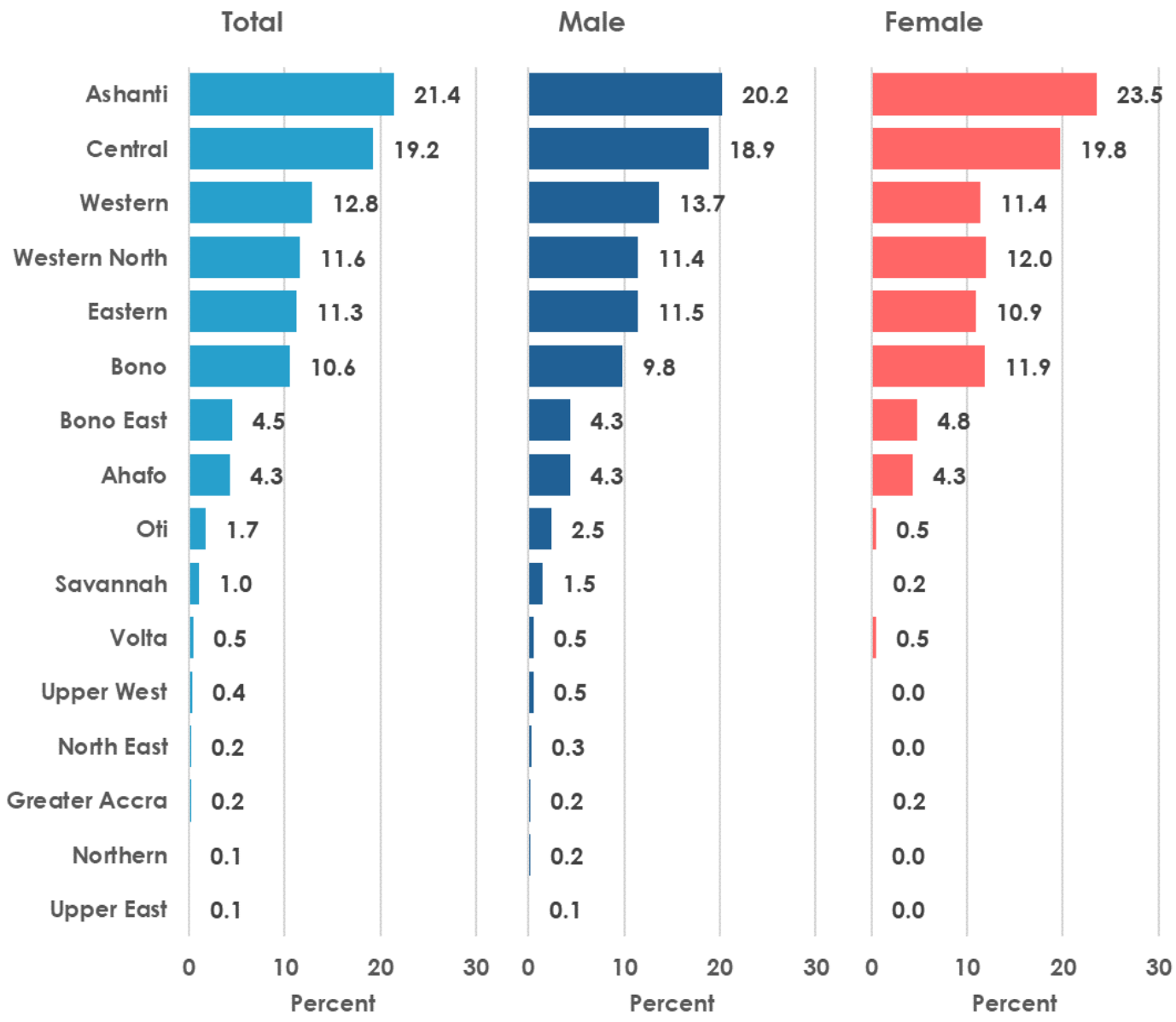
Ashanti Region has the highest proportion of tree crop holders 15 years or older (20.7%) who have never been to school, with a slight variation between females (23.4%) and males (19.4%). Eastern and Western regions have higher proportion of males who have never attended school compared with females.

Figure 12: Tree crop holders 15 years or older by sex and educational attainment (never attended school) by region



