

Spices Production in Ethiopia - An Overview

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ABSTRACT

Ethiopia has very suitable agro ecology for the production of various spices which are very useful for food seasoning, medicinal and for income generation for people at various economic level and have importance to the Ethiopian economy through fetching hard currency. Even though Ethiopia is conducive for production of spices, the contribution of the sub-sector to national economy is low that is less than 1 percent. The spices produced under smallholder in Ethiopia are Korarima (*Aframomum Korarima*), red pepper, ginger, turmeric, cardamom, black pepper, black cumin, white cumin /Bishops weed (*Nech azmud*), coriander, fenugreek, c, sage, and cinnamon. However, Korarima, red pepper, ginger, turmeric, black cumin and cardamom are the six most important spices produced in Ethiopia. Domestic consumption and the demand of the spices at international market are increasing. However, the area allocated for spices production is too low as compared to other cereal crops in the country and the production and productivity of the spices are also very low that manifests weak attention given to the sub-sector in the country. There are also different factors hampering spices production in Ethiopia. Low yield varieties in use, and very limited of High Yielding Varieties, in adequate spice agricultural research, weak role of private commercial investors in spices production, lack of proper pre and post harvest handling practices, weak business linkage among stakeholders in the chain including farmers, traders, processors and macro level regulatory and enforcement institutions, lack of extension services, lack of use of appropriate modern technologies in farm management, drying, storage, and very limited of appropriate spices development strategic are some of the main constraints have been affected spices production in the country. Besides, Deforestation, displacement of spices by fruits and other crops, diseases, pests, and grazing by domestic animals respectively are some of the major threats of spices in the country. Therefore, policy that focuses on the research and development of the sub-sector is needed.

Keywords: Flavoring, Seasoning Spice, Korarima, Red pepper, Ginger, Turmeric, Black cumin and Cardamom

List of Acronyms and Abbreviations: CSA- Central Statistical Agency, HYV- High Yield Variety, MT- Metric Tonne, SNNP- South Nation Nationalities and People, Ha- Hectare

INTRODUCTION

History of spices production in Ethiopia and its importance is as long as coffee and other cereal crop and it's expected that in Ethiopia, around 406 plant species used as spice. The country has very suitable agro ecology for the production of various spices, herbs, aromatic and medicinal plants and these species are very useful for food seasoning, medicinal and for income generation for people at various economic level and have considerable importance to the Ethiopian economy through fetching hard currency (Coffee, Tea and Spices Research strategies, 2015 and Purselove *et al.*, 1981).

Spices have huge economic importance in producing countries and highly demanded in developed countries. For instance, the total

world production of spices was around 9 million tonnes and its value roughly US\$150,000 in 2011. Africa is the next spice producing region next to Asia contributing 10.7% while the contribution of Asia to the world spice production was 83% in the last few years with average growth rate of 5.5% per annum. Ethiopia is the next spices producing country in Africa next to Madagascar. Spices production in Ethiopia is growing following the global and domestic consumption from 107,000MT to 153,000MT in 1995-2011 with annual growth rate of 9.7%, but it has still been producing not more than hundred thousand tons per year (Spice Industry Strategic Plan of Ethiopia, 2015-2025). Spice is commonly used in Ethiopian diet and is mostly harvested from wildy grown plants in the forests of many places of Western,

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South and Southwestern parts of Ethiopia (Spice Industry Strategic Plan of Ethiopia, 2015-2025).

The spices produced under smallholder in Ethiopia are korarima (*Aframomum Korarima*), long red pepper, ginger, turmeric, cardamom, black pepper, black cumin, white cumin/Bishops weed (*Nech azmud*), coriander, fenugreek, c, sage, and cinnamon. However, korarima, pepper, black cumin and cardamom are the four most important spice produced in Ethiopia (Spice Sub-Sector Strategy, 2010). The SNNP, Oromiya and Amhara regions contributed respectively 37%, 32% and 25% to the average annual spice production during the period 2010–2014. The SNNP region is the main producer of ginger, turmeric and black cardamom, while the Oromiya and Amhara regions are chiefly responsible for production of chilies and black cumin (Herms S. 2015).

