

A Rapid Analysis of the Impact of the COVID-19 Pandemic on Selected Food Value Chains in Africa

SYNTHESIS REPORT

AGRA REGIONAL FOOD TRADE AND RESILIENCE PROGRAMME

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Preface

Promoting regional food trade is an efficient and effective way to expand agricultural output and productivity, make national and regional food markets more resilient, and foster inclusive growth in sub-Saharan Africa. To achieve this, there is a need to tackle key market and government failures which include, but are not limited to:

1. Unpredictable food and related policy interventions;
2. Unstructured and loose value chains;
3. Thin markets, with weak supporting markets;
4. High barriers to entry, including asymmetric risk, returns, and costs;
5. Low uptake of climate-resilient innovations;
6. Weak enabling infrastructure, e.g. transport, logistics, and irrigation.

To translate these challenges into actionable opportunities and facilitate Africa's agricultural transformation, AGRA established the Regional Food Trade Unit with support from the UK Government's Foreign, Commonwealth & Development Office (FCDO) in 2019¹ through the Africa Food Trade & Resilience programme. With the emergence of the COVID-19 Pandemic in March 2020, the existing challenges facing Africa's food security and agricultural market transformation were exacerbated.

As part of AGRA's COVID-19 response, the FCDO support prioritized funding to mitigate the secondary effects of COVID-19 in sub-Saharan Africa. The support aims to ensure the relatively unfettered flow of key foods from surplus to deficit areas of production within the region, reduce price inflation tendencies, and support essential but economically vulnerable actors along priority regional value chains.

Within this context, a rapid analysis was commissioned across sub-Saharan Africa to understand the impact of the COVID-19 containment measures on vulnerable actors within the food and agricultural value chains and implications on regional food trade.

Since the outbreak of COVID-19, evidence including from AGRA's rapid analysis shows a growing need for data-driven policy decisions from governments. The absence of data-driven policy decisions is creating policies incongruent with keeping food and agricultural supply chains open and flowing within and across borders in sub-Saharan Africa. Thus, the flow of key staple foods from strategic areas of production to areas of consumption and where the need is the greatest is restricted.

Sustaining regional food trade to achieve economic growth, poverty reduction, and food security on a large scale requires political leadership to implement tough choices. This synthesis report and the supporting rapid analyses by country help identify the specific regional and local drivers of food insecurity, food trade restrictions, and impact on livelihoods including on women and informal traders. This, in turn, will allow policymakers to better inform future policy decisions and spur on the virtuous cycle of both feeding and funding the African economy through improved regional food and agricultural trade.

¹ The programme started in in 2019 under the Department for International Development which merged with Foreign and Commonwealth Office to become FCDO on 2 September 2020.

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The report is based on country studies commissioned by AGRA's Regional Food Trade and Resilience (RFTR) Unit in nineteen countries from East Africa (Ethiopia, Kenya, Rwanda, Tanzania and Uganda); Southern Africa (Malawi, Mozambique, South Africa, Zambia and Zimbabwe) and West Africa (Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali, Niger, Nigeria, Senegal and Togo). The AGRA RFTR team is comprised of Charles Nhemachena, Protase Echessah, Daniel Njiwa, Kurauone Murwisi, Sunil Dahiya, and Alice Gachuki under the supervision of Apollos Nwafor, Vice President, Policy and State Capability.

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List of Abbreviations

AFAP	African Fertilizer and Agribusiness Partnership
AfCFTA	African Continental Free Trade Agreement
AfDB	African Development Bank
AGRA	Alliance for a Green Revolution in Africa
AUC	African Union Commission
CCIT	Chamber of Commerce and Industry of Togo
COMESA	Common Market for Eastern and Southern Africa
COVID-19	Coronavirus Disease 2019
ESL	Equator Seeds Ltd (Uganda)
FBS	Food Balance Sheet
FCDO	Foreign, Commonwealth & Development Office
GDP	Gross Domestic Product
GMAZ	Grain Millers Association of Zimbabwe
FAO	Food and Agriculture Organization of the United Nations
ICBT	Informal Cross-Border Trade
IPC	Integrated Food Security Phase Classification
MSMEs	Micro, Small and Medium Enterprises
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries (Uganda)
PFJ	Planting for Food and Jobs (Ghana)
PHLs	Post-Harvest Losses
RFTR	Regional Food Trade and Resilience Programme
SMEs	Small and Medium-Sized Enterprises
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
WFP	United Nations World Food Programme

Executive Summary

Introduction and Background

The rapid analysis assessed the impacts of the COVID-19 pandemic and government containment measures at the different stages of the value chains for the selected food crops/products. The value chain stages analysed are supply and access to agricultural inputs (seed, fertilizer, chemicals); production and harvesting of identified food crops and others; aggregation, storage and trade (domestic and regional trade); processing; wholesale, retail and distribution (end-markets); and consumption. The study helps to understand the scope of the country challenges on selected food value chains and measures that can be implemented to mitigate against the disruptions triggered by the pandemic and to build the resilience of food systems and enhance intra-Africa regional food trade in Africa. The main objective of this synthesis report is to discuss common themes emerging from the rapid country analysis and what they mean from a macro-perspective.

Approach and Methods

Three key food crop/products that are/ are likely to be directly and indirectly impacted by the COVID-19 pandemic were selected in each of the study countries. The criteria for selection of the key food crops/products included the following: whether the food crop/products were a staple crop, top export or import crop, the proportion of the employment in the value chains and proportion of smallholder farmers engaged in the value chain. The information for the assessment was from both primary and secondary sources. The rapid assessment does not claim to produce a quantitative impact assessment of COVID-19 and government measures to contain it, but to understand the implications of the spread of the disease and instituted measures on food systems, food trade, and food and nutrition security. Proper quantitative studies should be designed to assess such impacts on the value chains, the agriculture sectors and different populations such as women and manual labourers. Due to time limitations, the data used was mainly from secondary sources triangulated with key informant interviews and the use of different sources. Also, due to the COVID-19 movement restrictions, physical meetings and interviews were not possible in most cases.

Emerging Themes

Sustaining regional food trade to achieve economic growth, poverty reduction, and food security on a large scale requires political leadership to implement tough choices. Below we summarize the emerging themes and recommendations identified as important for developing food value chains and countries' resilience to impacts arising from the COVID-19 pandemic. More information is included in section 5 of this report.

Food Balance Sheets and Strategic Grain Reserves are an important proxy to measure food security: They are operational in 76% and 59% respectively of the study countries: The Food Balance Sheets and Strategic Grain Reserves are important mechanisms for countries to manage food and nutrition security. Eight countries (Ghana, Kenya, Malawi, Mali, Nigeria, Rwanda, Tanzania and Zambia) turned to their Strategic Grain Reserves to address food and nutrition security impacts of the COVID-19 pandemic.

The COVID-19 pandemic amplified existing challenges of shortages and inaccessibility of key agricultural inputs: especially for smallholder farmers. The disruptions in transport and logistical services severely affected the timely distribution of inputs such as seeds, fertilizers and agrochemicals in East and West Africa.

Seed multiplication, certification activities negatively affected by lockdown, social distancing and movement restriction measures: Countries such as Burkina Faso, Nigeria and Uganda reported that the COVID-19 pandemic and related measures to contain it negatively affected seed multiplication and certification activities.

Labour-intensive crop production activities such as planting, weeding and harvesting were negatively impacted by labour shortages and rising costs triggered by COVID-19 measures: Although agriculture activities were considered essential services and allowed to continue operations, disruptions in the supply of key inputs (seeds, fertilizer and agrochemicals discussed above) and labour due to various containment measures such as movement restrictions and social distancing affected production and harvesting activities.

Increased risk of high post-harvest losses and reduced incomes to farmers due to disruptions in harvesting operations: In countries where the COVID-19 pandemic coincided with harvesting activities - mostly in Southern Africa and some parts of East Africa- social distancing measures and movement restrictions disrupted harvesting activities. The disruptions in harvesting, premature harvesting and selling of produce negatively impacted on farm incomes.

Food crop aggregation and trade activities severely affected by COVID-19 triggered disruptions in transport and logistics services: Food crop aggregation and trade activities were severely hampered by the disruptions in transport and logistics triggered by the pandemic and containment measures. The prolonged delays at ports of entry - mainly land borders - severely affected the timely delivery of food (as well as quality for perishable products) and transportation costs across countries.

Challenges of storage infrastructure exposed as smallholder farmers and businesses struggled in the face of inadequate and inappropriate facilities to store food crops and products: The closure of strategic food consumption sectors such as the hospitality industry and education institutions severely impacted food demand, negatively affecting operations and revenues of some aggregators and food traders who had existing contracts with the institutions and businesses that were closed. The lack of appropriate and adequate storage infrastructure also increased post-harvest losses.

Lockdown measures disrupted operational capacity of processing companies severely impacting on business revenues: Despite being considered as essential services, food processing activities were severely affected by disruption in the flow in inputs, closure of key food consumption sectors such as hospitality and education sectors as well as disruption in labour movement and supply.

Business activity and revenues of food wholesalers, retailers and distributors negatively impacted by the COVID-19 measures: The COVID-19 pandemic negatively affected the wholesale, retail and distribution to end-markets through the knock-on effects to logistics, labour, pricing, and supply and timeliness of supplies. Businesses experienced a reduction in turnover due to a sharp reduction in volumes traded (after the lockdown) heightened by low demand for the products or fewer distribution channels due to logistical difficulties, closure of some potential markets like schools, hotels, and sudden cancellation of existing orders. While wholesalers experienced significant reduction of business, some retailers had to completely shut down following the closures of markets.

Increased food insecurity caused by significant declines in purchasing power and food demand among low-income households due to loss of income and livelihood sources coupled with closures of informal markets: Household food and nutrition insecurity levels increased mainly in urban and peri-urban areas. In all the study countries, a significant number of consumers acquire food items from the open, informal markets. The lockdown measures disrupted the operations of the open, informal markets and negatively impacted on access to food.

Severe loss of income and livelihood sources for women and youth as informal business activities closed and/or only partially opened due to COVID-19 lockdown measures: Women and youth are usually involved in informal business activities, including food trade, both domestic and cross-border all of which were severely affected by the COVID-19 containment measures. Many

women, youth and low-income households severely suffered from the loss of incomes and livelihoods. Most of these population groups were further pushed into higher levels of vulnerability due to the pandemic and other shocks.

Heightened levels of food and nutrition insecurity among vulnerable populations such as women, youth and manual labourers: Knock on economic effects due to lockdowns and other measures introduced by governments to slow the spread of COVID-19 resulted in severe losses of income and livelihoods sources for vulnerable populations such as women, youth and manual labourers.

Permanent business closures and increased risks of failure for small and medium enterprises: triggered by disruptions in business activity and rising operational costs to comply with COVID-19 regulations. Some small and medium enterprises across all study countries have either permanently closed or are facing an increased risk of business failure due to reduced business activity and rising operational costs.

Recommendations

Improve capacity, data and application of Food Balance Sheets and Strategic Grain Reserves to better manage food and nutrition security: Most of the disruptions in food trade systems through ad hoc trade restrictions are as a result of the lack of adequate and accurate market information. This presents an opportunity for countries to develop and make use of more accurate and agile market information tools that provide governments with timely information on the amount of food availability in the country. The Regional Food Trade and Resilience Programme with support from the FCDO and PIATA partners have initiated the development of regional Food Balance Sheets in East and Southern Africa as well as in West Africa.

Strengthen the efficiency in the supply, delivery and accessibility of agricultural inputs systems to help smallholder farmers build back better beyond the COVID-19 pandemic impacts: The COVID-19 pandemic worsened the existing challenges in terms of supply and access to key agricultural inputs such as seeds, fertilizers and agrochemicals. Efforts should be strengthened to improve smallholder farmers' access to these inputs to help them adapt to shocks such as COVID-19, climate change and others. For example, countries such as Kenya and Zambia are implementing e-voucher input support programmes to help improve timely access to key agricultural inputs by smallholder farmers.

Increase domestic input production through community-based input production models: Community based integrated seed production and distribution models where small-scale seed companies partner with smallholder farmers to engage in seed multiplication activities and agro-dealers to distribute inputs to farmers in surrounding farming communities can help strengthen the resilience of input systems by reducing the disruptive effects of COVID-19 which resulted in input shortages from both imports and domestic supplies. Community-based seed models increase the availability of seed which in some cases is adapted to local environmental conditions. Also, engaging smallholder farmers as seed multiplication partners increase their income opportunities which can also reduce their vulnerability to shocks to their production systems.

To develop these community-based seed models establishing regulatory frameworks for seed production and a mechanism for ensuring mutually beneficial and transparent contract farming frameworks is essential: Therefore, there is a huge role for governments to plan in creating this enabling environment for these models. Seed production also requires intensive inspection and certification activities which are usually conducted by government institutions. As such, there is also a need to strengthen the capacity of governments to conduct these activities as the models are scaled up to ensure seed production adheres to the required safety and quality standards. Increasing domestic seed production will also require research institutions to develop new and improved seed varieties for multiplication that are adaptable to local conditions. Private sector partners like financial institutions can also support these initiatives by providing finance to smallholder farmers to purchase

foundation seed for multiplication on the back of contracts with seed companies. Development partners can support these initiatives by supporting governments to design and implement these seed business models, including developing seed multiplication contract farming frameworks, among other coordination activities as required. Development partners can also provide technical assistance to seed companies to strengthen their supply chains and offer extension and advisory services to farmers to produce high-quality seeds.

Increase investments to enhance access to productivity and efficiency enhancing technologies and mechanisation to improve production and harvesting activities for smallholder farmers beyond the COVID-19 pandemic: The vulnerability of production and harvesting activities based on current manual-based operations such as planting, weeding and harvesting further exacerbated by the COVID-19 pandemic, stresses the need to strengthen on-going efforts to ensure improved access to productivity and efficiency-enhancing production and harvesting technologies by smallholder farmers. Reducing the labour dependency of smallholder farming systems by increasing small-scale mechanisation can help strengthen the resilience of smallholder farmer production systems. Small-scale mechanisation initiatives require private sector partners such as financial institutions to develop inclusive financial models and products that are tailored to smallholder farming systems. There is also a need for governments to institute favourable trade policies which increase the import of these mechanisation equipment in countries where there is no local capacity to manufacture these. Increasing capacity of local training and development institutions, including universities, to develop tailored small-scale mechanisation solutions is also vital. Development partners can support these initiatives by providing technical assistance to various Technical and Vocational Education and Training (TVET) institutions to develop these tailored mechanisation solutions and to also support financial institutions to develop inclusive and tailored financial products for mechanisation.

Strengthen efforts to increase smallholder farmers' access to structured output markets to improve farm incomes: The panic harvesting and premature selling of produce by some smallholder farmers in parts of Malawi and Zambia demonstrate the need to strengthen efforts to ensure that farmers have access to guaranteed markets. Increasing smallholder farmer participation in structured markets, where they exist, requires countries to have an enabling policy environment which promotes the establishment of mutually beneficial off-take agreements that do not disadvantage the farmer nor the off-taker. Therefore, governments have a role to play in establishing these enabling policy environments which stimulate private sector investments in developing structured trade markets and promote smallholder farmer participation in structured trade markets. The Regional Food Trade and Resilience Programme with support from the FCDO is investing in market systems development to facilitate access to structured regional food markets in East, Southern and West Africa.

Strengthen implementation of efficient, streamlined and harmonised measures for regional food trade facilitation: At the peak of the COVID-19 pandemic, countries implemented individual measures that in some cases contradicted regional efforts to facilitate regional trade. These worsened disruptions in the movement of food and other products across borders. To address this challenge, efforts such as the Regional Electronic Cargo and Driver Tracking System (RECDTS) launched in East Africa in September are important to improve efficiency and facilitate regional food trade. The RECDTS provides a surveillance system to monitor long-distance truckers crew health and enables contact tracing. These harmonised digital solutions require countries to invest in mutually recognised testing processes and digital infrastructure. There is also a need for strong political will by regional governments to recognise these harmonised processes.

Strengthen investments to enhance access to post-harvest handling capacity, facilities and technologies for smallholder farmers: The increased risks of post-harvest losses indicated above demonstrate the urgent need to improve post-harvest handling and storage for smallholder farmers. Investments can include community storage and handling facilities and farm-level storage and handling facilities to help smallholder farmers appropriately store their produce for a longer period of time and sell their commodities when markets have opened up. The Regional Food Trade and Resilience Programme' market systems development investments with support from the FCDO aims

to support farmers to access structured markets where through off-takers and processors they can access post-harvest training and facilities to ensure quality produce and improve farm incomes.

Leveraging digital platforms and infrastructure to offer extension and advisory services: Disruptions in the provision of extension and advisory services as a result of COVID-19 measures demonstrated the need to leverage digital solutions to offer these services. In some countries like Zambia, private sector companies during the pandemic were using these digital platforms to reach their out-grower farmers with advisory services and to also facilitate payments through digital platforms. These digital solutions require private sector companies to invest in these digital platforms and partner with government institutions to scale up the initiatives. Development partners can offer technical assistance to design these solutions and increase awareness among farmers to stimulate adoption of these solutions.

Increase investments in inclusive social safety nets to reduce the vulnerability of vulnerable populations such as women, youth and manual labourers: The disproportionate losses of incomes and livelihoods of vulnerable populations such as women, youth and annual labourers demonstrate the need to improve investments in social safety nets in all study countries. Although governments across the study countries announced measures ranging from food donations to affected populations, these were largely inadequate.

