ADDRESSING THE EFFECTS OF COVID-19 ON AGRICULTURE AND FOOD SECURITY SITUATION IN AFRICA

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Purpose. The COVID-19 pandemic has had many adverse impacts socially, economically and physically on various sectors across the world. Agriculture is the backbone for many economies in Africa. Additionally, it contributes significantly to the gross domestic product and employment of many African citizens. In Africa, COVID-19 had an impact on agriculture and food security. This paper through a theoretical review of various articles and books, sought to highlight the positive and negative effects of COVID-19 on the food security situation in Africa. The key objective of the paper was to highlight the link between the global pandemic, agriculture and food systems in Africa and provide solutions towards addressing the effects of the pandemic.

Results. The paper highlights the positive and negative effects of the pandemic in Africa. Through a theoretical review of journals reviews some pandemics including during biblical and recent times, their impacts on agriculture and how they were addressed. It presents solutions towards addressing the food security situation affected by COVID-19 in Africa. This paper highlights the role of various stakeholders in addressing the effects of COVID-19.

Scientific novelty. The paper highlights the role of leaders, farmers and consumers in addressing the effects of COVID-19 in Africa. It provides innovative and sustainable ways of addressing the effects of COVID-19 in Africa.

Practical value. This paper entails ideas that governments, farmers, development organizations and stakeholders in Africa agriculture will find useful in designing interventions that will address the effects of COVID-19 leading to a food secure and thriving Africa. A food secure Africa will boost employment in the agricultural sector and the sustainable development of other economic sectors and a thriving continent.

Key words: impact, food security, agriculture, COVID-19, sustainable development, Africa.

Introduction. The COVID-19 pandemic has had an effect on the global system in many levels and has resulted in a serious food crisis globally. Since 2020 when the virus started spreading widely, there has been widespread hunger and food systems have had serious disruptions (Ilesanmi et al., 2021). It is estimated by the World Food Programme that because of the crisis, another 130 million people will face serious hunger. On a global scale, around 822 million people are staring at chronic hunger while 12 million are experiencing serious food insecurity. In Bolivia, more than 1.4 million people which accounts for 14 % of its population are suffering from food
scarcity and approx. 7% of them are experiencing chronic hunger since they lack finance to purchase food (Timilsina et al., 2020).

According to Siche (2020), scanning globally from North Africa, West African Sahel, to Brazil, North Africa, Canada, India and the United States it has been shown that hunger levels are increasing as the virus containment measures are being upscaled. There is a fallout economically from the pandemic as it affects the access to nutritious and safe food by people. Recently, a Panel of Experts on Food Security and Nutrition, mentioned that in the global food system there has been vulnerabilities in the age of COVID-19 (Yaya & Labonte, 2020). Various scholars have written on the collapse of how vulnerable communities and countries struggle to access food. On a global scale supply chains have been disrupted resulting to need for changes in the food systems. The changes should build on supporting local markets and the principles of food sovereignty (Clapp & Moseley, 2020).

COVID-19 containment measures such social distancing, self-isolation, and restrictions on travel have escalated the food crisis as some agricultural agencies have been closed permanently. Shutdown of borders, stoppage of transportation has led to deficiency of migrating laborers. This has struck the market prices leading to producers struggling to make profits. In rainfall and weather-dependent agricultural systems, the slightest delay in agronomic practices or harvesting causes a massive loss for farmers, less production of food and can eventually lead to a food crisis (Mohamed et al., 2021).

Stunningly, as the world is struggling with worldwide Zero hunger efforts on one side, the pandemic is pulling, pushing and provoking the poverty of 13 to 21 million persons globally, farmers are worst hit. The pandemic has demonstrated that agriculture is indeed the backbone in most countries in Africa and across the world. It has pushed countries to offer a solitary situation to Law-based agri-based frameworks, strengthening food arrangement and assisting the farmers worldwide to escape hunger and malnutrition (Cariappa et al., 2021).

