

African Region

**Data Collection Survey on the Current
Situation of Food Value Chain in the South
African Region under COVID-19**

Final Report

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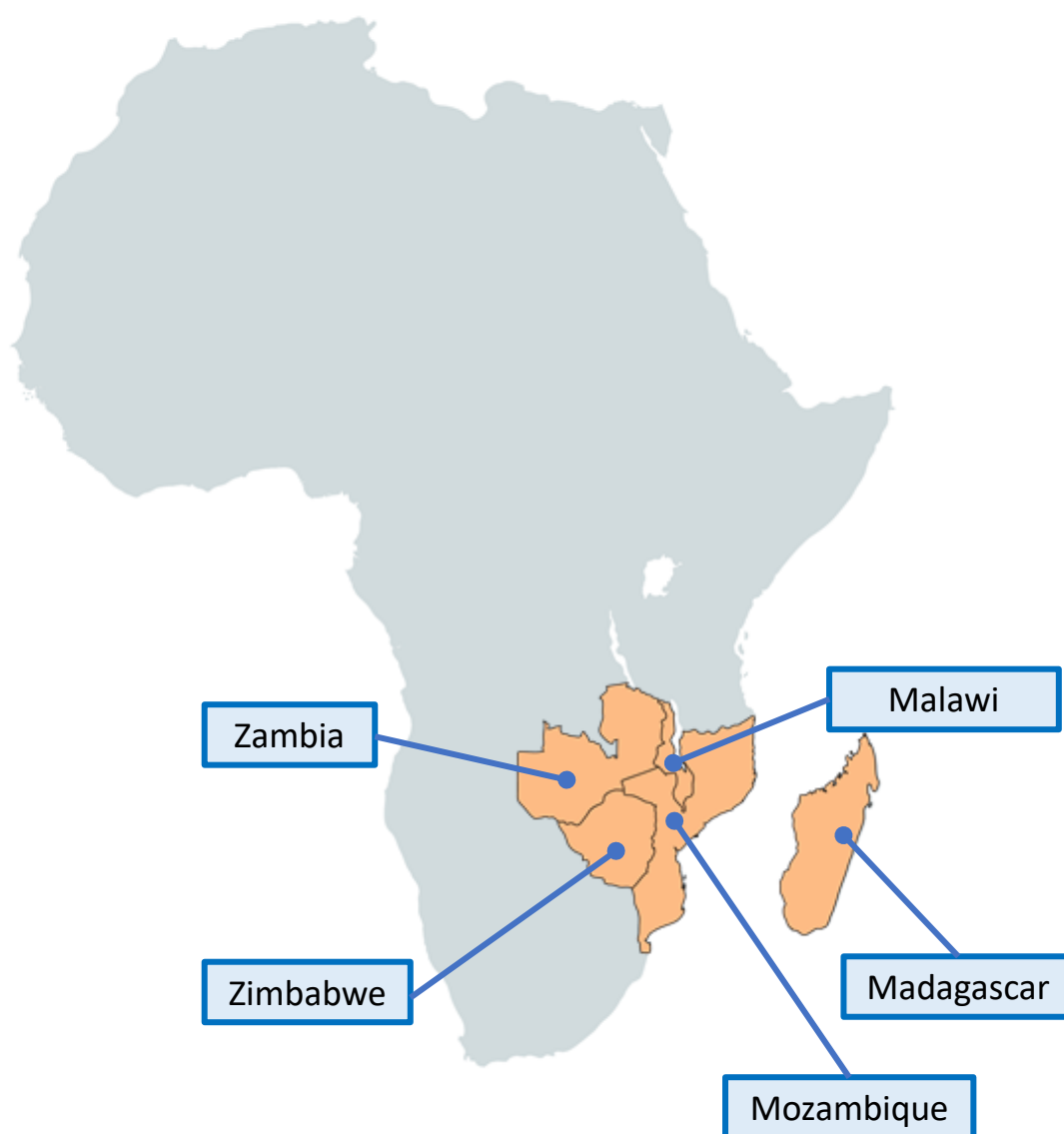
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Map

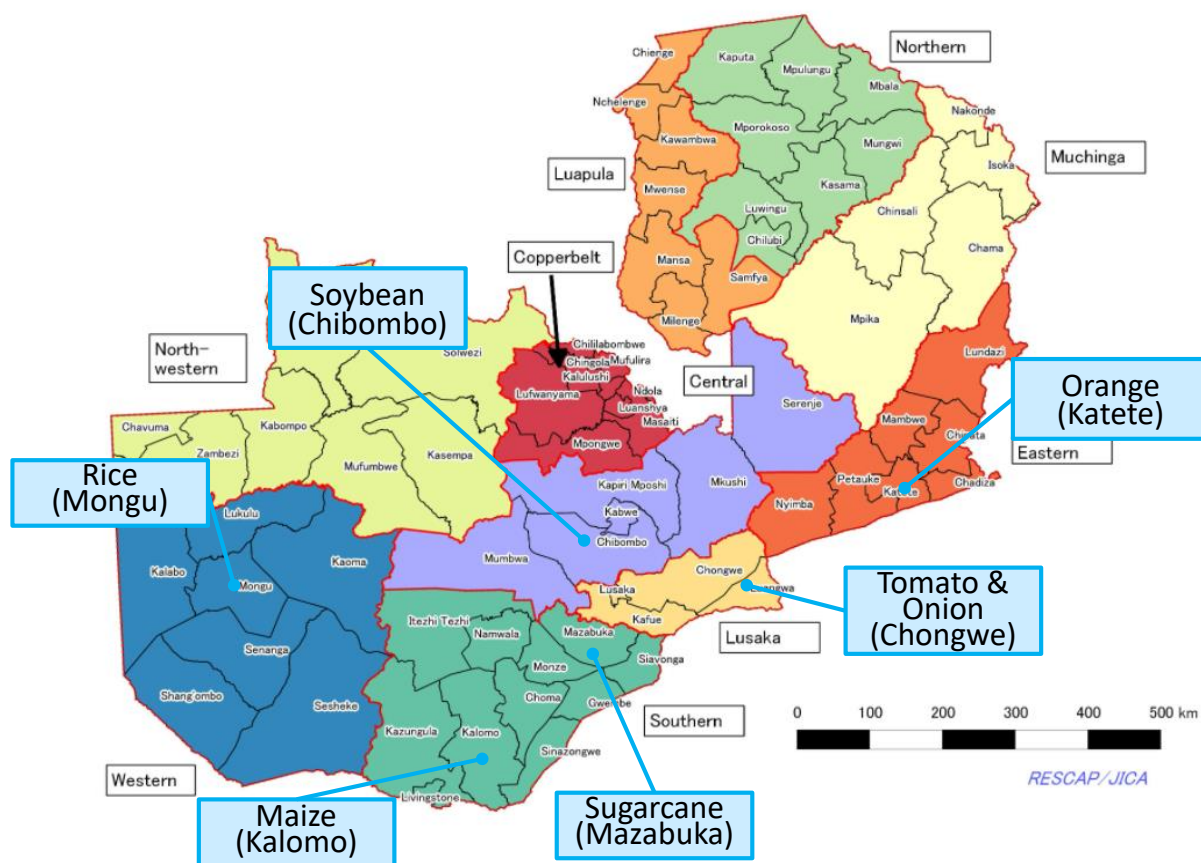
Target countries



Source: Developed by the survey team based on the map from <https://mapchart.net/>

Zambia

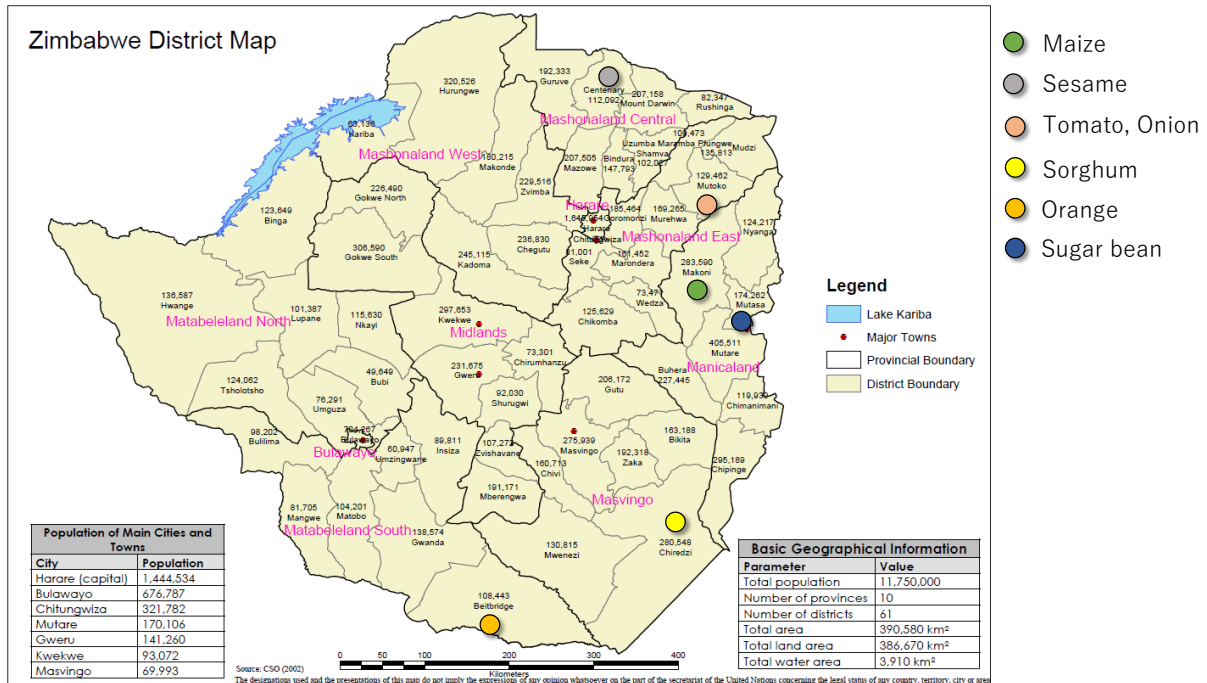
Target crops and areas



Source: Developed by the survey team based on the map from Rural Extension Services Capacity Advancement Project - Through PaViDIA Approach

Zimbabwe

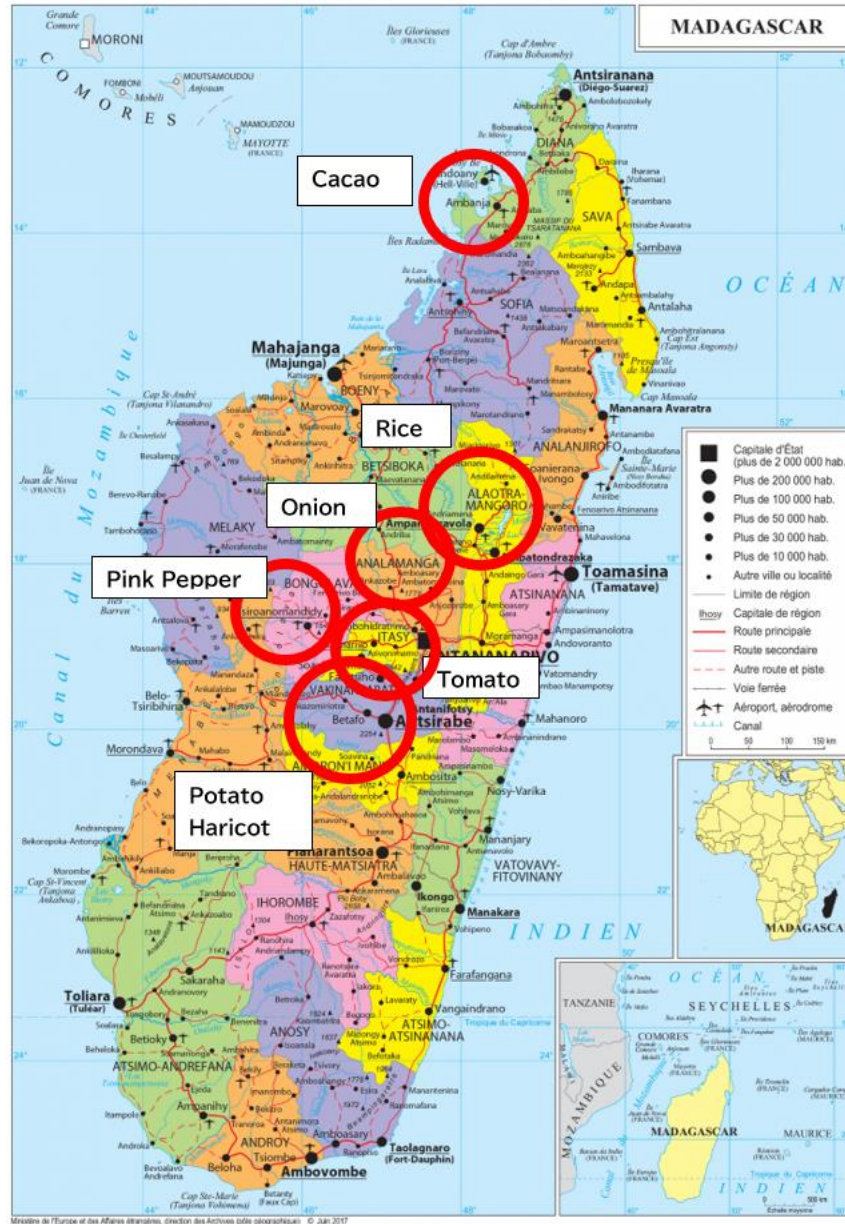
Target crops and areas



Source: Developed by the survey team based on the map from <https://reliefweb.int/map/zimbabwe/zimbabwe-district-map-2002>