Governments should partner with private sector entities to invest in improving national and regional food trade, food security and market data collection systems for informed policy decision making: The experiences of the COVID-19 pandemic have demonstrated the lack of regular and close to real-time data and information to informed, urgent, and long-term decision making. The Regional Food Trade and Resilience Programme with support from the FCDO is investing in developing market information systems in selected countries in East, Southern and West Africa to inform food trade policy decision making.

Increase investments in digitalisation of activities along food value chains: Africa has one of the fastest-growing mobile phone penetrations. This can be exploited to embrace digitization right along the value chain. With restrictions on movement, digitally interacting with farmers and value-chain partners, is crucial. Smallholder farmers can benefit through e-extension services, digital savings products, or access to government subsidies that might be offered through digital wallets. They can also be trained in digital marketing. There is a good number of such initiatives already, and these should be expanded in collaboration with the private sector.

1. Background and Context

For countries where the agriculture sector is the largest employer and contributes significantly to growth, food trade and access is critical to their Gross Domestic Product (GDP) and stability. While global stocks-to-use ratios suggest ample supplies of food, the instigation of protectionist measures (such as export bans) by a growing number of governments across the world has already begun to restrict the flow of key staples from strategic areas of production to areas of consumption. Unnecessary hoarding of food by consumers, and key staples by some governments, has already stimulated unnecessary price inflation. Logistical challenges are already leading to price inflation and reductions in volumes traded (especially high-value horticultural products). Under social distancing provisions, labour availability for agricultural supply chains, including the farmer's own labour force and reduced productivity have become critical issues with production-based disruptions. Farmers faced limited availability of essential inputs such as seeds, fertiliser, pesticides and a shortage of labour, especially for land preparation, weeding, harvesting and food processing.

The COVID-19 pandemic has induced logistical challenges and disruptions on critical transport routes, unsettled global markets for basic staples and exacerbated food supply shortages (WFP, 2020; Zeufack, et al., 2020). The pandemic containment and mitigation measures have also significantly impacted on the trade flow for inputs, intermediate inputs and finished products across the world (Zeufack, et al., 2020). The shortage of intermediate inputs due to supply disruptions in global value chains affected various processing and manufacturing sectors. UNCTAD (2020) estimated that due to the COVID-19 pandemic shock, global trade values declined by three percent in the first quarter of 2020 and a 27 percent quarter-on-quarter decline was expected in the second quarter. In separate studies, evidence indicates that trade volumes across borders declined significantly with reports by the Common Market for Eastern and Southern Africa (COMESA) showing that import volumes through national borders in East and Southern Africa decreased over the March to April 2020 period from the 2020 volumes. Import volumes in Malawi and Rwanda decreased by 32 percent over this period (COMESA, 2020a; 2020b) while in Zambia and Uganda they declined by 25 percent and 30 percent respectively (COMESA, 2020c; 2020d).

The primary and secondary impacts of the COVID-19 pandemic caused significant financial losses for actors along affected supply chains, leading to high levels of business insolvency. Both physical and economic access to nutritional foods has increasingly become difficult for the poor, disproportionately impacting on women and children in sub-Saharan Africa. Ultimately, with less foreign exchange and weaker exchange rates against the US Dollar, governments find securing staple food imports increasingly difficult and expensive – potentially provoking civil unrest and violence.

One of the strategic aims of the Africa Food Trade and Resilience Programme is to increase farmers' access to markets and to link them with consumers in rapidly growing urban areas and beyond national boundaries, allowing food trade between surplus and deficit areas, thereby mitigating food shortages, increasing resilience, food security and nutrition. The two key objectives of the programme to: (1) work with companies that source, process, and trade food in the region, to maximise investment, coordination and benefits to poorer farmers; and (2) contribute to improved transparency and predictability of government policies to unlock regional food trade, have both been affected by the COVID-19 outbreak. There will be challenges in companies sourcing from smallholder farmers. Equally, government market interventions – some of which will be ad hoc and will create disincentives in the market - will be inevitable.

1.1 Objectives of the Analysis

Several intervention areas have been identified based on ongoing activities as well as through intelligence reports from key stakeholders in the agri-business space, including FAO, World Bank,

AfDB and internal Foreign, Commonwealth & Development Office (FCDO) assessments. The following areas stand out:

- Measures that support governments to facilitate evidence-based policy interventions and appropriate implementation through a continued update of political economy analyses; development of national and regional food balance sheets; food monitoring data/systems; country intelligence on market logistics and government decisions; and support to selected governments affected with border closure with the development and opening of "green channels" for selected imports/export of food products;
- Measures that will support smallholder farmers and ensure the stability of food supply chains, by ensuring minimal disruption in input markets for countries going into planting season and output markets for countries harvesting – limiting post-harvest losses (PHLs) and loss of income.

To implement these measures, there is a need for a rapid country analysis to understand the scope of the country challenges as well as measures already being implemented to mitigate against disruptions as stated above. The main objective in this synthesis report is to discuss common themes emerging from the rapid country analysis and what they mean from a macro-perspective.

2. Approach and Methods of the Study

2.1 Scope and Methods of the Analysis

This report is based on a synthesis of findings of country rapid analysis reports from nineteen countries from East Africa (Ethiopia, Kenya, Rwanda, Tanzania and Uganda); Southern Africa (Malawi, Mozambique, South Africa, Zambia and Zimbabwe) and West Africa (Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali, Niger, Nigeria, Senegal and Togo). The country reports, which were based on secondary and primary data collection, were designed to provide a rapid assessment of the impacts of the COVID-19 pandemic and government interventions in selected value chains. A data collection guideline was developed to help country teams gather the necessary data for the studies.

The studies used secondary data and information from the national institutions and international organisations that had conducted COVID-19 related studies in the agriculture sector. Primary data collection was mainly based on telephone or online key informant interviews and selected surveys wherever the situation of travel restrictions allowed. Purposefully selected key informants along different stages of the selected value chains were identified for interviews. The respective government ministries of agriculture and sister institutions were contacted for additional data and information related to selected value chains.

The value chain stages analysed were: supply and access to agricultural inputs (seed, fertilizer, chemicals); production and harvesting of identified food crops and others; aggregation, storage and trade (domestic and regional trade); processing; wholesale, retail and distribution (end-markets); and consumption.

The scope of rapid assessment was to understand the implications of the spread of the disease and instituted measures on food systems, food trade, and food and nutrition security. Proper quantitative studies should be designed to assess such impacts on the value chains, the agriculture sectors and different populations such as women and manual labourers. Due to time limitations, the data used was mainly from secondary sources triangulated with key informant interviews and the use of different sources. Also, due to the COVID-19 movement restrictions, physical meetings and interviews were not possible in most cases.

2.2 Food Crops/Products Value Chain Analysis

Each country identified three key food crops/products that are/ are likely to be directly and indirectly impacted by the COVID-19 pandemic. The criteria for selection included the following: whether the food crop/products were a staple crop, top export or import crop, the proportion of the employment in the value chains and proportion of smallholder farmers engaged in the value chain. Figure 1 summarises the selected key value chains in each of the study countries.

Focus Value Chains by Country

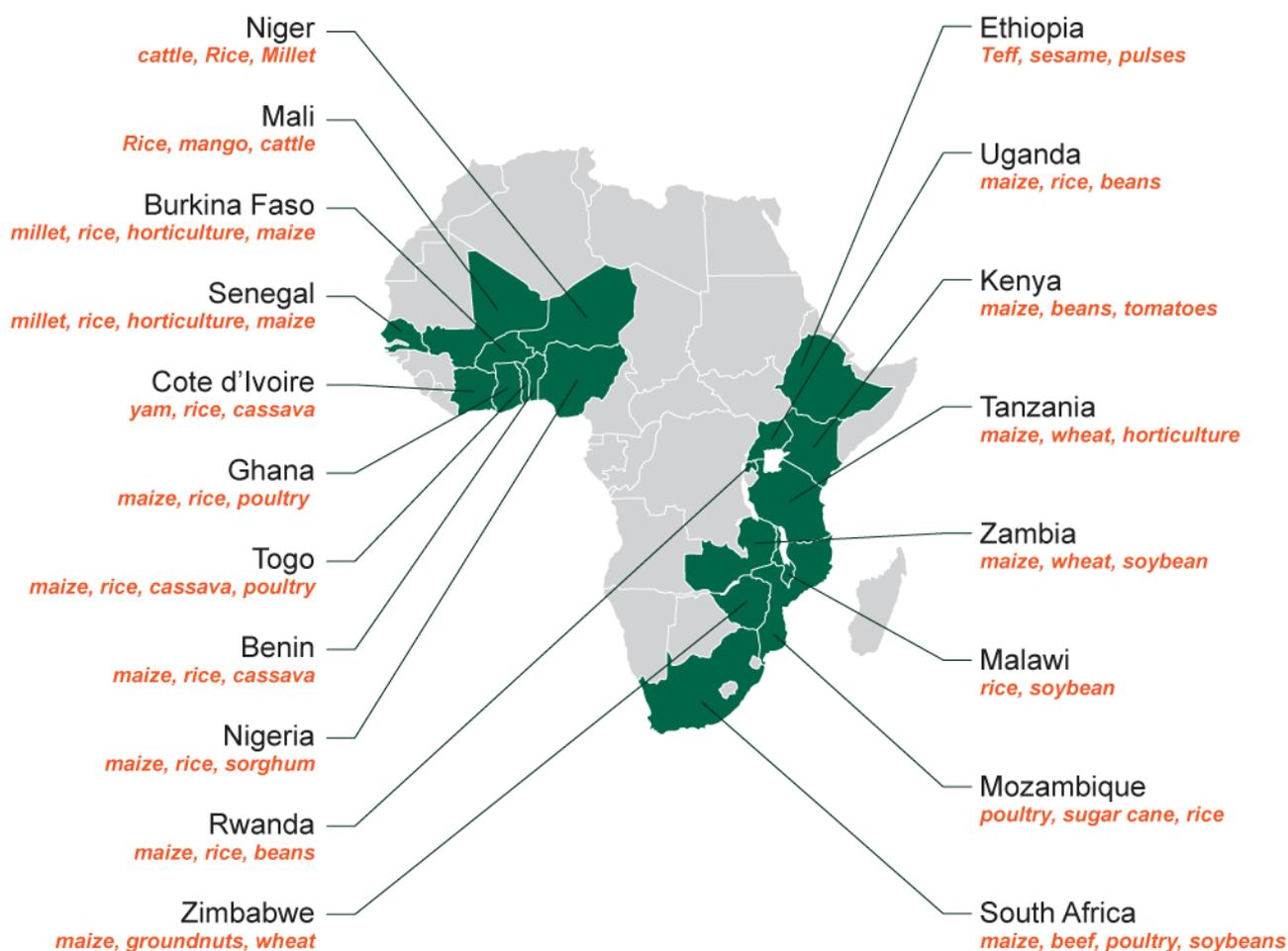


Figure 1: Summary of the selected key value chains in each of the study countries

3. Overview of the COVID-19 Pandemic and Government Interventions in Africa

COVID-19, first detected in Wuhan City, China in late 2019 was declared a global pandemic by the World Health Organisation on 11 March 2020. Despite the late spread of the COVID-19 pandemic in Africa, the number of confirmed cases has rapidly increased in several countries in recent weeks. As of 22 September 2020, 983 786 cases, 824 970 recoveries and 21 366 deaths have been confirmed in selected countries of interest to the Alliance for a Green Revolution in Africa (AGRA)'s Regional Food Trade and Resilience Programme (RFTR) (see Figure 2 below). The increasing number of confirmed cases is mainly due to local transmission as national borders were closed in early March for human travel. Many countries allowed cargo travel to continue under strict regulations. However, limited testing capacity in many African countries indicates that the actual number of cases is likely more than the reported figures.

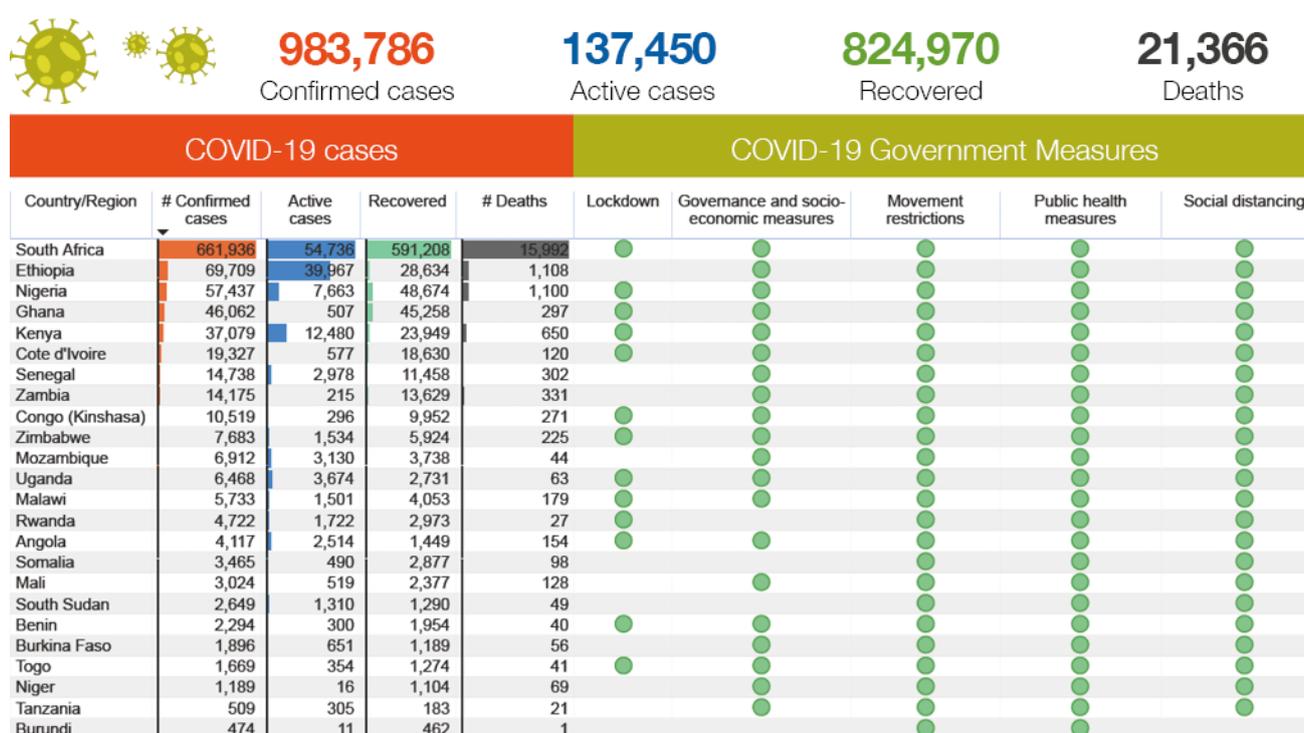


Figure 2: Summary of coronavirus (COVID-19) cases and government measures in selected African countries

Source: Own construction based on data from Johns Hopkins University

3.1 Key Instruments and Mechanisms for Managing Food Security

3.3.1 Food Balance Sheets

The analysis of the existence and status of Food Balance Sheets sought to identify countries that are food self-sufficient and could meet their national food requirements from domestic production and countries that are dependent on food imports for their national food requirements. Countries that are self-sufficient were considered to have a lower COVID-19 induced food security risk, whereas those that are import-dependent were considered to be at a higher food security risk. This is because the COVID-19 pandemic disrupted and slowed trade activities across the globe, putting a lot of food import-dependent countries at a food security risk. Most of the study countries (78 per cent) compile Food Balance sheet (Figure 3). The majority of these FBS focus mostly on staple commodities namely cereals and do not include other nutritious commodities such as legumes or other oil seed crops. The FBS analysis also sought to identify which countries have the potential to better manage their national food security crisis during COVID-19. Countries that generate Food Balance Sheets were also considered to be better prepared to manage food security during COVID-19. Food Balance Sheets are suitable tools for estimating the overall shortages and surpluses in a country as well as developing projections of future food supply and demand needs which help in setting targets for agricultural production and trade. They are key decision-making tools which can be used by both the public and private sector to make policy and investment decisions.