**Review of literature. Agriculture in Africa.** It is estimated that around 26% of people in globally are directly involved in agribusiness. The highest in the world is in Burundi where, 92% of persons in Burundi are farmers, in Asia 65% of Nepal population are dependent on agribusiness which is the highest. In China (about 25%) and India (42.4%) of the people depend on agriculture while the total populations are 1.3 and 1.4 billion as at 2018 (Ojokoh et al., 2022). Agricultural workers and farmers are heroes whose work has not been broadcasted but rather remained in the shadows. Disasters resulting from climate such high temperature, erratic rainfall, and drought are serious obstacles to farmers in Africa. However, after December 2019, COVID-19 is another serious threat. Since the outbreaks of pandemics, farmer’s shoulders are heavier due to the added responsibilities in tackling global food insecurities. According to Rasul (2020), difficult logistics to get inputs like; fertilizers, seeds, and insecticides is one of the many issues that farmers are facing. The largest producer and fertilizer exporter in the world is China. COVID-19 has not only affected China but also the international fertilizer trade due to its numerous lockdowns.
However, how farmers were prepared in handling the pandemic in the respective countries affected the effects of the pandemic variability. Business revenue and on farm activities was independent of the lockdown status. They depended on how they were prepared to handle the pandemic crisis that varied across the world (Otekunrin et al., 2020). Ojokoh et al. (2020) argues that so as to mitigate the effects of the pandemic on agricultural activities, there is need to build the capacity of farmers. There is need to support them farmers in preparing for occurrence such as the pandemic and also setting up and implementing directional appropriate local policies.

_Food security situation in Africa._ Food security achievement depends on four pillars, namely, accessibility, availability, utilization, and stability. Based on this criterion, food security is evaluated by if people have economic, social, and physical access to food, whether the kinds of food available are enough, whether nutritional well-being can be accessed through an adequate diet, sanitation, health care and clean water and if it does always meet the needs of people (Ali et al., 2020). Through evaluating the major dimensions of food security in Africa, which are access, availability, utilization, and stability, it’s necessary to evaluate the current and upcoming effects of the pandemic on food security and African food systems. The resilience and vulnerability of African food systems is directed by particulars of location and position of the African countries in the economic exchange regionally and globally (Eziregwe et al., 2021).

In comparison to other continents globally, African food systems indicated less vulnerability to effects brought by COVID-19. This could be attributed to the late arrival of the virus in Africa which allowed time for preparation, the continent has experience in fighting other infectious diseases, the African population is youthful, Africa had persisted in shorter supply chains of food and food production on a subsistence scale as well as limited urbanization in many areas of the continent (Ali et al., 2020).

_COVID-19 pandemic and food security in Africa._ The ongoing pandemic has had devastating impacts across the globe. Africa has not been spared as measures to curb the virus were put in place. This had major impacts on farming activities and the people livelihoods to the millions whose existence and survival is tied to agricultural activities. The lockdown is one of the policies implemented to minimise the spread of the virus (Ojokoh et al., 2022). Countries in Africa that implemented more drastic measures and acted earlier and were able to minimise the economic damage and shorten duration of the restrictions. Mutual dependency was shown by the spread patterns of the virus around the world. Economic activities reduction in one region and disease control showed that a nation’s policy affects others. Many nations saw serious reductions in productivity, which affected the food demand from away. There was a shift in consumption to only necessities from luxury and expensive foods products (Mishra et al., 2021).

Recently, food systems scholars, as well as researchers on food security, and poverty have realized that in Africa, malnutrition and hunger related with virus could
destroy more people than corona virus itself. This is because, Africa in comparison to many parts globally, has a weak environmental and social safeguard (Moseley & Battersby, 2020).