Even though Ethiopian food is spicy and the demand is high, the supply is low due to low level of production and productivity as well as minimum area coverage of the crops in Ethiopia as compared to other major producing countries. For instance, the area under spice cultivation in Ethiopia varied between 330,000 ha and 500,000 ha in the period 2005–2013 while 3,529,000 hectare of land is covered by spice production in India. Accordingly, the area coverage, production and productivity of ginger is [(24,900ha, 160, 300MT, 6.44 ton/ha), (11300ha, 56,100MT 4.96 ton/ha of turmeric), (4200ha, 2000MT, 0.83ton/ha of cardamom), and (2,400ha, 5000MT, 2.1 ton/ha of cinnamom)], respectively, in major spice producing state of, India .While, in three major spice producing regions of Ethiopia, the area coverage, production and productivity of some of the spices are [(6,742.99ha, 37,736.4MT, 5.6ton/ha of ginger), (1002.2ha, 3962.03MT, 3.95ton/ha of turmeric) and (9233.30ha, 5,625.25MT, 0.61ton/ha of cardamom)], respectively (Sustainable spices initiative India, 2018 and Masresha, 2010).

To increase the production and productivity of spices, research has been running in Ethiopia since the inception of coffee research as coffee diversification and till present various varieties of lowland spices; two ginger (Yali and Boziab), one turmeric (Dame), two black pepper (Tato and Gacheb) and one cardamom (Gene) varieties and three black cumin (Darbera,

Dershaye and Eden), two coriander (Walta 1 and Indium 1) two fenugreek (Hunde 1 and Challa) with their agronomic practices were released from the national research system and availed for users but not widely distributed yet (MoA, 2007 and 2009 as cited in Girma *et al.*,2012).

Even though, Ethiopia exported spices to developed countries such as USA, EU and Japan she has also trade roots of spices between African countries and between Africa and the Middle East and India; due that a total of 300,000 MT per annum is estimated to be traded annually in the specified market destinations. It mostly comprises of exports from Nigeria, Ethiopia, Tanzania and Côte d'Ivoire to Uganda, Kenya, North Africa, Middle East and India. So far Ethiopia isn't recognized as a major exporter of spices, and the contribution of spices to the national economy is low and it represented less than 1% of the total export value in 2013. However, looking at the export of spices by destination, in 2009/10, Sudan is the leading importer of spices from Ethiopia (with a 38.4% share of value of total spices export from Ethiopia), followed by India (10.4%), and Yemen (8.6%). Other important importers of spices from Ethiopia are: UAE (8.3%), Saudi Arabia (6.7%), Morocco (5.8%), while Singapore and Jordan has a share of 3.2% and 3.1% respectively. Spice exports in 2013 and 2014 amounted to 15,000 MT per annum, representing a value of US\$26 million in Ethiopia (Herms S. 2015).

According to the evidence obtained from Spice Industry Strategic Plan document of Ethiopia (2015-2025), pepper contributes 34 percent of the total of spice trade by volume followed by chilly at 22 %, turmeric 5%, ginger 4%, cardamom 3% and vanilla at 1% in terms of value and volume at global level. Similarly, in Ethiopia, the important exportable spice in terms of volume are ginger, turmeric and black cumin respectively where 71% of total spice export for the period 2005/06-2009/10, is ginger followed by turmeric (8.3%), and cumin (7.9%). However, fenugreek and coriander, that showed higher export volume share of total spice export (i.e., 3.4 and 3.3%. respectively) higher than that of pepper (1.5%).In value terms, ginger claimed a higher share of 62% of total spice export, followed by cumin seed (13.7%), turmeric (7.2%) and pepper (4%). At the moment, there are two spice extraction plants in Ethiopia, one

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public and the other under private ownership. The public spice extraction plant, the Ethiopian Spice Extraction Factory, has a processing capacity of 180 tons per year ((Vijayalaxmi and Sreepada, 2014).