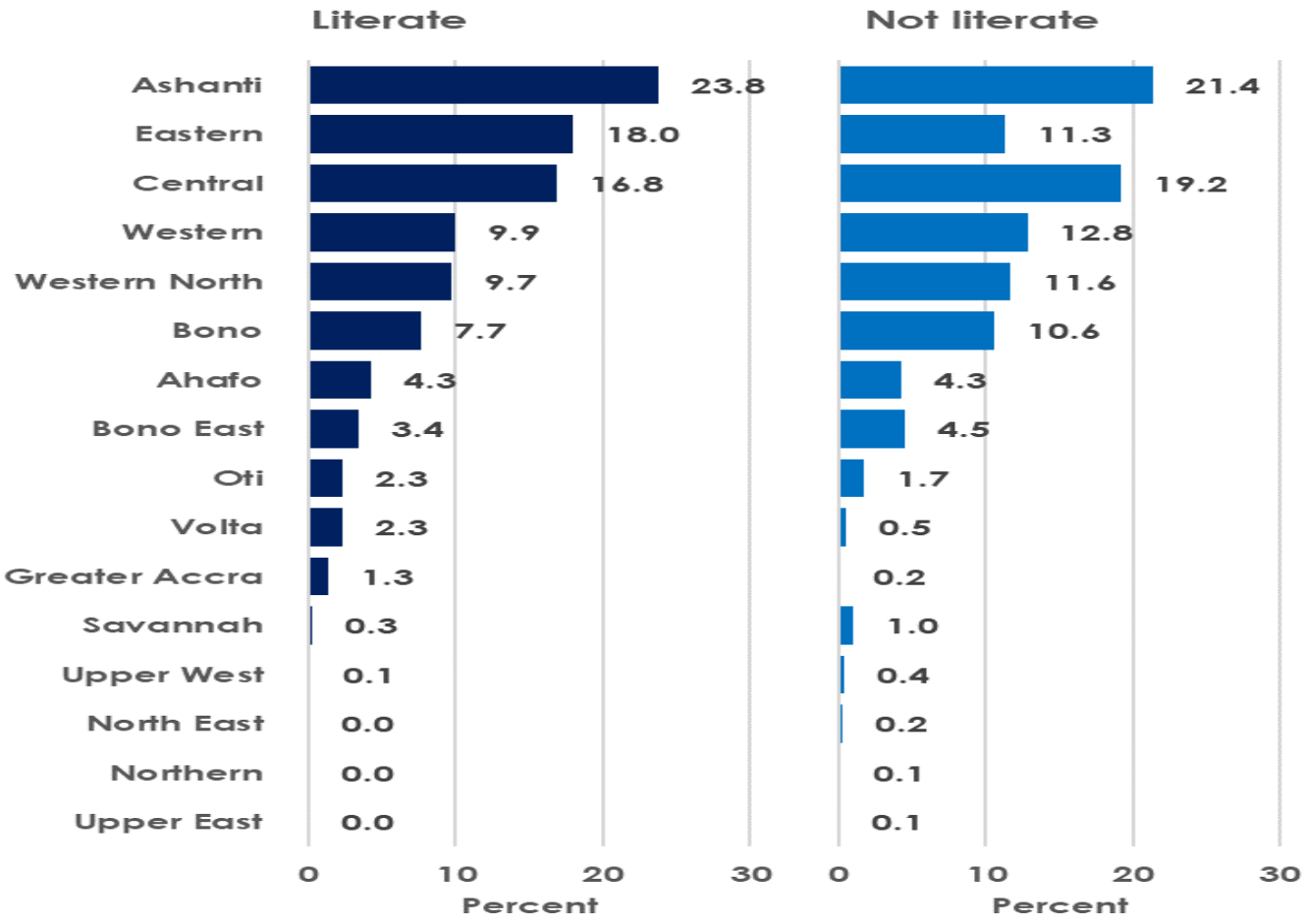
About two out of ten (21.4%) of tree crop holders 15 years and older are non-literate in Ashanti Region. Upper East and Northern regions have the lowest proportion of 0.1 percent each.

Figure 13: Tree crop holders 15 years or older by literacy status (non-literate) and sex by region



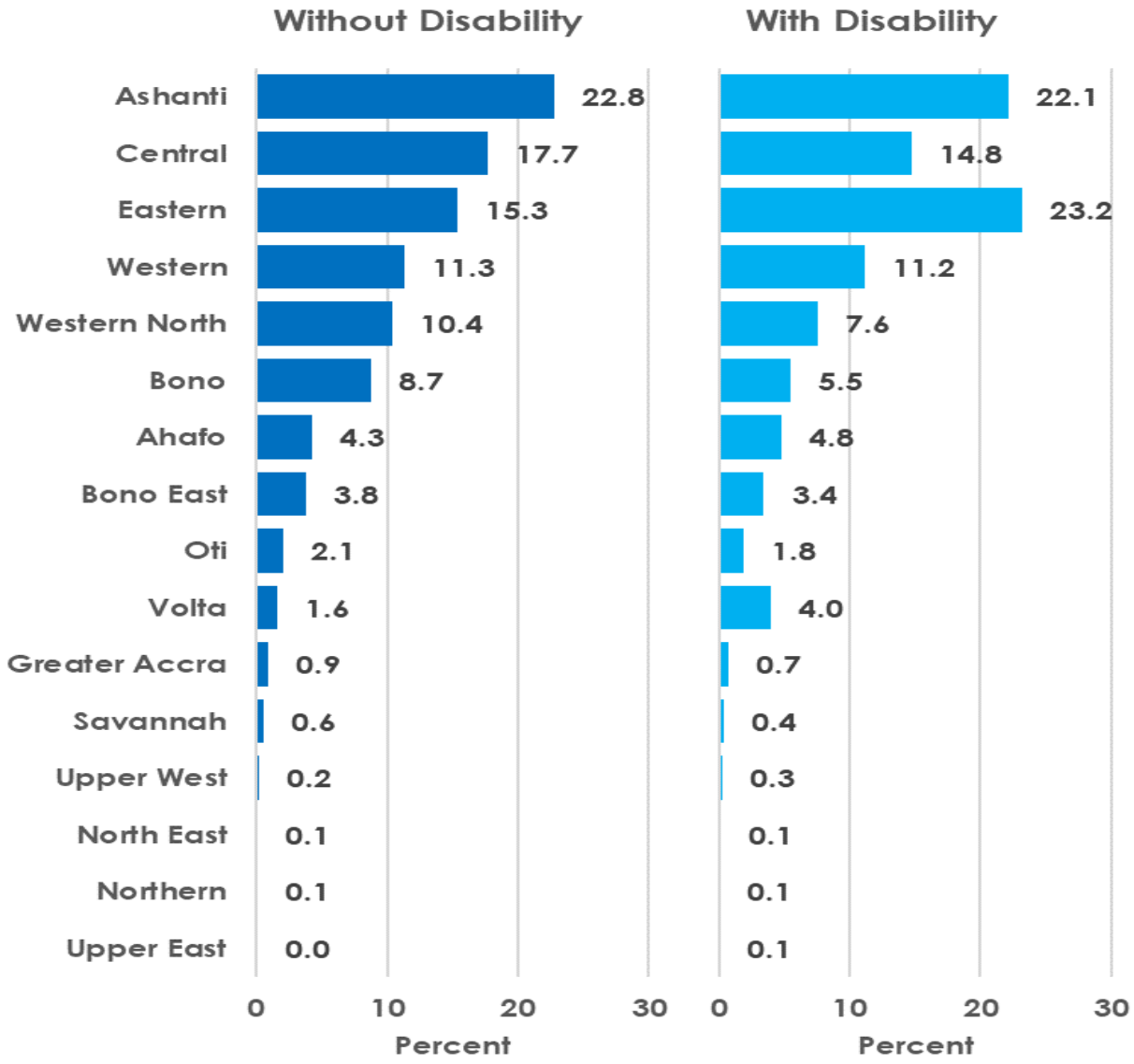
About a quarter (23.8%) of tree crop holders in Ashanti are literate, followed by Eastern (18.0%) and Central (16.8%) regions.