**COVID-19 and agriculture in Africa.** Agricultural and food systems are greatly affected by shocks from pandemics and droughts. Drought mainly has a direct effect on agriculture through minimised output. A pandemic, however, is a health system shock mitigated by vaccines. A virus mainly has no cure hence, societies must navigate through travel restrictions and social distancing, impacting on both food demand and supply due to, restrictions on movement and reduced income (Mishra et al., 2021). Before the ravaging effects of the pandemic in Africa, a large number of Africans were already affected by food insecurity and poverty. Their already unfavourable situation was wreaked havoc by the pandemic. COVID-19 had both direct and indirect impacts such as deaths of food workers, unemployment, interruption of food supply chains, and disrupted social programs. In Africa, COVID-19 can lead to more economic fallout, hence there is need for the situation to be careful observed and timely intervention be done to safeguard African communities that are vulnerable (Mohamed et al., 2021).

In ancient biblical times, large and serious pandemics and epidemics would arise randomly and bring along serious uncertainty, that tags along several pressing challenges. Important is to identify the factors driving the pandemic and how to mitigate it. Mishra et al. (2021), opine that pandemics are not known to have risen in the recent by they have existed since time immemorial and across time they have been addressed in different ways. As the coronavirus spread rapidly around the world, economic disruption resulting from the pandemic were warned by the United Nations that could result in famines of “biblical proportions”. It is therefore necessary to draw lessons from the bible on how to manage recent crisis that emerge (Odularu et al., 2020).

**Pandemics and agriculture in Africa.** Agricultural productivity can be affected by many factors, the period where reducing soil moisture and lead to crop failure is referred to as agricultural drought. Droughts influence both irrigated and rain-fed agriculture. For irrigated agriculture, the impact of drought is influenced by the limited water availability in storage tanks. For rain-fed agriculture, severe droughts have an influence by directly reducing yields leading to crop failure and revenue reductions (Mishra et al., 2021). Both pandemics and droughts on their own disrupt global food supply chains. The recent century has been impacted by various natural and human disasters and, pandemics of varying magnitude. When joined together they lead to serious malnutrition and economic stress especially in Africa and developing countries. It is therefore important to know how pandemics interact and seek appropriate solutions to addressing them separately and together in the quest to maintain an active global food supply (Mishra et al., 2021).

**COVID-19 pandemic and food security situation in Africa.** Between February and December 2021 there was rapid spread of the COVID-19 virus, hitting 187 countries, leading to serious issues of food insecurity. In January 2020, 135 million people were
food insecure but the pandemic in a short while skyrocketed the number to 265 million by the end of 2020. Developed and developing countries were all affected by food insecurity among the populations. The worst hit by food insecurity across the world were Sub-Saharan Africa and South Asia (Lal, 2020).

Nchanji & Lutomia (2021), state that the spread of the COVID-19 virus led to a serious burden on the health system around the world. Beyond health care systems, agriculture and food systems globally were affected. As expected, the immediate impact of the pandemic destabilized agribusiness sector in Africa. This is due to the low resilience to production effects and many other challenges that were there even prior to the inception of COVID-19. Ilesanmi et al. (2021) state that the Coronavirus pandemic affected many aspects of life, ranging from economic, health, education, and agribusiness sectors in Africa. To cut the transmission chain various measures such as border closure, hand washing, social distancing, restrictions of movement, and lockdown were implemented that had adverse effects on African agriculture. The measures however resulted in reducing workforce for production in agribusiness leading to serious losses in the agribusiness sector.

**Materials and methods.** This paper through a theoretical review of various articles and books, sought to highlight the positive and negative effects of COVID-19 on the food security situation in Africa. The key objective of the paper was to highlight the link between the global pandemic, agriculture and food systems in Africa and provide solutions towards addressing the effects of the pandemic.

The methodology of this study consists of methods of analysis and synthesis of information on addressing the effects of COVID-19 on agriculture and food security situation in Africa, as well as theoretical review of the literature.

**Results and discussion.** *Effects of COVID-19 in African agriculture and food security.* The COVID-19 pandemic is still ongoing, there are some lessons on how pandemics can affect the agri-food sector that can be drawn from it. The pandemic has had both positive and negative effects on agriculture and food security situation in Africa.