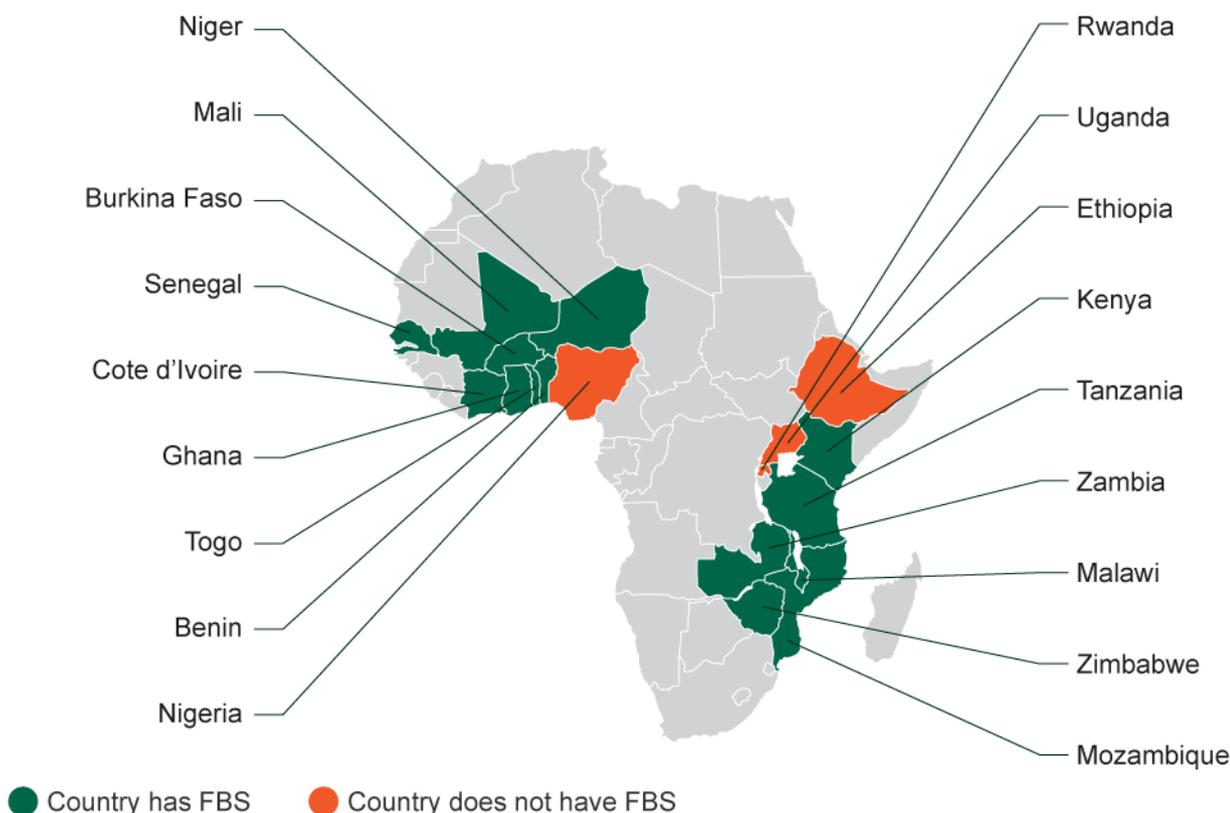


Figure 3: Summary of the existence of a Food Balance Sheet (FBS)

Source: Author's compilation based on information from the country reports

3.3.2 Strategic Food Reserves

The analysis of the existence and status of Strategic Grain Reserves looked at the various countries' strategic grain reserves. The COVID-19 pandemic disrupted trade activities, forcing some countries

to turn to their national strategic grain reserves to meet their food supply needs. Most of the study focus countries (83 per cent have strategic food reserves, as depicted in **Error! Reference source not found.** below.

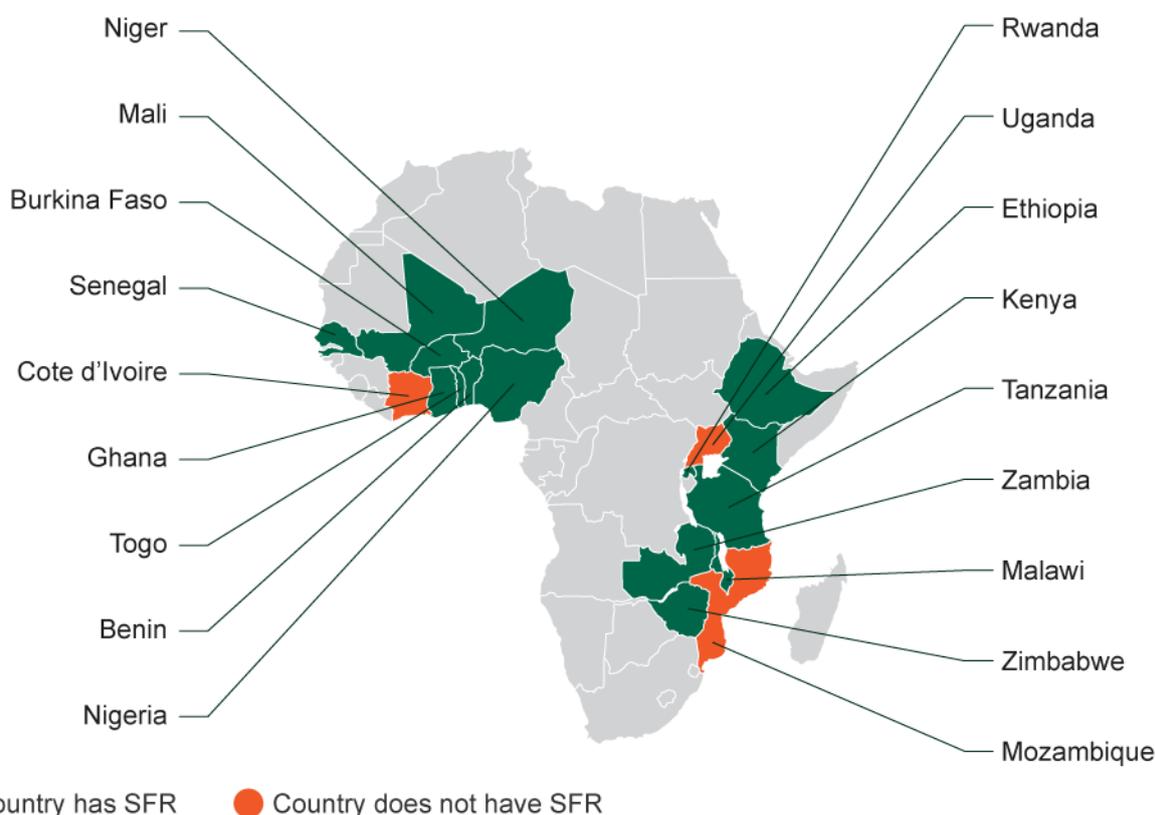


Figure 4: Summary of the existence of a Strategic Grain Reserve (SFR)

Source: Author's compilation based on information from the country reports

Analysis of the major commodities purchased and stocked by these Strategic Food Reserves revealed that most countries except Zambia, Rwanda and Uganda keep stock for major cereals namely maize, rice, sorghum and millet and do not keep reserves for legumes and other oilseed crops (Table 1).

Table 1: Strategic Grain Reserve Storage Capacities for Selected Countries

Country	Physical reserve products
Burkina Faso (National Society for the Management of Food Security Stocks)	Millet, maize and sorghum
Ethiopia (The Strategic Food Reserve Agency -SFRA)	Wheat, maize and sorghum
Ghana (National Food Buffer Stock Company)	Maize
Malawi (National Strategic Food Reserve Agency- NFRA)	Maize
Mali (National Food Security Stock)	Millet and sorghum
Nigeria (National Food Reserve Agency-NFRA)	Maize and sorghum
Rwanda (MINAGRI/National Strategic Grain Reserve- RWANDA)	Maize and beans

Country	Physical reserve products
Senegal (<i>Commissariat à la Sécurité Alimentaire-CSA</i>)	Rice
Togo (The National Food Security Agency of Togo-ANSAT)	Maize, rice, sorghum and millet
Uganda (Grain Council of Uganda)	Maize, beans
Zambia (Food Reserve Agency)	Maize, Rice, cassava and Soybean
Zimbabwe (Grain Marketing Board)	Maize, Sorghum, Pearl Millet and Finger Millet

Source: Author's compilation based on information from country reports and secondary literature

4. Impact of COVID-19 and Government Measures on Food Value Chains and Vulnerable Populations

4.1 Impact of COVID-19, and Government Measures on Food Value Chains

This section summarises the various secondary impacts of COVID-19 on food value chains across the study focus countries. The disruptions experienced across the different value chains and the resultant impacts are summarised in Table 2 below. These issues are described and discussed in detail in the following sections.

Table 2: Summary of the secondary impacts of COVID-19 on food value chains across study countries

Variable	Benin	Burkina Faso	Cote d'Ivoire	Ethiopia	Ghana	Kenya	Malawi	Mali	Mozambique	Niger	Nigeria	Rwanda	Senegal	South Africa	Tanzania	Togo	Uganda	Zambia	Zimbabwe
Input supply and access																			
Disruption in input imports																			
Disruptions in domestic input deliveries																			
Disruption of seed multiplication activities																			
Reduced demand for input																			
Production and Harvesting																			
Shortage of labour for agricultural production																			
Shortage of labour for harvesting																			
Disruption of agricultural extension activities																			
Panic harvesting and marketing																			
Aggregation, Storage and Marketing																			
Closure of strategic markets in hospitality sector																			
Closure of informal trade markets																			
Lack of adequate storage																			
Export bans																			
Border closures and delays at ports of entry																			
Lack of structured markets																			
Processing																			
Closure of strategic markets																			
Difficulty accessing raw materials																			
Labour shortages																			
Difficulty importing processing technology (equipment, spares)																			
Wholesale, Retail and Distribution																			
Disruptions in accessing food supplies																			
Reduced market demand																			
Consumption																			
Income loss																			
Closure of open food markets																			
Food shortages																			
Panic buying																			

Source: Authors' construction based on information from country reports

These issues are described and discussed in detail in the following sections.

4.1.1 Supply and Access to Agricultural Inputs (Seed, Fertiliser, Chemicals)

Table 3: Summary of key impacts of COVID-19 and government measures on supply and access to agricultural inputs

Value chain stage	Key impacts of COVID-19 and Government Measures
 <p>Supply and Access to Agricultural Inputs</p>	<ul style="list-style-type: none"> • Increased unavailability, shortages and inaccessibility of key agricultural inputs such as seeds, fertilizers and agrochemicals in areas where the COVID-19 pandemic coincided with the start and or in the middle of the cropping season. • Transport and input price spikes due to disruptions in transport and logistics. • Seed multiplication, certification activities negatively affected by lockdown, social distancing and movement restriction measures. • Functioning of input markets severely affected by the COVID-19 pandemic measures.

Border restrictions and closures disrupted the supply of inputs in most import-dependent countries: With most countries in Africa depending on imports for input supply, particularly fertiliser, disruptions in trade activities at various border posts and along trade routes affected the supply of inputs. Although some countries did not impose hard lockdown measures, for example, in Tanzania, disruptions in input source countries affected their input supplies. In Tanzania, most agricultural inputs are imported (80 percent of the fertilisers, 60 percent of the seeds, and nearly all agrochemicals). Therefore, disruptions in regional and international transport and logistics services had negative impacts on the shipments of these inputs. In Mozambique, chicken producers reported that the imports of veterinary products such as vaccines had been delayed by two months and chicken feed and other products by two weeks during the pandemic. These shortages in input supplies resulted in an increase in input prices for both food and livestock commodities. In Mozambique, chicken farmers reported an increase in day-old chicks of 33 percent, from 32 MZN (0.46 USD) in March to 42 MZN (0.61 USD) in June 2020. These input price increases are expected to increase production costs or reduce the use of improved inputs which will reduce food availability leads to increased food prices which will have negative implications for food security in the affected countries.

Disruptions in transport and logistics delayed input distribution and deliveries: Movement restriction and lockdown measures instituted in some countries disrupted the transport and logistics services which affected the timely distribution and delivery of inputs in some of the study focus countries. For example, in Ghana, smallholder farmer-beneficiaries of the Planting for Food and Jobs (PFJ) programme reported late delivery of inputs in the southern parts of the country. These delays in input deliveries and input shortages have a negative impact on the level of production and crop productivity, which will ultimately affect the countries' food security situation. The immediate impacts of disruptions in input distribution channels have been the limited availability of farm inputs (seeds, fertilizers, and herbicides) and increases in prices in Kenya². Disruptions in transport and logistics services coupled with other lockdown measures also affected access to key inputs as input distributors could not access key input centres. For example, in Senegal, the isolation of the city of Niamey, which houses the storage and supply centres for certified seeds affected input distribution to key areas of need. These delays in timely distribution and delivery of inputs also led to temporary increases in input prices and input shortages which are likely to lead to a decrease in the area under production and reduce crop productivity. This will negatively impact on the affected countries' food security.

² <https://www.businessdailyafrica.com/economy/Shortage-of-inputs-hits-farmers-in-North-Rift/3946234-5505456-3td9do/index.html>. Accessed 30 March 2020

Supply disruptions due to COVID-19 affect access to farm inputs and push prices in Kenya

The Business Daily reported on 27 March 2020 that farmers in the North Rift, the breadbasket of the country, were experiencing challenges to access farm inputs due to supply disruptions caused by the COVID-19 pandemic. In addition, prices such as that of fertilizer increased by between Sh200 and Sh300 per 50kg bag with farmers paying between Sh2 250 and Sh2 600 for a bag of planting fertilizer up from Sh2 300 in February. Some farmers who had planted were reported to face difficulties acquiring herbicides for pre-emergence spraying of their crop to hinder the growth of weeds. These challenges happened when farmers were preparing for the March-May "long rains" season. In addition, the disruptions compounded the challenge of the desert locust that have spread across the country and region affecting agricultural crops and natural vegetation. Although the government through the Ministry of Agriculture promised to minimise the impacts of COVID-19 on the logistics and access of farm inputs to farmers for the upcoming cropping season, these challenges could have ripple impacts on the performance of the sector, food prices and food security. The lack of key farming inputs has curtailed farmers' preparations, and further supply disruptions and increasing prices will affect the access to quality inputs for many poor smallholder farmers. This is affecting the prospects of the season's harvests despite predictions of above-normal rains for the upcoming season.

Seed multiplication and certification activities were negatively affected by lockdown, social distancing and movement restriction measures: Input supply activities were also affected by the disruption in seed multiplication activities due to social distancing and movement restriction measures. This was particularly noted in Uganda where the inspection of seed multiplication by Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), as well as capacity building and inspection of seed multipliers by seed companies, were affected by these measures. In Burkina Faso, compliance with social distancing measures reduced the number of certification teams at any one time, and partial lockdowns made it challenging to move packaging materials to the certification sites. This increased cost of transporting materials required for seed certification, which led to an increase in input prices. In Nigeria, production and supply of early generation seeds were also affected as was the quality assurance activities like seed field inspections and laboratory testing. Seed inspection activity disruptions were also experienced in Senegal. Disruptions in seed multiplication and certification activities are likely to result in a shortage of seed, and the production of poor seed quality for the next season in affected countries, which will reduce crop productivity.

COVID-19 disruptions to seed multiplication, certification activities in Uganda

The inspection of seed multiplication by Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), as well as capacity building and inspection of seed multipliers by seed companies, were affected. Due to COVID-19 disruptions, the volume of bean seeds supplied to Bulambuli by Grow More Seeds Company reduced by over 65 percent from 15 MT to 5 MT. Equator Seeds Limited supplied seeds to only 70 percent of the seed multipliers due to the anticipated difficulty in inspection and monitoring. Compliance with COVID-19 measures increased operational costs for businesses, and some businesses that could not afford the additional costs had to close temporarily, reduce their workforce or cut employee salaries (EPRC, 2020). For example, ESL laid off 60 percent of casual workers (from 2,500 to 1,000) to reduce the cost of operations (casual workers were housed and fed at the facility).

Decrease in farmer incomes reduced the demand for agricultural inputs: The loss of incomes recorded in most countries due to job losses and loss of various income-generating opportunities reduced the market demand for food commodities which negatively impacted on smallholder farmer incomes. This decrease in smallholder farmer incomes, in turn, reduced their demand for inputs which also impacted on the businesses of input manufactures and suppliers. In Mozambique, the decrease in demand for chicken was reported to have contributed to a decrease in the demand for chicken feed, day-old chicks and fertile eggs for hatchery businesses. For agro-dealers, input shortages due to the disruptions in input distributions, both domestically and regionally led to a decrease in their businesses as they did not have enough inventory for sale. In Togo agro-dealers reported a decrease in sales of between 20 percent and 30 percent in March-April 2020 compared to the previous year.

Disruptions in the functioning of input markets in Uganda

Restriction in movement, suspension of public transport and curfew (6:30 am to 7 pm) reduced input sales (seed, fertilisers & agrochemicals). Most dealers are located in towns and most of their customers live far from town, relying on public transport to pick inputs (Palladium, 2020). Restocking of some key agricultural inputs from strategic areas of surplus to demand areas was severely affected by the pandemic measures. For example, the closure of some businesses, and restrictions at ports of entry affected delivery and the movement of imported agricultural inputs to areas of need (IFDC, 2020). The suspension of weekly and monthly markets meant that farmers experienced reduced income opportunities that had a negative impact on their purchasing power for essential inputs such as seeds and agro-chemicals. Transport restrictions due to COVID-19 interrupted the shipping and distribution of essential agricultural inputs. The input sale volumes suffered from the pandemic, and home deliveries increased the prices (IFDC, 2020).

Input supply and access disruptions and impacts due to various COVID-19 mitigation measures varied across countries, value chains and farmer segments: Countries, where the COVID-19 pandemic coincided with the planting season mostly across East and West Africa, were impacted more by input shortages and input prices than countries where planting and harvesting activities were completed when the pandemic started, namely; Southern Africa. The impact was also higher among countries that imposed hard lockdowns, which restricted movement restrictions, and in countries where the input import dependency is high. Across the different value chains, the effects of input supply and access disruptions were lower among value chains that are not dependent on the use of other inputs like fertilisers and pesticides such as yam and cassava. Across the different farmer segments, the study found that while the effects of the input supply disruptions were high among smallholder farmers, it is likely that the impact may actually have been lower among subsistence smallholder farmers due to the widespread use of recycled seed and limited use of improved inputs such as fertiliser among smallholder farmers. Smallholder cassava and yam farmers who were interviewed as part of this study reported that they do not use chemical fertilisers and were therefore not impacted by the shortages nor the prices increase of fertilisers. The impact of input supply and access disruptions were also lower among contracted farmers who had access to inputs through their various contract farming schemes. For example, sugar cane and rice farmers in Mozambique who had already accessed inputs through their various contract farming schemes when the pandemic started.