Madagascar

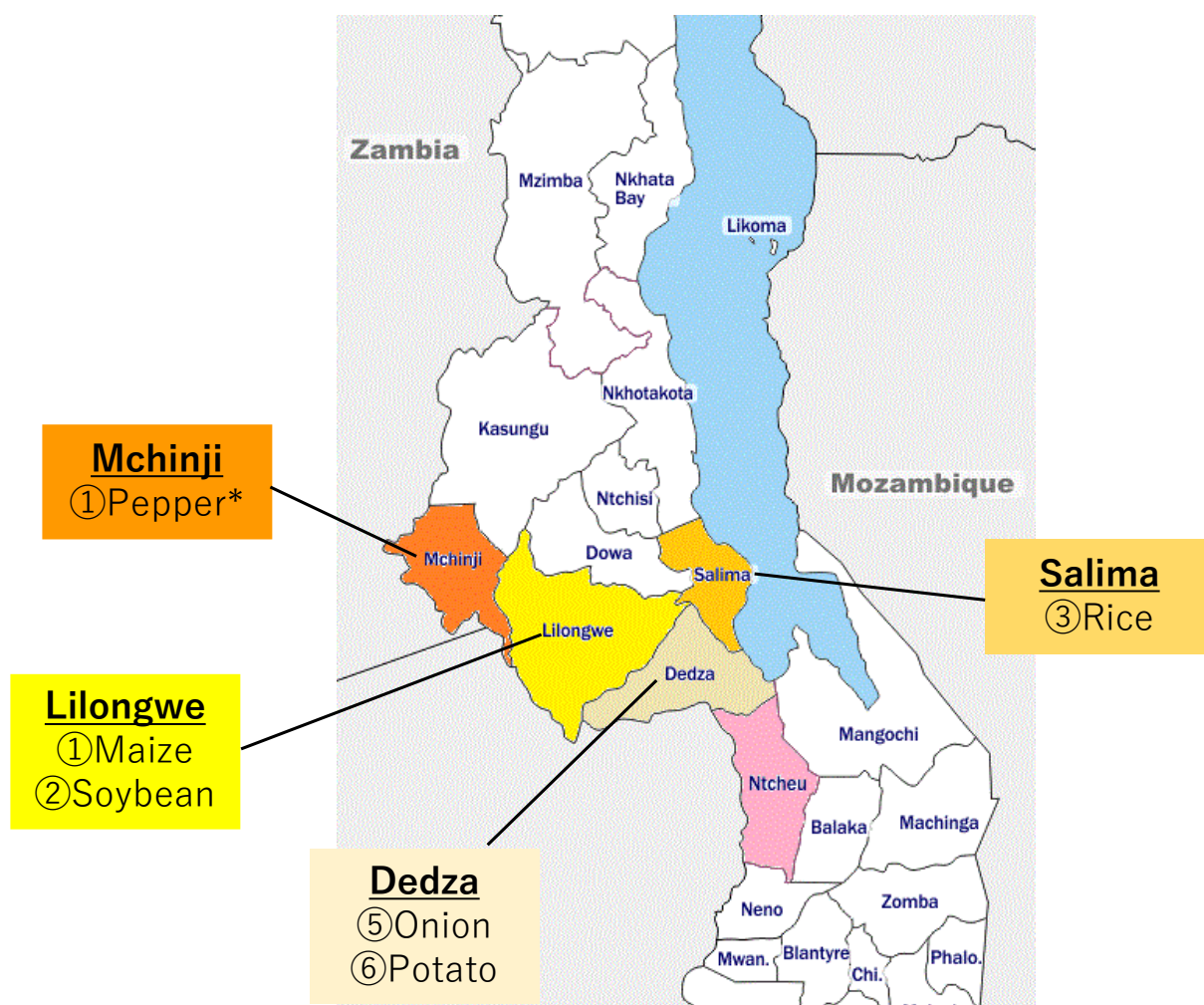
Target crops and areas



Source: Developed by the survey team based on world and country maps

Malawi

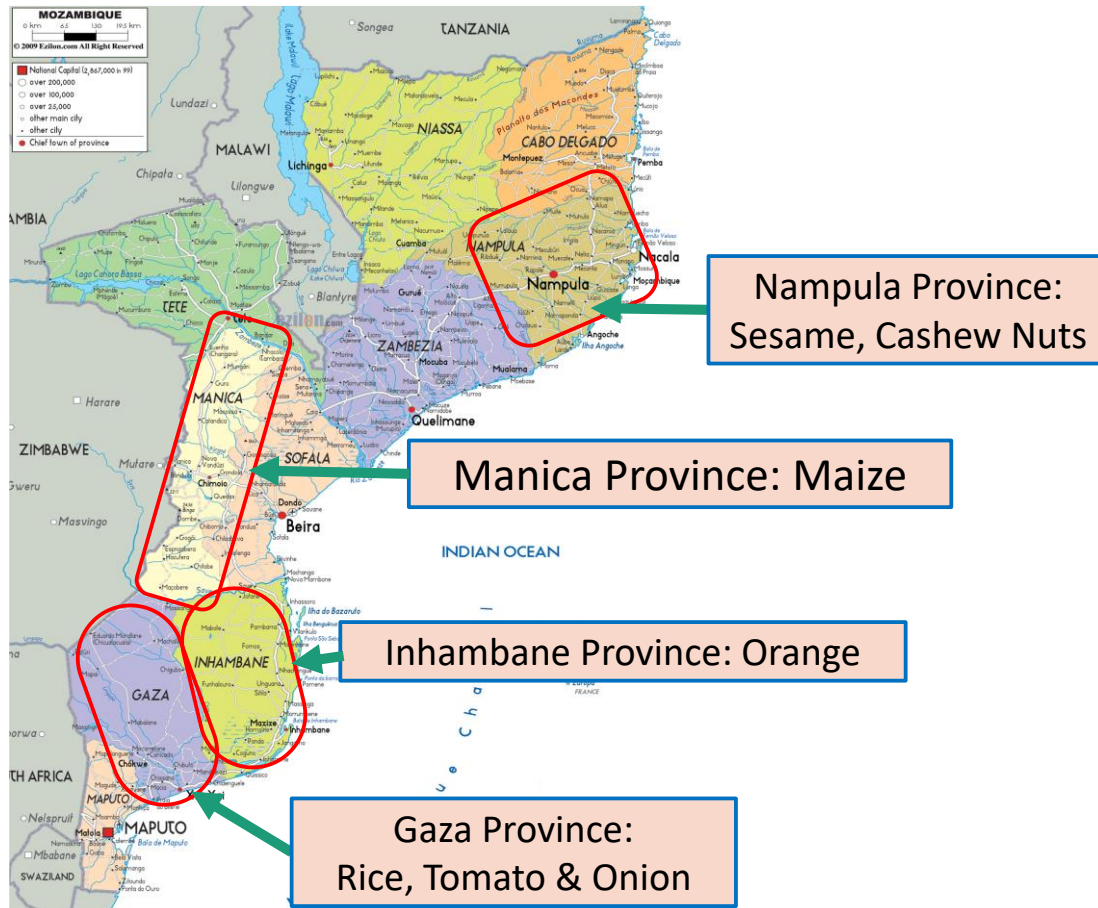
Target crops and areas



Source: Developed by the survey team based on the map from https://d-maps.com/carte.php?num_car=4780&lang=ja

Mozambique

Target crops and areas



Source: Developed by the survey team based on the map from “ezilon Maps”

List of Abbreviations

Abbreviation	Description
ADMARC	Agricultural Development and Marketing Corporation
AfDB	African Development Bank
AICAJU	The Mozambican Association of Cashew Industries
AIP	Affordable inputs programme
AMOFERT	Associação Moçambicano de Promoção de Fertilizantes
AMOMIF	The Mozambican Association of MicroFinance Operators
APIMF	Association Professionnelle des Institutions de MicroFinance
CABIZ	Centre de AgroBusiness
CARD	Coalition for African Rice Development
CFFAMMA	Centre de Formation de Fabrication et d'Application du Machinisme et de Mécánisation Agricole
CGAP	Consultative Group to Assist the Poor
CNC	Conseil National du Cacao
CNFI	Coordinnation Nationale de la Finance Inclusiv
COMESA	Common Market for Eastern and Southern Africa
CRNA	COVID-19 Recovery Needs Assessment
DFR	Draft Final Report
DMM	DOKANY MORA HO AN'NY MPAMOKATRA
DPAP	Direcção Provincial de Agricultura e Pescas
E-COBSI	Expansion of Community-Based Smallholder IrrigationDevelopment Project
ERP	Economic Recovery Programme (Zambia)
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FFF	Forest Farm Facility
FISP	Farm input subsidy programme (Malawi)
	Farmer Input Support Program (Zambia)
FNDS	Fundo Nacional de Desenvolvimento Sustentável
FRA	Food Reserve Agency
FVC	Food Value Chain
GCV	Grenier Communautaire Villageois
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
IAM	Instituto de Amêndoas de Moçambique
ICT	Information and Communication Technology
IFAD	The International Fund for Agricultural Development
IFNA	Initiative for Food and Nutrition Security in Africa
IIAM	Mozambique Institute of Agricultural Research

Abbreviation	Description
JICA	Japan International Cooperation Agency
MADER	Ministério da Agricultura e Desenvolvimento Rural
MFI	Microfinance Institution
MWK	Malawi Kwacha
MZN	Mozambican Metical
OPV	Open Pollinated Variety
PADAP	Projet Agriculture Durable par une Approche Paysage
PAR30	Portfolio At Risk over 30
PEM	Plan Emergence Madagascar
PGE	Politique Générale de l'Etat
PGR	Progress Report
PND	Programme National de Développement
PRADA	Promotion et Adaptation des chaînes de valeur agricoles
PROSPERER	Programme de Soutien aux Pôles de micro-Entreprises Rurales et aux Economies Régionales
PSAEP	Programme Sectoriel Agricole, Elevage et Pêche
ROA	Return On Asset
RPGEM	Réseau des Promoteurs des Groupes d'Epargne à Madagascar
RTGS	Real Time Gross Settlement
SADC	Southern African Development Community
SDAE	Serviço Distrital de Actividades Económicas
SDGs	Sustainable Development Goals
SHEP	Smallholder Horticulture Empowerment & Promotion
SME	Small and Medium Enterprises
SMS	Short Message Service
SNS	Social Networking Service
SNV	SNV Netherlands Development Organisation
SPG	Système Participatif de Garantie
SPM	State Procurement of Madagascar
UKAID	United Kingdom Agency for International Development
UNDP	United Nations Development Programme
UNOPS	United Nations Office for Project Services
USAID	United States Agency for International Development
USD	United States Dollar
VC	Value Chain
WASH	Water, Sanitation and Hygiene
WFP	United Nations World Food Programme

Abbreviation	Description
WHO	World Health Organization
ZFU	Zimbabwe Farmers' Union
ZIAMIS	Zambia integrated agriculture information management system
ZMW	Zambian kwacha
ZMX	Zimbabwe Mercantile Exchange
ZUPCO	Zimbabwe United Passenger Company

All figures and tables with no specified source are based on the results of the panel survey conducted by the survey team. All photographs without a source were taken by the survey team.

