GEXIM

AGRI-COMMODITY DIGEST NEWSLETTER

VOLUME 1

CONTENTS

TOMATO

AVOCADO

COCONUT

WHAT WE STAND FOR

VISION

"To be become a strong financial institution that will be key engine in the development of Ghana's export trade, facilitate cross border trade and make Ghana a pillar in regional and continental trade".

MISSION

"To facilitate the transformation of Ghana's economy into an export one by supporting and developing trade between Ghana and other countries, overseas investments by Ghanaian companies and eliminate critical market failures in the Ghanaian economy thereby making Ghana competitive in the global marketplace".

TOMATO

INTRODUCTION

Solanum Lycopersicon also known as tomato belongs to the Solanaceae family and originated from Peru and Ecuador in South America. Due to its nutritional value, it is classified as one of the most essential vegetables in the world. Tomato contains potassium and antioxidants such as ascorbic acid, vitamin A, lycopene and tocopherols (Naranjo et al., 2016).

Tomato can reduce the risk of contracting cancer diseases (lung, prostate, stomach, cervical, breast, oral, colorectal, esophageal and pancreatic), osteoporosis, high blood pressure and cardiovascular disease (Bhowmik et al., 2012).

GLOBAL OUTLOOK

The total number of tomato hectares harvested globally increased from 4,854,457 in 2016 to 5,051,983 in 2020. Similarly, world production of tomatoes increased from 177.38 million metric tonnes in 2016 to 186.82 million metric tonnes in 2020. This increase in production can be attributed to an increase in the number of hectares harvested and increase in yield (hg/ha). The total production of tomatoes in the world in 2017, 2018 and 2019 was 178.02 million metric tonnes, 180.23 million metric tonnes and 183.01 million metric tonnes respectively (FAOSTAT, 2022). China is the world's largest producer of tomatoes and in 2019 it produced 62.8 million metric tonnes of tomatoes. India was the second highest producer of tomatoes (19.0 million metric tonnes) in the world followed by Turkey (12.84 million metric tonnes) and the United State of America (10.86 million metric tonnes). In 2019, China, India and Turkey produced approximately 52 percent of the total production of tomatoes in the world.

Egypt emerged as the largest producer of tomatoes (6.75 million tonnes) in Africa in 2019 followed by Nigeria (3.82 million tonnes), Algeria (1.48 million tonnes) and Morocco (1.35 million tonnes). Egypt, Nigeria and Algeria produced 55.3 percent of tomatoes produced in Africa in 2019.

There is a consistent increase in the production of tomatoes in Africa from 19.9 million tonnes in 2016 to 22.23 million tonnes in 2020. The total tomatoes produced in Africa in 2017, 2018 and 2019 was 19.9 million tonnes, 20.86 million tonnes and 21.82 million tonnes respectively.

Out of the 22.23 million tonnes produced in Africa in 2020, West Africa produced 5.15 million metric tonnes. Also, out of the 21.82 million tomatoes produced in Africa in 2019, West Africa produced 5.26 million tonnes. The decline in tomatoes production in West Africa can be attributed to the decline in yield from 54,080 hg/ha in 2019 to 52,843 hg/ha in 2020 though there was an increase in area harvested from 972,024ha in 2019 to 974,076ha in 2020.

GHANA'S OUTLOOK

The tomato sub-sector in Ghana has created employment for many people, most of which are women. It generates revenue for the government and also provides raw materials to tomato agro-processing companies.

Fresh or processed tomatoes are consumed daily in almost all households in Ghana. Tomato constitutes 38 percent of total vegetable expenditure in Ghana (Agyekum, 2015). According to IFPRI (2010), there are over 90,000 farmers involved in tomato production and most of them are smallholder farmers who each have less than 2 hectares of farmland. Tomato farmers in Ghana engage in both rain-fed and irrigated production systems and those who use irrigation systems rely on dams, boreholes and rivers.

The market demand for tomatoes in Ghana annually is approximately 800,000 metric tonnes. Unfortunately, Ghana is able to produce tomato fruits between 300,000 to 400,000 metric tonnes annually (GIRSAL, 2022). The demand for tomato far outstrips its supply in Ghana, thus, making it a profitable business compared to other staple food crops. Tomato production in Ghana has been fluctuating over the years. The total output produced increased from 366,772 tonnes in 2016 to 370,398 tonnes in 2017 and declined by 0.65 percent (2,417 metric tonnes) to 367,981 tonnes in 2018.

The total production in 2019 increased by 0.11 percent (368,383 metric tonnes) as compared to 2018 production. The 2020 total production was 537 metric tonnes (0.146%) higher than the 2019 total production. FAOSTAT data on tomato production in Ghana reveals that the increase in production in 2017 can be attributed to an increase in yield as the area harvested remained the same (i.e. 47,000ha), from 2015 to 2018 however the yield varied (78,037hg/ha in 2015 and 2016, 78,808hg/ha in 2017 and 78,294hg/ha in 2018).

The average yield in Ghana is 7.85 MT / ha and the estimated fresh tomato requirement to achieve self-sufficiency in the next five years is between 1.8 million to 2.2 million metric tonnes. The average yield of 7.85 MT/Ha is considerably very low yielding varieties and the brix levels are also low. The inadequate quantities of the required tomato variety has made it almost impossible for all the established tomato processing factories in Ghana to function.

Table 1: Tomato Production in Ghana

Year	Production (tonnes)	Yield (hg/ha)
2016	366,772	78,037
2017	370,398	78,808
2018	367,981	78,294
2019	368,383	78,379
2020	368,920	78,494

Source: FAOSTAT, 2022.

To meet the market demand, Ghana imports fresh tomatoes, tomato juice, tomato concentrate and tomato paste annually. Importation of fresh tomatoes has declined from 12,536 metric tonnes in 2015 to 4,000 metric tonnes in 2020. Ghana imported 8,847 tonnes, 7,014 tonnes and 8,753 tonnes in 2016, 2017 and 2018 respectively. The total fresh tomatoes imported to Ghana declined by 52.54 percent from 8,753 tonnes in 2018 to 4,154 tonnes in 2019. Ghana imports over 90 percent of it fresh tomatoes from it neighbouring country Burkina Faso. Quantities of tomato juice imported in 2018, 2019 and 2020 were 60 tonnes, 33 tonnes and 8 tonnes respectively.

Almost all the tomato mix companies in Ghana rely on imported tomato concentrate for production. There is no tomato processing company in Ghana that produces 100 percent of it tomato concentrate in Ghana. Ghana imported tomato concentrate and paste worth US$ 112.8 million, US$57.3 million, US$69.1 million and US$47.3 million in 2015, 2016, 2017 and 2018 respectively. In 2019 and 2020, Ghana imported tomato concentrate worth US$40.7 million and US$52.2 million respectively.