Figure 14: Tree crop holders 15 years or older by literacy status and region



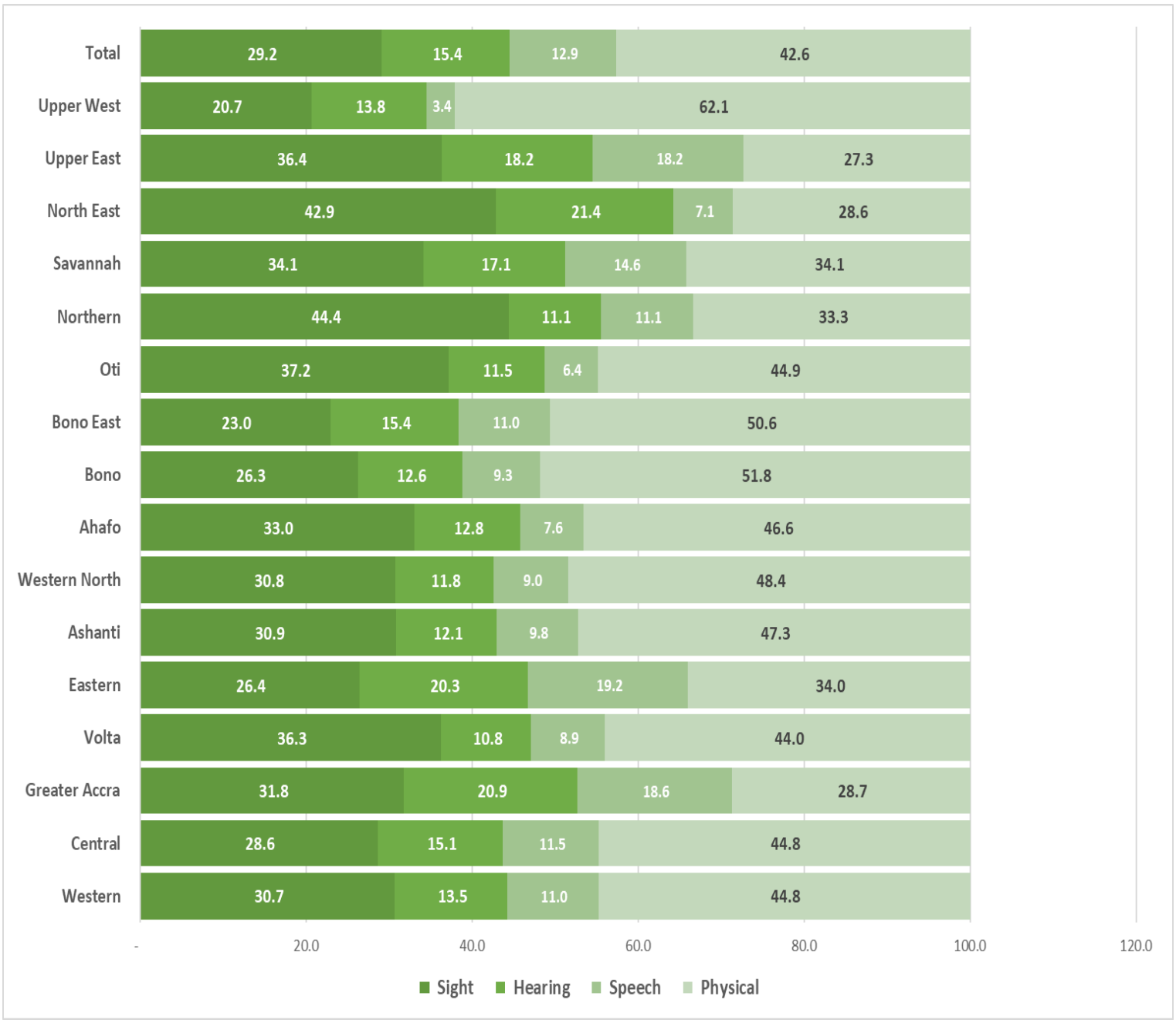
Eastern Region has the highest proportion of tree crop holders with disability constituting 23.2 percent. This is followed by Ashanti Region with 22.1 percent. Five regions comprising Northern, Savannah, North East, Upper East and Upper West Regions account for only 1.0 percent of holders with disability.