4.1.2 Production and Harvesting of Identified Food Crops and Others

Table 4: Summary of key impacts of COVID-19 and Government Measures Production and Harvesting

Value chain stage	Key impacts of COVID-19 and Government Measures
 <p>Production and Harvesting</p>	<ul style="list-style-type: none"> • Labour-intensive crop production activities such as planting, weeding and harvesting were negatively impacted by labour shortages and rising costs triggered by COVID-19 measures. <ul style="list-style-type: none"> ○ Production and harvesting activities were severely impacted by disruptions in access to key agricultural inputs. ○ Access to extension and advisory services curtailed by COVID-19 movement restrictions and social distancing measures. • Increased risk of high post-harvest losses and low incomes to farmers due to disruptions in harvesting operations.

Disruptions in input and labour markets negatively affected agricultural production activities: Agricultural production activities were allowed to continue as normal in most countries as these were considered as part of essential services. However, disruptions in the supply of key factors of production, namely inputs and labour due to various containment measures such as movement restrictions and social distancing affected production and harvesting activities. In countries where the COVID-19 pandemic coincided with the planting season, particularly in some parts of East and West

Africa, labour supply was disrupted by social distancing measures and movement restrictions which affected production activities. These labour shortages led to an increase in labour costs which will increase production costs and food prices. In some parts of Uganda such as Ntungamo, a key bean producer, daily labour costs doubled from Ugx 4,000 to 8,000 per person. Closing of borders also disrupted access to migrant labour which affected production and harvesting activities, particularly in Niger where the majority of the agricultural labour force comes from migrant labourers. Production activities were also affected by the disruptions in extension and advisory services due to social distancing and lockdown measures which restricted the movement of extension service providers.

Disruptions in production activities triggered by COVID-19 in Togo

The months of May and June mark the beginning of the labour-intensive planting season. Ongoing lockdown and associated restrictions on the movement of people and goods, especially agricultural migrant labour and inputs like fertilizers and seeds, pose a severe threat to the areas that need to be sown at the right time, a prerequisite for good plant growth and crop productivity. These effects will harm the production of all crops, mainly maize, rice, and cassava. In the case of rice cultivation, there has been a reduction in cultivated areas due to the scarcity of labour and financial resources. Farmers were disconnected from markets and could not sell their products; many farmers are struggling to sell their maize. Poultry production is already affected by the disruption in the supply of day-old chicks and other veterinary products. Nevertheless, with the lifting of some restrictive measures, harvesting and marketing operations should be expected to run smoothly.

Access to extension and advisory services curtailed by COVID-19 movement restrictions and social distancing measures: The pandemic has also affected extension services that processors provide to farmers to support crop production and establish supply agreements. Processors in the rice, maize and beans value chains work with farmers providing extension and other support services to ensure sustained food supplies for processing. The COVID-19 outbreak and containment measures such as movement and transport restrictions, ban on public gatherings negatively affected outreach extension engagements with the farmers.

Labour shortages increased risks of harvest and post-harvest losses: In countries where COVID-19 coincided with harvesting activities mostly in Southern Africa and some parts of East Africa, social distancing measures and movement restrictions also disrupted labour supply for harvesting activities. In Rwanda, reduced labour availability and increased cost of labour were negatively impacting on cropping activities for the Season B cropping calendar. These labour supply disruptions also contributed to an increase in labour costs which increased production costs, particularly among smallholder farmers. In addition, labour shortages were also reported to have resulted in field food losses for commodities that have time-sensitive harvesting period such as sesame in Ethiopia. These food losses will result in loss of incomes for farmers ultimately impacting on their livelihoods.

Disruptions in production and harvesting of crops in Ghana

Harvesting of maize in Ghana is highly labour-intensive, and farmers usually hire temporary labourers for harvesting. The movement restrictions severely affected labour availability. The COVID-19 measures came at the time of the main farming season (March-May), delaying the process through to the harvesting of rice. The effect on poor smallholder farmers is likely to be more pronounced and long-lasting because the disruption in the transport systems and reduced labour mobility will leave maize farmers with on-farm losses. Consequently, the farmers are at risk of food loss resulting in lower income. Women are most vulnerable because they lack the necessary resources for transport or storage to ensure that they at least get a reasonable price for their products. The effect would be huge for farmers who hire casual labour and also for those who sell labour for their livelihoods, particularly women. The pandemic disrupted the planting season in the North for maize and soybeans.

COVID-19 measures, lack of contract farming schemes and post-harvesting technology triggered panic and premature crop harvesting: In other countries such as Malawi and Zambia, although hard lockdown measures were not implemented, farmers in anticipation of these lockdown measures being instituted based on reports from other countries, panicked and began harvesting their produce prematurely. The bulk of the harvest was of poor quality as it had not reached maturity and

was sold at low market prices which negatively impacted on the farmers' incomes. These panic marketing and premature harvesting activities were in part reportedly due to the lack of contract farming arrangements among smallholder farmers. Contract farming arrangements help guarantee offtake markets for farmers and help minimise any income losses due to lack of market access. Secondly, the lack of adequate post-harvesting technology and infrastructure among smallholder farmers also incentivised farmers to quickly sell their produce fearing food losses in the event of a lockdown. This also negatively impacted on farmers. Labour shortages due to the various social distancing and movement restriction measures also affected harvesting activities, which increased the risks of post-harvest losses; particularly in Zimbabwe where there were delays in the removal of groundnuts and soybeans crops from the fields.

Reduced consumer demand disrupted production activities: Reduced consumer demand due to income losses resulted in producers scaling down their production activities with some halting production. For example, in Mozambique, according to the President of the Chicken Producers Association in Maputo, out of 780 small and medium producers comprising the association, half went out of business, with the remaining cutting the production quantities significantly to cope with the COVID-19 impact

The impact of the COVID-19 pandemic on production and harvesting activities varied across countries, value chains and farmer segments: The impact of the pandemic was lower in countries that had already completed their production and harvesting activities while those where the pandemic coincided with production and harvesting activities were significantly impacted by the various disruptions. For example, in Ethiopia, the main *meher* crop harvesting activities had been completed, and activities in the pulses, sesame and teff value chains were not affected. In Tanzania, the first COVID-19 cases of COVID-19 were reported in March when maize harvesting for the *vuli*/bimodal crops had just completed in February 2020. Farmers had also already procured inputs for the next agricultural season, and so the effects were lower. In Zambia, harvesting of the main season crops was coming to an end when COVID-19 outbreak started. Therefore, there was little to no impact on the production and harvesting of food crops. The spread of the pandemic in Burkina Faso started after the completion of the 2019/2020 cropping season. Therefore, the outbreak of the pandemic did not affect the early stage of that production season. In West Africa namely in Mali and Nigeria, the first cases of COVID-19 were reported after harvesting activities of the main crops had been completed between January and February 2020, therefore, the impact was also insignificant in these regions. In Mozambique, the interviewed sugar cane producers reported that the COVID-19 outbreak took place when the sugar cane had already established and at advance stage and waiting for harvesting and therefore requiring a minimal amount of labour for filed operation.

The impact of the pandemic also varied across farmer segments with the impact higher among smallholder farmers. Disruptions in labour supply and the resultant increases in labour costs were found to be higher among smallholder farmers whose production systems are generally labour-intensive compared to larger farmers whose operations are more mechanised. The lack of contract farming arrangements and adequate post-harvest storage, which is generally higher among smallholder farmers, was found to increase the vulnerability of smallholder farmers to the impact of the pandemic compared to larger farmers who tend to have off-take agreements and post-harvesting technology.

Smallholder farmers were found to be more vulnerable to the disruptions and impacts of the pandemic because their agricultural production activities are labour intensive and do not have adequate post-harvest technology and infrastructure.

Across the different value chains, the impact of the pandemic was found to be higher among perishable food commodities that cannot be stored for longer periods of time. For example, cassava and various horticultural products cannot be stored for a long period of time and therefore need to be sold for processing immediately after harvesting.

4.1.3 Aggregation, Storage, and Trade (Domestic and Regional Trade)

Table 5: Summary of key impacts of COVID-19 and Government Measures on Aggregation, Storage and Trade

Value chain stage	Key impacts of COVID-19 and Government Measures
 Aggregation, storage and trade	<ul style="list-style-type: none"> • Food crop aggregation and trade activities severely affected by COVID-19 triggered disruptions in transport and logistics services. <ul style="list-style-type: none"> ○ Unprecedented delays at ports of entry as governments implement COVID-19 measures negatively impacting the movement of food and other products to areas of need. ○ Closure of strategic food consumption sectors such as hospitality industry and education institutions severely impacted operations and revenues of some aggregators and food traders. ○ Rising business operational costs due to the need to comply with COVID-19 health regulations negatively affected viability of some businesses. • Challenges of storage infrastructure exposed as smallholder farmers and businesses struggle in the face of inadequate and inappropriate facilities to store food crops and products.

Domestic food trade activities affected by the closing of strategic markets in the hospitality sector: The closure of markets in the hospitality sector due to lockdown measures led to the cancelling of contracts with traders, which significantly impacted on traders’ businesses. The cancellation of orders and reduced business activity for traders has severely knocked business incomes, threatening the viability of some. Some traders resorted to storage to prevent losses which increased their business costs. For example, in Rwanda, rice traders reported that post-harvest costs, including transport, storage, and grain handling costs, had increased during the COVID-pandemic period. In Uganda, some aggregators experienced cancellation of orders and reduction in sales volumes (as much as 50 percent in some cases) due to declining demand triggered by the closure of strategic food consumption institutions such as schools, restaurants and hotels. Traders who could not access storage for their produce experienced food losses which impacted on their incomes. A COVID study by the United Nations Development Programme (UNDP, 2020) in Tanzania showed that the transportation and storage of food remained under stress due to inadequate storage capacity, a bumper harvest and large carryover stocks from last year. In Mozambique, for example, HIGEST, a large poultry company, reported a 40 percent decrease in demand, with smallholder farmers reporting a 50 percent decrease³. The decrease in market demand for chicken coupled with the limited availability of slaughterhouses forced medium and small producers to keep and feed the birds for extended periods, which increased their business costs and negatively affected their incomes. The banning of public gatherings also meant that traders that depend on social gatherings such as weddings to sell their produce lost business. This was again reported in Mozambique where small chicken producers and traders reported losing business from these social gatherings.

Disruption of transport and logistics and closing of informal markets reduced domestic trade activities: In countries where lockdown measures disrupted transport activities including the banning of public transport meant that traders could not travel to production areas to source produce for trade. These disruptions reduced trade activities resulting in traders losing business and incomes and also contributing to food shortages in consumption areas where they trade their produce. In Togo, market activities declined by between 20 percent and 40 percent due to the COVID-19 pandemic and

³AGRA. (2020). A rapid analysis of impacts of the COVID-19 pandemic on selected food value chains in Mozambique. Nairobi, Kenya. Alliance for a Green Revolution in Africa.

government measures to control its spread⁴. In Zimbabwe, trading at Mbare Musika the major fresh produce and commodity trading market, marketing activities were reported to have declined by 40 percent of average volumes pre-COVID-19 pandemic⁵. Suspension of public transport services as a result of social distance measures disrupted businesses for small traders who depend on public transport for transporting goods. Due to these public transport service disruptions some businesses could not access their customers and had to resort to home-based delivery models which increased their costs of doing business and increased food prices as well. These home-based delivery models were mainly implemented in Rwanda.

Disruptions in trades activities in Togo

Market activities declined by between 20 percent and 40 percent due to the COVID-19 pandemic and government measures to control its spread. The measures introduced by the government disrupted the functioning of market systems. Shipments of paddy rice bound for Nigeria were blocked at the border post. Tighter controls on cargo ships are negatively affecting maritime and land transport activities. The disruptions in transport and logistical services have contributed to price decreases in food-producing areas (by more than 10 percent in some rural markets) and price increases in consumption urban areas. Regional livestock trade has been severely affected as the COVID-19 measures disrupted the movement of herds from the Sahel countries to the coastal countries.

Regional trade activities were disrupted by border closures and delays at various ports of entry: The public health measures that were instituted at various border posts and along trade routes which led to delays in the movement of commodities across borders. Overall, the disruptions in transport and logistics triggered by the pandemic affected the flow of food crops/ products from areas of strategic surplus to main consumption areas. The increased number of police checkpoints and dusk to dawn curfews affected logistics services leading to increases in transport costs. The logistical delays at ports of entry especially land borders have also significantly affected the quality of food. For example, before the outbreak of the pandemic, road shipments from Mombasa to Kampala took between three and five days. However, the COVID-19 containment measures have disrupted that flow, and shipments now take between 10 and 21 days. These disruptions and delays have increased the costs of transport/ freight by up to 30 percent and compromised food quality. The BlueBox GmbH (2020) estimated that Tanzania and Kenya were losing about \$38 million per week due to delays at the Namanga one-stop border post. Reduced demand in export destinations due to various COVID-19 related issues including loss of income as jobs were lost in some of these countries also affected regional trade activities, and this has forced traders that depend on export markets to sell their produce to local markets at gazetted prices which are lower than what they could fetch on the export market. Disruptions in regional trade activities resulted in an increase in food prices due to delays in food deliveries which led to temporary food shortages. In Nigeria, according to SBM Intelligence, the price of a bag of imported rice rose by more than 7.5 percent in Abuja and Lagos between the third week of March and early April, while the price of local rice experienced an increase of between 6 percent and 8 percent.

⁴AGRA. (2020). A rapid analysis of impacts of the COVID-19 pandemic on selected food value chains in Togo. Nairobi, Kenya. Alliance for a Green Revolution in Africa.

⁵AGRA. (2020). A rapid analysis of impacts of the COVID-19 pandemic on selected food value chains in Zimbabwe. Nairobi, Kenya. Alliance for a Green Revolution in Africa.

Nigeria: In the aftermath of the outbreak of COVID-19, India, one of the world's largest rice exporters, temporarily stopped new export agreements early in April 2020 while lockdowns and supply chain disruptions have reduced exports from Pakistan, Vietnam and Cambodia. The restricted supplies contributed to local prices hikes. According to SBM Intelligence, the price of a bag of imported rice rose by more than 7.5 percent in Abuja and Lagos between the third week of March and early April, while the price of local rice experienced an increase of between 6 percent and 8 percent. Since the outbreak of COVID-19, cross border trade activities with Niger, Chad, Benin, and Cameroon remain mainly informal due to the continued border closure. Trade flows into the Sahel countries are expected to remain at below-average levels as smaller vehicles and motorcycles continue to be used to move food items through illegal routes.

Kenya: The middlemen/brokers faced challenges to travel to rural areas to aggregate food crops due to COVID-19 induced restrictions. Beans consumed in Kenya are mostly from neighbouring countries, and the transport and logistical challenges at the borders negatively affected the trade flows of the crop. The delays at border posts such as the stand-off between Kenya and Tanzania left many fresh-food and fruit producers counting losses due to spoilage. The fear and stigma of the COVID-19 in the first days when the outbreak was reported led to many rural farmers uneasy at interacting with middlemen coming to buy their crops. Overall, the disruptions in transport and logistics triggered by the pandemic and containment measures affected the flow of food crops/ products from areas of strategic surplus to main consumption areas. The increased number of police checkpoints and dusk to dawn curfews affected logistics services leading to increases in transport costs.



Figure 5: Trucks stuck in traffic at Malaba border on 27 May 2020

Source: <https://www.nation.co.ke/kenya/news/union-suspends-movement-of-trucks-to-uganda-309140>. Accessed 15 June 2020

Suspension of public gathering and the closing of open markets disrupted aggregation activities among smallholder farmers: Commodity aggregation activities were disrupted by social distancing measures and lockdown measures which led to the closing of informal open markets and other rural retail centres which are key commodity aggregation centres. Aggregation activities were also disrupted by social distancing and movement restriction measures which suspended public gatherings meaning farmers could not collectively come together to aggregate their commodities for sale. This disruption of aggregation activities meant farmers had to sell individually and could not bargain for high market prices which could be realised from selling in groups. As a result, farmers were receiving low market prices which reduced their incomes.

Disruptions in aggregation and challenges for storage in Uganda

The weekly and monthly rural markets are crucial for assemblers/rural traders and agents to collect adequate volumes for supply to larger off-takers. Their closure severely affected food supply chains and particularly volumes aggregated and supplied from rural farmers to onward buyers such as wholesalers and processors. Also, the closure of community stores when the lockdown started severely affected food aggregation activities. Aggregators have also experienced cancellation of orders and reduction in sales volumes (as much as 50 percent in some cases) due to declining demand triggered by the closure of strategic food consumption institutions such as schools, restaurants and hotels. The cancellation of orders and reduced business activity has severely knocked business incomes threatening the viability of some. The movement and transport restrictions also affected the business activity for actors at this stage of the value chains. The transport and movement restrictions have resulted in increases in business operation costs. Also, storage costs are rising for some businesses due to cancelled orders and lack of new orders.

The impact of the pandemic on aggregation, storage and trade activities varied across enterprise size, countries and value chains.

Disruptions in regional trade activities forced traders in affected countries to sell to local markets or resort to storage. In countries where there are no structured markets or adequate storage in the form of private-sector warehouses or public strategic grain reserves, the impact of these disruptions in regional trade activities was high. This was reported in Malawi where the government did not have enough financial resources to purchase surplus grain that could not be exported, and there are not enough structured markets that could absorb the excess produce that could not be exported. While the impact of contract cancellations due to the closure of strategic markets in schools and hospitality sector did not vary across enterprise size, the impact of food losses due to lack of adequate storage and or income losses due to increased business costs as a result of storage could have been higher among smaller traders who either lack storage infrastructure or the economies of scale to manage the costs of paying for storage.