From 2015 to 2020, Ghana on average imported 73,535 tonnes of concentrate yearly. Ghana imported 107,941 metric tonnes, 75,082 metric tonnes, 71,530 metric tonnes, 57,829 metric tonnes of tomato paste and concentrate in 2015, 2016, 2017 and 2018 respectively.

Tomato concentrate import increased to 68,776 metric tonnes in 2019 and declined to 60,052 metric tonnes in 2020. Ghana also imports peeled tomatoes. The highest tonnes imported since 2015 was 405 tonnes in 2016 and the lowest was 82 tonnes in 2018. The value of peeled tomato imported in 2020 was US$163,000 (158 metric tonnes).

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To meet the market demand, Ghana imports fresh tomatoes, tomato juice, tomato concentrate and tomato paste annually. Importation of fresh tomatoes has declined from 12,536 metric tonnes in 2015 to 4,000 metric tonnes in 2020.

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Table 2: Tomatoes Importation in Ghana

Year	Concentrate (tonnes)	Concentrate value US$	Fresh tomatoes (tonnes)
2015	107,941	112,794,000	12,536
2016	75,082	57,264,000	8,847
2017	71,530	69,136,000	7,014
2018	68,776	47,277,000	8,753
2019	60,052	40,702,000	4,154
2020	9,208	52,183,000	4,000

Source: FAOSTAT, 2022.

TOMATO VARIETIES

Tomato is a perennial crop and its first harvest is possible between 90 to 120 days after sowing. There are three (3) different types of tomato plants but many varieties. The three types are indeterminate, semi-bush/semi indeterminate and bush / determinate.

Determinate tomatoes are shorter and they grow to heights between 4 to 6 feet. Determinate tomatoes are able to produce fruit during a limited window of time usually **between 4 to 5 weeks and do not need tall stakes for support.** Determinate tomatoes take 49 days (7 weeks) to mature. Some of the known varieties of determinate tomatoes are **celebrity, Rutgers, marglobe and Roma. Celebrity tomatoes are able to** produce medium to large red fruit 65 days after planting and they only grow 3 to 4 feet tall.

Indeterminate tomatoes on the other hand grow to 7 feet or more and produce fruit between 2 to 3 months or longer. Indeterminate tomatoes need tall stakes for support and they need pruning to control height. Some of the known varieties of indeterminate tomatoes are **Sweet 100, heirloom, cherry tomatoes and Brandywine.**

In Ghana, both formal and informal seed production and distribution networks exist but the informal supply system provides about 80 percent of Ghana's major seeds. The formal seed system is based on certified seed production and purchase, whereas the informal seed system is defined by seed production and exchange (gift, buy) among local farmers. The majority of tomato types planted by Ghanaian farmers are imported, with farmers choosing Roma VF, Laurano, Raki, Chocó TP, Power Reno, Rasta, Italy Heinz, and Petomech as their favourites. The Power Reno (a cross between Power and Laurano varieties) is a very important open-pollinated variety (OPV) grown in Ghana, particularly in the Bono and Ahafo region, which was identified by National Research Institute (NRI) researchers in the 1990s based on its good production and local processing qualities.

Suitable varieties for an open field are Jupiter, Nemajet, Asilia, Yaqui, Heinz, Cobra, Roma, Jaguar VFN, Kiara, Pectomech VF and derivatives, Tropimech, Rio Grande, Lindo, Titao, Power Rano, Nemagaint F1, Sumo F1 and Simbal F1 (GIRSAL, 2022). Suitable varieties for Greenhouse production are Titanium, Eva, Nemo Netta, Umagna and Anna and suitable varieties for processing are Heinz H9553 and Heinz H9665 (GIRSAL, 2022). Agrimat, Syngenta, RMG, Agriseed, East-West and Rijk Zwaan are some of the certified seed suppliers in Ghana.

Tomato Production Areas and Planting Time

Tomato is among one of the most widely cultivated and consumed vegetable in Ghana. It grows well in twelve out of the sixteen regions in Ghana. These production regions are Upper East region, Northern region, North East region, Savannah region, Bono region, Bono East region, Ahafo region, Ashanti region, Eastern region, Greater Accra region, Volta region and Oti region. The major commercial production regions are Upper East, Bono, Bono East, Ashanti, Greater Accra and Volta. With the exception of the Upper East Region, where it is done in the dry season using a trough irrigation system and in certain

CHERRY TOMATOES

HEIRLOOM **TOMATOES**

parts of the Greater Accra region, tomato production is largely rain-fed. Even though there is a scarcity during the dry season (minor season), harvest is abundant during the rainy season (major season). Because of the availability of tomatoes during the rainy season, prices are low and the return on investment is low.

Tomatoes grown during the rainy season are sold from May to October, although the types grown at this time are lighter in colour, more watery, acidic, and have a shorter shelf life, making them unsuitable for processing.

The planting time for the tomato major season in the southern and Northern zones is March- April and the minor season for the Southern zone is August and September. Using an irrigation system, farmers in the Southern zone can plant in October and those in the Northern zone can plant in September and October. According to MOFA (2019), the planting distance during the rainy season is 60cm*50cm and during the dry season is 60cm*30cm. The optimal temperatures for growing tomatoes are between 22°C and 28°C during the day and between 18°C and 22°C at night and humidity between 60 - 80%.

GHANA EXPORT-IMPORT BANK FUNDED TOMATO PROCESSING COMPANY

Weddi Africa tomato processing factory is a green field company funded by Ghana Export-Import which is into cultivation of tomatoes and processing same into tomato Concentrate and mix. The factory and its nucleus farm is situated in Brekum whereas their out-grower farms are situated in Tain and Brekum West district. In 2021, the company introduced their tomato paste under the brand name Sweet Mama to the market. Weddi Africa tomato processing factory has two processing lines.

Line one is the processing line that processes fresh tomatoes into tomato concentrate and it has installed capacity to process 40,000 tonnes of tomato fruits into concentrate. Line two processes tomato concentrate and other raw materials into tomatoe mix.

Acreage of Tomato Farm Needed to Feed the Factory.

The Raja F1 tomato variety identified and to be cultivated by the company produces 4 tonnes /acre. To produce 40,000 tonnes of fruits annually to feed processing line 1, there is a need to cultivate 10,000 acres of farm. Cultivation of the farm is within a bi-modal rainfall zone, with the major rainfall season normally starting from March to July, while the minor season is from September to October. Holding all other factors constant, 5,000 acres will be needed if the same land will be used in both the major season and minor season. It is advisable to plant more in the major season than the minor since the rainfall period is short. To be assured of a good yield throughout the year, drip irrigation is needed which would enable cultivation to be done in three cycles. The minimum acreage needed when there is irrigation support is 3,333 acres based on the assumption that cultivation will be done in three cycles in a year.