Global consumption of spices is expanding steadily with growth rates of between 2% and 5% per annum. On top of the external market potential, since spices are important additives to Ethiopian meals, the domestic demand for spices also huge. This characteristic makes Ethiopia similar to that of India which uses most of the spice it produces domestically. Again when the export and domestic percentage values are compared, the export decrease can happen either from domestic usage increments /shortage from supply/ or quality decrease. Domestic usage of spice in Ethiopia was 86.68%, where the left 13.32 % was used for export purpose in 2012 production season. Hot pepper (capsicum annum) is the most produced and consumed spice item and hence according to CSA of Ethiopia it is ranked first in the spice expenditure with both in flour and whole pepper form. Ginger is second consumed spice item domestically followed by fenugreek Based on this background, this review paper was attempted to point out the major constraints and opportunities in spices production and marketing stick to provide the generated information for the sub-sector, investors ,researchers, academicians and farmers(Spice Industry Strategic Plan document, 2015-2025).

DISCUSSION

Concept of Spices

Spices are non-leafy parts of plants used as a flavoring or seasoning. They are used to add flavor to foods and beverages, and as herbal medicines. Spices have a profound influence on the course of human civilization. They permeate our lives from birth to death. In everyday life, spices succor us, cure us, relax us, and excite us. Ancient peoples such as the Egyptian, the Arab and the Roman made extensive uses of spices, not only to add flavor to foods and beverages, but as medicines, disinfectants, incenses, stimulants and even as aphrodisiac agents. No wonder they were sought after in the same manner gold and precious metals (Narong, 1996).

Over View of Trends of Spices Production and Area Coverage at Global Level

Eventhough Asia is the world most spices producing continent,spices are also produced in other continents among Africa is the place where majority of spices species are found. However, according to different evidence , there is huge gap between or among producing countries interms of production,productivty and area allocated to spices crop. For instance, as shown in the **Fig(1)**, the world production and area allocated for spices showed a volatile from 2010 to 2015. But in 2014, total world area occupied by spices depicted an increasing but total world production of spices was decreased and started recovery after 2015.

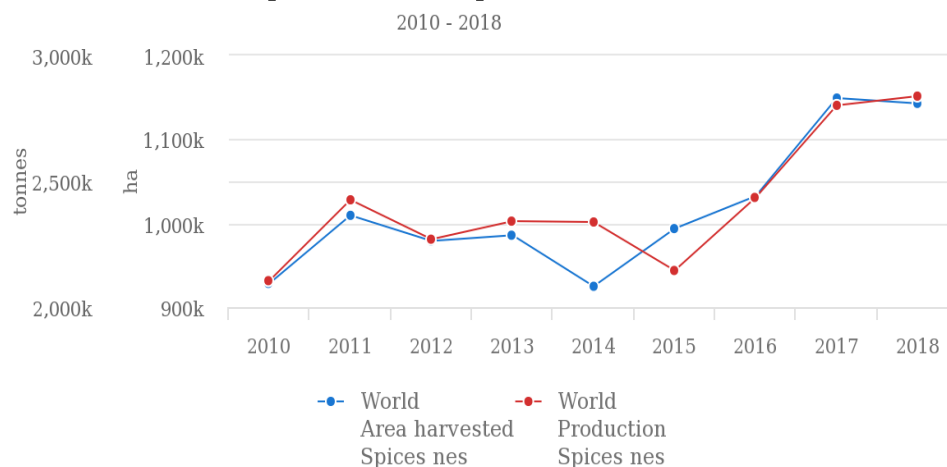
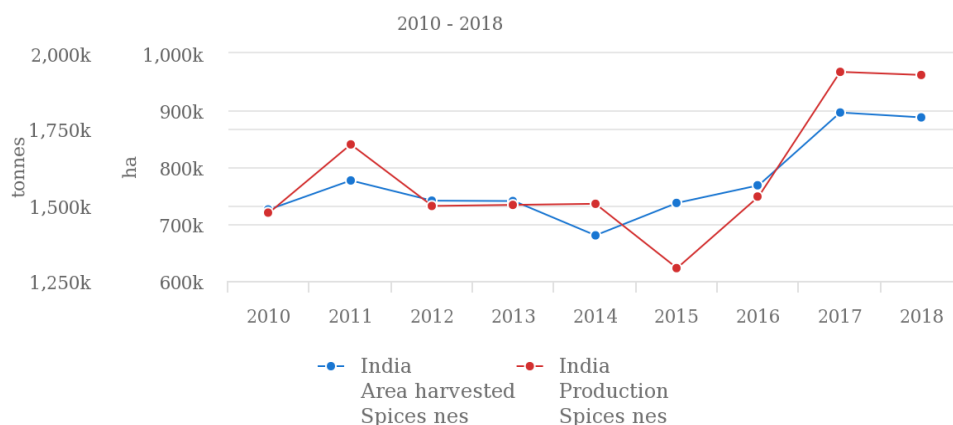