4.1.4 Processing

Table 6: Summary of key impacts of COVID-19 and Government Measures on Processing

Value chain stage	Key impacts of COVID-19 and Government Measures
 <p>Processing</p>	<ul style="list-style-type: none"> • Lockdown measures disrupted operational capacity of processing companies severely impacting on business revenues. <ul style="list-style-type: none"> ○ Movement of food crops from production areas to processing plants negatively impacted by disruptions in transport and logistics services. ○ Disruptions in cross-border transport and logistics services severely impacted delivery of imported raw materials and key spare parts for machinery. • Closure of strategic food consumption sectors such as hospitality industry and education institutions severely impacted processing businesses.

Reduced market demand due to closing of strategic markets reduced processing activities:

Food processing activities were generally allowed to continue operating in most countries but were however affected by the shortage of raw materials, shortage of labour supply, the closing of strategic markets, reduced operating hours and cross border trade disruptions. Processing companies which had contracts with strategic buyers in the hospitality industry and schools also had their contracts cancelled which affected their businesses. This decrease in market demand reduced revenues for the affected processors leading to some businesses having to lay off workers to manage their costs. Some processors reported income losses as existing contracts had been cancelled due to closure of these strategic markets. For example, reduced milling activities have forced some rice millers in

Uganda to reduce their staff by about 80 percent⁶. During the time of this study, Ssunad Limited, a rice miller based in Jinja, was stuck with 30 containers of milled rice which were ready for delivery to several schools before the COVID-19 induced closures. In Zambia, due to the government directive to close bars and nightclubs, the supply chain for maize, which is usually used in the processing of Chibuku (a sorghum-based beer) and related drinks, has been stagnant. The Stocks Committee recently found a substantial amount of roller meal (about 3000 metric tonnes) stuck with processors. In Mozambique, HICEP, a rice processor, reported a significant decline in the quantities of processed rice from 124 tonnes in the first semester of 2019 against 64 tonnes in the same period of time in 2020.

Businesses took the brunt from COVID-19 restrictions in Togo

Lockdown measures have reduced business activity by more than half (CCIT, 2020). Businesses in agriculture have experienced significant constraints in terms of access to both inputs and markets for outputs due to control measures such as transport restrictions, quarantine, and social distancing. Small businesses and the informal sector experienced a more significant decline in businesses activity compared to medium and large firms. This is an unsurprising finding since most of the country's micro and small businesses (restaurants, fast foods) halted operations due to curfew and their inability to implement preventative health measures such as the provision of on-site lodging for employees, sanitizers and hand-washing equipment for customers. Between January and February 2020, 56 percent of businesses in the agricultural sector recorded a drop-in revenue (CCIT, 2020). Between February and March 2020, nearly 87.3 percent of businesses in the agricultural sector experienced a drop in turnover. The downturn ranged from 25 percent to 75 percent. The slowdown in economic activity has also led to a decline in household incomes and savings.

Border closures instituted in some countries together with disruption of transport and logistics domestically disrupted the supply of raw materials and processing equipment for processors. In Zimbabwe, agro-processors reported difficulties in acquiring raw materials; for instance, deliveries to Grain Marketing Board have been markedly low compared to the same period in previous years. GMAZ cited the delays in delivery of imported grain as a challenge that has affected bread prices and availability. Like other firms in the country, agribusiness firms processing maize, rice and sorghum are facing a shortage of raw materials and disruptions in labour supply due to the COVID-19 pandemic and its containment measures. Cross border movement restrictions due to public health measures affected the importation processing equipment and spares for processing machinery across most countries. This resulted in reduced productivity for affected processors. In Uganda, Equator Seeds Ltd (ESL), a seed company that established a grain processing plant (Equator commodities) targeting the export market, initiated an order for processing line equipment from China in December 2019 with anticipation of delivery in April 2020. In Rwanda, GAIN reported similar experiences in Kigali where some bean processing SME had imported machinery from China, but the engineer could not travel from China to install it (GAIN, 2020). In Mozambique, some cane millers namely APAMO and Xinavane, could not hire technicians from neighbouring countries such as South Africa and Zimbabwe every year to carry out the sanitation of mills due to the cross-border movement restrictions.

Uganda: COVID-19 disrupted imports of processing machinery

Cross border movement restrictions due to public health measures affected the importation processing equipment and spares for processing machinery across most countries. This resulted in reduced productivity for affected processors. In Uganda, Equator Seeds Ltd (ESL), a seed company that established a grain processing plant (Equator commodities) targeting the export market, initiated an order for processing equipment from China in December 2019 with anticipation of delivery in April 2020.

⁶AGRA. (2020). A rapid analysis of impacts of the COVID-19 pandemic on selected food value chains in Uganda. Nairobi, Kenya. Alliance for a Green Revolution in Africa.

Reduced operating hours and number of workers permitted at a time reduced processing activity: Lockdown and curfew measures instituted in some countries reduced operating hours for processors who could not operate at full capacity. Teff processors in Ethiopia reported operating at between 22 percent and 50 percent capacity due to low sales and increased business costs. This effect was experienced across all countries that instituted lockdown and curfew measures. Social distancing requirements meant that agro-processing companies had to adjust and create an environment safe enough for workers. Ensuring the workplaces are compliant with government regulations to continue operating adds additional operating expenses to the companies. In Niger, the unavailability of workers due to movement restrictions coupled with social distancing measures resulted in some processing companies being forced to reduce the number of employees with some processing companies particularly the small entrepreneurs closing their businesses. This increased the rate of unemployment further worsening the social-economic impacts of the pandemic in the affected countries.

The impact of the pandemic on processing activities varied across countries and enterprise size: Countries that are dependent mostly on imports for raw materials and where hard lockdowns which disrupted transport and logistics services were impacted more by the pandemic. Across the different enterprise sizes, smaller enterprise who do not have the economies of scale that can cushion them from the financial impacts of the pandemic were impacted more by the disruptions in the processing activities. Disruptions in labour supply, operating hours and accessing of strategic markets were not found to vary across enterprise size.

4.1.5 Wholesale, Retail, and Distribution (End-Markets)

Table 7: Summary of key impacts of COVID-19 and Government Measures on Wholesale, Retail, and Distribution

Value chain stage	Key impacts of COVID-19 and Government Measures
 Wholesale, Retail, and Distribution	<ul style="list-style-type: none"> • Business activity and revenues of food wholesalers, retailers and distributors negatively impacted by the COVID-19 measures. <ul style="list-style-type: none"> ○ Rising transport and logistics costs. ○ Prolonged delays in distribution and delivery of imported food crops and products due to COVID-19 restrictions at ports of entry. ○ Closure of strategic food demand sectors such as hospitality industry and education institutions severely impacted businesses that had running contracts. ○ Rising operating costs as businesses implement mandatory COVID-19 measures. ○ Declining business activity and incomes threatening the viability of some wholesale, retail and distribution businesses.

Disruption of international, regional and domestic trade activities affected food distribution activities: Food wholesalers and retailers were generally not impacted significantly in most countries as they could continue operations as part of essential service providers. However, lockdown and curfews measures implemented in some countries meant that some retailers had to reduce their business operating hours which reduced their daily business turnovers. Wholesalers and retailers were also affected by disruptions in transport and logistics services due to movement restrictions which resulted in a shortage of supplies. Disruption in transport services led to an increase in transport costs which contributed to an increase in food prices, which will likely further reduce the effective demand for food in affected countries. Food distribution activities were also disrupted by public health measures which increased the number of roadblocks and health checkpoints along distribution routes. This resulted in temporary food shortages which in some cases triggered panic buying leading to a further increase in food prices.

Decline in business activity and revenues in Uganda triggered by the COVID-19 pandemic

In Uganda, businesses experienced a reduction in turnover due to a sharp reduction in volumes traded (after the lockdown) heightened by low demand for the products or fewer distributions due to logistical difficulties, closure of some potential markets like schools, hotels, and a sudden decline of orders that were already placed (Kizza, 2020). Limited access to end-market segments during the lockdown due to logistical challenges, fear of the pandemic, coupled with reduced purchasing power ultimately reduced sales and net incomes of market actors. Weekly and monthly rural markets are crucial for retailers, and their closure affected the supply chains. Operational costs of sourcing raw materials/produce as well as day to day operations increased, driven by the transport restrictions and bans that created a supply gap in transport services. The disruptions in transport and logistics services negatively affected at least 50 percent of the businesses (UNCDF & GOU, 2020). There was increase in liquidity challenges due to reduced cash flows, accumulation of outstanding payments and reduced financing options as financial institutions reduced operations. This resulted in laying off of staff, salary restructuring

Closure of strategic markets reduced demand for products from wholesalers and retailers: For some retailers, reduced consumer demand due to income losses from jobs and various livelihood losses reduced business turnovers. Also, the closure of strategic hospitality sector markets led to a decrease in business for wholesalers and retailers that supply these markets. This was experienced across most study countries. The study also found that price increases due to panic buying and food distribution disruptions were higher in urban areas compared to rural areas. In other countries particularly in Ghana, partial lockdowns and government measures that restricted public gatherings, the closing of schools, colleges, universities, the hospitality industry and restaurants significantly reduced wholesale demand for rice, maize or maize products.

Mali: All processing spare parts are imported from other countries, and costs have since increased since the outbreak of the pandemic. Disruptions in transport and logistics services negatively impacted small businesses that mostly employ women and youth. The president of transporters reported a decrease of about 30 percent in merchandise and 55 percent in travellers, with more than half of drivers losing their jobs. Few ships have been arriving from Europe or the USA and volumes of import products significantly decreased, affecting business activities of cross-border transport operators who usually transport import cargo from coastal countries to Mali. The closure of airports also affected export flows for food crops/ products such as mangoes which are in the harvesting season.

The impact of the COVID-19 pandemic on wholesale and retail activities did not vary much across countries: There was some variation across countries depending on the extent of the lockdown measures that were implemented. In countries where operating hours were reduced and market demand due to loss of incomes by consumers, wholesalers and retailers saw a decrease in daily business turnovers.

4.1.6 Consumption

Table 8: Summary of key impacts of COVID-19 and Government Measures on Consumption

Value chain stage	Key impacts of COVID-19 and Government Measures
 Consumption	<ul style="list-style-type: none">• Increased food insecurity, significant declines in purchasing power and food demand among low-income households due to loss of income and livelihood sources.• Panic buying at the start of the COVID-19 pandemic and disruptions in food distribution created temporary food shortages and food price spikes in some areas.• Disruptions in access to food for consumers who depend on open informal markets.• High food wastage for foods that were reaching expiry dates, or where no adequate storage facilities were in place (especially for fresh produce).

The loss of income and livelihoods has had an impact on the accessibility and affordability of food for households - increased numbers of people constrained to high levels of food and nutrition insecurity: Food consumption and consumer demand was largely disrupted by the loss of income and livelihood sources which reduced the purchasing power of many households negatively.

COVID-19 measures constrained household access to food in Zimbabwe

COVID-19 resulted in limited food choices for most households, loss of potential household income, with most non-essential workers prohibited from working. Food access became constrained especially in Phase 1 (30 March - 19 April) of the national lockdown. The ZW\$200 social grant for informal traders and vulnerable groups is inadequate. The closure of public transport around the region affected cross-border food imports that are usually remitted from neighbouring countries such as South Africa and Botswana. The families who usually rely on food remittances were severely affected as the informal channels of delivery have become difficult.

The closure of open informal food markets affected access to food among low-income households: Most low-income households in East and West Africa depend on open informal markets for access to their daily food supplies. The closure of these markets as part of enforcing social distancing and lockdown measures meant that most low-income households were left without a market to access food. These market closures were mainly reported in East and West African countries, namely Kenya, Burkina Faso and Nigeria. For example, on 22 March 2020, Governor Nyong'o of Kisumu County closed all open-air markets and suspended market days to adhere to the national government's directive that people should maintain a social distance of one metre per market (Figure 6). These markets are frequented by traders from different counties and were characterized by empty stalls and shops, with some frustrated traders returning home and others hawking their commodities.



Figure 6: Kibuye Market in Kisumu closed over coronavirus pandemic, on March 22, 2020

Source: Photo | Rushdie Oudia | Nation Media Group

Panic buying activities increased food shortages and food prices: In Uganda, panic buying, speculative trading, and supply chain disruptions in mid-to-late March resulted in price increases for staple foods, with the highest increases observed in urban areas. For example, the price of dry beans increased from UGX 3000/kg to UGX 5000/kg⁷. In Mozambique, the consumers interviewed reported that the price of sugar increased from 65 MZN (about 0.94 USD) to 90 MZN (1.3 USD)⁸. This was due

⁷ AGRA. (2020). A rapid analysis of impacts of the COVID-19 pandemic on selected food value chains in Uganda. Nairobi, Kenya. Alliance for a Green Revolution in Africa.

⁸ AGRA. (2020). A rapid analysis of impacts of the COVID-19 pandemic on selected food value chains in Mozambique. Nairobi, Kenya. Alliance for a Green Revolution in Africa.

to the huge demand for sugar as consumers were uncertain about the availability of sugar in the domestic market during the COVID-19 outbreak.

Panic buying and food price spikes in Ghana

Before the announcement of the measures to contain COVID-19, Ghana experienced panic buying behaviour in the affected cities, which led to substantial price increases in some food items. Despite the regulations allowing movement to access food, rice and maize prices increased. The *Daily Graphic* newspaper reported that the prices of some basic food products increased as high as 20 percent and 33 percent during the lockdown. The partial lockdown of some areas led to panic buying, which caused shortages of food products at the supermarkets and saw a rise in the price of rice, eggs, fish and some vegetables like tomatoes. Similar evidence was observed in the poultry sub-sector. There was a miscommunication between “locking of markets” and “locking of selected markets for fumigation”. When the lockdown measures were announced, most consumers stayed at home and food demand significantly decreased. Market women complained of low patronage and food items going bad, which directly affected the supply chain and farmers’ ability to sell their produce; most people lost their jobs. Given that all these actors are consumers, the effects on households have already had social and economic impacts manifested in food insecurity. Citizens interviewed on TV said they had taken only one meal in a day or had not eaten at all. Additionally, there have been reported cases of domestic violence that have led to the loss of lives.

The impact of the COVID-19 pandemic on food consumption was found to be higher among low-income households who depend on various informal activities for income which were mostly affected by lockdown measures. Secondly, low-income households also depend mostly on informal open markets for accessing food; due to the closure of these markets, most of the low-income households could not access food for consumption. In some countries where food markets were closed, governments distributed food parcels to the vulnerable households to reduce hunger and starvation. For example, in Mali, the government of 56 000 tonnes of cereals and sixteen thousand tons of animal feed to vulnerable populations affected by COVID 19. In Ghana, government also launched a food delivery initiative delivering food vulnerable communities in Accra, Tema, Kumasi and Kusoa.

The COVID-19 pandemic struck and worsened food and nutrition insecurity in Mali

The COVID-19 pandemic struck Mali in the context of a fragile food situation that will deteriorate significantly as the lean season approaches. There are currently 760,000 people in need of food assistance (in IPC Phase 3 and 4 food security levels). Over 70 percent of this population is concentrated in Mopti, Gao, and Kayes. With the approaching lean season, forecasts made before COVID-19 cases were reported in the country indicated a 77 percent increase in the number of people in need of food assistance, up to 1.3 million for the period June-August 2020. Acute food insecurity (phase 4) is concentrated mainly in the conflict regions of the centre and north (Mopti, Gao / Ménaka, Tombouctou, Kidal) and part of the Saharan strip (Kayes region) due to the poor harvests in this area in 2019. Insecurity remains the primary structural factor in food insecurity, but also in the ability to provide basic social services. The pandemic and measures to control its spread, as well as existing risks, are worsening access to food as well as food and nutrition security of many households.

4.2 Impact of COVID-19 on Vulnerable Populations

4.2.1 Smallholder Farmers

Table 9: Summary of key impacts of COVID-19 and Government Measures on Smallholder Farmers

Population Group	Key impacts of COVID-19 and Government Measures
 <p>Smallholder Farmers</p>	<ul style="list-style-type: none"> Increased challenges in accessing key agricultural inputs by smallholder farmers in areas where the COVID-19 pandemic coincided with the start and/or the middle of the cropping season. Labour-intensive crop production activities such as planting, weeding and harvesting negatively impacted by labour shortages and rising costs triggered by COVID-19 measures. Increased challenges in accessing output markets due to the closure of informal markets, national borders and key food consumption sectors such as the hospitality and education institutions. High risk of post-harvest and income losses in the face of COVID-19 disruptions of harvesting, aggregation and trade activities and smallholder farmers' lack of adequate and appropriate post-harvest storage and handling facilities and technologies.