Figure 15 : Tree crop holders 15 years or older by disability status and region



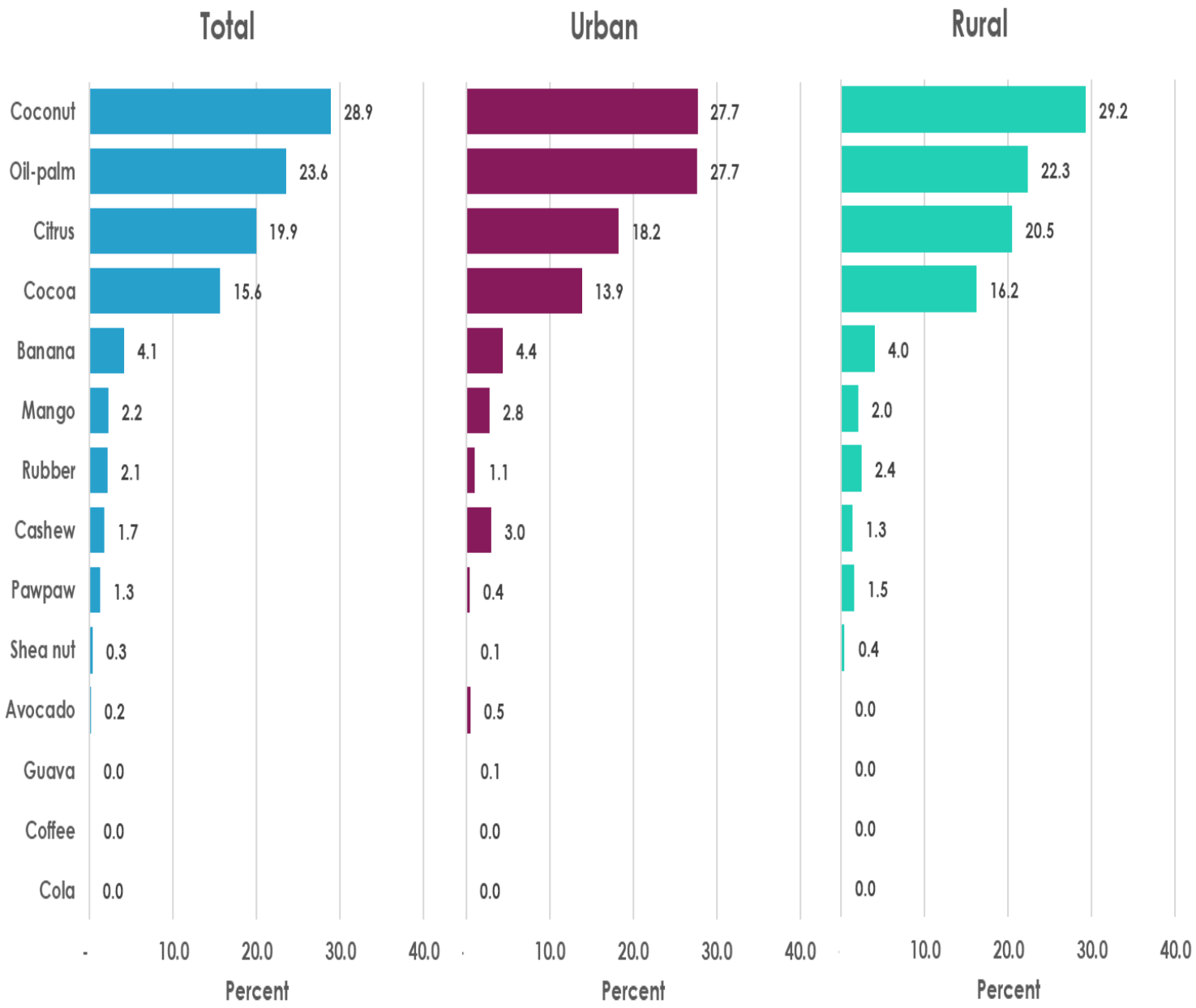
The commonest form of disability of tree crop holders is physical disability (42.6%), followed by challenges with sight (29.2%).