*Negative effects of COVID-19 in African food security and agriculture.* The greatest effect of the epidemic in Africa has been on labour inputs due to restriction of movement. Under no circumstances were farmers allowed to meet or move except for shopping of necessities. In large cities in Africa such as Lagos and Nairobi, the larger population livelihoods is dependent on the informal sector, many people had no money to buy food. This resulted from the sudden job loss that give them daily wages. Unemployment was high the food system sector. Many people globally work in informal setups. This influences their potential to gain from COVID-19 compensation schemes that were in place. With the COVID situation slowing down unemployment is still on the high as it will take longer for the sectors to get back to their feet (Pu & Zhong, 2020).

In rural areas, the key source for people’s livelihoods is agriculture. Logistics and transportation disruptions made it hard for producers to access agro-veterinary inputs
and services as well as sell their produce. Social distancing protocols minimised food consumption in schools, restaurants, events and consumption moved to food at home. Consumption of commodities such as eggs and flour was witnessed due to social distancing guidelines leading to panic buying (Timilsina et al., 2020).

The global pandemic problem affected the demand and supply of food affecting every section of the agri-food chain of supply. The food service sector and traditional food intermediaries who rely on the informal workforce and low-income were greatly affected. A combination of droughts and pandemics hit certain populations and regions differently especially those facing severe food security problems. For example, in Zimbabwe, people had to deal with the coronavirus over and beyond the challenge of unemployment and drought that had hit the country. It is estimated that in 13 Southern African countries, 45 million people were food insecure due to a combination of lack of rain, coronavirus and floods (Yaya et al., 2020).

Positive effects of COVID-19 in food security and African agriculture. On the other hand, pandemics led to fast modifications of food processing procedures so as to guard and minimise the spread of the virus. The use of real-time data and technology innovation emerged so as to minimise food supply chain disruptions by extending shelf lives. Application of information technology in food distribution improved and has continued to expand. Automation in processing, harvesting, and delivery is poised to increase leading to diversification and shorter supply chains. Disasters driven technological innovations has increased the sustainability of food production and better effects to the environment (Siche, 2020).

International organizations such as the International Fund for Agricultural Development, International Monetary Fund, the World Bank and the African Development Bank (ADB) made serious commitments for governments in Africa to fight against COVID-19. The ADB announced 10 billion USD to help African economies address food challenges drawn from the impacts of the COVID-19 pandemic. These funds create more jobs in the sector and can be adequately utilised to revamp the sector (Otekunrin et al., 2020).

The pandemic also saw the rise of modern agricultural approaches such as urban subsistence farming of novel foods and vegetables for consumption. The demand of these novel foods are on the rise rapidly with adoption and acceptability on the rise. These new approaches received immense support as they were perceived a means of cushioning Africans against the adverse effects of the pandemic. The growing effect of this is that employment opportunities will be created in the urban and peri urban agri-foods systems leading to stronger food supply chains. The benefits of urban food production are many such as shorter supply chains. This is important during mapping out of income generation abilities and identification of opportunities for youth and women (Clapp & Moseley, 2020).

Sectors such as food delivery services expanded as people got used to not travelling and get access to food stuffs at their doorsteps. Food products believed to boost immune systems have had an increased demand. Food commodities, like eggs...
have had a price increase hence creating more income for farmers in the value chain and other segments of the value chain. Modernization of agri-food supply chains is expected to rise with food systems now becoming more structured (Eziregwe et al., 2021).

Addressing the impact of COVID-19 in African agriculture. To effectively address the adverse impacts of COVID-19 in Africa, three groups of people are very key to come and work together. The leaders, farmers and consumers have an important part to play. These three groups tilt the supply and demand of agricultural products and commodities to any direction. Leaders can be classified into various categories as well as farmers and consumers as discussed below.