Results from the country studies show that the COVID-19 pandemic had a disproportionate impact on smallholder farmers. This is because smallholder farming systems in Africa are generally labour intensive, rain-fed, are not well linked to output and input markets, and do not have access to adequate post-harvesting technologies and infrastructure. These gaps in smallholder farming systems increase their vulnerability to the impacts of the COVID-19 pandemic, as demonstrated by the study. Disruptions in labour supply which increased labour costs impacted significantly on smallholder farmers whose farming systems are generally less mechanised and are labour intensive. Disruptions in input supply and access - particularly in the distribution of inputs through subsidy programmes - and the resultant increases in input prices affected smallholder farmer production activities who generally do not have access to input credit or incomes to purchase improved inputs. As previously highlighted in the report, due to lack of adequate post-harvest handling storage facilities, most smallholder farmers in Southern Africa harvested their produce prematurely selling them at low prices in anticipation of lockdowns being instituted in their countries. This significantly impacted on smallholder farmer incomes. In addition, disruption of domestic trade and aggregation activities through the closing of open informal markets and social distancing measures affected smallholder farmer marketing activities, forcing them to sell their commodities individually at low prices. Disruption of trade activities which affected the distribution of produce to urban markets and also due to lack of contract farming arrangements for guaranteed offtake, forced smallholder farmers to sell commodities to rural vendors at low prices

Increased challenges in accessing key agricultural inputs by smallholder farmers in areas where the COVID-19 pandemic coincided with the start and or in the middle of the cropping season: In the countries where the COVID-19 pandemic coincided with the start and/or the middle of the cropping season such as in East Africa (e.g. Kenya, Ethiopia, Uganda) and West Africa (e.g. Ghana, Mali), the disruptions in transport and logistical services severely affected the timely distribution of inputs, worsening existing challenges of smallholder farmers' accessibility to seeds, fertilizers and agrochemicals. The disruptions also caused temporary price spikes making it more difficult for smallholder farmers to access the inputs. For example, in Kenya in March, prices of fertilizer increased by between Sh200 and Sh300 per 50kg bag rising from between Sh2 250 and Sh2 600 for a bag of planting fertilizer from Sh2 300 in February. In Uganda, smallholder farmers experienced limitations in accessing input markets, suppliers, financial institutions, and reduced financing base. The lockdown, transport restrictions, closure of weekly and monthly markets increased smallholder farmers' challenges to access required agricultural inputs.

Labour-intensive crop production activities such as planting, weeding and harvesting negatively impacted by labour shortages and rising costs triggered by COVID-19 measures:

Although agriculture activities were considered essential services, the COVID-19 containment measures such as movement restrictions and social distancing affected labour availability and costs. Smallholder farmers reported challenges in accessing casual labour as well as increases in the costs of hired labour. For example, temporary spikes in labour costs were reported in parts of Uganda such as Ntungamo, a key bean producer, daily labour costs doubled from Ugx 4,000 to 8,000 per person. The Rwanda country analysis showed that farm labour costs increased by between 42 percent and 67 percent from RWF 1 200 – RWF 1 500 to RWF 2000 per day.

COVID-19 containment measures impact on labour movement and costs in Rwanda

Women constitute the majority of the labour force in the agriculture sector, and restricted access to on-farm employment has had severe impacts on the respective households. The COVID-19 pandemic and containment measures resulted in labour shortages and increased costs. Although agricultural activities were classified as essential, the containment measures restricted the free movement of labour to areas of need. Rwanda usually has significant migration of farm labour between provinces; for example, the Eastern Province, a strategic area of production surplus, gets farm labour from the Northern Province. However, many farmworkers migrated to their home provinces before the containment measures were implemented. As a result, there were temporary labour shortages that contributed to increased farm labour costs. Farm labour costs increased by between 42 percent and 67 percent from RWF 1 200 – RWF 1 500 to RWF 2000 per day.

COVID-19 disruptions of labour movement affected production activities in Togo

Labour shortages occurred at the start of the new cropping season in May, affecting food production activities. The closure of land borders and movement restrictions within the country affected the movement of farmworkers from the North, who usually move to the South during peak labour periods. More than 60 percent of the seasonal farmworkers were not able to travel to the strategic food surplus production areas in the South. The shortage of seasonal labour in the ongoing cropping season will negatively impact food production and other upstream activities in the value chains. The costs of casual labour increased by between 25 percent and 50 percent, triggered by COVID-19 and containment measures.

Zimbabwe: COVID-19 pandemic and government containment measures negatively impacted on labour

Smallholder farmers who depend on seasonal casual labour experienced severe impacts on activities such as harvesting that was ongoing in some areas when the first COVID-19 cases were reported. The limited access to markets led to substantial loss of jobs for farmworkers, mostly affecting women (ZELA, 2020). The social distancing measures and movement restrictions affected casual labour activities mainly in the tobacco, horticulture and maize value chains. For instance, harvesting activities for farmers who depend on hired casual labour suffered from labour disruptions due to COVID-19 containment measures. In strategic food surplus producing areas, casual labour usually comes from neighbouring communities or distant areas. In the latter case, security agents asked for exemption letters at checkpoints on the roads, and these are only issued by the Ministry of Agriculture whose offices might be far away from the farmers. The movement restrictions also affected workers who had travelled to their home areas at the end of March and could not get the necessary exemptions to travel to their workplaces when the lockdown was implemented in April. Disruptions in labour availability significantly affected the wheat value chains, as preparations for the winter planting season were ongoing when the government implemented the COVID-19 containment measures. The results from selected key informant interviews showed that labour costs had increased by up to 35 percent. The farmers also reported that fears of hiring many people amidst the COVID-19 pandemic affected their activities' operations. The persistence of current labour disruptions is likely going to impact the preparation for the summer season negatively.

Increased challenges in accessing output markets due to lockdown measures, closure of informal markets, national borders and key food consumption sectors such as the hospitality sector and education institutions: The disruption of trade and aggregation activities

through the closing of markets and social distancing measures affected smallholder farmer marketing activities forcing them to sell their commodities individually at low prices. Disruption of trade activities which affected the distribution of produce to urban markets and also due to lack of contract farming arrangements for guaranteed offtake, forced smallholder farmers to sell commodities to rural vendors at low prices. These experiences were mainly in countries such as in Southern Africa (Malawi, Zambia and Zimbabwe), parts of East Africa (Ethiopia, Tanzania) and West Africa (such as Burkina Faso, Mali) that had completed harvest and were going through the marketing season. For example, in Burkina Faso, the movement of crops from cooperatives' warehouses to processing facilities slowed down due to restrictions of movement of both labour and transport. Some deliveries of crops to agro-processing plants mainly located in Ouagadougou and Bobo-Dioulasso were suspended. In Uganda, the lockdown, transport restrictions, closure of weekly and monthly markets increased smallholder farmers' challenges to access required output markets. Disruptions in the functioning of weekly and monthly markets have left farmers with produce and inadequate storage facilities. Post-harvest losses have increased, reducing potential farm incomes for farmers. In another example, in Kenya, the lockdown measures and increased number of checkpoints led to fewer trucks going to the countryside to buy from farmers despite agriculture being an essential service. The transport and logistics services disruptions impacted on smallholder farmers' supplies to urban areas and their incomes. Smallholder farmers reported increased food losses through spoilage as they lack proper storage and processing infrastructure.

High risk of high post-harvest losses and low incomes to farmers due to disruptions in harvesting operations: Smallholder farmers in countries where the COVID-19 pandemic outbreak coincided with the harvesting of crops such as in Southern Africa and parts of East Africa, harvesting activities were disrupted by the lockdown and movement restriction measures. For example, labour shortages triggered by movement restrictions led to an increase in post-harvest losses in Zimbabwe where there were delays in the removal of crop produce from the fields to storage and markets, especially for groundnuts and soybean which are labour intensive. Another example is Ethiopia, where the disruptions in movement severely affected the harvesting of crops such as sesame leading to high field losses. The panic in anticipation of the implementation of lockdown measures led smallholder farmers to prematurely harvest their crops in parts of Malawi and Zambia. The disruptions in harvesting, premature harvesting and selling of produce negatively impacted farm incomes.

4.2.2 Women and Youth

Table 10: Summary of key impacts of COVID-19 and Government Measures on Women and Youth

Population Group	Key impacts of COVID-19 and Government Measures
 <p>Women and youth</p>	<ul style="list-style-type: none"> • Severe loss of income and livelihood sources for women and youth. <ul style="list-style-type: none"> ○ Informal business activities closed and or partially opened due to COVID-19 lockdown measures. ○ Informal cross-border activities suffered as governments closed national borders to human traffic, resulting in disproportionate impacts on women and youth traders. • Heightened levels of food and nutrition insecurity among vulnerable women and youth.

Severe loss of income and livelihood sources for women and youth as informal business activities closed and or partially opened due to COVID-19 lockdown measures: Women and youth are usually involved in informal business activities, including food trade, both domestic and cross-border all of which were severely affected by the COVID-19 containment measures. All the countries reported that informal business activities were disrupted by the COVID-19 restrictions. Many women, youth and low-income households suffered severely from loss of incomes and livelihoods. The reduced informal business activity of women and youth also impact on the trade volumes that they typically help move from strategic areas of production surplus to deficit food consumption areas

both nationally and across borders. The closure of educational institutions also had significant impacts on children as they could not access the school feeding programmes.

Heightened levels of food and nutrition insecurity among vulnerable populations such as women, and youth: The severe losses of income and livelihoods sources by vulnerable populations such as women and youth across all countries had significant negative impacts on food and nutrition outcomes of the households. The purchasing power for basic needs such as food was either reduced or completely wiped out through loss of income and livelihood sources affecting affordability and accessibility to food.

Multiple shocks increase food and nutrition insecurity in Mali

The closure of the border in Mali and the region has severely impacted supply chains affecting cross-border activities. Although national food supplies and prices remained stable, in the northern regions, prices increased because they depend on food imports from neighbouring countries and other parts of the country. The country experienced an increase in the number of people who were pushed into higher food and nutrition insecurity conditions. An estimated 760,000 people in the regions of Kayes, Mopti Timbuktu, and Gao required food aid due to multiple shocks that include the COVID-19 pandemic. Most of the economic activity in Mali is informal, and millions of people depend on activities such as petty trade, food processing, and food transport. However, these activities were severely affected by the restrictive COVID-19 containment measures.

COVID-19 contributes to increased food insecurity in Togo

Reduced household incomes have led to declining food demand with a significant reduction in the number of meals per day and the quantity of food consumed. The Harmonised Framework reported that in February 2020, there were about 500,000 food insecure people during the 2020 lean period. However, the projections in June showed that the number had almost doubled to 900,000 people. The pandemic and containment measures are contributing to the increase in food insecurity in the country. More than 70 percent of women depend on informal activities and daily wages. The restrictive COVID-19 containment measures led to complete and or partial closure of informal activities that are the mainstream income and livelihoods sources for millions.

4.2.3 Small and Medium Enterprises

Table 11: Summary of key impacts of COVID-19 and Government Measures on Small and Medium Enterprises

Population Group	Key impacts of COVID-19 and Government Measures
 <p>Small and Medium enterprises</p>	<ul style="list-style-type: none"> • Permanent business closures and increased risks of failure for small and medium enterprises triggered by disruptions in business activity and rising operational costs to comply with COVID-19 regulations. <ul style="list-style-type: none"> ○ Functioning of input markets severely affected by the COVID-19 pandemic measures and reduced operating hours affected sales volumes, cash flows and business viability. ○ Rising operational costs due to the need to comply with COVID-19 health regulations negatively affected the viability of SMEs. ○ Increased cases of permanent closure of some SMEs due to liquidity challenges and inability to invest in required measures to comply with COVID-19 health regulations.

Permanent business closures and increased risks of failure for small and medium enterprises triggered by disruptions in business activity and rising operational costs to comply with COVID-19 regulations: Some small and medium enterprises across all study countries have either permanently closed or are facing an increased risk of business failure due to reduced business activity and rising operational costs. For example, in Rwanda, the Business Professionals Network (BPN)

and the University of Rwanda estimated that at least 57.5 percent of SMEs operating across different industries closed down, leading to hundreds of workers sent home as businesses grappled with the pandemic. In another example, SMEs in Uganda were severely affected by the economic downturn, and the EPRC (2020) reported an estimated more than 50 percent reduction in business activity due to the pandemic and containment measures. An online survey of 98 Zambian SMEs conducted in March 2020 showed that 93 percent felt the pandemic would severely affect their business activities negatively impacting on their sales. Due to reduced business activity, only 48 percent felt that their businesses would survive the COVID-19 economic challenges (Bongohive, 2020).

The decline in consumer demand significantly impacted on trade and sale volumes of some SMEs. For example, in Togo, the Chamber of Commerce and Industry of Togo (CCIT) reported that about 87 percent of the SMEs in the agriculture sector experienced a significant decline in turnover between February and March 2020 compared to 56 percent between January and February 2020. This was triggered by the decline in purchasing power and closure of strategic food consumption markets such as the hospitality industry, and educational institutions. These closures are threatening the survival of many SMEs in the agriculture and food sector. In Uganda, SMEs experienced severe declines in orders and demand due to closure of main markets for maize flour, beans and rice such as educational institutions and the hospitality sector. Ssunnad Limited, a medium scale rice miller, based in Jinja, Uganda, was stuck with 30 containers of milled rice which were ready for delivery to several schools before the closures. Despite having signed agreements, the organization has not been paid for the rice.

The slowdown in business activity forced some to lay off workers as they try to survive the devastating impacts of the pandemic and the containment measures. The mandatory requirements to implement COVID-19 containment measures at business sites, disruptions in transport and logistics services has contributed to rising operating costs for many SMEs. The rising operating costs in the face of economic slowdown and declining demand due to loss of purchasing power has severely affected their operations. For example, in the Togo country report, the authors noted that the suspension of international passenger flights reduced the available cargo capacity by up to 75 percent, and cargo costs increased twofold affecting the export business, such as in the fruit value chains. The high trade costs due to disruptions in labour and transport services affected the ability of businesses to fulfil their orders. In countries such as Ethiopia where the government banned the laying off of workers, businesses are struggling to survive the rising operating costs given the economic slowdown that has negatively affected their businesses bottom lines. Where governments have put in place socio-economic measures to help struggling businesses such as SMEs, the challenge for many is accessing the proposed assistance.

Although some governments such as Kenya and Zambia announced measures to support small and medium enterprises, the challenge for the affected enterprises has been to access pledged assistance. For example, in Zambia, despite the government putting in place a ZMW 10 billion stimulus package, the requirements to access it were too stringent, and many SMEs have not benefited from it (Bongohive, 2020).

The country studies noted that the impact of the pandemic on SMEs varied across different types of businesses depending on the level of the value chain the businesses were operating. SMEs that sell agricultural inputs were impacted by input supply disruptions indicated in this report with this impact also varying depending on the period of the agricultural season that coincided with the pandemic. SMEs that are involved in both domestic and regional trade activities were affected by disruptions in these activities, and this did not vary by country nor by the size of the enterprise. Small-scale processors were also impacted by disruptions in the sourcing of raw materials and supplying processed food products to markets which had been closed due to lockdown measures. This impact varied depending on the extent of the lockdown measures by country.

4.2.4 Manual labourers

Table 12: Summary of key impacts of COVID-19 and Government Measures on Manual Labourers

Population Group	Key impacts of COVID-19 and Government Measures
 <p>Manual labourers</p>	<ul style="list-style-type: none"> • Disproportionate loss of income and livelihood sources for manual labourers triggered by COVID-19 measures, businesses failures, closure of non-essential services and many informal business activities. <ul style="list-style-type: none"> ○ Restricted movement of manual labourers to places of work impacting on working hours and incomes.

Disproportionate loss of income and livelihood sources for manual labourers triggered by COVID-19 measures, closure of non-essential services and many informal business activities:

The economic slowdown triggered by the pandemic as well as some restrictive containment measures has resulted in some businesses completely or partially closing down or scaling down their operations. As a result, many manual labourers lost their jobs and or incomes in cases where wages/salaries were cut, or they were placed on unpaid leave. Manual labourers in shops and industries have either permanently or temporarily lost their jobs. For example, a recent study in Burkina Faso showed that manufacturing businesses implemented measures that impacted on labour ranging from reduction of working hours (32 percent); temporary suspension of contracts (25 percent) and salary reductions (29 percent) (Enquête COVID-19/CCI-BF, Avril 2020). In Uganda, mandatory closure of businesses in the hospitality industry (including food service centres and restaurants) led to significant job losses. Some manufacturing businesses reduced salaries of employees by more than 50 percent while others reduced their staff complements by more than half (EPRC , 2020).

Most of the manual labourers were locked in urban areas where they were working, and those who lost their jobs are stuck in the cities with no incomes. These outcomes significantly impacted on the food purchasing power of many households, some who have been pushed to severe food and nutrition insecurity.

4.3 Measures to Stabilise Food Systems and Reduce the Impact of COVID-19

To help minimise the disruptions and impacts of COVID-19 on food systems and various food system actors, governments across the different countries adopted various COVID-19 response plans focusing on stabilising various economic sectors, including agriculture. Agricultural food system stabilisation measures which were adopted over the March 2020- July 2020 period are summarised in the sections below.

4.3.1 Regional Food Supply Measures

One of the ways through which countries sought to stabilise food systems was through minimising disruptions in food consumption by ensuring continued food supply and minimising food shortages. This was mostly done through maintaining open trade policies that ensured the movement of food commodities across borders continued - albeit in line with public health measures. Some countries instituted additional trade facilitation measures to increase food supplies from trade activities. The specific measures that were adopted by selected countries include the following:

Table 13: Trade Facilitation Food System Stabilisation Measures⁹

Country	Trade facilitation measures
Ethiopia	<ul style="list-style-type: none"> The government planned to procure about 600,000MT of grains to stabilize prices and the market.
Kenya	<ul style="list-style-type: none"> Government imported 2 million bags of white and 2 million bags of yellow maize for feeds through the private sector.
Rwanda	<ul style="list-style-type: none"> The government through the Ministry of Finance and the Customs Commission took the decision on July 15 to remove import taxes and tariffs on essential food commodities: wheat, edible oil, sugar, rice, and baby food to combat price hikes and food shortages due to the COVID-19 pandemic.

Source: Author's compilation based on information from the country reports

4.3.2 Domestic Food Supply Measures

At the domestic level, to help stabilise food consumption and reduce food insecurity, other countries turned to their strategic grain and food reserves to increase food supplies for consumption. In countries where there were not enough food stocks in the strategic grain reserves, some governments embarked on strategic grain storage expansion initiatives in partnership with private sector companies and increased their strategic grain reserve stock levels. The specific strategic food and grain measures that were adopted by the selected study countries are summarised in the table below.