Summary

Chapter 1 Background and objectives of the survey

As of December 22, 2021, the number of people infected with COVID-19 in sub-Saharan Africa was approximately 6.8 million (WHO, 2021).¹ Sub-Saharan African countries have undertaken various measures against COVID-19, including restrictions on movement within the country, which have significantly impacted each step of the food value chains (FVCs). Consequently, the nature of FVCs may change drastically in the with / post COVID-19 society.

In this survey, a team of Japan International Cooperation Agency (JICA) consultants (the JICA survey team) analyzed the FVC changes caused by COVID-19 in several countries—especially in the case of certain crops—in Southern Africa. They discussed measures to overcome the impact of COVID-19 on FVCs in these countries, the ideal form of the resilience of FVCs in the with / post COVID-19 world, and the JICA measures to support the realization of such FVCs.

Chapter 2 Survey methods

First, five countries, namely, Zambia, Zimbabwe, Madagascar, Malawi, and Mozambique were selected based on the following criteria: 1) a certain land area and population, and 2) existence of Japan's policy and achievement of development cooperation in the fields of agriculture and rural development. Second, to ensure diversity among target countries in terms of government response to COVID-19, GDP per capita, access to the sea, etc. these five countries were selected.

Crops were selected for the survey in each country based on the following factors: high production volume and export value, cultivation by a large number of small-scale farmers, survey possibility in multiple countries, and interest of JICA. Consequently, the following 15 crops were selected: rice, maize, soybean, sesame, sorghum, kidney bean, tomato, onion, potato, orange, cashew nut, chili, pink pepper, sugarcane, and cocoa.

In this survey, FVCs were divided into the following six stages: input, production (farmers and agricultural cooperatives), processing, distribution (wholesale, export, and import), retail, and consumption (individuals and restaurants), and the impact of COVID-19 was surveyed at each stage. The survey, which lasted from March 2021 to February 2022, included the following methods: a questionnaire survey with stakeholders in each stage of FVC (by a subcontractor); individual interviews; and workshops at the beginning and end of the survey.

Chapter 3 Food value chains in the target countries and the impact of COVID-19

The following is a summary of the impact of COVID-19 on Zambia, Zimbabwe, Madagascar, Malawi, and Mozambique in 2020 and 2021.²

● Zambia

The FVCs were affected by high prices of inputs, disruptions in logistics, and higher prices of

¹ <https://covid19.who.int/>

² The study examined how the impact occurred from 2020 to 2021 in comparison with 2019.

the target crops. However, in terms of production, processing, and distribution, there was no clear overall decrease, and different trends were observed for different target crops. In the case of retailing and consumption, a downward trend was observed for almost all target crops. Consumption was sluggish because of low income and high retail prices associated with the target crops, resulting in a decline in retail sales. The overall trend was not significantly different between 2020 and 2021.

- Zimbabwe

In 2020, the agricultural sector as a whole was generally healthy, with strong demand despite difficulties in procuring inputs because of restrictions on movement within and across borders. Deterioration was observed from production to consumption as a whole, although the type and degree of impact of COVID-19 on the relevant businesses varied. The main reason for this is that government regulations—especially strict movement restrictions—in the face of COVID-19 disrupted logistics. In 2021, crop production and sales improved because of the recovery of consumer income, domestic demand, and favorable weather conditions. The value chain of certain crops—especially export crops, such as sesame, and crops with short shelf-life, such as tomatoes—was still affected because of restrictions on movement and border control.

- Madagascar

Disruptions in domestic and international transportation systems increased the selling prices of agricultural inputs, making procurement difficult for farmers. However, its impact on yields was limited, with certain crops being more affected by unseasonable weather and diseases. Tomatoes, which have a short shelf-life, were affected by market closures, whereas export products, such as pink pepper and cocoa, were affected by declining overseas demand. Rice, however, was not significantly affected, as it was supported by strong domestic demand and government policies. Processors and retailers experienced reduced sales because of government restrictions on business hours. Consumer demand for rice and fresh vegetables did not decline, but the demand for processed products did. Increased awareness of food safety among consumers and other VC stakeholders, and greater use of information and communications technology (ICT) tools in business are positive changes effected by COVID-19.

- Malawi

In 2020, unit sales prices showed an upward trend from input to retail. This can be attributed to the increase in various costs, such as agricultural inputs, distribution costs, and store operating costs at each VC stage. Sales volume showed a downward trend in processing and retail, suggesting that higher producer prices were reflected in raw material prices and retail prices. In 2021, the prices of the target crops showed an upward trend throughout the VC. This can be caused by continuously imposed COVID-19-related regulations, such as movement and business restrictions, as well as the rise in prices of imported and exported goods because of the depreciation of the exchange rate, which has continued since 2020.

- **Mozambique**

In 2020, the cost of procuring inputs rose because of restrictions on movement and border control, but there was no significant impact at the retail level owing to strong demand from farmers. From production to consumption, the impact of COVID-19 was small for maize and rice, with stable domestic demand. For other crops, there was a general worsening trend. The main reason for this was the disruption of logistics caused by restrictions on movement and business. In the case of crops consumed domestically, the negative impact of COVID-19 included a decrease in consumer purchasing power; for export crops, the negative impact was a decrease in overseas demand.

In 2021, there was a recovery in consumer income and an upward trend in sales volume in distribution and retail. Crops with improved access to inputs increased in production, whereas maize production declined significantly because of adverse weather conditions and deteriorating access to inputs. The export crops—sesame and cashew nuts—continued to be affected by stagnant foreign demand and disruptions in international transport.

Chapter 4 Cross-country analysis of the impact of COVID-19 on the food value chains

Of the 15 target crops, nine were surveyed in multiple countries. A summary of the cross-country analysis of the impact of COVID-19 on these nine crops from 2020 to 2021³ is provided below.

- **Maize VC (target countries: Malawi, Mozambique, Zambia, and Zimbabwe,)**

Maize is a major grain in the countries surveyed, and each country has a certain amount of stockpiled maize, so there was no market disruption or extreme shortage of maize due to COVID-19. The impact of COVID-19 on maize VC in the surveyed countries was considered to be limited, and the volume of maize dealt with in the VC depended on crop production and VC development status in each country.

- **Rice VC (target countries: Madagascar, Malawi, Mozambique, and Zambia)**

There was no significant change in production, but the volume handled in the remaining VC stages showed a downward trend. The reasons for this decrease include higher purchase prices, insufficient supply, and movement restrictions due to government regulations related to COVID-19. As for imported rice, there were shortages due to higher import prices, import and export restrictions, and border blockades.

- **Soybean VC (target countries: Malawi and Zambia)**

With the exception of retail and consumption, the impact of COVID-19 on soybean VC was limited. Weather conditions were favorable, and production did not decline. Processing and distribution showed an upward trend, supported by firm export demand. Although there were a few logistical disruptions and movement restrictions due to COVID-19, these effects were small because of the relatively high capacity of processors and distributors. However, retail and consumption trends showed

³ Same as above

a decline because of the high retail price of processed soybean products and the low income of consumers.

- Sesame VC (target countries: Mozambique and Zimbabwe)

There was a downward trend in the volume handled at each VC stage. Sesame—an export crop—was strongly affected by the decline in demand and stagnation in logistics due to COVID-19 at the export destination. The impact of COVID-19 on sesame VC was greater than that on other target crops.

- Kidney bean VC (target countries: Madagascar and Zimbabwe)

No common trend in the impact of COVID-19 was observed in the VC in either country. In Zimbabwe, there was a declining, or slightly declining trend in the volume handled throughout the VC. The reasons for the decline in production included unfavorable weather conditions and difficulties in accessing agricultural inputs due to COVID-19. In Madagascar, the production volume was affected by the weather, and the handled volume in the VC was also affected by the production volume.

- Tomato VC (target countries: Madagascar, Malawi, Mozambique, Zambia, and Zimbabwe)

In 2020, the entire VC was on a contractionary trend because of the impact of COVID-19, but a recovery trend was seen in Mozambique and Zimbabwe in 2021. Production showed a downward trend because of higher prices and shortages of inputs caused by COVID-19. Tomato exports showed an upward trend, as the decline in domestic demand might have passed on to exports. In terms of retail and consumption, Zambia and Zimbabwe showed a declining trend in 2020, although Zimbabwe showed an improving trend in 2021.

- Onion VC (target countries: Madagascar, Malawi, Mozambique, Zambia, and Zimbabwe)

In 2020, production decreased in all target countries, mainly because of deteriorating access to inputs. In 2021, production showed an upward trend, except in Madagascar and Malawi. The main reasons for this increase included favorable weather conditions and improved access to quality seeds.

The volume of distribution fluctuated in accordance with the volume of production. As for consumption, it stagnated in Zambia because of lower incomes and higher unit selling prices. In Zimbabwe and Mozambique, consumption increased in 2021 as consumer income recovered. In Madagascar, consumption of onions—it has a long shelf-life—increased in comparison to crops such as beans and tomatoes, which have shorter shelf-lives.

- Potato VC (target countries: Madagascar and Malawi)

The production volume was stable because of favorable weather conditions. The sales volume was also on the rise, influenced by the increase in production. In both countries, the export volume was small, and most of the potatoes were distributed for fresh use; thus, there were no extreme increases or decreases in both procurement and sales volumes. The change in consumption, both fresh and processed, was small during the COVID-19 pandemic, as potatoes have a high advantage over other vegetables in

terms of their shelf life and fungibility for staple foods.

- **Orange VC (target countries: Mozambique, Zambia, and Zimbabwe)**

In 2020, there were no significant changes in production, but retail and consumption showed a downward trend in each country. In 2021, the overall VC of oranges in Zimbabwe and Mozambique showed an increasing trend, whereas Zambia showed a decreasing trend in all VC stages.

In terms of production, an upward trend was observed in Zimbabwe and Mozambique in 2021. In Zimbabwe, this was because of improved access to irrigation water due to good rainfall, and in Mozambique, because of favorable weather conditions and improved access to extension services. In Zambia, however, production decreased because of poor access to pesticides.

Retail and consumption showed a downward trend in Zambia and Zimbabwe in 2020 and 2021 because of low income and high selling prices. In Mozambique, a slight increase in orange consumption was observed despite the high price in 2021, as consumer income recovered and demand increased.

Chapter 5 Recommendations for resilient food value chains with or post COVID-19

Based on the results of this survey, measures to build resilient FVCs in the target countries with / post COVID-19 are discussed, and vulnerabilities and measures are outlined in each stage of FVCs.

- **Input**

High dependence on imported agricultural inputs may lead to a sudden deterioration in access to inputs due to external shocks. To avoid such a situation, medium- to long-term measures include organic farming, use of open-pollinated varieties, joint purchase and storage of inputs by agricultural cooperatives, contract farming with core VC companies, and improved access to finance. A short-term measure includes the provision of subsidies.

- **Production**

Due to a less capacitated agricultural extension system, there is an insufficient provision of agricultural technology and market information to farmers. There are ways to improve this situation by providing cultivation and market information using information and communication technology (ICT), so that farmers can use this information for efficient farming. Furthermore, there is room for improvement in the timing, quality, and cost of farm work, as it relies on human labor. In this regard, widespread use of agricultural machinery hiring services can contribute to timely cultivation, quality field management, and reduction of harvest loss. Additionally, a selection of inappropriate varieties and cultivation techniques reduces the shelf life of fresh vegetables. This can be addressed by selecting appropriate varieties and improving cultivation techniques.