However, the total number of tonnes of tomato needed to produce the total tomato concentrates needed by line 2 in a year is 133,330. Using Raja F1 output per acre, the 133,330 tonnes will be the expected output of cultivating 33,332.5 acres. Utilising the same land in both seasons, the factory needs to cultivate 16,666.25 acres and if the factory uses drip irrigation, it needs 11,110.83 acres. The factory has done a trial of a breeder seed produced by WACCI and had 9.8 tonnes per acre. Besides, the variety is yet to be certified by the Seed Council Board.

AVOCADO

INTRODUCTION

Avocado, scientifically known as Persea Americana, originates in Central America and the West Indies. It is regarded as one of the essential nutritious fruits and food sources globally, supplying 150 to 300 calories per 100 grams. Avocados are high in vitamins, including the B complex, vitamins A and E, folic acid, and iron. Avocado is a member of the Lauraceae family and has no cholesterol (Bleinroth & Castro, 1992).

The major products of avocado are avocado fruit and oil, which may be utilised for domestic and industrial purposes. In Mexico, the United States, and Europe, avocado is eaten as cuisine and condiment known as guacamole. It may also be used to make salads, milkshakes, and ice cream.

The oil found in the avocado pulp is used to produce cosmetics, medicines, and commercial oils. Avocado oil is very nutritious and it has an extremely high smoke point (more than 250 degrees Celsius), making it ideal for cooking. According to Soares and Ito (2000), avocado pulp comprises 67 to 78% moisture, 13.5 to 24% lipids, 0.8 to 4.8% carbohydrate, 1.0 to 3.0% protein, 0.8 to 1.5% ash, 1.4 to 3.0% fibre, and an energy density of 140 to 228kcal.

Avocados come in three varieties: Guatemalan, Mexican, and West Indian. While each has individual characteristics, cross-pollination allows for an infinite number of variants.

GLOBAL OUTLOOK

The global avocado production has increased from 2.71 million metric tonnes in 2000 to 8.06 million metric tonnes in 2020 (Shahbandeh, 2022), as shown in figure 1. Out of the 8.06 million metric tonnes produced worldwide in 2020, Mexico, the largest avocado producer globally, had 2.4 million metric tonnes. Colombia, Dominican Republic and Peru produced 676,373, 876,754 and 660,003 million metric tonnes respectively as shown in Table 1.

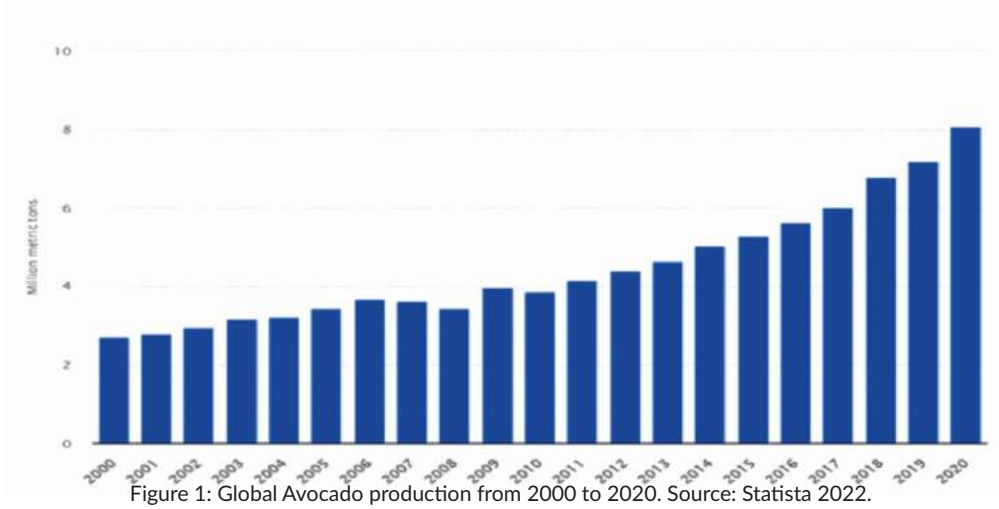


Figure 1: Global Avocado production from 2000 to 2020. Source: Statista 2022.

Table 3: Top 10 World Avocado Producing Countries (Tones, 2018 – 2020)

Country	2018	2019	2020	Total
Mexico	2,184,663	2,300,889	2,393,849	6,879,401
Dominican Republic	644,603	665,652	676,373	1,986,628
Colombia	445,075	535,021	876,754	1,856,850
Peru	504,840	571,992	660,003	1,736,835
Indonesia	410,084	461,613	609,049	1,480,746
Kenya	233,933	264,032	322,556	820,521
Brazil	236,177	242,723	266,784	745,684
Haiti	254,825	198,976	191,713	645,514
United States of America	168,530	122,670	187,433	478,633
Chile	135,000	150,802	160,535	446,337

Source: FAO, 2022

Figure 2 displays a graph of African countries' contribution to the production of avocados in the year 2020. Kenya produced 322,560 metric tonnes of avocado in 2020 and was the 6th largest avocado producer globally and first in Africa. Ethiopia, South Africa and Malawi produced 245,340, 98,020 and 93,620 metric tonnes respectively. The total contribution of Africa to the global avocado production in 2020 was 969.6 thousand metric tonnes representing 11.9%.

Kenya exported 79,081 metric tonnes, representing 24.52% of all avocados produced in Kenya in 2020. Ethiopia and South Africa exported 2,981 and 47,265 metric tonnes, respectively.