⁹ AGRA Food Security Monitor: June 2020

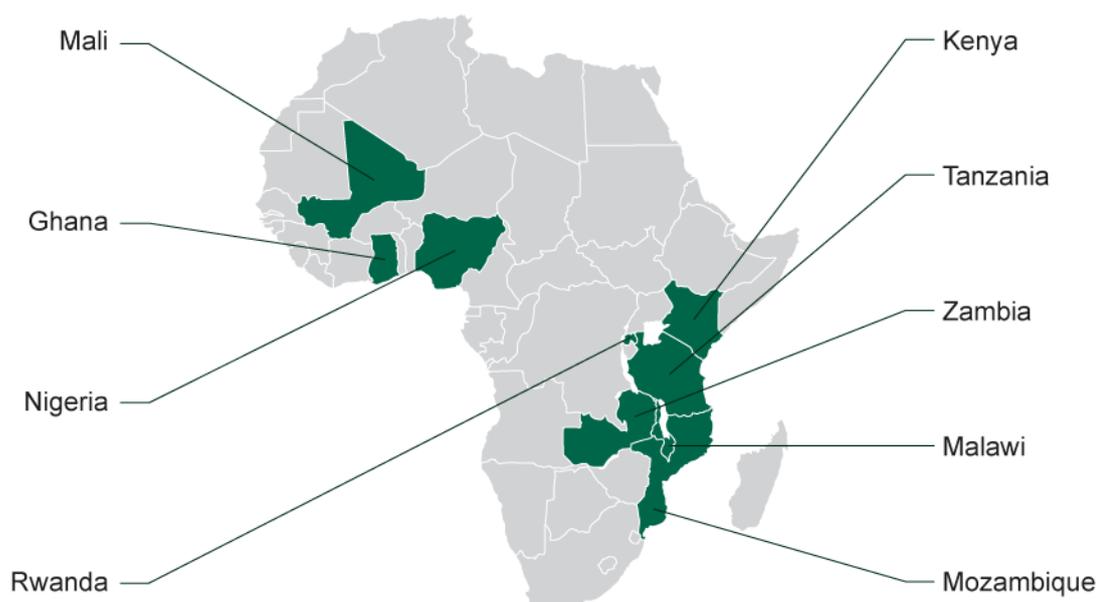


Table 14: Domestic Food Supply and Strategic Grain Measures implemented in Selected Countries in response to COVID-19 impacts on food security ¹⁰

Country	Domestic food supply and strategic grain measures
Rwanda	<ul style="list-style-type: none"> Government has been working with private sector players, namely the East African Commodity Exchange and the East Africa Grain Council to increase storage capacity and stock to increase storage in the country's Strategic Grain Reserves.
Tanzania	<ul style="list-style-type: none"> Food Reserve Agency has begun restocking for the season to provide food to urban and rural areas that do not have enough food.
Malawi	<ul style="list-style-type: none"> The government planned to purchase 220,000MT for the national strategic grain reserve with the government buying 120,000MT and the private sector covering the balance of 100,000MT.
Zambia	<ul style="list-style-type: none"> While the Food Reserve Agency (FRA) has in previous years purchased between 300,000 and 500,000 MT of maize every year, this year the FRA indicated that it would be purchasing one million MT.
Mali	<ul style="list-style-type: none"> The government has established a strategic food reserve to increase the national security stock and of states: the current stock is 221,139 MT for cereals from national stock, the regional stock for state and food aid. The government also planned to distribute 56,000MT of food against an available stock of 27,000MT with the initial intervention of 2,000 tons of rice targeting 200 rural communities.
Nigeria	<ul style="list-style-type: none"> The government released 70 000 tonnes of grain from the National Strategic Grain Reserve for distribution to the poor and planned to replenish the country's strategic grain reserves.
Mozambique	<ul style="list-style-type: none"> The government is partnering with the private sector to create food reserves in the current marketing campaign to reduce import rates.
Ghana	<ul style="list-style-type: none"> The government is mobilising the private sector to help revitalise the country's strategic grain reserves and increase storage capacity annually by 50,000 MT

¹⁰ AGRA Food Security Monitor: June 2020

Country	Domestic food supply and strategic grain measures
	to meet the 250,000 targets from the current 35,000 MT which has failed to materialise due to lack of funding.
Kenya	<ul style="list-style-type: none"> The government authorised the importation of 4 million 90kg bags of maize (for food and feed) to avert a food crisis due to the COVID-19 pandemic.

Source: AGRA Food Security Monitor: June 2020

Countries also sought to increase domestic food supply by instituting trade restrictions measures which banned the export of food commodities during the pandemic. Discussions with some of the government representatives revealed that most of these trade restriction measures were being implemented on the back of lack of adequate and accurate information on the amount of food stocks available in the country. Therefore, they resorted to export restrictions to minimise the shortage of food during the pandemic as the food situation was uncertain. These trade restriction measures that were implemented by selected countries during the pandemic are summarised in Table 15 below.

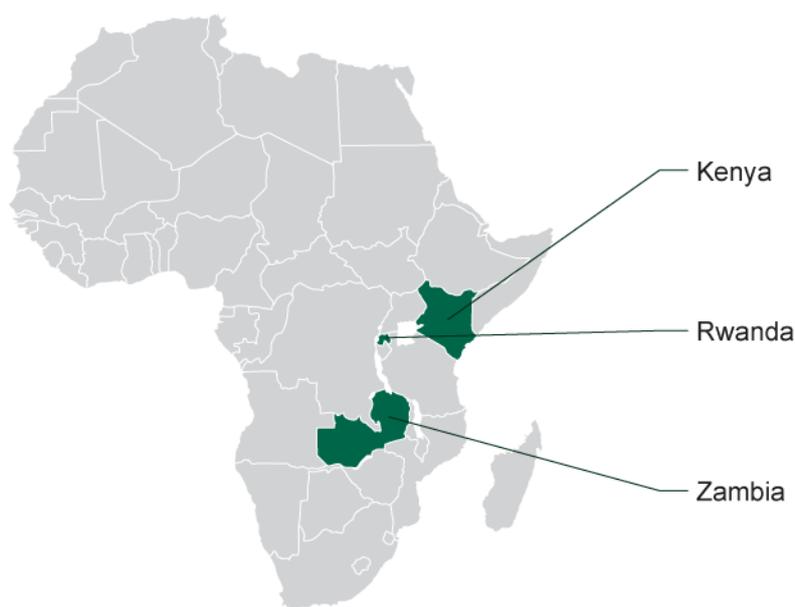


Table 15: Trade Restriction Measures

Country	Trade Restriction measures
Kenya	<ul style="list-style-type: none"> The country instituted a dairy protectionist policy which restricts dairy imports from Uganda. To this end the Kenya Dairy Board continues to decline issuing permits to Ugandan milk producers and exporters.
Rwanda	<ul style="list-style-type: none"> The government through the Ministry of Finance and Economic planning announced during the budget speech that it will suspend all seed imports effective September 1 ahead of the agricultural season. The announcement was made on the back of the country's efforts to become self-reliant in the production of maize, wheat and soybean seed over the next three years.
Zambia	<ul style="list-style-type: none"> Government continued its efforts to procure 1 million metric tonnes of maize for the Food Reserve Agency. This has resulted in the government maintaining its maize export restrictions.

Source: Author's compilation based on information from the country reports and AGRA Food Security Monitor Bulletins

4.3.3 Food Production Measures

The disruptions in food trade activities due to the COVID-19 pandemic demonstrated the need for countries to increase their domestic food production. In response to this need, countries adopted various measures to increase their domestic production during the pandemic. Most of these measures were focused on increasing access to inputs for production, particularly in countries where input supply activities had been disrupted by various lockdown and trade restriction measures. Other measures included increasing the areas under agricultural production and increasing access to improved production technologies. Table 16 below summarises these various input supply and production measures:

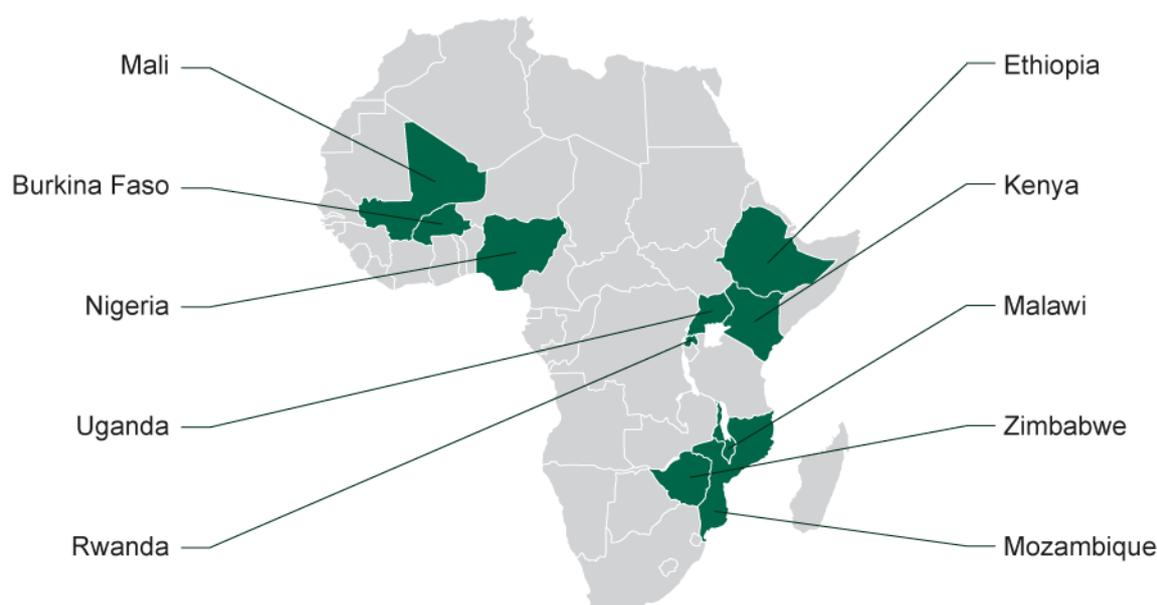


Table 16: Food Production Measures

Country	Food Production Measures
Ethiopia	<ul style="list-style-type: none"> The government supported commercial farmers to increase land under crop cultivation in line with the country's cropping plan.
Mali	<ul style="list-style-type: none"> Government has set aside a US\$ 7.7 million fund for fertilizer and equipment subsidies. Fertilizer distribution efforts have begun with fertilizer for cotton farmers already secured in various warehouses in the cotton producing regions.
Uganda	<ul style="list-style-type: none"> Through the country's national COVID-19 response plan, the government sought to increase the number of farming households due to the loss of revenue in the tourism sector due to COVID-19.
Burkina Faso	<ul style="list-style-type: none"> The government sought to procure 39 000MT of fertiliser for the agricultural input subsidy programme against a national requirement of 50,000MT of fertiliser needed for the next production season.
Rwanda	<ul style="list-style-type: none"> The government's Economic Recovery Plan included the provision of inputs to farmers which is expected to keep input prices stable in the next season. The government supported farmers with seed and fertiliser for the season B planting phase. Government is also working with private sector players to increase and improve the monitoring of crop and livestock activities using digital platforms which also help track market prices in the country.

Country	Food Production Measures
	<ul style="list-style-type: none"> • Ensure availability of fertilizer and seeds by requesting retail shops, distributors and importers of fertilizers and seeds to continue production while the ministry facilitates permits to allow for movement of trucks moving seeds, fertilizers and other agro-chemicals.
Mozambique	<ul style="list-style-type: none"> • The government will allocate US\$50 million to finance companies that produce seeds
Kenya	<ul style="list-style-type: none"> • The President announced an 8-point plan for the supply of inputs through e-vouchers to avoid buying bulk fertilizer and the wrong fertilizer. • Government is also leveraging digitization to drive the e-voucher scheme and cash transfers. • Government is supporting farmers who were affected by floods with early maturing seed for various crops to cover 10 000 hectares of land that was affected.
Malawi	<ul style="list-style-type: none"> • The government published tenders for private sector companies to import fertiliser and other agricultural inputs that can reach 900 000 farmers to avoid delays in the next planting season • The government is rehabilitating 20 irrigation schemes to increase the land under irrigation to 118,000 hectares by the next planting season.
Nigeria	<ul style="list-style-type: none"> • Government is working with various development partners to ensure farmers have access to seed across 23 states in the country. To this end, Initiative for Citizens' Rights, Accountability and Development (ICRAD) has supported and distributed seed to 10 000 maize and sorghum farmers.

Source: Author's compilation based on information from the country reports and AGRA Food Security Monitor Bulletins

5. Summary of Emerging Themes and Recommendations

Sustaining regional food trade to achieve economic growth, poverty reduction, and food security on a large scale requires political leadership to implement tough choices. This section summarises the emerging themes and recommendations identified as important for developing food value chains and countries' resilience to impacts arising from the COVID-19 pandemic.

Emerging Themes

The Food Balance Sheets and Strategic Grain Reserves are operational in 76% and 59% respectively of the study countries: The Food Balance Sheets and Strategic Grain Reserves are important mechanisms for countries to manage food and nutrition security. Countries with no Food Balance Sheets are Nigeria, Ethiopia, and Uganda; those with no Strategic Grain Reserves are Côte d'Ivoire, Mozambique, and Uganda. Uganda is the only country that has neither a Food Balance Sheet nor a Strategic Grain Reserve. However, there are challenges in terms of the availability of current data on the status of the Food Balance Sheets and Strategic Grain Reserves.

Eight countries (Ghana, Kenya, Malawi, Mali, Nigeria, Rwanda, Tanzania and Zambia) turned to their Strategic Grain Reserves to address food and nutrition security impacts of the COVID-19 pandemic: The economic impact of the COVID-19 pandemic increased the number of people with limited and no access to basic food and nutrition, prompting countries to use their Strategic Grain Reserve to both address temporary shortages due to supply disruptions and provide food to vulnerable populations that were severely affected by the pandemic and subsequent loss of livelihood and income sources. Nigeria, for example, released 70 000 tonnes of grain from the National Strategic Grain Reserve for distribution to the poor. Countries such as Ghana, Kenya, Malawi, Rwanda, and Zambia implemented measures to increase Strategic Grain Reserve stocks. The Kenyan government authorised the importation of 4 million 90kg bags of maize (for food and feed) to avert a food crisis due to the COVID-19 pandemic.

The COVID-19 pandemic amplified existing challenges of shortages and inaccessibility of key agricultural inputs especially by smallholder farmers: The disruptions in transport and logistical services severely affected the timely distribution of inputs such as seeds, fertilizers and agrochemicals where the COVID-19 pandemic coincided with the start and /or the middle of the cropping season such as in East and West Africa. Temporary input price spikes were reported due to COVID-19 induced disruptions in input supply. For example, in Kenya in March, prices of fertilizer increased by between Sh200 and Sh300 per 50kg bag, rising from between Sh2 250 and Sh2 600 for a bag of planting fertilizer from Sh2 300 in February.

Seed multiplication, certification activities negatively affected by lockdown, social distancing and movement restriction measures: Countries such as Burkina Faso, Nigeria and Uganda reported that the COVID-19 pandemic and related measures to contain it negatively affected seed multiplication and certification activities. For example, in Uganda, due to COVID-19 disruptions, the volume of bean seeds supplied to Bulambuli by Grow More Seeds Company reduced by over 65 percent from 15 MT to 5 MT. Equator Seeds Limited supplied seeds to only 70 percent of the seed multipliers due to the anticipated difficulty in inspection and monitoring. In Burkina Faso and Nigeria, disruptions in quality assurance activities like seed field inspections and laboratory testing severely affected the production and supply of early generation seeds.

Labour-intensive crop production activities such as planting, weeding and harvesting negatively impacted by labour shortages and rising costs triggered by COVID-19 measures: Although agriculture activities were considered essential services and allowed to continue operations, disruptions in the supply of key inputs (seeds, fertilizer and agrochemicals discussed above) and labour due to various containment measures such as movement restrictions and social distancing

affected production and harvesting activities. In countries where the COVID-19 pandemic coincided with the planting season particularly in some parts of East Africa (such as Kenya, Uganda, Ethiopia) and West Africa (such as Ghana, Mali), planting and production activities (such as weeding) were disrupted by social distancing measures and movement restrictions which affected labour supply. For example, temporary spikes in labour costs were reported in parts of Uganda such as Ntungamo, a key bean producer, daily labour costs doubled from Ugx 4,000 to 8,000 per person. Increase in costs of factors of production increased food production costs leading to an increase in food prices which negatively impact food security in affected countries. In addition, rising production costs due to price spikes of key inputs negatively impact on the competitiveness of smallholder farmers compared to cheaper food imports from world markets.

Increased risk of high post-harvest losses and low incomes to farmers due to disruptions in harvesting operations: In countries where the COVID-19 pandemic coincided with harvesting activities - mostly in Southern Africa and some parts of East Africa- social distancing measures and movement restrictions disrupted harvesting activities. For example, the disruptions in movement severely affected the harvesting of crops such as sesame in Ethiopia, leading to high field losses. Labour shortages led to an increase in post-harvest losses in Zimbabwe where there were delays in the removal of crop produce from the fields to storage and markets, especially for groundnuts and soybean, which are labour intensive. In other countries such as Malawi and Zambia, although lockdown measures had not been implemented, farmers in anticipation of government implementation of lockdown measures based on reports from other countries, panicked, prematurely harvested and sold their produce. The disruptions in harvesting, premature harvesting and selling of produce negatively impacted on farm incomes.