- **Processing**

With regard to the processing of agricultural products, the target countries rely on the import of catalysts, packaging materials, and processing equipment, and external shocks can delay the

importation of these materials, resulting in a decline in processing capacity. In many cases, raw materials are produced domestically, but risk remains that external shocks may affect the procurement of raw materials, resulting in a drop in production. To avoid this situation, it is desirable to develop and/or attract processors with a high overall capacity to stockpile the necessary equipment and materials for processing for a period of time to manage the external shocks.

- Distribution

There are many areas for improvement in customs clearance procedures, such as those related to the time required and costs. An introduction of a national single-window system that computerizes and consolidates trade-related procedures—including customs procedures—can also lead to improvements. Moreover, the improvement of equipment and techniques necessary for customs analysis makes customs clearance procedures more efficient and reduces the impact of unforeseen external shocks.

Additionally, underdeveloped logistics increase the time and cost of transportation, which causes the loss of agricultural products. To solve this, warehousing and cold chain development at logistics hubs are required. The means include warehouse operations by agricultural cooperatives, development of logistics networks by core VC companies, and use of a warehouse receipt system.

- Retail

Price hikes and food shortages may occur due to external shocks when agricultural and food products are imported in large quantities. To mitigate the impact of external shocks and increase food self-sufficiency, it is necessary to promote the production of certain crops. For this purpose, varieties similar to or same as imported varieties should be introduced and technical improvements should be made to them.

- Consumption

When FVCs and the economy as a whole are vulnerable to external shocks, the risks of food scarcity, price rise, and income decline increase. In this situation, food consumption reduces, leading to undernutrition and poverty. This can be addressed by making livelihoods more resilient through the use of financial services, diversification of income sources, and asset building. In the short term, food aid is the most immediate countermeasure.

- Overall VC

One of the common challenges for small-scale FVC actors, such as small-scale farmers, processors, and distributors, is insufficient working capital. Financial services and asset building are necessary for stable business operations, reasonable business expansion, and resilient management that can overcome external shocks.

During the COVID-19 pandemic, ICT has been actively used for communication and payment, but small-scale FVC actors have not been able to fully respond to this trend. They must improve their ICT literacy and use various ICT services so that they do not lose business opportunities.

Chapter 1. Background and objectives of the survey

1.1. Survey background

The number of people infected with the coronavirus disease (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in sub-Saharan Africa has risen to approximately 4.7 million as of July 19, 2021, and further spread is expected (WHO⁴, 2021). Sub-Saharan African countries are taking various measures to prevent the spread of COVID-19, such as restrictions on movement within the country, which have a significant impact on food value chains (FVCs). The nature of FVC may therefore change significantly in with/post-COVID-19 society. The agricultural sector is a major industry in the region, and the transformation of FVCs triggered by the spread of COVID-19 infection is expected to have a significant impact on the social and economic development of the region.

In this context, development partners including the Japan International Cooperation Agency (JICA) have conducted various studies and supportive measures. However, these studies do not provide sufficient information for JICA to consider measures that could mitigate the impact of COVID-19 and form resilient FVCs based on a comprehensive and multilateral analysis because of the following limitations:

- The impact of COVID-19 on the entire FVC is unknown because past studies don't cover the entire FVC
- Differences in impacts by region, country, and crop have not been analyzed.
- Cross-border FVCs (e.g., crops traded between multiple countries) have not been analyzed.

1.2. Purpose of the survey

To complement the limitations of the past and existing surveys identified above, this survey will investigate the changes in the value chains (VCs) and relationships among their steps that are caused by COVID-19. This will be examined within the VC of several crops in several countries, focusing on a whole VC. The purpose of this survey is to compile and analyze the survey results, to draft measures to overcome the impact of COVID-19 on the VCs of target crops in target countries, to outline highly resilient FVCs in the with/post COVID-19, and to identify the support measures from JICA that can realize these VCs. As shown in Figure 1-1, this study divides a FVC into six steps.



Figure 1-1 Six steps that make a FVC

1.3. Surveyed crops and target areas

The survey covers five countries in Southern Africa: Zambia, Zimbabwe, Madagascar, Malawi, and Mozambique. Among the 13 countries in Southern Africa, six countries⁵ were excluded prior to detailed selection because of their small size in terms of population and area, lack of JICA projects, and

⁴ <https://covid19.who.int/>

⁵ Comoros, Eswatini, Mauritius, Lesotho, Botswana, Namibia

plans in the agricultural and rural development sectors in the Ministry of Foreign Affairs' Country Assistance Policy after 2020. In order to select five countries out of the remaining seven countries⁶, two types of criteria were set: those that should be met and those that require diversity within the five countries. The purpose of the latter criterion was to compare the impact of COVID-19 in countries with different situations. The three points that needed to be met were: (1) current implementation of JICA agricultural and rural development projects, (2) an existing plan in the agricultural and rural development sectors in the Ministry of Foreign Affairs' Country Assistance Policy, and (3) the country is targeted for JICA's three approaches in the agricultural sector in sub-Saharan Africa; Coalition for African Rice Development (CARD), Smallholder Horticulture Empowerment & Promotion (SHEP), and Initiative for Food and Nutrition Security in Africa (IFNA). When the remaining seven countries were examined, five of them (Zambia, Zimbabwe, Madagascar, Malawi, and Mozambique) fulfilled these three criteria very well, while Angola and South Africa hardly met them.

The other five criteria where diversity among target countries is desirable are (4) implementation of COVID-19 restrictions on internal migration and economic activities, (5) membership in the Common Market for Eastern and Southern Africa (COMESA), (6) donor support related to COVID-19 in the agricultural sector, (7) GDP per capita in 2019, and (8) access to the sea. These criteria were verified in five countries, Zambia, Zimbabwe, Madagascar, Malawi, and Mozambique, and it was confirmed that sufficient diversity could be ensured, so these five countries were selected for the survey.

The 15 crops examined in the survey are rice, maize, soybean, sesame, sorghum, kidney bean, tomato, onion, potato, orange, cashew nut, chili, pink pepper, sugarcane, and cacao. The crops were selected based on the following factors: high production volume and export value, cultivation by a large number of small-scale farmers, can be surveyed in multiple countries, and interest from JICA. The target countries and crops are summarized in Table 1-1.

⁶ Angola, Zambia, Zimbabwe, Madagascar, Malawi, South Africa, and Mozambique

Table 1-1 Target countries and target crops for this study

Countries	Zambia	Zimbabwe	Madagascar	Malawi	Mozambique
Cereals	Rice		Rice	Rice	Rice
	Maize	Maize		Maize	Maize
	Soybean			Soybean	
		Sesame			Sesame
		Sorghum			
		Kidney bean	Kidney bean		
Horticultural crops	Tomato	Tomato	Tomato	Tomato	Tomato
	Onion	Onion	Onion	Onion	Onions
			Potato	Potato	
	Orange	Orange			Orange
					Cashew nut
				Pepper	
Industrial crops			Pink pepper		
	Sugarcane				
			Cacao		

Chapter 2. Survey method

2.1. Survey flow

This study was initiated in February 2021. This Final Report (FR) is prepared based on the results of the survey through January 2022. The flow of the survey is shown in Figure 2-1.

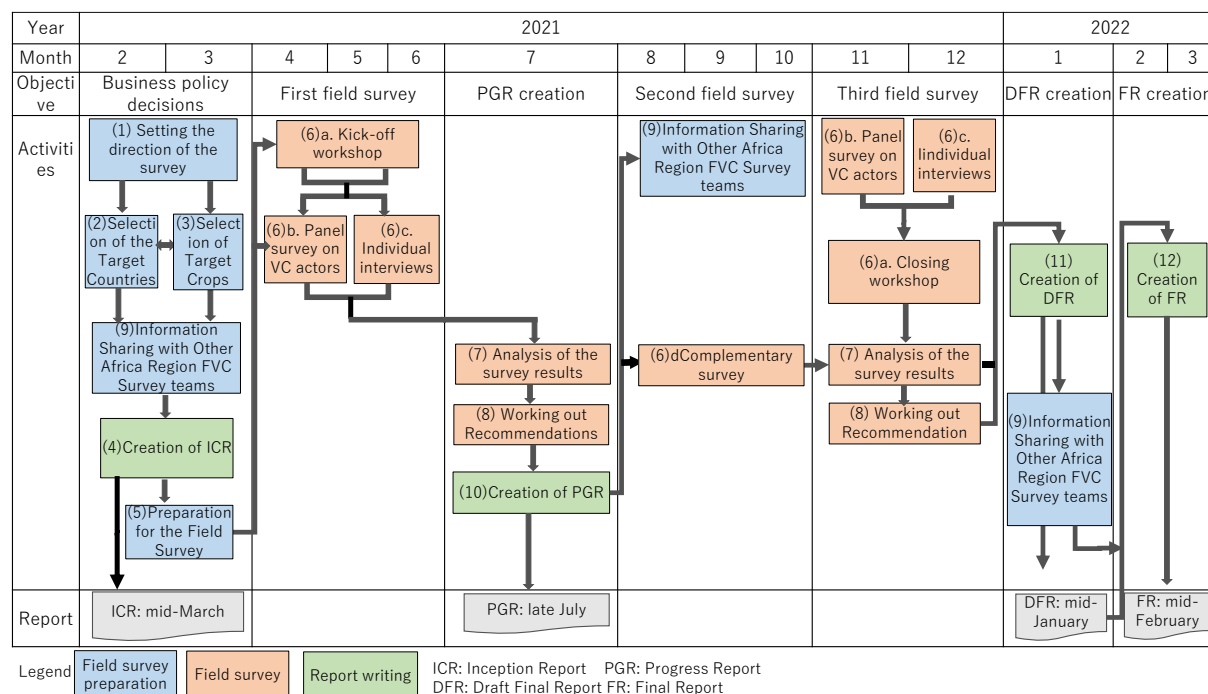


Figure 2-1 Flowchart of the implementation of this study

2.2. Composition of the survey team

The members of this survey are listed in Table 2-1.

Table 2-1 Composition of the study team

Field	Name	Company
Team leader/Agricultural Policy	Mr. Kenichi Machida	Kaihatsu Management Consulting Inc.
Sub-Team leader/Production/Consumption (1)	Mr. Takashi Kotegawa	NTC International Co., Ltd.
Distribution/Retail (1)	Mr. Tatsuya Yamaguchi	Kaihatsu Management Consulting Inc.
Production/Consumption (2)	Ms. Maiko Takemura	NTC International Co., Ltd.
Distribution/Retail (2)	Mr. Kodai Yugeta	Kaihatsu Management Consulting Inc.

2.3. Survey method

In this study, information was collected and analyzed through the following activities, and the FR was prepared.

2.3.1. Kick-off workshop

At the beginning of this study, a kick-off workshop was held with public and private stakeholders of the target crops' VC in each of the target countries. The purposes of the workshop are i) to explain the outline of the survey and request cooperation thereafter, and ii) to obtain an overview of

the impact of the COVID-19 at each stage of the VC. Group work was conducted at each stage of VC and the causal relationship of the impact of COVID-19 was analyzed. The date of the kick-off workshop in each country and the number of participants are summarized in Table 2-2. The number of people attending and participating in the workshop in a face-to-face style may have been affected by COVID-19. For example, some invitees were reluctant to participate in the face-to-face workshop because of the risk of infection, and restrictions on the number of participants in a gathering were imposed by the government and the JICA office in each target country to prevent the spread of COVID-19. The list of participants is shown in Appendices.