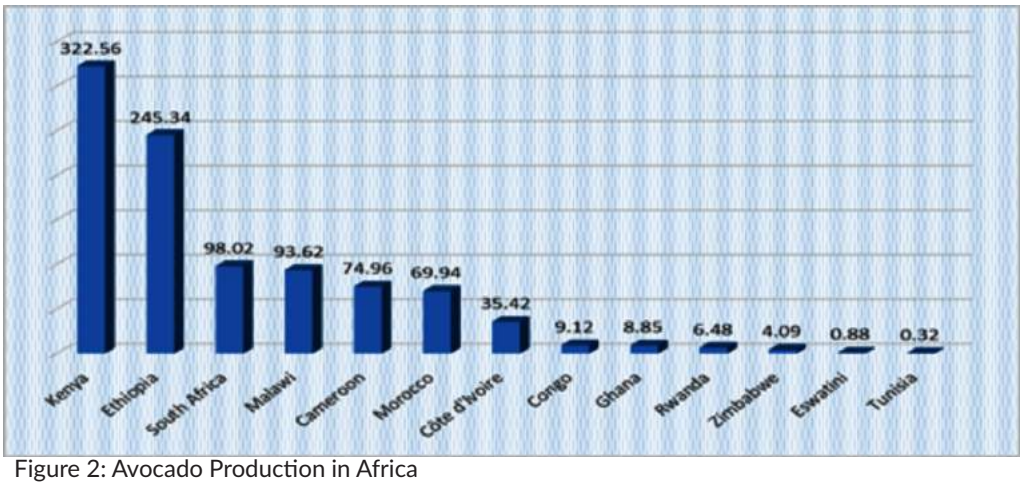
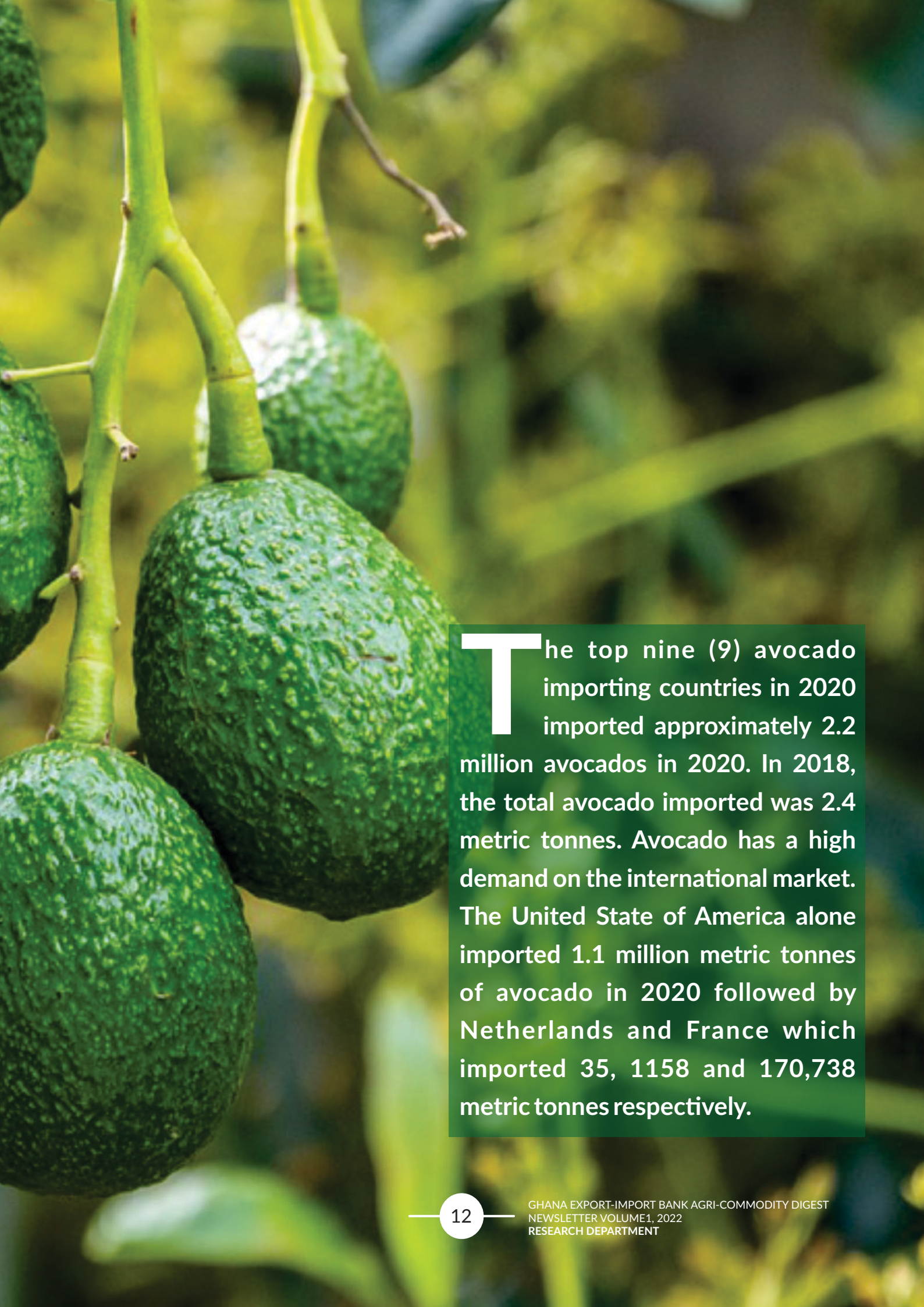


Figure 2: Avocado Production in Africa

Table 4: Export of Avocado by African countries in metric tonnes (2018 – 2020)

Exporters	2018	2019	2020	Total
Kenya	71,879	63,356	79,081	214,316
South Africa	89,343	47,948	47,265	184,556
Morocco	16,946	19,362	36,244	72,552
Burundi	2,699	4,726	8,888	16,313
Zimbabwe	5,183	4,977	5,434	15,594
Ethiopia	1,208	2,998	2,981	7,187
Côte d'Ivoire	2,096	3,551	364	6,011
Mozambique	442	472	734	1,648
Uganda	337	469	469	1,275
Rwanda	173	456	118	747
Egypt	250	256	236	742
Ghana	0	4	685	689
Cameroon	9	32	30	71

Source: www.trademap.org



The top nine (9) avocado importing countries in 2020 imported approximately 2.2 million avocados in 2020. In 2018, the total avocado imported was 2.4 metric tonnes. Avocado has a high demand on the international market. The United State of America alone imported 1.1 million metric tonnes of avocado in 2020 followed by Netherlands and France which imported 35, 1158 and 170,738 metric tonnes respectively.

AVOCADO

PRODUCTION IN GHANA

Avocado is widespread all over the country, except Ghana's Northern and Upper Regions. Small-scale farmers mainly grow the product, and fruits of avocado are obtained from backyard plantings and volunteer crops scattered in cocoa and other farms in most parts of the country. Avocado fruits of different shapes, sizes, and colours can be displayed for sale all year round when travelling

along with the main road networks in the avocado producing regions, indicating a large gene pool in the country. Ghana produced 8.85 thousand metric tonnes of avocado in 2020 and was ranked the 9th producer of avocados in Africa. Ghana exported 685 metric tonnes, 7.74% of all the avocado produced in 2020. This indicates that about 93.26% of the total amount of avocado produced in 2020 were consumed in Ghana.

Most of the farmers who produce avocado in Ghana especially those in Sefwi use avocado as cover in their cocoa farms and they normally plant the local variety of avocado. Few farmers have started commercial avocado farms in Ghana and are planting the Hass variety which can be exported.

Also, the two main known avocado nurseries that supply growers with planting materials in Ghana are Forest and Horticultural Crops Research Centre (FORIG) of the University of Ghana nursery which is located at Kade in the Eastern region and a nursery owned by Akuapem Gold Company Limited.

CLIMATIC AND SOIL CONDITIONS

Avocado can be grown on many soil types but requires good drainage as it does not withstand waterlogging. Annual rainfall of 50 inches that is well distributed over the year is adequate. Poor drainage and a soil pH of less than 6.2 are favourable conditions for developing Phytophthora root rot.