Food crop aggregation and trade activities severely affected by COVID-19 triggered disruptions in transport and logistics services: Food crop aggregation and trade activities were severely hampered by the disruptions in transport and logistics triggered by the pandemic and containment measures. The prolonged delays at ports of entry - especially land borders - severely affected the timely delivery of food (as well as quality for perishable products) and transportation costs across countries. For example, before the outbreak of the pandemic, road shipments from Mombasa to Kampala took between three and five days. However, the COVID-19 containment measures disrupted that flow, and shipments took between 10 and 21 days between April and June. These disruptions and delays also increased the costs of transport/ freight by up to 30 percent and compromised the quality of perishable products. The Common Market for Eastern and Southern Africa (COMESA) showed that import volumes through national borders in East and Southern Africa significantly decreased over the March to April 2020 period. Import volumes in Malawi and Rwanda decreased by 32 percent over this period while in Zambia and Uganda they declined by 25 percent and 30 percent respectively. The lockdown and curfew reduced the transactions between the main cities where agro-processing firms and urban consumers are located. For example, trade flows into the Sahel countries remained at below-average levels as smaller vehicles and motorcycles were used to move food items through illegal routes.

Challenges of storage infrastructure exposed as smallholder farmers and businesses struggle in the face of inadequate and inappropriate facilities to store food crops and products: The closure of strategic food consumption sectors such as the hospitality industry and education institutions severely impacted food demand negatively affecting operations and revenues of some aggregators and food traders who had existing contracts with the closed institutions. For example, in Uganda, some aggregators experienced cancellation of orders and reduction in sales volumes (as much as 50 percent in some cases) due to declining demand triggered by the closure of strategic food consumption institutions such as schools, restaurants and hotels. In Tanzania, a study by the UNDP showed that the transportation and storage of food remained under stress due to inadequate storage capacity, a bumper harvest and large carryover stocks from last year. Business revenues were severely affected by the cancellation of orders and a reduction in business activity for aggregators and traders.

Lockdown measures disrupted operational capacity of processing companies severely impacting on business revenues: Despite being considered an essential services, food processing

activities were severely affected by the disruption in the flow in inputs, closure of key food consumption sectors such as hospitality and education sectors as well as disruption in labour movement and supply. For example, reduced milling activities due to decline in business activity forced some rice millers in Uganda to reduce their staff by about 80 percent. Teff processors in Ethiopia reported operating at between 22 percent and 50 percent capacity due to low sales and increased business costs. In Zimbabwe, agro-processors reported difficulties in acquiring raw materials; for instance, deliveries to the Grain Marketing Board have been markedly low compared to the same period in previous years availability and prices of bread.

Business activity and revenues of food wholesalers, retailers and distributors negatively impacted by the COVID-19 measures: The COVID-19 pandemic negatively affected the wholesale, retail and distribution to end markets through effects on logistics, labour, pricing, and supply and timeliness of supplies. Businesses experienced a reduction in turnover due to a sharp reduction in volumes traded (after the lockdown) heightened by low demand for the products or fewer distributions due to logistical difficulties, closure of some potential markets like schools, hotels, and sudden cancellation of existing orders. The disruptions of transport and logistics services, the increased number of checkpoints and the enforcement of the curfew measures negatively affected the movement of food crops and products. While wholesalers experienced significant reduction of business, some retailers had to completely shut down following the closures of markets.

Increased food insecurity, significant declines in purchasing power and food demand among low-income households due to loss of income and livelihood sources: Household food and nutrition insecurity levels increased mainly in urban and peri-urban areas. Food consumption and consumer demand were largely disrupted by the loss of income and livelihood sources which reduced the purchasing power of many households. The driving factors include limited access to markets, availability of food stocks, business closures and staff layoffs that reduced purchasing power. In all the study countries, a significant number of consumers acquire food items from the open, informal markets. The lockdown measures disrupted the operations of the open, informal markets and negatively impacted on access to food. Also, the drastic increase in food demand due to panic buying triggered by the pandemic caused temporary spikes in prices of some staples at the beginning of the lockdown measures.

Loss of farm incomes and increased risk of post-harvest losses as smallholder farmers lack adequate and appropriate post-harvest storage and handling facilities: Due to lack of adequate and appropriate post-harvest handling storage facilities and technologies, smallholder farmers in Malawi and Zambia for example, harvested their produce prematurely, selling them at low prices in anticipation of lockdowns being implemented in their countries. The disruption of transport and logistics services and lockdown measures affected access to urban markets, further worsening access to output markets for smallholder farmers. The combined impacts of lack of adequate and appropriate post-handling storage facilities and handling facilities increased risks of post-harvest losses and income losses for smallholder farmers who had just harvested their produce and could not easily access output markets such as in Southern Africa.

Severe loss of income and livelihood sources for women and youth as informal business activities closed and/or only partially opened due to COVID-19 lockdown measures: Women and youth are usually involved in informal business activities, including food trade, both domestic and cross-border all of which were severely affected by the COVID-19 containment measures. Many women, youth and low-income households severely suffered from the loss of incomes and livelihoods. Most of these population groups were further pushed into higher levels of vulnerability due to the pandemic and other shocks.

Heightened levels of food and nutrition insecurity among vulnerable populations such as women, youth and manual labourers: Knock on economic effects due to lockdowns and other measures introduced by governments to slow the spread of COVID-19 resulted in severe losses of income and livelihoods sources for vulnerable populations such as women, youth and manual labourers. With their purchasing power for basic needs such as food either reduced or completely wiped out through loss of income and livelihood sources, their households were significantly

constrained in their ability to pay for food, resulting in significant negative impacts on food and nutrition outcomes in their households.

Permanent business closures and increased risks of failure for small and medium enterprises triggered by disruptions in business activity and rising operational costs to comply with COVID-19 regulations: Some small and medium enterprises across all study countries have either permanently closed or are facing an increased risk of business failure due to reduced business activity and rising operational costs. Although some governments such as Kenya, announced measures to support small and medium enterprises, the challenge for the affected enterprises has been to access pledged assistance.

Recommendations

Improve capacity, data and application of Food Balance Sheets and Strategic Grain Reserves to better manage food and nutrition security: Most of the disruptions in food trade systems through ad hoc trade restrictions are as a result of the lack of adequate and accurate market information. This presents an opportunity for countries to develop and make use of more accurate and agile market information tools that provide governments with timely information on the amount of food availability in the country. Despite the important role of Food Balance Sheets and Strategic Grain Reserves in managing food and nutrition security, their application is limited by irregular, and outdated data and capacity of countries to timely develop them for on-going informed decision making. Developing Food Balance Sheets requires a collaborative effort from various public and private institutions to timely supply accurate information on the food availability situation in the country. Analysing this data and being able to forecast the food security situation is an essential component of building the resilience of trade systems. It is important for countries to adopt these instruments and set up systems that will ensure that the instruments are included in their policy-making process. Also, building capacity of the systems to collect, analyse and disseminate data from Food Balance Sheets is critical in its use. The Regional Food Trade and Resilience Programme with support from the FCDO and PIATA partners have initiated the development of regional Food Balance Sheets in East and Southern Africa as well as in West Africa.

Strengthen the efficiency in the supply, delivery and accessibility of agricultural inputs systems to help smallholder farmers build back better beyond the COVID-19 pandemic impacts: The COVID-19 pandemic worsened the existing challenges in terms of supply and access to key agricultural inputs such as seeds, fertilizers and agrochemicals. Efforts should be strengthened to improve smallholder farmers' access to these inputs to help them adapt to shocks such as COVID-19, climate change and others. For example, countries such as Kenya and Zambia are implementing e-voucher input support programmes to help improve timely access to key agricultural inputs by smallholder farmers. The e-voucher model uses a mobile delivery and tracking system to distribute subsidised inputs to farmers through agro-dealers and input suppliers across all 39 districts in Zambia. In some countries like Zambia, targeted farmers receive a Visa bankcard pre-loaded with the government subsidy redeemable through POS devices from a wide range of 'authorised' sales points in the districts across the country. E-voucher input models help strengthen the resilience of input systems by reducing disruptions and delays in the delivery of inputs to farmers due to various reasons including disruption of transport and logistics services. Also, by partnering with local agro-dealers as input collection centres, the model reduces the need for farmers to travel to centralised input collection centres which may otherwise not be accessible during a pandemic like COVID-19 which disrupted transport activities. Implementing e-voucher models requires a coordinated and collaborative effort between public and private institutions, namely government, input manufacturers, agro-dealers, and financial institutions or mobile money companies. Efficient input delivery systems are important to help farmers access key inputs in a timely fashion to ensure critical farming activities are not delayed.

Increase domestic input production through community-based input production models: Community based integrated seed production and distribution models where small-scale seed companies partner with smallholder farmers to engage in seed multiplication activities and agro-

dealers to distribute inputs to farmers in surrounding farming communities can help strengthen the resilience of input systems by reducing the disruptive effects of COVID-19 which resulted in input shortages from both imports and domestic supplies. Community-based seed models increase the availability of seed which in some cases is adapted to local environmental conditions. Also, engaging smallholder farmers as seed multiplication partners increase their income opportunities which can also reduce their vulnerability to shocks to their production systems. Successful and replicable seed system models that have partnered with smallholder farmers and rural agro-dealers include the Zimbabwe super seeds AfriSeed Pvt Ltd (Zambia), Kamano Seed (Zambia), Companhia de Zembe (Mozambique), and SBS (Mozambique) models. These companies use an integrated seed model whereby the seed companies have formal contracts with smallholder farmers who multiply seed and agro-dealers who distribute the seed. Farmers are also engaged in the production of foundation seed that is used for seed multiplication. In some instances, some seed companies pre-finance the foundation seed that is used for multiplication with the credit deducted from supplied by the farmer during off-take.

To develop these community-based seed models establishing regulatory frameworks for seed production and a mechanism for ensuring mutually beneficial and transparent contract farming frameworks is essential. Therefore, there is a huge role for governments to plan in creating this enabling environment for these models. Seed production also requires intensive inspection and certification activities which are usually conducted by government institutions. As such, there is also a need to strengthen the capacity of governments to conduct these activities as the models are scaled up to ensure seed production adheres to the required safety and quality standards. Increasing domestic seed production will also require research institutions to develop new and improved seed varieties for multiplication that are adaptable to local conditions. Private sector partners like financial institutions can also support these initiatives by providing finance to smallholder farmers to purchase foundation seed for multiplication on the back of contracts with seed companies. Development partners can support these initiatives by supporting governments to design and implement these seed business models, including developing seed multiplication contract farming frameworks, among other coordination activities as required. Development partners can also provide technical assistance to seed companies to strengthen their supply chains and offer extension and advisory services to farmers to produce high-quality seeds.

Increase investments to enhance access to productivity and efficiency enhancing technologies and mechanisation to improve production and harvesting activities for smallholder farmers beyond the COVID-19 pandemic: The vulnerability of production and harvesting activities based on current manual-based operations such as planting, weeding and harvesting further exacerbated by the COVID-19 pandemic, stresses the need to strengthen on-going efforts to ensure improved access to productivity and efficiency-enhancing production and harvesting technologies by smallholder farmers. Reducing the labour dependency of smallholder farming systems by increasing small-scale mechanisation can help strengthen the resilience of smallholder farmer production systems. The study demonstrated that farming systems that are labour intensive were affected by the disruptions in labour supply, and this was disproportionately higher among smallholder farming systems which are labour intensive. Therefore, increasing investments in small-scale mechanisation will help reduce this labour dependency and help build the resilience of smallholder farming systems. Also, small-scale mechanisation helps create employment opportunities for the youth, which will help increase their incomes and build their resilience. The Farm Mechanization and Conservation Agriculture for Sustainable Intensification (FACASI) model which is being implemented in Ethiopia, Kenya, Tanzania and Zimbabwe is one of the more successful models that can be scaled out to other countries. Such investments would help smallholder farmers in undertaking timely production and harvesting activities and reduce potential losses such as those experienced due to delays in undertaking production activities such as planting, weeding and harvesting. Small-scale mechanisation initiatives require private sector partners such as financial institutions to develop inclusive financial models and products that are tailored to smallholder farming systems. There is also a need for governments to institute favourable trade policies which increase the import of these mechanisation equipment in countries where there is no local capacity to manufacture these. Increasing capacity of local training and development institutions, including

universities, to develop tailored small-scale mechanisation solutions is also vital. Development partners can support these initiatives by providing technical assistance to various Technical and Vocational Education and Training (TVET) institutions to develop these tailored mechanisation solutions and to also support financial institutions to develop inclusive and tailored financial products for mechanisation.

Strengthen efforts to increase smallholder farmers' access to structured output markets to improve farm incomes: The panic harvesting and premature selling of produce by some smallholder farmers in parts of Malawi and Zambia demonstrate the need to strengthen efforts to ensure that farmers have access to guaranteed markets. Production and harvesting resilience can also be strengthened by increasing smallholder farmer access to and or participation in structured markets. Structured market solutions like contract farming schemes offer farmers access to inputs and guarantee markets which may otherwise not be accessible in the event of a pandemic. Increasing smallholder farmer participation in structured markets, where they exist, requires countries to have an enabling policy environment which promotes the establishment of mutually beneficial off-take agreements that do not disadvantage the farmer nor the off-taker. Therefore, governments have a role to play in establishing these enabling policy environments which stimulate private sector investments in developing structured trade markets and promote smallholder farmer participation in structured trade markets. This could be through public investments in physical infrastructure that connects farmers to markets or invest in market information systems that inform farmers of the various market opportunities available. This is important to improve farm incomes and resilience to shocks such as the COVID-19 pandemic, climate change and others. The Regional Food Trade and Resilience Programme with support from the FCDO is investing in market systems development to facilitate access to structured regional food markets in East, Southern and West Africa.

Strengthen implementation of efficient, streamlined and harmonised measures for regional food trade facilitation: At the peak of the COVID-19 pandemic, countries implemented individual measures that in some cases contradicted regional efforts to facilitate regional trade. These worsened disruptions in the movement of food and other products across borders. To address this challenge, efforts such as the Regional Electronic Cargo and Driver Tracking System (RECDTS) launched in East Africa in September are important to improve efficiency and facilitate regional food trade. The RECDTS provides a surveillance system to monitor long-distance truckers crew health and enables contact tracing. It allows Partner States to electronically share truck drivers' COVID-19 test results; minimising the need for multiple COVID-19 tests in a single trip. These harmonised digital solutions require countries to invest in mutually recognised testing processes and digital infrastructure. There is also a need for strong political will by regional governments to recognise these harmonised processes.

Strengthen investments to enhance access to post-harvest handling capacity, facilities and technologies for smallholder farmers: The increased risks of post-harvest losses indicated above demonstrate the urgent need to improve post-harvest handling and storage for smallholder farmers. Investments can include community storage and handling facilities and farm-level storage and handling facilities to help smallholder farmers appropriately store their produce for a longer period of time and sell their commodities when markets have opened up. Post-harvesting infrastructure can either be deployed at the farmer level or by enhancing access by linking farmers to private or public storage warehouses. Increasing access to post-harvest technology at farmer level requires farmers to have access to financial services for investing in appropriate and good quality storage facilities. There is, therefore, need for financial institutions to offer tailored solutions for these structures. Leased storage facilities from either private or public institutions will also require tailored financial services, including warehouse receipt financial solutions. Development partners can support these initiatives through technical assistance to both farmers and financial institutions to link farmers to financial solutions for investing in post-harvesting infrastructure. The Regional Food Trade and Resilience Programme' market systems development investments with support from the FCDO aims to support farmers to access structured markets where through off-takers and processors they can access post-harvest training and facilities to ensure quality produce and improve farm incomes.

Leveraging digital platforms and infrastructure to offer extension and advisory services:

Disruptions in the provision of extension and advisory services as a result of COVID-19 measures demonstrated the need to leverage digital solutions to offer these services. In some countries like Zambia, private sector companies during the pandemic were using these digital platforms to reach their out-grower farmers with advisory services and to also facilitate payments through digital platforms. These digital solutions require private sector companies to invest in these digital platforms and partner with government institutions to scale up the initiatives. Development partners can offer technical assistance to design these solutions and increase awareness among farmers to stimulate adoption of these solutions.

Increase investments in inclusive social safety nets to reduce the vulnerability of vulnerable populations such as women, youth and manual labourers:

The disproportionate losses of incomes and livelihoods of vulnerable populations such as women, youth and manual labourers demonstrate the need to improve investments in social safety nets in all study countries. Although governments across the study countries announced measures ranging from food donations to affected populations, these were mostly inadequate.

Governments should partner with private sector entities to invest in improving national and regional food trade, food security and market data collection systems for informed policy decision making:

The experiences of the COVID-19 pandemic demonstrated the lack of regular and close to real-time data and information to inform, urgent, and long-term decision making. Data and information systems that provide close to real-time evidence are necessary to plan and minimise impacts of ad hoc and uninformed decisions in the face of shocks such as the COVID-19 pandemic. The Regional Food Trade and Resilience Programme with support from the FCDO is investing in developing market information systems in selected countries in East, Southern and West Africa to inform food trade policy decision making.

Increase investments in digitalisation of activities along food value chains: Africa has one of the fastest-growing mobile phone penetrations. This can be exploited to embrace digitization right along the value chain. With restrictions on movement, digitally interacting with farmers and value-chain partners, is crucial. Smallholder farmers can benefit through e-extension services, digital savings products, or access to government subsidies that might be offered through digital wallets. They can also be trained in digital marketing. There is a good number of such initiatives already and these should be expanded in collaboration with the private sector.

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