Figure 16: Tree crop holders 15 years or older by forms of disability and region



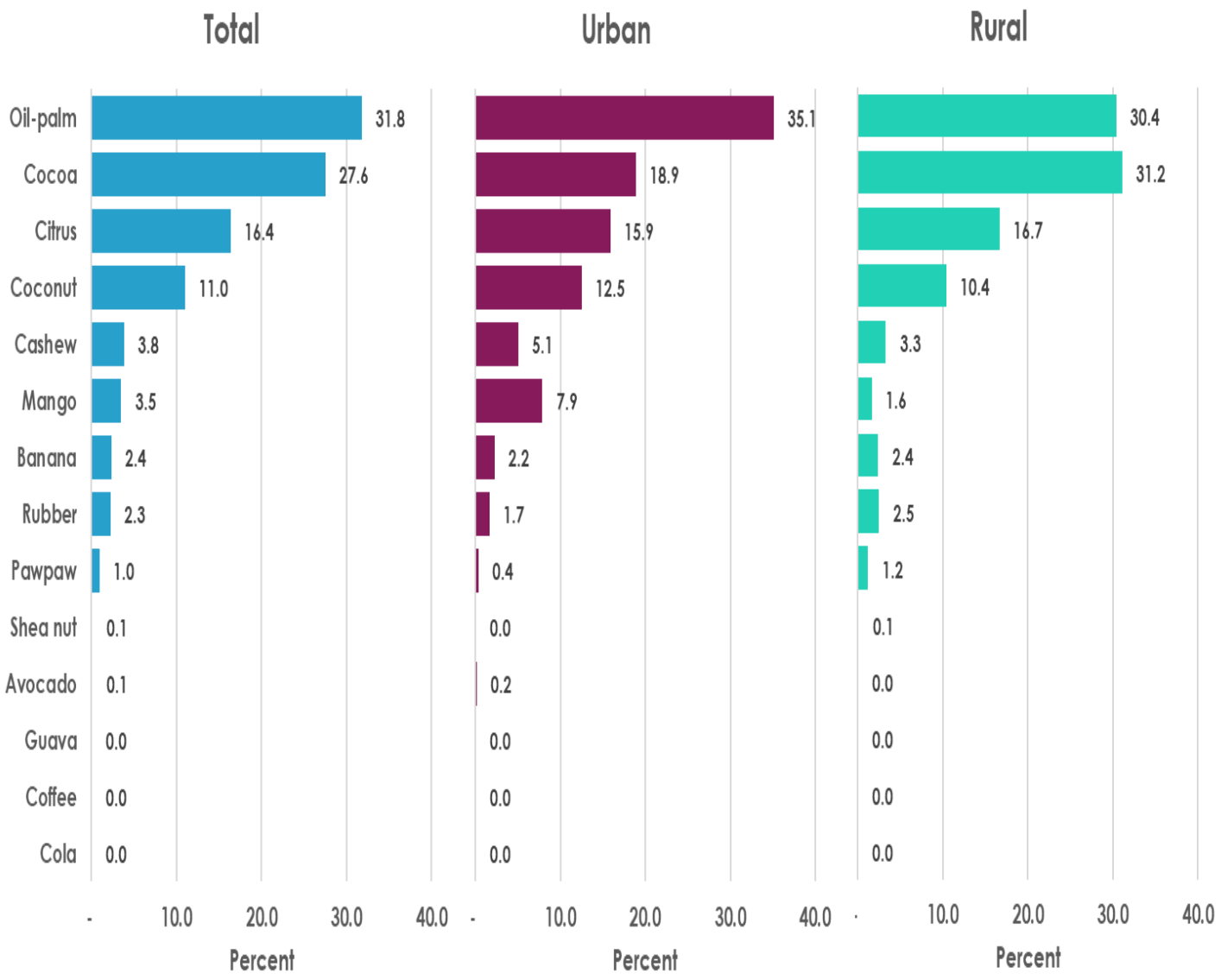
A higher proportion of small-scale tree crop holders cultivate four main crops including coconut (28.9%), oil palm (23.6%), citrus (19.9%) and cocoa (15.6%).

Figure17: Quantity produced (MT) by type of tree crop, and type of locality (small scale)



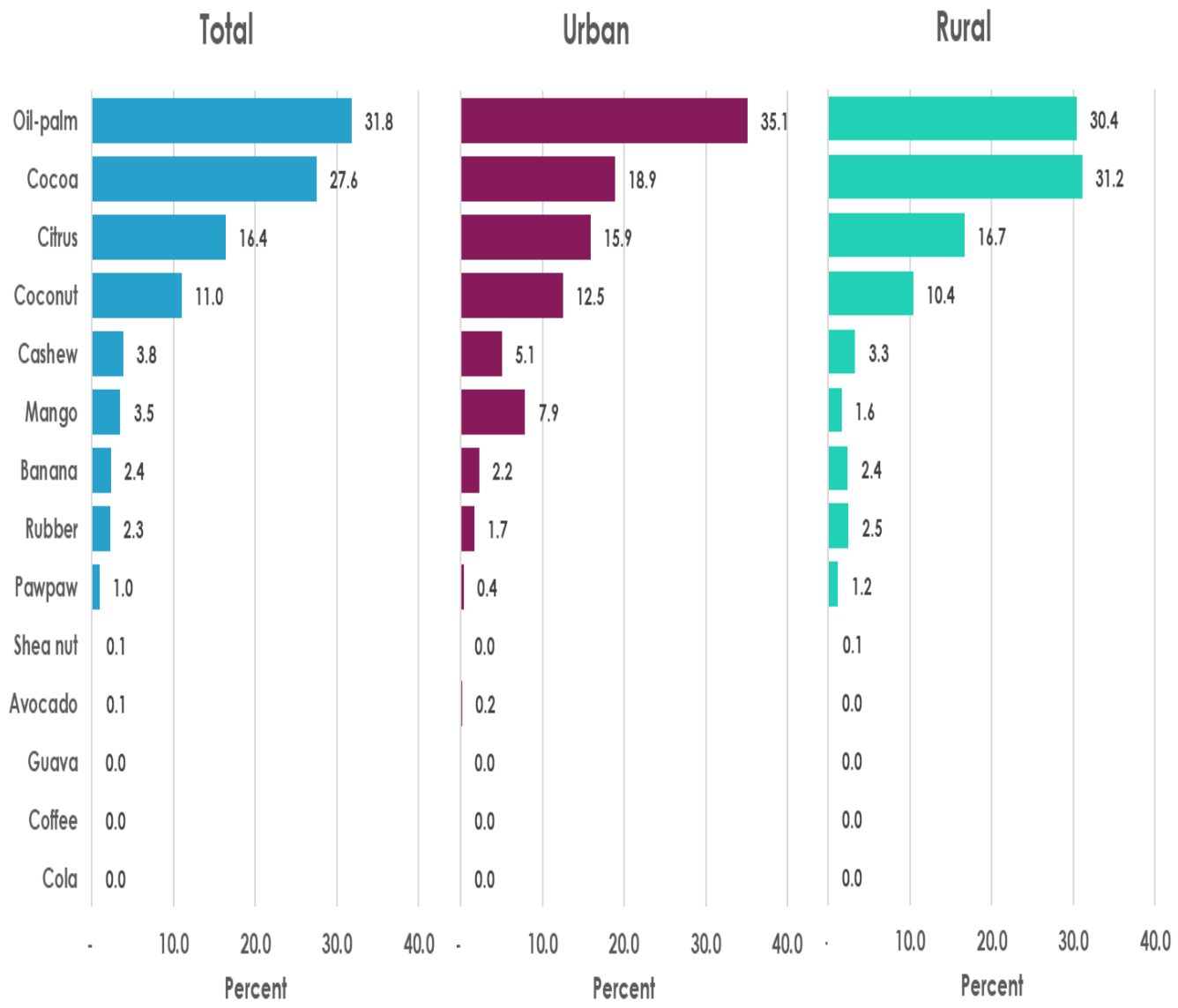
Among the medium- scale tree crop cultivation, oil-palm cultivation accounts for the highest proportion of tree crops cultivated in both urban (35.1%) and rural (30.4%) areas.