Areas with high winds are undesirable because avocado wood is brittle, and flowers and fruits may be damaged. Areas along the shoreline are also unwanted because avocado trees are sensitive to sodium chloride (Chia and Evans 1987).

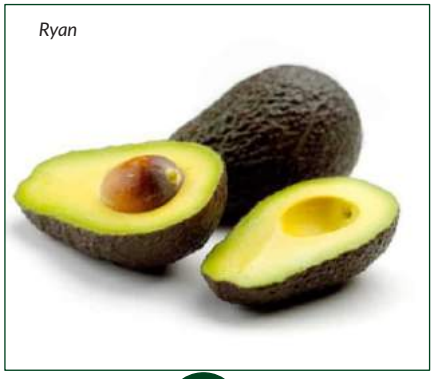
DESCRIPTION OF CULTIVARS

Fuerte

Pear-shaped; small to medium or a little larger; skin slightly rough to touch, with many small yellow dots, thin, not adherent to the flesh; flesh green near the skin, 12 to 17% oil; seed small, tight. It is an early mid-season bearer, has an excellent flavour and is susceptible to fungal diseases.

Hass

Pear-shaped to ovoid; tends to be undersized, except in New Zealand; skin tough, leathery, dark purple or nearly black when ripe; pebbled; fairly thin; flesh of good flavor, 18 to 22% oil, generally; seed small. Mid-late season, medium sized fruit with good shipping qualities. Excellent taste, heavy production, somewhat alternate bearing, increasingly popular with the European market.

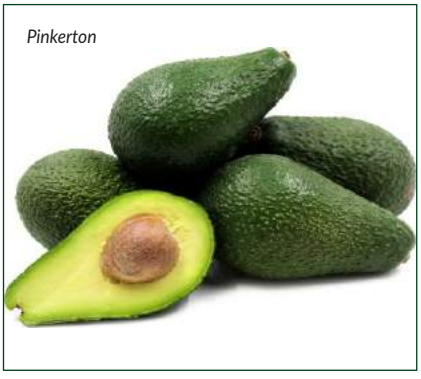


Ryan

Pear-shaped; of medium size, skin medium-rough; flesh of fair quality.

Pinkerton

Early crop, roundish; late, pear-shaped with neck; of medium size, skin medium-leathery, pliable; flesh thick, up to 10% more than in Hass or Fuerte; smooth textured, of good flavour, high in oil, rated as of good quality but inferior to Hass and Fuerte; tends to darken in the latter part of the season; seed small, separates readily from the flesh with the coat adhering to the seed. Mid-season and high yielding.



Reed

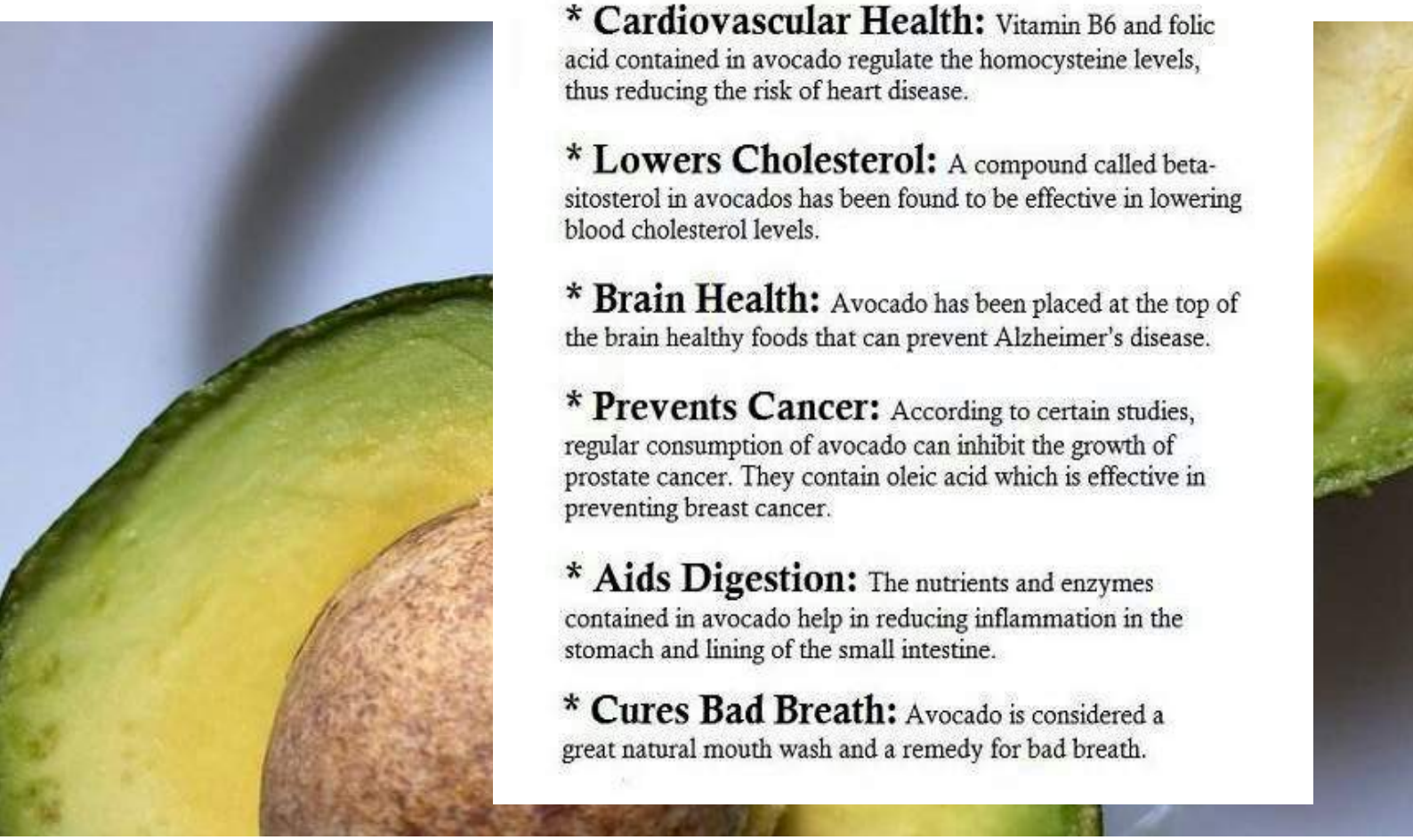
Round; medium to large, (227–510 g); skin slightly rough, medium-thick, pliable; flesh cream-coloured with rich, faintly nutty flavour; does not darken when cut; rated as excellent quality; seed small to medium, tight; coat adheres to seed. It bears early regularly; and is sensitive to cold.