Table 2-2 Date of kick-off workshop and number of participants

Country	Date(s)	Number of participants
Zambia	14 th -15 th April 2021	17 people
Zimbabwe	28 th -29 th April 2021	40 people
Madagascar	AM, PM 28 th April 2021	26 people
Malawi	19 th -20 th May 2021	32 people
Mozambique	28 th April 2021	40 people

2.3.2. Closing workshop

In closing the fieldwork of this study, a closing workshop was held with public and private stakeholders in each of the target countries. The purpose was to explain the findings of the study and to present draft project concepts for building resilient FVCs, and to ask questions and receive feedback to improve the report of the survey. The dates and number of participants at the closing workshops in each country are summarized in Table 2-3. The list of participants is attached as an Appendix.

Table 2-3 Date of closing workshop and number of participants

Country	Date(s)	Number of participants
Zambia	14 th December 2021 with donors 16 th December 2021 with VC stakeholders	4 people 25 people
Zimbabwe	15 th December 2021	30 people
Madagascar	9 th December 2021	32 people
Malawi	16 th December 2021	36 people
Mozambique	9 th December 2021	18 people



Kick-off workshop in Zambia

2.3.3. Panel survey

The main activity for information collection in this study was a panel survey undertaken by a sub-contractor in each target country. The survey target is stakeholders who directly engage in the VC of each target crop, and the main survey items are the status of the VC before and after the outbreak of COVID-19, reasons for the change in the VC, and how the stakeholders have addressed the changes. Based on past COVID-19 impact surveys and the results of the kick-off workshop described in 2.3.1, questionnaires were developed and twice surveys were conducted on the same target. The original plan was to carry out four surveys for tomatoes and onions, which are harvested all year round. However, these crops were also reduced to two surveys because of the time taken to identify the first survey's samples. It was also observed that the VC situation was relatively stable during the first survey. Standard sample numbers and numbers of survey times of the panel survey are summarized in Table 2-4. The actual sample size is shown in Table 2-5. Data from these samples are the main source of the analysis in this report. In some cases, the survey targets did not consent to providing the information, and in other cases, there were very few relevant survey targets. As a result, the number of samples doesn't reach the standard sample size in some survey targets, which was one of the limitations of the analysis.

Table 2-4 Survey target and sample size of the panel survey

Item	Input	Production	Processing	Distribution	Retailing	Consumption
The standard sample size for each target crop (number in parentheses)	<ul style="list-style-type: none"> Input importers, input makers (5) Input distributors (7) 	<ul style="list-style-type: none"> Small scale farmer (30) Medium and large scale farmers (10) Agricultural cooperatives (3) 	Processors (5)	Importers (3) Exporters (2) Intermediaries (10)	Retailers (6 stores, 6 markets)	<ul style="list-style-type: none"> Restaurants (3 urban, 2 rural) General consumers (urban 40, rural 40)
	Financial Institutions (3)					
Frequency and timing of surveys	First round: from April to July 2021 Second round: from November to December 2021					

Table 2-5 Number of samples obtained for the second round of the panel survey

VC	Categories	Zambia	Zimbabwe	Madagascar	Marawi	Mozambique
Input	Input importers	21	15	0	7	8
	Input makers	25	15	18	30	35
	Input distributors	57	9	13	5	8
Production	Farmers	286	266	274	282	283
	Agricultural cooperatives	24	23	9	19	25
Processing	Processors	32	31	12	28	16
Distribution	Importers	29	19	0	28	24
	Exporters	23	13	4	25	3
	Intermediaries	79	66	40	73	50
Retailing	Retailers	49	38	6	7	50
Consumption	General consumers	115	77	71	80	100
	Restaurants	19	7	3	5	4
Cross-cutting	Financial institutions	3	3	1	3	2

2.3.4. Individual interviews

Individual interviews with VC stakeholders in the public and private sectors were conducted to complement the panel survey. The target was respondents to the panel survey, who were primarily government officials from the Ministry of Agriculture and the Ministry of Commerce, Trade and Industry, industry associations of the target crops, and development partners. The main topics of discussion are an overview of VCs for each target crop, mechanisms of impact of COVID-19 on the VCs of the target crops, and expected support measures against COVID-19. Since the COVID-19 pandemic is a dynamic situation, individual interviews were conducted twice with the same target as needed.

2.3.5. Alternate survey

Initially, as mentioned above, the intention was to supplement the panel survey, which uses structured questionnaires, with individual interviews, but due to the impact of COVID-19, individual interviews were not carried out as expected. In most cases, travel to the surveyed countries and local business trips within the target countries couldn't be carried out as planned. To compensate for these constraints, the following three alternate surveys were conducted.

(1) In-depth interviews with farmers

Interviews with farmers were held to understand the background to some of the difficult-to-identify trends in sales volumes and prices, such as why the answers “rise” and “fall” received almost the same number of responses. In addition, detailed information on farm management and livelihood was collected to explore the farmers' needs for financial inclusion. Two crops were selected in each country for the study.

(2) Focus group discussions (FGDs) with processors

FGDs were held to analyze a wide range of issues in the processing industry, including those not related to COVID-19, with the aim of using the results to formulate project concepts for building resilient FVC. Two crops were selected per country for the study. In some countries, however, it was not possible to conduct the survey due to restrictions in place to prevent the spread of COVID-19.

(3) In-depth interviews with consumers

Additional questions were asked about the income and expenditure of consumers (private business owners) and their use of financial services to find out more about the impact of COVID-19 on households and how they cope with that impact, and to explore the needs of financial inclusion.

Chapter 3. Food value chains in the target countries and the impact of COVID-19

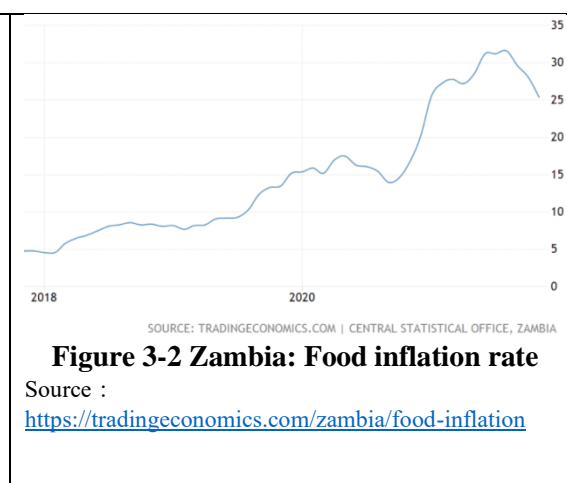
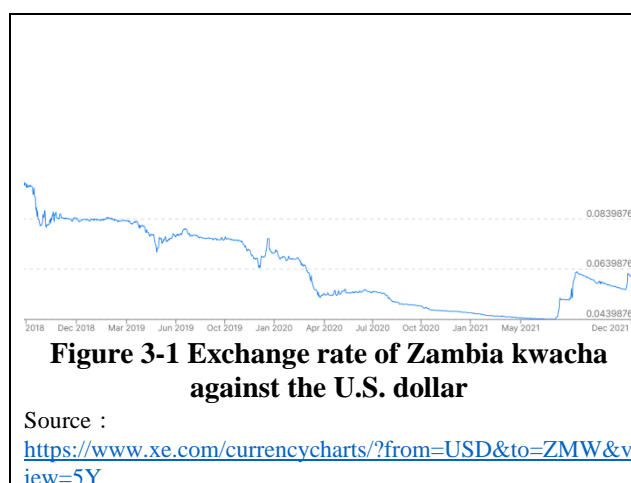
3.1. Zambia

3.1.1. Socio-economic overview focusing on the agricultural sector

As summarized in Table 3-1, Zambia has a population of about 18 million and one of the highest population growth rates in the world at about 2.9%, but due to the vast size of the country, the population density is relatively low at 23.3 persons/km². This creates a situation where there is still plenty of farmland available for each farmer. The poverty rate is 54.4% and the Gini coefficient is 0.57, both of which are high. As shown in Figure 3-1, the exchange rate of the Zambian kwacha (ZMW) against the US dollar (USD) was about ZMW14/USD in January 2020 but depreciated sharply in March 2020 when the pandemic of COVID-19 began and continued to depreciate. In August 2021, it rose by about 30% and the exchange rate recovered to ZMW16/USD in December 2021. The food inflation rate, shown in Figure 3-2, was high even before the outbreak of COVID-19 at around 15%, and after the outbreak of COVID-19, it rose sharply to more than 30% as of June 2021. It is now 25% as of December 2021, showing a recovery trend.

Table 3-1 Zambia: Population and Economic Statistics

Population (2019)	17,861,034	Source: Demographic statistics https://data.worldbank.org/country/zambia Population density : https://data.worldbank.org/indicator/EN.POP.DNST?locations=ZM GDP per capita : https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=ZM
Population growth rate (2019)	2.9%	
Population density (2018)	23.3 / km ²	
GDP per capita (2019)	USD1,305	
Poverty rate (2015)	54.4%	
Gini coefficient (2015)	0.57	
Life expectancy at birth, total (years) (2019)	63.886	



As shown in Table 3-2, agriculture accounts for only 3% of GDP, but it accounts for 24% of the working population, which is more than that of industry. This means that while agriculture supports the livelihood of a large rural population, the income of farmers remains low compared to other sectors.

Table 3-2 Zambia: Sectoral composition of GDP and employment population

Item	Agriculture	Industry	Service
Composition of GDP (2019) ¹	3%	39%	58%
Composition of employment population (2019) ²	24%	19%	57%

Source 1 : CIA World Fact Book, 2 : ILO, <https://ilostat ilo.org/data/country-profiles/>

As shown in Table 3-3, sugarcane, the agricultural crop most frequently produced in Zambia, is processed into various sugar products which are major exports (Table 3-4). Maize, a staple food, and soybean, one of the main commodity crops, are also produced in large quantities and exported as maize meal and soybean cake. Table 3-5 shows that edible oil (palm oil and soybean oil) and rice are the major imported products.

Table 3-3 Zambia: Top 10 agricultural products in quantity (2019)

Item	Value (ton)
Sugar cane	4,994,302
Cassava	4,036,584
Maize	2,004,389
Vegetables, fresh nes	402,406
Soybeans	281,389
Tobacco, unmanufactured	153,839
Wheat	151,850
Groundnuts, with shell	130,825
Sweet potatoes	109,336
Fruit, tropical fresh nes	84,731

Table 3-4 Zambia: Top 10 agricultural exports in value (2019)

Item	Value (USD 1000)
Sugar Raw Centrifugal	91,657
Tobacco, unmanufactured	68,537
Beverages, non alcoholic	62,550
Cotton lint	53,355
Maize	36,965
Cake, soybeans	33,749
Pastry	31,914
Sugar refined	24,153
Sugar confectionery	20,752
Cereals, breakfast	12,452

Table 3-5 Zambia: Top 10 agricultural imports in value (2019)

Item	Value (USD 1000)
Oil, palm	57,548
Food prep nes	31,150
Beer of barley	29,761
Meat, chicken	23,479
Oil, soybean	22,896
Rice, paddy (rice milled equivalent)	18,388
Food wastes	15,951
Rice, milled	14,093
Wheat	10,663
Juice, fruit nes	9,984

Source : FAOSTAT

3.1.2. COVID-19 situation, relevant measures and policies, and responses by development partners

(1) COVID-19 situation and regulations against COVID-19 in Zambia

As shown in Figure 3-3, newly confirmed COVID-19 cases in Zambia recorded a minimal peak in June-August 2020, followed by a larger peak in January-February 2021 and an even larger peak in June of the same year. Regulations by government agencies to prevent the spread of COVID-19 infection, such as lockdowns within restricted areas, strengthened quarantine, restrictions on the number of people at gatherings, restrictions on the operation of restaurants, and restrictions on the number of employees working in government agencies, were issued from March to May 2020. However, most regulations were uplifted or relaxed by around May 2021, with the exception of restrictions on the number of gatherings (up to 50 people), additional quarantine by May 2021. However, following the increase in infection spread in June 2021, restrictive measures have been strengthened, including banning meetings, wearing masks in public places, requiring restaurants to only provide food as take out rather than inside dining, and closing of all schools, colleges, and universities but introduced online

learning into these educational institutions. The tightened restrictive measures were relaxed as the number of new COVID-19 cases decreased, but due to the spread of the Omicron variant in South Africa in November 2021, the restrictive measures were tightened again in December 2021.