Fig1. Total area and production of spices in the world (2010-2018)

The event is similar with the case in India where area allocated for spices and the production of spices started increasing from the year 2014 and 2015 respectively **Fig(2)**.

However, the information before the year specified above indicated fluctuated production and area allocated for spices in India.

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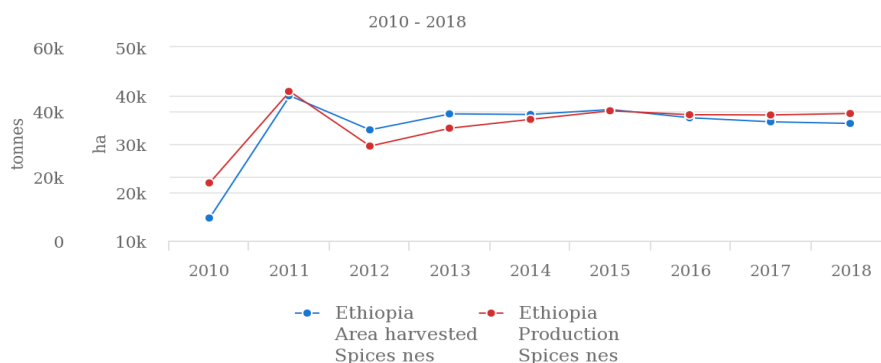


Source: FAOSTAT (Feb 21, 2020)

Fig2. Total area and production of spices in India (2010-2018)

However, as shown in **Fig(3)** even though the total world area allocated for spices and production of spices increase from 2014 and 2015 respectively, the production of spices and

area allocated by spices in Ethiopia did not show any significant change from 2012 to 2018(FAOSTAT,2020).

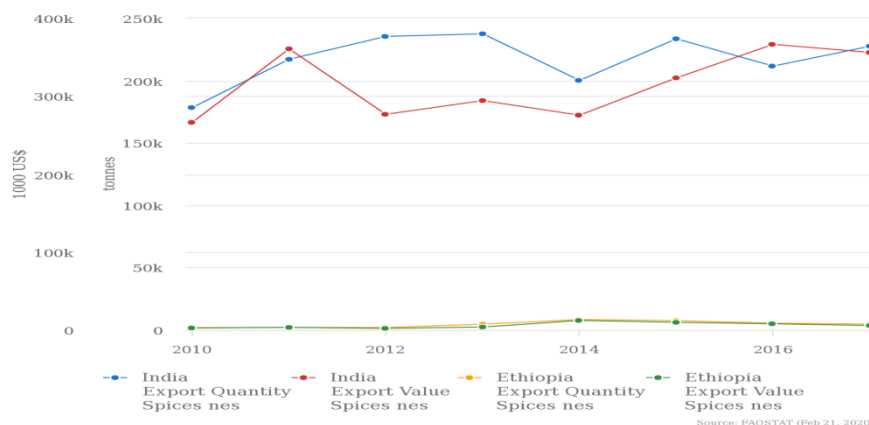


Source: FAOSTAT (Feb 21, 2020)

Fig3. Total area and production of spices in Ethiopia (2010-2018)

This evidence revealed that year 2015 is a bad year for production of spices worldwide. The reason may be due to the consequences of climate change such as disease, pests and drought. This was also true in Ethiopia where for instance, ginger production was totally destroyed by bacterial disease in 2015. However, it was started a recovery 2015 afterwards. Besides, in terms of quantity of spices exported, India is

the highest exporter of spices to world market where the quantity exported and the hard currency obtained by Ethiopia from world market was insignificant as compared to India **Fig (4)**. The implication is that there is very weak attention of spice sub-sectors and due that the country is not gaining the economic opportunity of the crops.