Edranol

Pear-shaped; of medium size; skin olive-green, slightly rough, thin, leathery, flesh of high quality and nutty flavour and rated as excellent, 15 to 18% oil; seed small, tight. This cultivar is disease resistant.

Bacon

The fruit is small to medium size, round-ovoid, smooth green, almost colourless, and seed cavity moulds rapidly (Department of Agriculture, fisheries and Forestry, South Africa 2012).



GHANA EXPORT-IMPORT BANK FUNDED AVOCADO PROCESSING FACTORY

Akuapem Gold Company Limited is a green field project which is into the cultivation of avocado specifically the Hass variety intended to be processed into oil and other avocado derivatives for local consumption and the export market.

The cultivation sites of the company is located in Begoro whereas the Nursery and factory sites are located in Potrase, all situated in the Eastern region. The company has out-growers and it supplies its out-growers with planting materials.

The data available shows that the Equipment purchased by Akuapem Gold company Limited to process the avocado into oil has the capacity to process six (6) tonnes of avocado per hour and management of the company has decided to work sixteen (16) hours a day. The company is expected to process 96 tonnes of avocado per day and they will work six days in a week, therefore, the company will process 576 tonnes in a week.
On average a hectare of avocado farm can produce 14 tonnes of avocado fruits in a year. Holding all other factors constant, the company will process 103 acres output for a year in a week. For Akuapem Gold limited to operate in a month, they will need outputs from 412 acres and in a year they will process avocado from 4,944 acres (27,686 tonnes).

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Using the total production of avocado in 2020 which is 8,850 metric tonnes as a reference, the company can process the whole year output produced within three months, holding all other factors constant. For the company to meet its demand of raw materials needed to produce for a year, there is the need to increase the production of avocado in Ghana.

The increase in avocado production in Ghana will serve two purposes. It will increase avocado, (a raw material for Akuapem Gold Avocado Cultivation and Processing Limited) availability to the company all year round and secondly, increase Ghana's export of avocado.

COCONUT

INTRODUCTION

Cocos nucifera (Coconut) is a type of tree from Arecaceae (palm) family. The international market for coconut products is growing. Globally, no other crop's utilization surpasses that of coconut, as every part of the tree is utilized.

The kernel of the nut is an important source of nutrition in many tropical countries, and a range of products such as flour, desiccated coconut and coconut milk and cream are made from it. It is used globally as cooking oil and in the production of a number of industrial products such as, soaps, detergents and cosmetics.

The water in the nuts is a source of hydration for many people, the husk yields a fibre (coir) and pith that are used as raw materials in cottage industries for the production of items such as rugs, mattresses, etc. Coconut water is a rich source of electrolytes, ascorbic acid, B vitamins, and proteins.

The shell is used in the production of activated charcoal (a product highly demanded by industries) and is used for the making of decorative objects such as figurines, etc.

GLOBAL OUTLOOK

Coconut production globally has been fluctuating over the years. The global production of coconut declined from 59.79 million tonnes in 2010 to 58.39 million tonnes in 2011. It increased to 61.56 million tonnes in 2012, declined to 58.96 million tonnes in 2015 and 57.01 million tonnes in 2017 and rose to 63.37 million tonnes in 2018. The global yield from 2010 to 2020 ranges between 49,598 Hg/Ha to 55,006 Hg/Ha. The lowest yield was recorded in 2017 and the highest yield was recorded in 2018.

Global area of coconut harvested between 2010 and 2020 ranged between 11.48 million hectares and 11.85 million hectares.

The fluctuation of production can be attributed to factors causing annual variation in yield. The world leading producer of coconut in 2020 was Indonesia followed by India and Philippines.

The third and fourth leading coconut producing countries in the world were Brazil and Sri Lanka. Indonesia produced 16.8 million tonnes, 17.1 million tonnes and 17.4 million tonnes of coconut in 2020, 2019 and 2016 respectively.

Although Indonesia is still the world leading producer of coconut, the total output of coconut produced yearly since 2016 keeps decreasing. Production in India increased from 14.68 million tonnes in 2019 to 14.695 million tonnes in 2020 whiles production in the Philippines declined from 14.76 million tonnes in 2019 to 14.49 million tonnes in 2020.

The top five coconut producing countries in Africa in 2020 were Ghana (412,459 tonnes), Tanzania (382,162 tonnes), Mozambique (251,122 tonnes), Nigeria (225,574 tonnes) and Kenya (110,013 tonnes). In Africa, the total production of coconut declined from 2.05 million tonnes in 2012 to 1.82 million in 2017, increased to 1.83 million tonnes in 2018 and declined to 1.79 million tonnes in 2020. The yield in Africa is far less than the global yield and yield in West Africa.

The yield in Africa between 2010 and 2020 ranged between 16,682 Hg/Ha and 19,587 Hg/Ha but the yield in West Africa within the same period ranged between 40,167 Hg/Ha and 49,326 Hg/Ha. Coconut produced in West Africa increased from 842,249 tonnes in 2010 to 934,664 tonnes in 2014 and declined to 882,422 tonnes in 2020.

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THE TOP FIVE COCONUT PRODUCING COUNTRIES IN AFRICA IN 2020 WERE GHANA (412,459 TONNES), TANZANIA (382,162 TONNES), MOZAMBIQUE (251,122 TONNES), NIGERIA (225,574 TONNES) AND KENYA (110,013 TONNES).

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1D1F POWERING MADE IN GHANA
4P PRODUCE PROMOTE PURCHASE PROSPER

made in Ghana

One District One Factory

GHANA EXIMBANK
Facilitating Ghana's International Trade

Table 5: Coconut Production in the World, Africa and West Africa

YEAR	World production (MT)	Africa Production(MT)	West Africa Production(MT)
2010	59,789,800	1,991,369	842,249
2011	58,395,344	2,049,871	913,796
2012	61,565,037	2,055,542	907,887
2013	61,290,686	2,034,798	929,697
2014	59,747,527	1,897,516	934,664
2015	58,965,285	1,888,886	880,207
2016	58,090,264	1,839,315	857,997
2017	57,014,763	1,822,992	866,906
2018	63,373,300	1,835,640	870,603
2019	62,159,626	1,835,549	878,533
2020	61,520,382	1,798,343	882,422

Source: FAOSTAT, 2022

GHANA OUTLOOK

Ghana was ranked the leading producer of coconut in Africa in 2020. Ghana's coconut subsector has a lot of untapped potential which has been recognized by the Government as the stimulus for sustained growth and development into the next decade.

Coconut, a major tropical crop which used to be cultivated only along the coastal savannah and some selected forest zones in the country, has now been extended to eleven (11) out of the sixteen (16) regions namely; Western, Western North, Central, Greater Accra, Eastern, Ashanti, Volta, Oti, Bono, Bono East and Brong ,Ahafo Regions.