Figure18: Quantity produced (MT) by type of tree crop, and type of locality (Medium scale)



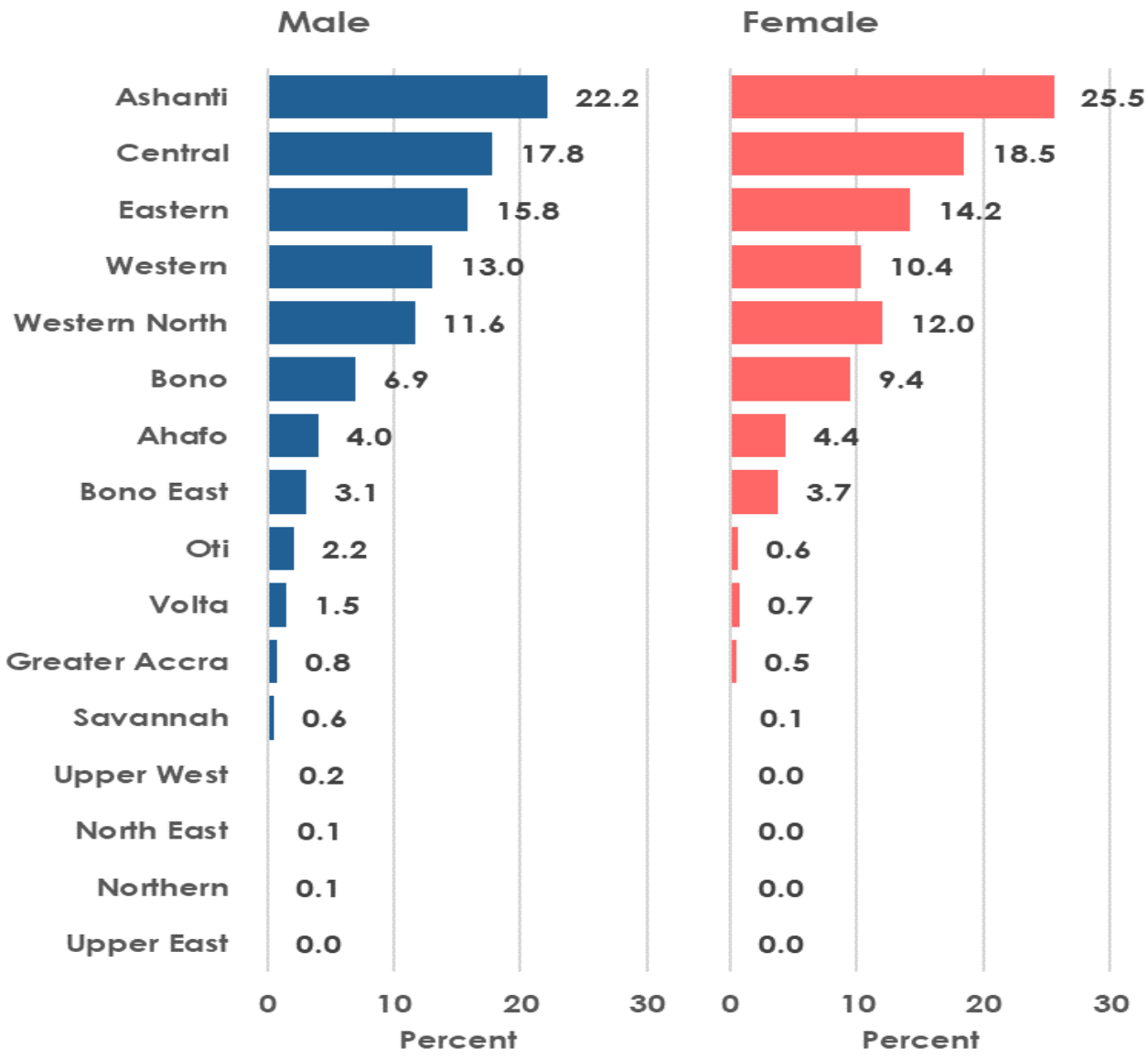
Oil palm (38.1%) accounts for the highest proportion of tree crops cultivated on a large scale, followed by cocoa (27.6%).