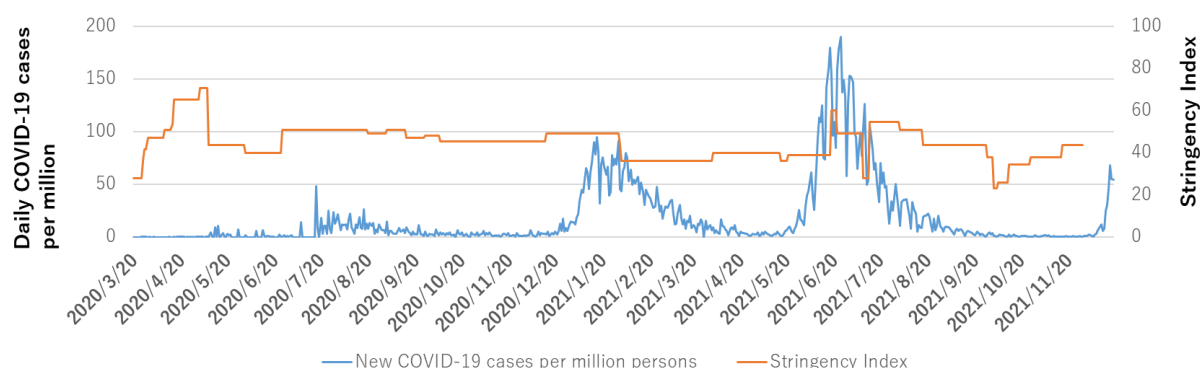


Figure 3-3 Zambia: Newly confirmed COVID-19 cases per week (from March 2020 to November 2021)

Source : <https://ourworldindata.org/grapher/covid-stringency-index>

(2) Measures against COVID-19 by the Zambian Government in the agricultural sector

The Zambian government is implementing a national economic policy, the Economic Recovery Programme (ERP) 2020-2023, which also aims to mitigate the impact of COVID-19 on society and the economy. Pillar 3: Restoring Growth and Diversifying the Economy describes the policy on agriculture as shown in Table 3-6. The content of the policy is in line with the existing agricultural policy and doesn't necessarily focus specifically on the fight against COVID-19.

Table 3-6 Contents of Economic Recovery Programme (ERP) 2020—2023 in the agricultural sector

Promotion of domestic and international markets	Increased agricultural exports
	Increased participation on commodity exchange platforms
Increased Agricultural Productivity	Enhancing extension service delivery
	Shift resources to key drivers of agriculture
	Farm blocks and aquaculture parks development
	Control of diseases and migratory pests
	Irrigation development
Diversification	Promotion of tree crops
	Diversification away from maize
	Production and export of industrial hemp and medicinal cannabis
	Livestock promotion
	Increase fish production
Government Private Sector Joint Action	Enhance private sector participation

Source: Economic Recovery Programme (ERP)2020 — 2023

(3) Responses against COVID-19 by development partners in the agricultural sector in Zambia

The survey team has met with the following development partners as the World Bank, AfDB, EU, FAO, IFAD, USAID, and SNV Netherlands Development Organisation (SNV) to learn more about their support for COVID-19 control in the agricultural sector.

1) Responses against COVID-19 to date

The interviewed development partners haven't undertaken any interventions specifically designed against COVID-19. Under various constraints, they are proceeding with the current projects with necessary modifications including remote training, outsourcing of training, and small-group training. In some cases, there were delays in the progress of the projects because the modifications took more time to prepare or required more frequent training sessions than the usual methods. There were also cases where inputs, kids or lambs, and fry were distributed to farmers in addition to the initial plan as responses to COVID-19.

Only one project to mitigate the impact of COVID-19 on agriculture and food security has been planned by AfDB, but it is awaiting approval by the Cabinet. The main contents of the project are the provision of agricultural inputs and guidance on improving nutrition, and it is planned to be implemented for two years.

2) Plan of the responses against COVID-19

In Zambia, a study was conducted by the Zambian Ministry of National Development Planning and multiple donors in 2021 to plan comprehensive countermeasures against COVID-19, called the COVID-19 Recovery Needs Assessment (CRNA). The agricultural sector is being led by the EU and FAO, and implemented together with WFP, UNOPS, IFAD, UNDP, and AfDB. All information for CRNA is provided by the Zambian government, mainly the Department of Statistics, and no new information is being collected through questionnaire survey or other means. The results were compiled at the end of July 2021, and the Zambian government and relevant donors will implement subsequent measures against COVID-19 based on the results.

3.1.3. Impact of COVID-19 on the value chain of the target products

(1) Characteristics of the impact of the pandemic of COVID-19 on FVCs in Zambia

As shown in Table 3-7, FVCs were affected by the soaring prices of agricultural inputs, disruptions in distribution, and rising prices of the target products. However, in production, processing, and distribution, there was no clear overall decrease, and different trends were shown depending on each target product. In retail and consumption, a downward trend was clearly observed for almost all the target products. Consumption declined due to lower incomes and higher retail prices of the target products, and retail sales also declined as a direct result. The overall trends in 2020 and 2021 were not significantly different.

Table 3-7 Zambia: Characteristics of the impact of the pandemic of COVID-19 on FVCs

	VC	Input	Production	Processing	Distribution	Retailing	Consumption
2020 (compared to 2019)	Results	Sales volume was on a downward trend.	Production volume was on an increasing trend in general, except for tomatoes and onions.	Processing of maize increased, while that of rice and soybean were on a decreasing trend.	Trading of maize and soybean and their processed products increased, while that of milled rice decreased.	All target products decreased their sales.	Sales of soybean meat increased as a substitute for meat despite the decline in many of the target products.
	Causes	Prices of imported inputs doubled due to the depreciation of ZMK.	Good rainfall increased production of rainfed field crops. Production of vegetables decrease due to deteriorating access to inputs.	The increase of production was due to increased demand and supply of raw materials. The decrease was due to shortage of raw materials probably resulted from logistics disruptions.	The increase in demand increased trading of maize and soybean. The reason for the decrease in rice was rising prices.	Rising prices and falling demand are the reasons for decrease in sales.	The reason for the decrease in consumption was rising prices and falling income.
2021 (compared to 2019)	Results	Similar trend as in 2020.	Increasing trend. However, tomatoes and oranges show a decreasing trend.	Increasing trend, except for rice.	Increasing trend for all crops.	Similar trend as in 2020.	Similar trend as in 2020.
	Causes	Similar trend as in 2020.	Sufficient rainfall increased production of rainfed crops. Production of vegetables and fruits reduced due to insufficient access to inputs.	Similar trend as in 2020.	Demand increased.	Similar trend as in 2020.	Similar trend as in 2020.

The impact of COVID-19 on FVCs in Zambia can be characterized as significant on consumption and directly related to retail. As shown in Figure 3-4, with the exception of export-oriented agricultural products, domestic consumption accounts for a large part of the demand for agricultural products, and a continued decline in consumption could lead to a contraction in production and a decrease in farmers' income. However, as of December 2021, this impact has not been seen to this extent.

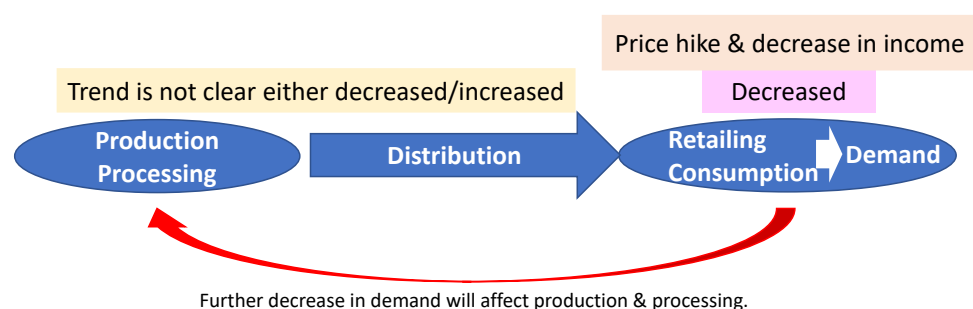


Figure 3-4 Relationship between declining consumption and declining production

Regarding the decline in income and the sharp rise in prices under the pandemic of COVID-19, the background can be analyzed from the perspective of FVC as follows

- Import dependence: The high dependence on imports of inputs, non-raw processing materials and equipment, and foodstuffs has led to shortages and price increases due to the logistics disruptions caused by COVID-19. COVID-19 also affected origin countries, resulting in production cutbacks

and logistical delays, which spurred a shortage of goods imported into Zambia. In addition, the sharp drop of the value of ZMW against USD immediately after the outbreak of COVID-19 also greatly increased the prices of imported goods.

- Delayed use of digital transformation (DX): The COVID-19 pandemic required non-face-to-face and non-contact communication. However, the use of DX was insufficient in Zambia, leading to obstacles to communication and trading goods among VC stakeholders and increased production and distribution costs.
- Underdeveloped distribution: Farmers generally don't engage in collective sales of crops and don't have storage spaces. Logistical disruptions, even if they are temporary, easily lead to crop shortages.
- Unorganized farmers: Individual small-scale farmers were unable to cope with rising prices, shortages of inputs, and logistical disruptions, resulting in lower agricultural profits.
- Reduced income for urban workers: Foodservice industry was affected, but the impact on other industries is unknown.
- Underutilization of financial services: Consumers have little financial knowledge. They cannot use their customary land as collateral and face difficulties in obtaining loans without collateral. Thus, it was difficult to utilize financial services to cope with the decrease in income.

(2) Agricultural inputs

1) Highlights

The overall downward trend in the sales volume of agricultural inputs was due to logistical disruptions, including customs clearance and quarantine, production declines in exporting countries, and rising input prices caused by currency depreciation. There was little change in the countries from which agricultural inputs were imported.

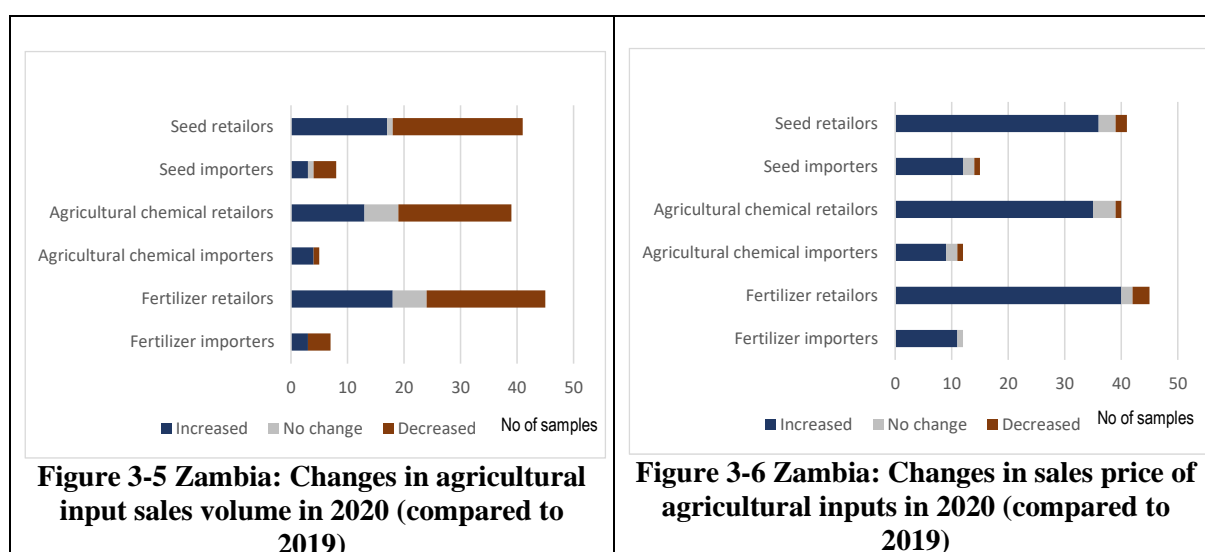
2) Changes in sales

As shown in Figure 3-5, the number of importers, makers, and distributors reported a decrease in the sales volume of agricultural inputs in 2020 than in 2019, is not much different from those who reported an increase. The main reason for the change was an increase in domestic demand for both importers and distributors. The main reason for the decrease was that importers had problems with transportation. From the individual interviews, it was confirmed that customs clearance and quarantine during the COVID-19 pandemic were lengthy. The main reason for the decrease in sales volume among distributors is the increase in unit sales price. While some portions of the maize, soybean, and rice seeds are domestically produced, most other inputs are imported, and as shown in Figure 3-6, retail prices of agricultural inputs nearly doubled from 2019 to 2020 due to the rapid depreciation that the Zambian kwacha experienced immediately after the COVID-19 pandemic began in March 2020. Figure 3-4 also shows that unit price increases for inputs were observed from both importers and distributors. Some distributors cited shortages of goods as the reason for the decline in sales volume, but interviews confirmed that this was due to two factors: the time required for customs clearance and quarantine when importing inputs, as mentioned above, and the decline in production due to the COVID-19 pandemic in the country of origin.