Source: FAOSTAT (Feb 21, 2020)

Fig4. Total export quantity and export value of spices in Ethiopia and India (from 2010-2016)

Major Spices Produced in Ethiopia

Owing to conducive environment and its varied topography and climate, Ethiopia is home to different plants species that grow on its highlands and rift valley. Ethiopia is a homeland for many spices however; statistics on the production of spices is very difficult to come by in Ethiopia as the commodities are not part of the national agricultural crop survey, except for pepper and chilies (Masresha, 2010). So that it is difficult to select among the list of spices produced commercially in Ethiopia. Based on available information, the author reviewed and decided to select the following spice species in Ethiopia and provide a brief description of each in the following paragraphs.

Korerima: is indigenous to Ethiopia, and is one of the renowned spices and medicinal plants of the family Zingiberaceae. It is herbaceous, perennial and aromatic species classified under the monocotyledonous crops grows naturally at altitude ranging from 1000-2000 meters. Korerima is widely grown in many parts of Ethiopia particularly in East and West Gojam (Deber Markos, Kola Dega ,Damot, Metekel, and Agew mider districts), Ilubabuor(all districts), Jimma(all districts), North and South Omo(Kulo, Gamo, Galeb and Hamer Bako, and Gofa districts) , Bale(Wabe, Dolo and Genale districts), Sidama (Sidama and Arero districts), and Wollega (Kellem, Gimbi, Nekemte, Horo Guduru and Arjo zones and district) (Edossa,1998).

Ginger: Ginger cultivation in Ethiopia started during 13th century. Arabs introduced it from India. Ethiopia is the gate way for many Asian and many East European Countries. Yellow and brown areas of Ethiopia are most suitable. Yellow area is low rainfall or irregular climate and brown area is large grazing areas with irregular climate. Ginger cultivated in many places in Ethiopia. The specific area in Ethiopia has identified as Gimbi, Nekemte, Horo Guduru and Arjo and all districts of Ilubabuor and Jimma Zones, Bahir Dar, Dejen, Deber Markos, Kola Dega Damot, Metekel and Agew Mider, Gamo, Galeb and Hamer Bako, Gofa and Kulo Konta, Wabe, Dolo and Genale, Sidama and Arero (Vijayalaxmi and Sreepada, 2014).The production of this spice is affected by bacterial disease in Ethiopia in the last few years.

Turmeric (ird): is used as a ground spice and in curry powder, mainly as a food-coloring agent as well as a coloring material in the textile

industry. Before 1972, Ethiopia is one of turmeric importing countries. In 1972, two varieties of turmeric were introduced from abroad for adaptability study from India and China and planted at Jimma, Metu, Bebeke, Tepi, Wenago, Awasa, Mugi and Bako. At all locations turmeric performs well. Turmeric can be grown up to an altitude of 2000m in areas with high rainfall. At present, turmeric is mainly produced in South and South west Ethiopia and to some extent to it is produced in Western Ethiopia.

Cardamom (Yeshaikimam): a perennial herb, belonging to the ginger family. It is an expensive spice known as ‘Queen of spices’. It is the highest priced spice in the world markets. It is introduced to Ethiopia in 1972. After its introduction to Ethiopia, multiplication of the plant was done at Jimma, Bebeke, and Tepi, while adaptability and evaluation studies were done at Jimma, Metu, Maji, Wonago, Tepi and Bebeke. Cardamom plant needs a rainfall of 2000 to 5000 mm per annum with a uniform distribution and no distinct dry season

Black Cumin (tikur azmud): Black cumin, rarely known as black caraway, is a short-lived annual flowering plant that belongs to the family Ranunculaceae. It is known to be native to the south and southwest Asia. Black cumin production as a system has a long history in Ethiopian agriculture. It ranks second among the seed spices produced in Ethiopia in terms of production and area coverage. It is mainly cultivated in Oromiya, Amhara, Tigray Gambella and SNNPRS regions, although for own household consumption, it is as well grown in various places (Kifelew *et al.*, 2017). Most Ethiopian people use as house holdings spice preparation. Studies, also confirms that the application of Black cumin seed for medicinal purpose for internal as well as external treatment problems. Besides its medicinal importance, Black cumin (*Nigella Sativa*) seed is also used for production of soap, perfumes and lotions, food flavorings, food preservation, nutraceuticals and cosmoceuticals from the Black cumin oil(Teshome and Anshiso, 2019). It is mainly exported from Ethiopia to Middle East countries as well as to Indonesia.