Figure19: Quantity produced (MT) by type of tree crop, and type of locality (Large scale)



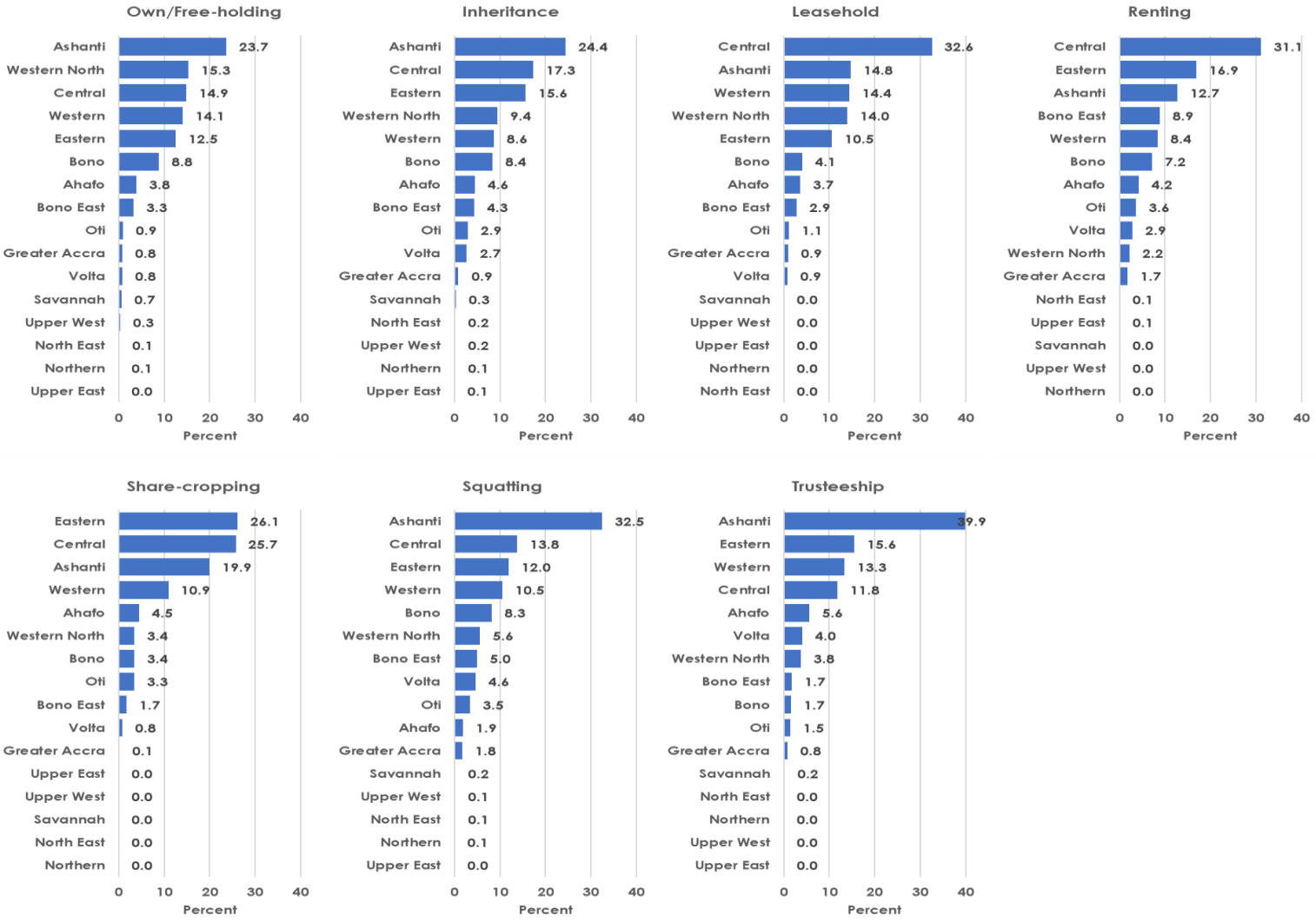
A higher proportion of female tree crop holders in Ashanti (25.5%) and Central (18.5%) regions owned land parcel used for the cultivation. A similar pattern was observed in Central, Western North, Bono, Ahafo, and Bono East regions