Leaders roles in addressing the impact of COVID-19 in agriculture. Leaders can be categorised into various groups. In this paper we categorise them into two broad categories that is an individual and group or organization that serves as a leader. There is need for African leader’s governments to maximize intra-African trade. Additionally, government should increase investments in agricultural biotechnological, so as to reduce the gap between the goal and what is achieved. Smart agriculture insurance programmes should be designed by governments and private sector that can be cost effective in supporting agricultural investments and reduce inefficiencies (Morsy et al., 2021).

Various players in the agriculture sector in Africa need to embrace modern agriculture as supported by science. There is need to upscale fertilizer use, soil management, advanced breeding and irrigation leading to greater efficiencies in agriculture and increased output (Mishra et al., 2021). Shilombeni (2020) argues that private sector in Africa should invest in offering cost-effective or low-cost agri-cultural innovations and practices. These practices need to lead to enhanced resilience of producers in Africa’s constrained by resources that has been affected by many unforeseen shocks such are massive crop loss and market collapse.

Research and learning is very key and should be supported so as to inform African food producers and consumers choices. Research should also enable the strengthening of food systems resilience providing healthy and nutritious food while promoting sustainable agricultural practices and delivering livelihood benefits to farmers (Shilombeni, 2020).

Farmers roles in addressing the impact of COVID-19 in African agriculture. In any food supply situation, farmers are an important group of people. The producers fall in three broad categories (crop, livestock and fish producers). Farmers bear the burden of shelving the world from hunger shocks. Farmer should be in the forefront in adopting modern technologies such as conversion of urban waste into fertilizer for food production. This also has an effect in preventing infectious diseases and reducing environmental pollution in cities (Lal, 2020). Individual farmers and communities in Africa need to enhance ownership and control agricultural innovations. They need to speak up for their own interests and priorities more powerfully. Typical agricultural development interventions should go beyond the short-term duration. African farmers
should prioritize sustainable agricultural practices and give serious attention to reducing hunger amidst the COVID-19 pandemic (Otekunrin, 2020).

Lal (2020) states that African farmers need to reduce food waste, adopt more resilient food systems, and support local food production. At the community and household level, food can be made more accessible through urban agriculture and home gardening. Majority of African population live in the cities hence the need to have produce food within the cities even in small land sizes. This can be done indoor and on rooftop gardens, through vertical farming among others. In the course to addressing food security after the pandemic home gardens will play an important role in strengthening access to food.

**Conclusions.** The current COVID-19 pandemic has had an impact on food systems and magnified the lack of food system structures and sad state of food security in Africa. Countries in Africa face the double risk of hunger and COVID-19. The pandemic poses major issues in the quest to achieve food security goals (Eziregwe et al., 2021). The COVID-19 pandemic is really a wakeup call since it tested the food chain system. Time for action and priority setting for African Agriculture is now. Farmers need attention due to their labour to feed Africa. There is a need for a paradigm shift to digitizing agriculture in Africa. While local production is part of the solution it is not the only answer, steady steps must be made towards reducing food insecurity (Lal, 2020).

Countries in Africa need to go beyond just the copy paste situation in policy reforms in the wake of COVID-19. Policy responses in Africa must take account of local and national realities. According to Rodergson & Baum (2020), African government and development partners need to act quickly to ensure farmers use advanced use machineries such as autonomous tractors, quality seeds, seeding robots, enhancing fertilizers, and drones. For the agricultural sector to be resilient to the pandemic in Africa, there is need for direct financial funding on vulnerable farmers (Ilesanmi et al., 2021). Timilsina et al. (2020) states that beyond the pandemic global logistics needs to be strengthened for unhindered agricultural trade as well as adequate stakeholder engagement.

There is a need to maximize intra-African trade by African governments with investments in agricultural biotechnology. To best support food security of African populations, many African countries should critically think on trade and how they can cushion their farmers. Attention to food production at home for food sovereignty, will lead to less vulnerable supplies, but balanced food system devoid of global disruptions including pandemics (Eziregwe et al., 2021).

This paper entails ideas that governments, farmers, development organizations and stakeholders in Africa agriculture will find useful in designing interventions that will address the effects of COVID-19 leading to a food secure and thriving Africa.

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