The soils and climatic conditions make it possible for the production of this crop in these regions.
In many African countries coconut undoubtedly makes a significant contribution to coastal economies where the crop has a comparative advantage.

However, in Ghana, the crop has shown to have potential to make significant contribution toward economic and social development as well as positive environmental effects in rural communities.

Over the years, due to the importance of coconut for food security, environmental protection and poverty alleviation among others, the Government of Ghana, through the Ministry of Food and Agriculture (MoFA) implemented some projects in the sector as a means of reducing poverty in some coastal towns in the Western and Central Regions. Examples of such interventions were the Coconut Sector Development Project implemented between 1999 and 2005 and the Restoration of Livelihoods of Coconut Farmers in the Western and Central Regions implemented from 2010 to 2012. These interventions positively impacted the livelihoods of the beneficiary farmers with the introduction of some coconut varieties.

VARIETIES OF COCONUT AND PRODUCTION IN GHANA

There are three (3) main types of coconut in Ghana. The Tall, the Dwarf and a cross between the dwarf and the tall types known as Hybrids. There are also various varieties within each type. Examples of the Dwarf varieties are:

1. Malayan Yellow Dwarf (MRD): it has a maturity period of three (3) years and can produce 100 to 150 fruits per year. The mature size of the tree is between 10 to 20 meters and it is one of the older varieties, originally cultivated in the late 1800s. The color of the fruit is pale yellow but when the fruit is young, 6 to 9 months, the color is often a pale yellow-green. It requires a well-drained soil and is drought tolerant. The Malayan yellow dwarf has been found to have resistance against the lethal yellowing disease of Jamaica but is susceptible to the lethal yellowing disease in Ghana and Tanzania.

2. Malayan Red Dwarf (MYD): this type of dwarf has a maturity period between 3 and 4 years and can produce 200 to 250 nuts in a year. The colour of an immature fruit of the Malayan Red Dwarf is bright orange. Malayan Red Dwarf produces medium-sized, oblong fruits that are generally a little bigger than those of the Malayan Yellow Dwarf. It is sensitive to drought and the lethal yellowing disease in Ghana and Tanzania.

3. Sri Lankan Green Dwarf (SGD): the maturity period of the Sri Lankan Green Dwarf is 3 years and it can produce 250 to 300 fruits in a year.

4. Equatorial Guinea Dwarf (EGD): the maturity period of Equatorial Guinea Dwarf is between 3 and 4 years and it can produce 150 to 200 fruits in a year.

5. Cameroon Red Dwarf (CRD): the maturity period of Cameroon Red Dwarf is 3 years and it can produce 90 to 100 fruits in a year. It is known for its distinctive coloured orange-red fruit, which can vary between shades on the same tree, with some redder in colour than others.

The Tall varieties are the Tagnanan tall (TAGT) and the Vanuattu Tall (VTT) varieties. The maturity period of Vanuattu Tall and Tagnanan tall is between 6 and 7 years and Vanuattu Tall can produce between 100 and 120 nuts in a year. Tagnanan tall can also produce 60 to 70 nuts respectively in a year.

Coconut production in Ghana has shown an upward trend since 2010. The production of coconut in Ghana increased from 292,000 tonnes in 2010 to 395,000 tonnes, 404,156 tonnes and 412,459 tonnes in 2018, 2019 and 2020 respectively. The area harvested between 2010 and 2020 ranged between 55,000 hectors and 76,999 hectors. The annual yield between 2010 and 2020 ranged between 53,161 Hg/Ha and 54,052 Hg/Ha. The annual coconut yield in Ghana between 2010 and 2020 is higher than the annual yields in West Africa and Africa.

Table 6: Production of Coconut in Ghana from 2010 to 2020

YEAR	PRODUCTION (TONNES)	AREA HARVESTED (HA)	YIELD (HG/HA)
2010	292,000	55,000	53,091
2011	344,000	64,204	53,579
2012	345,000	64,291	53,662
2013	366,183	67,747	54,052
2014	380,380	70,480	53,970
2015	380,380	71,056	53,532
2016	380,380	71,553	53,161
2017	384,000	71,978	53,350
2018	395,000	73,568	53,692
2019	404,156	75,361	53,629
2020	412,459	76,999	53,567

Source: FAO 2022

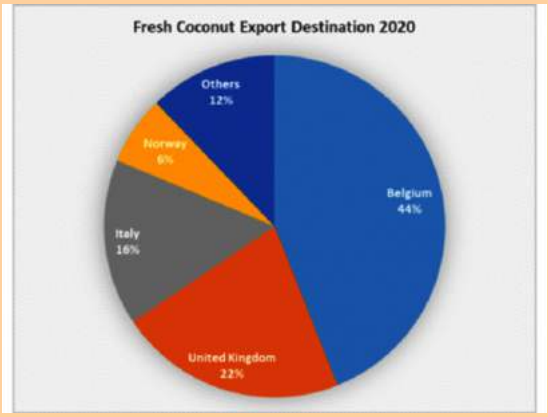
EXPORT VOLUMES AND VALUE OF THE COCONUT SUB-SECTOR

Of the various products derived from the coconut plant, coconut oil is the largest coconut commodity traded globally. An average of 12 million tonnes is traded annually and this is expected to increase with time as the demand for coconut oil by the health and cosmetics industries increases (Sector Studies report, MoFA, 2018).

In Ghana, Coconut is exported in the de-husked form (either dry or fresh) or as coconut oil with the export of these contributing to foreign exchange earnings. The major trade destinations are Belgium, United Kingdom, Italy and Norway as shown in figure 1.

In 2020, Ghana exported 44% of the total fresh coconut exported to Belgium which was the leading destination of Ghana's fresh coconut exports, followed by the United Kingdom (22%) and Italy (16%). Ghana also exported 6% of its total fresh coconut to Norway in 2020.

Figure 3: Major Destinations of Coconut from Ghana



Source: Ghana Export Promotion Authority (GEPA)

In 2020 for instance, the export of 25,799,963kg (aprox. 26,000mt) of both fresh and dry coconut resulted in the generation of USD 4,945,697 as indicated in Table 3.

Although both fresh and dry coconut raked in $4.9 million, the quantity of fresh and dry coconut exported in 2020 declined by 19.5% as compared to 2019 which was 32,041 tonnes. Ghana's exports of fresh and dry coconut declined from 46,836 tonnes ($3.02 million) in 2016 to 28,716 tonnes.

Table 7: Coconut (Fresh and Dry) Exports: 2016 - 2020

YEAR	WEIGHT: KGS	VALUE: US $
2020	25,799,963	4,945,697
2019	32,041,017	2,709,425
2018	31,271,978	2,178,603
2017	28,716,652	2,180,619
2016	46,836,831	3,021,343

Source: Ghana Export Promotion Authority (GEPA)

VALUE CHAIN ACTORS OF COCONUT

Coconut, apart from its refreshing content, is also known for its great versatility, as seen in the many domestic, commercial and industrial uses of its different parts.