Figure 20: Ownership of land parcels by sex of tree crop holder and region



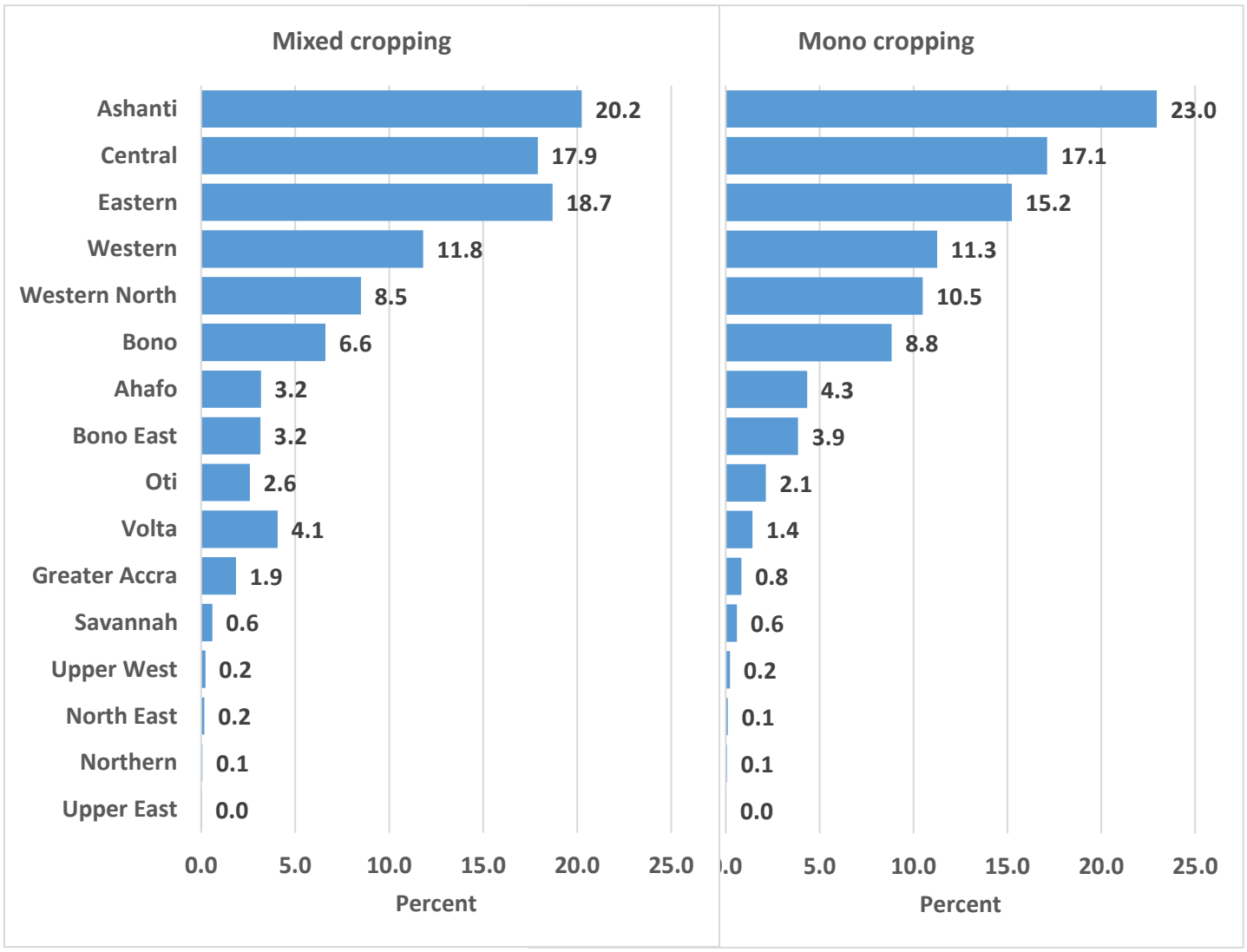
Trusteeship is the most common type of land tenure arrangement in Ashanti Region (39.9%). This is followed by leasehold (32.6%).

Figure 211: Land parcels by type of tenure arrangement



Monocropping and mixed cropping are the two main cropping systems practised by tree crop holders in almost all regions. Ashanti region dominates in both systems with 20.2 percent and 23.0 percent respectively.

Figure 22: Tree crop holders 15 years or older by type of cropping system



5. CONCLUSIONS

The brief on tree crops in Ghana are derived from the findings of the 2017/18 Ghana Census of Agriculture regional thematic tables. Cocoa is the most widely cultivated tree crop in Ghana with close to a third of all holders cultivating the crop. Almost all tree crop holders in Ghana are Ghanaian by nationality. Monocropping is the most dominant cropping system among tree crop holders,

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LIST OF CONTRIBUTORS

Name	Email	Institution	Role
Prof. Samuel Kobina Annim	samuel.annim@statsghana.gov.gh	Ghana Statistical Service	Government Statistician
Dr. Faustina Frempong-Ainguah	faustina.frempong-ainguah@statsghana.gov.gh	Ghana Statistical Service	Deputy Government Statistician
Prof. Simon Mariwah	smariwah@ucc.edu.gh	University of Cape Coast	Reviewer
Mr. Edward Asuo Afram	asuo.afram@statsghana.gov.gh	Ghana Statistical Service	Director of Economic Statistics Directorate
Dr. Bernice Serwah Ofosu-Baadu	bernice.ofosubaadu@statsghana.gov.gh	Ghana Statistical Service	Head, Agriculture & Environment Statistics; and Reviewer
Mr Kofi Darko	kofi.darko@mofa.gov.gh	SRID-MoFA	Supervisor
Mr. Richard Gyimah Sasu	richard.sasu@statsghna.gov.gh	GSS	Report writer
Mr. Bright Neku	bright.neku@statsghana.gov.gh	GSS	Eastern Regional Statistician and Report writer
Dr Kobena Abaka Ansah	kobina.ansah@statsghana.gov.gh	GSS	Ashanti Regional Statistician and Report writer
Mr Charles Som	charles.som@statsghana.gov.gh	GSS	Report writer
Mr. Chris Amewu	christopher.amewu@statsghana.gov.gh	GSS	Volta Regional Statistician and Report writer
Mr. Selaseh Akaho	selaseh.akaho@statsghana.gov.gh	Ghana Statistical Service	Data Visualisation

Mr. Felix Adjei	felix.adjei@statsghana.gov.gh	Ghana Statistical Service	Graphic Designing
Mrs. Vivian Asantey	vivian.asantey@statsghana.gov.gh	Ghana Statistical Service	Typesetting/Formatting


STATISTICAL SERVICE
GHANA