Red pepper: Pepper has originated in Mexico and Central America regions and subsequently spread into Africa and Asia continents. It is the world’s most important type of spice which provides nutritional value to consumers

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particularly vitamin A and E, flavoring and coloring food (Bosland and Votava 2000). The largest pepper producer countries in the world were Vietnam which produces (100,000 metric tonnes) followed by India (48,000 metric tonnes), Indonesia (37,000 metric tons), Brazil (35,000 metric tons), Malaysia (25,672 metric tons), Republic of China (23,300 metric tons) (Rosli *et al.* 2013). Likewise, the top five largest pepper producer countries in Africa were Madagascar which produces 6981 metric tons followed by Ethiopia (4511 metric tonnes), Ghana (3767 metric tonnes), Rwanda (2535 metric tons), and Uganda (2063 metric tons) (FAOSTAT, 2016).

Red pepper is widely cultivated in different agro-ecologies of Ethiopia. The total production of pepper in Ethiopia for the year 2018/19 Ethiopian main cropping season was estimated to be 3,074,571.09 quintals while the area allocated by red pepper was 172,142.19 hectares (CSA, 2019). Very small amount of pepper is being produced using irrigation and modern inputs such as fertilizer and improved seeds (Alemnew, 2010). The production of red pepper increases year to year. According to Alemayehu *et al.* (2012), there has been substantial growth in crops, in terms of area cultivated, yields and production since 2000, but a yield is low by international standards and overall production is highly susceptible to weather shocks, particularly draught.

FARMERS' PERCEPTION OF THREATS AND CONSTRAINTS TO THE SPICES PRODUCTION IN ETHIOPIA

There are lots of threats to spices production in Ethiopia. Deforestation, displacement of spices by fruits and other crops, diseases, pests, and grazing by domestic animals respectively are some of the major threats of spices. Some scholars mentioned that deforestation is the main threats of spice production. This is correlated with the nature of the spices that majority of the spices are found in forests. Besides, currently government policy has given priority to growing spices that suits for export purpose, or that offer a potential for income generation with in the country. This on the other hand has resulted in the decline of some culturally important spices (Paulos *et al.*, 2018).

Besides, there are several constraints that have been affected spices production in Ethiopia. The main identified constraints are low yield varieties in use, and very limited of High

Yielding Verities (HYV), in adequate spice agricultural research, weak role of private commercial investors in spices production, lack of proper pre and post harvest handling practices, weak business linkage among stakeholders in the chain including farmers, traders, processors and macro level regulatory and enforcement institutions, lack of extension services, lack of use of appropriate modern technologies in farm management, drying, storage, and very limited of appropriate spices development strategic intervention in Ethiopia (Spice Sub-Sector Strategy For Ethiopia,2010).

CONCLUSION

Spices have been produced as important crops in Ethiopia. However, the contribution of the sub-sector to national economy is not significant. There is a good conducive climate for spices production and good market demand at national and international level, but the supply is very low. Farmers produce different spices species and apply traditional management practices. Government attention in promoting improved varieties and management practices is weak. As compared to India, the most spices producing country in the world, the area allocated for spices production is very and the production and productivity of the spices are low in Ethiopia. Different factors have been affected spices production in Ethiopia: for instances, lack of improved variety, poor agronomic practices, pests and diseases, poor pre and post harvest handling. Ginger is the most affected spice by bacterial diseases in the last few years and its production and productivity was totally unsound at national level. Thus, there is a need of generating and disseminating improved pre and post spices production technologies and practices in producing regions of the country. Government focus is needed in supporting the research and development activities of the spices.

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