It is worth noting that every part of the coconut tree can be utilized and it is the tree with the longest value chain.

The value chain actors stretch from farmers, harvesters, collectors, aggregators, dehuskers, deshellers, vendors, agricultural labourers, pig and other livestock farmers, mill operators, coconut oil producers, transporters, marketers and a host of others who sustain themselves on the coconut tree.

A higher productivity in coconut could therefore be one of the fastest means by which impact can be made in alleviating poverty and improving farmers' income in rural areas.

Despite the importance of the coconut sector, just like the other tree crop sub-sectors, it is not devoid of challenges.

For the full potential of the coconut sub-sector to be realized, all stakeholders must work together to overcome the challenges to enable the sub-sector contribute significantly to national development.

CHALLENGES IN THE COCONUT SUB-SECTOR

The following are some of the challenges confronting the sub-sector:

Low Nut Yield: Low nut yield is one of the challenges that coconut farmers facie in the sub-sector. The output is low because some of the trees are old and the farmers do not apply fertilizer.

Some of the coconut trees in the Volta and Western regions were inherited by their present owners with the trees being close to the end of their economic life or past their economic life (as some of these trees were planted well over 50 years ago), hence the yields have declined significantly.

According to Ministry of Food and Agriculture, coconut trees in Ghana produce less than 50% of their potential yield because of lack of fertilizer application and aged trees. According to the ministry, coconut farmers obtain between 4,000 - 6,000 nuts per hectare from the local coconut variety (West African Tall) when they can actually harvest about 12,000 nuts per hectare annually. Similarly, for the improved coconut hybrids 6,000 - 9,000 nuts per hectare is obtained when farmers can harvest about 22,000 nuts per hectare annually.

Inadequate Planting Materials: Access to quality planting materials in the coconut sub-sector is inadequate, compared to leading producing countries such as Indonesia, Philippines and India. This is largely due to the existence of well managed seed gardens and nurseries found in the leading producing countries.

Presently in Ghana, there are four state - owned seed gardens and nurseries (3 located in the Western Rregion and one in the Eastern Region). The State-owned seed gardens and nurseries are managed by the Ministry of Food and Agriculture (MoFA) and the Oil Palm Research Institute (OPRI) of the Council for Scientific and Industrial Research (CSIR).

These seed gardens are currently not well resourced as they are only producing at 10% of their capacity. The staff strength is also woefully inadequate and logistics required to operate efficiently are lacking (MoFA, Sector Studies Report, 2018).

There are also very few private nursery operators scattered in the Western Regions (especially in Menzizor in the Ellembelle district) who use their farms as seed gardens to raise seedlings to meet the high demand of farmers.

Because the State-owned seed gardens and nurseries are not able to produce enough improved planting material to meet the high demand of farmers due to insufficient funding, some people realizing the high demand for seedlings, have taken advantage to cash-in.

These people (nursery operators) lack the technical knowhow in the production of seedling and therefore peddlers supply unimproved and susceptible coconut varieties to farmers who are eager to go into large scale coconut production and production of by products that have high market demand.

Devastating Effect of the Cape Saint Paul's Wilt Disease:

A lethal yellowing disease of coconut locally known as Cape Saint Paul's Wilt Disease (CSPWD) was first observed in the country in 1932, at Woe, (located between Anloga and Keta) in the Volta Region. The disease reached Cape Three Points/Princess Town in the Western Region in 1964.

According to scientists, the disease is caused by phytoplasma and transmitted by insects. The typical symptoms are premature dropping of nuts, blackening or necrosis of inflorescence, yellowing or browning of leaves and topping over of crown leaving characteristic 'telegraph poles' in its trail.

By 2002, the disease had devastated about 11,000ha (26%) out of the total 43,000ha of coconut plantations in Ghana. The Volta Region alone lost 5,500ha, Western and Central Regions also lost 3,500ha and 2,000ha respectively.

The disease affected mostly coconut trees along the coastline of the country. This adversely affected the coconut industry, causing loss of livelihoods to the thousands of people that depended on it.

The area under production was reduced by a quarter resulting in reduction of raw materials needed to feed the factories. Factories producing copra oil and coconut fibres for car seats such as Wienco Fibres Company Limited had to close down or opt for a new raw material for their factories due to the difficulty in obtaining coconuts.

The devastating effect of the disease was not only observed in Ghana but also in some parts of Asia, America and Africa. To curb the menace of the CSPWD, the Government of Ghana through the Ministry of Food and Agriculture (MoFA) and the Council for Scientific and Industrial Research (CSIR), in the 1990s, launched a Project called the Coconut Sector Development Project, with the sole objective to find solutions to the threat posed by the CSPWD as many families and industries depended on the crop.

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The Project resulted in the release of two main hybrids: the Malayan Yellow Dwarf crossed with Vanuatu Tall (MYD x VTT) and the Sri Lanka Green Dwarf crossed with Vanuatu Tall (SGD x VTT) hybrids. The latter has proven to have superior tolerance to the CSPWD.

The Ghana Tree Crops Development Authority estimated the current area

covered by coconut plantations in Ghana to be around 60,000 hectares. The Authority is developing regulations to govern the production, processing and trading of six major tree crops including coconut in a sustainable manner.

The Authority targets is to increase the area covered by coconut plantations from 60,000 hectares to 130,213 hectares (651,066 tonnes) by 2024 and further to 335,795 hectares (1,678,980 tonnes) by 2027. For the Authority to achieve its target by the end of 2024, the Authority together with other agencies has to help farmers establish an additional 70,213 hectares.

Using a plant density of 180 trees per hectare, the total seedling required to establish the 70,213 hectares is 12,638,340. Ghana Export-Import Bank has developed a coconut project that is focusing on raising 1 million seedlings annually in the next five years.

The Ghana export-import Bank (GEXIM) is a corporate body established by the Ghana export-import bank act, 2016 (Act 911).

The objective of the bank is to support and develop directly or indirectly trade between Ghana and other countries, and also build Ghana's capacity and competitiveness in the international market place.

The bank's operational functions are summarized under the following three categories:

A) Support For International Trade
- Credit
- Overseas investment
- Market advisory service

B) Building Ghana's Capacity In International Trade Market.

Supplier's and buyers credits
- Export finance
- Import finance (Manufacturing of goods for export)
- SME financing (Agro-processing and export)
- Equity financing
- Domestic investment (Support of export or import)
- Export product development and capacity building.
- Other financial services.

C. Facilitation
- Guarantees
- Insurance

We look forward to working with businesses and entrepreneurs operating within the bank's mandate areas with a view to facilitating Ghana's international trade.

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