In the case of importers, inputs are sold to wholesalers, middlemen, retailers, input makers, agricultural cooperatives, farmers, and exporters. Regarding the export of inputs, for fertilizers and pesticides, more respondents reported a decrease than an increase, while for seeds, the increase exceeded the decrease. Input distributors sell to three main customers: government (subsidies), agricultural cooperatives, and farmers, with agricultural cooperatives serving as a coordinating body between the Zambian government and farmers for purchasing and distributing subsidized inputs to farmers. The final users of inputs are farmers even though any buyers and sellers deal with agricultural inputs.

In 2019 and 2020, there are two input subsidized systems, and each system is different from one district to another. One system is distribution through input retailers, and another is a direct distribution system by the government⁷. In the former, input sales at input dealers were not significantly affected by the COVID-19, while in the latter, input sales at retail outlets were affected by higher prices, leading to lower sales volumes. This is why retailers' responses to the question about sales volumes show both an increase and a decrease.

The changes in 2021 in terms of volumes and unit prices of agricultural inputs sold (compared to 2019) are similar to the changes in 2020 described above. With the exception of seeds for some cereals and oilseed crops, most agricultural inputs are imported, and thus this trend is unlikely to change significantly as long as the low kwacha rate⁸ continues.



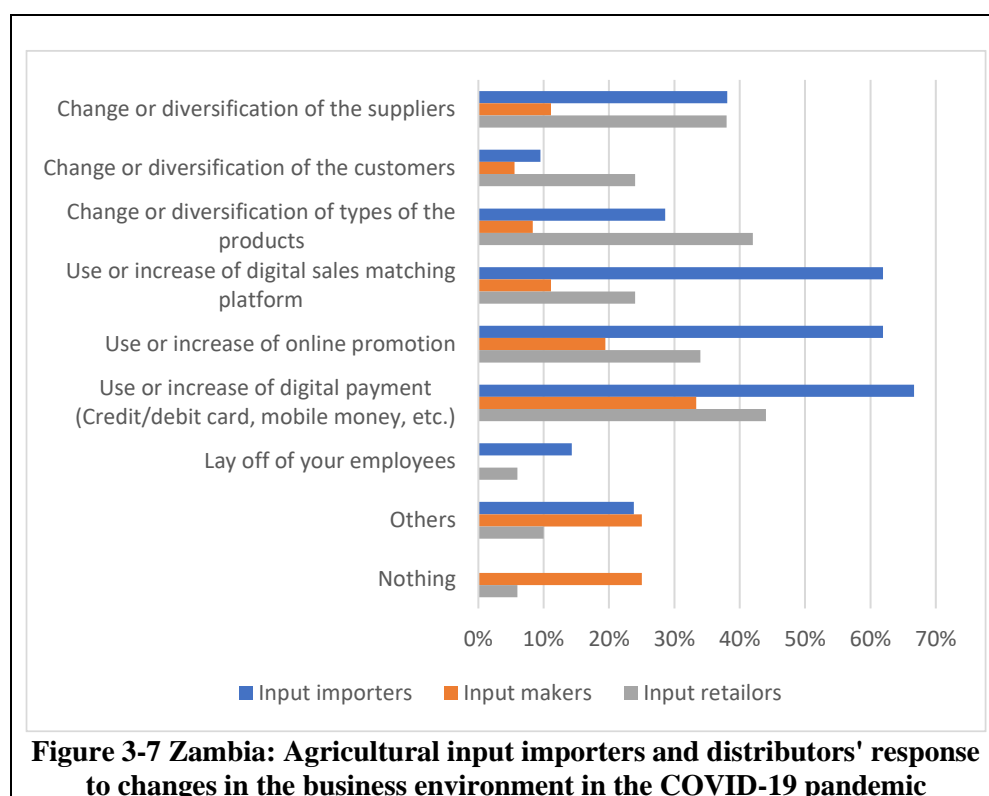
3) Response to COVID-19

Figure 3-7 shows the responses of importers and distributors to the changes in the business environment during the COVID-19 pandemic. Holistically, importers have attempted to respond to the changes in a variety of ways, but this may be attributed to the difference in their capacity as firms between importers and distributors. In addition, both importers and distributors are actively adopting the use of ICTs such as digital matching, online sales promotion, and digital payments. This indicates that

⁷ From 2021, the government distributes subsidised inputs directly to farmers with a few exceptional districts.

⁸ The appreciation of the Zambian kwacha against the US dollar by around 20% in August 2021 has halted the price increase trend for some inputs.

business methods that avoid face-to-face contact are prevalent in the pandemic.



4) Changes in countries from which agricultural inputs are imported

Agricultural inputs were imported from South Africa, Mozambique, China, India, Saudi Arabia, Israel, and Germany, and there was little change in this between 2019 and 2020. The reason for this is that some input importers are subsidiaries or sales agents of input manufacturers, and other importers have closed annual contracts for input imports, making it difficult for them to immediately change their suppliers, according to individual interviews.

(3) Production

1) Highlights

The depreciation of the currency due to COVID-19 pushed up the prices of agricultural inputs affecting the production of tomatoes and onions in particular. COVID-19 also had some impact on sales, though it seems to be somewhat limited. 2021 was a bumper year for crops other than tomatoes because the impact of COVID-19 had diminished and the weather was favorable.

2) Change in harvested area

Figure 3-8 shows changes in the harvested area of each target crop from 2019 to 2020. Many farmers increased the harvested area of maize and soybean. Figure 3-11 shows that the reason for the increase in the harvested area of maize, a staple food, was mainly due to an increase in production for home consumption, while that of soybean, a commodity crop, was due to a planned increase in

production by farmers. In the case of rice⁹ and tomatoes¹⁰, many farmers reduced their harvested area. Rice farmers reduced harvested area mostly due to unseasonable weather (light rain). For tomatoes, worsening access (higher prices) to seeds, fertilizers, and pesticides was the main reason, and as shown in Figure 3-10, lack of irrigation water and working capital were also cited as reasons for the reduced harvested area.

There was little change in the harvested area of onions, oranges, and sugarcane. In the case of onions, it was probably due to the fact that the demand for onions is high and cannot meet the domestic demand motivating farmers to produce onions instead of input price escalation and the irrigated cultivation makes it less sensitive to rainfall. Oranges are a perennial crop, and sugarcane is a raw material for sugar, which is a major export product, and the demand for sugar in the global market is high, which may have contributed to the sustained harvest area.

As for the impact of COVID-19 on agricultural production, worsening access to extension services, shortage of agricultural laborers, and less frequent visits to fields were identified in individual interviews, but as shown in Figure 3-10, they did not have a significant impact on the harvested area in 2020. As for loans and agricultural machinery hiring services, respondents indicated that only a few of them used the services, and thus few respondents indicated that they were affected.

The change in harvested area in 2021 (compared to 2019) was similar to the change in 2020, as shown in Figure 3-9, but the number of respondents who indicated an increase was higher for maize and onions, and there were no decreased responses for rice. The reasons for the increase are also similar to those in 2020, but some respondents (mostly rice farmers) also indicated that there was an increase in demand. The reason for the decreases was also almost the same as in 2020, but there were fewer responses regarding unseasonable weather. In general, 2021 was a bumper year due to favorable weather, and demand was increasing.

⁹ Irrigation coverage among rice farmers is low, and the majority of rice cultivation is rain-fed in shallow wetlands called dambos.

¹⁰ Tomatoes have the highest cultivation costs (inputs, irrigation, and manpower) per area among the target crops. In particular, adequate agricultural inputs are essential to grow a quality crop. However, many of these inputs are imported, and the depreciation of the exchange rate has led to a significant increase in their prices. In addition, tomatoes are not eligible for the government's agricultural input subsidy program.

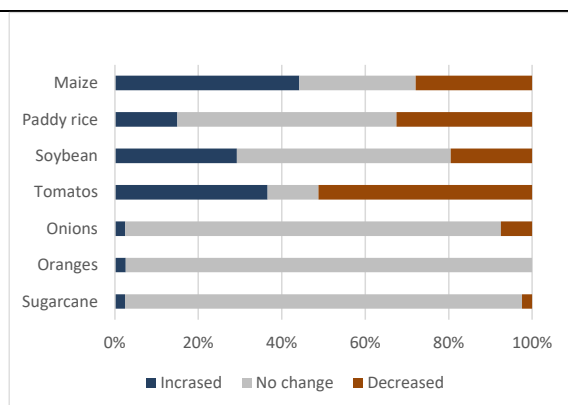


Figure 3-8 Zambia: Changes in harvested area of the target crops in 2020 (compared to 2019)

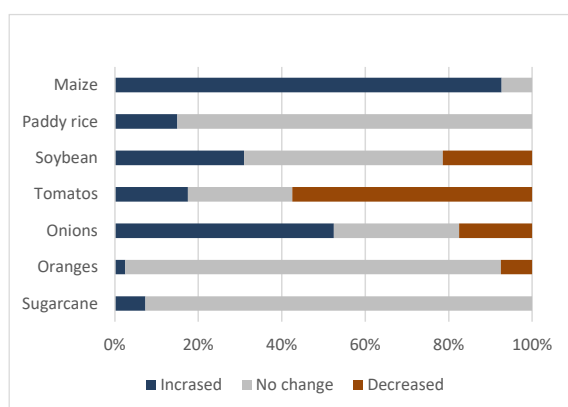


Figure 3-9 Zambia: Changes in harvested area of the target crops in 2021 (compared to 2019)

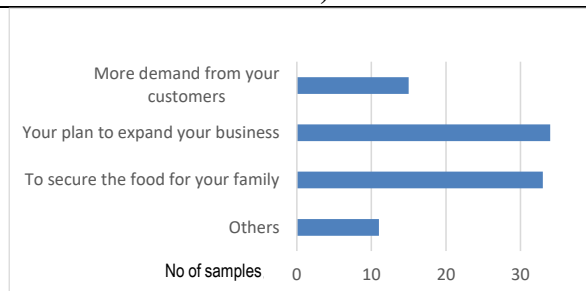


Figure 3-11 Zambia: Reasons for increase in harvested area in 2020

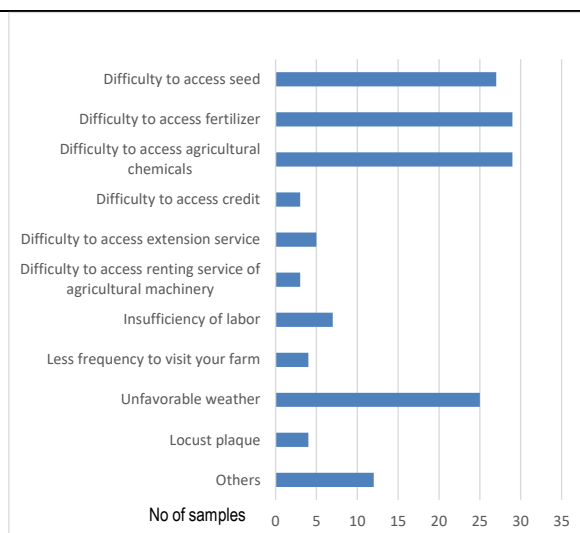


Figure 3-10 Zambia: Reasons for decrease in harvested area in 2020

Table 3-8 Zambia: Reasons for decrease in yield in 2020

Answers	Number
Drought in 2019 reduced the area under cultivation in 2020.	5 (paddy rice)
Fallow and crop rotations	2 (soybean)
Water shortage at irrigation sources	2 (tomatoes)
Lack of working capital	2 (tomatoes)
Pests	1 (tomatoes)

3) Changes in production and yield

Figure 3-12 and Figure 3-13 show the production and yield in 2020 compared to 2019, respectively. The pattern of increase and decrease in production and yield is essentially the same. For sugarcane, most farmers increased production, and for maize, rice, soybean, and oranges, more farmers increased production than decreased it. For tomatoes and onions, more farmers reported a decrease in production and yield than an increase.

For sugarcane, good access to seed and fertilizer was cited as the reason for the increase. The sugarcane VC was vertically integrated by sugar companies, indicating that farmers received the necessary agricultural inputs despite their high prices.

For small-scale farmers, many cited good weather as the reason for increased production, since the cultivation of maize, rice, soybean, and oranges¹¹ depends on rainfall. Access to agricultural inputs was also cited by some farmers, but this is because maize, rice, and soybean are targeted for government input subsidies.

Worsening access to agricultural inputs was cited as a reason for the decline in tomato and onion production, which resulted from a temporary shortage of imported inputs due to disruption of transportation caused by the COVID-19 and high prices of agricultural inputs due to currency depreciation¹².

As mentioned at the end of section 2) above, the following impacts of COVID-19 on agricultural production were identified in individual interviews: worsened access to extension services, worsened access to agricultural machinery hiring services, shortage of agricultural laborers, and reduced frequency of visiting a farm. However, these did not have a significant impact on production and yield in 2020, as shown in Figure 3-17.

Production and yield changes in 2021 (compared to 2019) are shown in Figure 3-14 and Figure 3-15. The trends are similar to the changes in 2020 described above. In more detail, fewer respondents indicated that maize, rice, soybean, onion, and sugarcane had decreased while more respondents answered that tomato and orange had decreased as compared to 2019. Reasons for the decrease were also generally the same as in 2020, but there was an increase in responses about worsening access to agrochemicals. This is likely to be because of the rising cost of inputs which may affect tomato and orange production in particular as appropriate application of pesticides has a significant effect on yield and quality. Reasons for the increase were also similar to those in 2020, but there were more responses about sufficient farm labor and frequent field visits. This indicates that COVID-19 had disturbed these activities in 2020, but sufficient activities were conducted in 2021.

¹¹ Irrigation is necessary during the dry season, but the amount of rainfall has an influence on production.

¹² Horticultural and cereal farmers responded differently to access to inputs, largely because of the different inputs required and the timing of their need, in addition to the availability of subsidies. Cereal seeds are domestically produced, sown at the beginning of the rainy season (around November) when the peak infections of COVID-19 (April – May 2020) had passed, and imported pesticides are not used very often, so inputs were not seriously affected by COVID-19. On the other hand, the seeds of horticultural crops are imported, pesticides (imported) are essential for cultivation, and horticultural crops are grown all year round under irrigation, which means that they were affected by the COVID-19 even during its peak of negative impact.

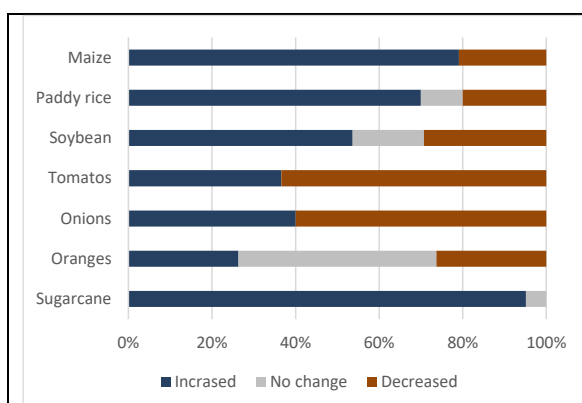


Figure 3-12 Zambia: Changes in production of the target crops in 2020 (compared to 2019)

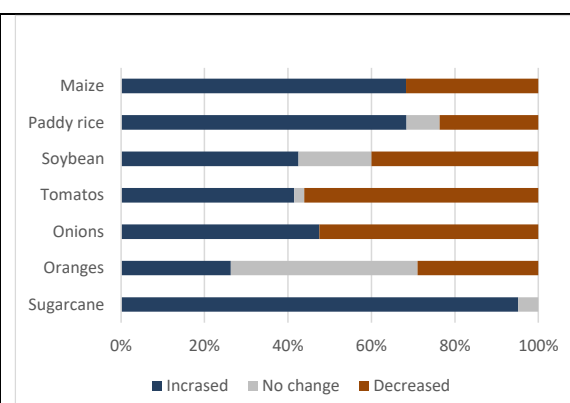


Figure 3-13 Zambia: Changes in yield of the target crops in 2020 (compared to 2019)

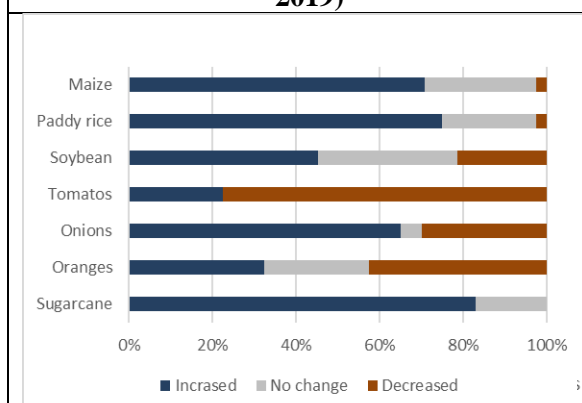


Figure 3-14 Zambia: Changes in production of the target crops in 2021 (compared to 2019)

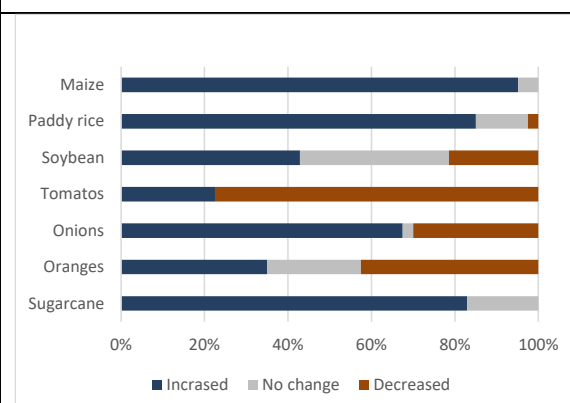


Figure 3-15 Zambia: Changes in yield of the target crops in 2021 (compared to 2019)

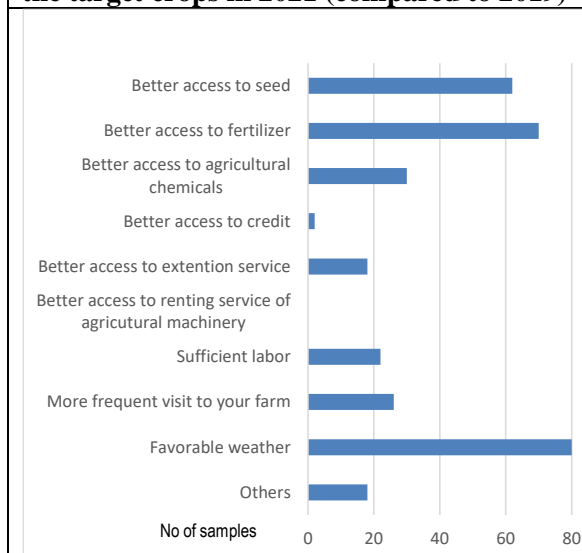


Figure 3-16 Zambia: Reasons for increase in yield in 2020

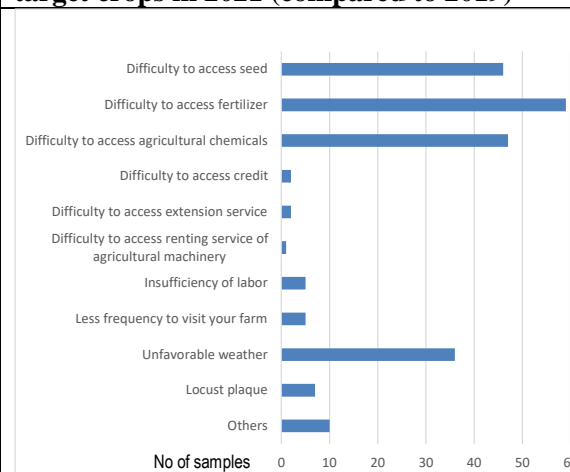


Figure 3-17 Zambia: Reasons for decrease in yield 2020

4) Changes in sales

Since most farmers sell all of their harvests, see Figure 3-12 and Figure 3-14 for the sales volume in 2020 and 2021 respectively compared to 2019. Changes in yields were cited as the main reason for the increase or decrease. Difficulties in transporting the crop to market due to restrictions

related to COVID-19 were also cited by a certain number of respondents, but onion sales were most significantly affected.

The reasons for the change in sales volume in 2021 (compared to 2019) are not significantly different from the reasons given above for 2020, although the number of increased demand answers more than doubled. One reason for the decrease is the difficulty in transporting the product to the market due to the COVID-19-related regulations, which were present in 2020, but almost disappeared in 2021.

Increases and decreases in sales prices of the target crops are shown in Figure 3-20. For maize, most of the farmers responded that the sales price decreased. The responses that the sales price of other crops increased exceeded the responses that it decreased. As shown in Figure 3-22, the reasons for the increase in sales prices were mainly due to the change in the supply-demand balance in the market, i.e., increase in demand and decrease in supply to the market. The increase in demand was observed for all crops except maize. The decline in market supply was particularly pronounced for onions, which are partially dependent on imports and have become scarce due to disruption of transportation by COVID-19. Oranges are also imported, but since domestic oranges and imported oranges differ in variety, price, and where they are sold, the shortage of imported oranges due to COVID-19 did not directly increase the demand for domestic oranges.

Figure 3-23 shows the reasons for the lower prices, and the main reason is the increased supply to the market, which indicates that maize production was low in 2019 due to drought (led to the high prices) and increased in 2020 due to normal rainfall (led the low prices). As for tomatoes, lower demand was cited as the reason for lower sales prices. Individual interviewees indicated that the number of intermediaries coming to buy tomatoes from Lusaka to Chongwe decreased due to COVID-19.

Figure 3-21 shows that the change in unit selling prices in 2021 (compared to 2019) is not significantly different from the trend in 2020 described above, although the number of responses indicating a “decrease” in maize and tomatoes has decreased in 2021. For maize, the increase in the price to be paid by the Food Reserve Agency (FRA) in 2021 had an impact on the overall market price.

In 2020, there was an oversupply of tomatoes due to fewer middlemen buying tomatoes as a result of COVID-19 caused restrictions on inter-provincial travel and business activities, but the situation returned to normal in 2021. Therefore, the respondents who indicated the increased supply to market as a reason for the decrease in unit sales price were almost halved in 2021.

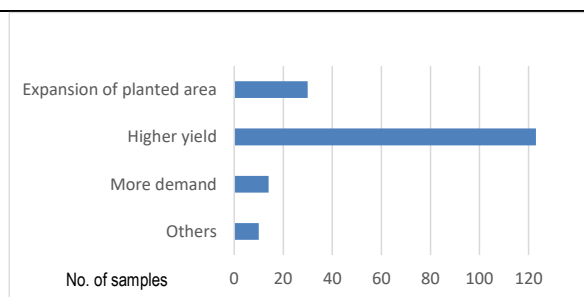


Figure 3-18 Zambia: Reasons for increase in sales of the target crops in 2020

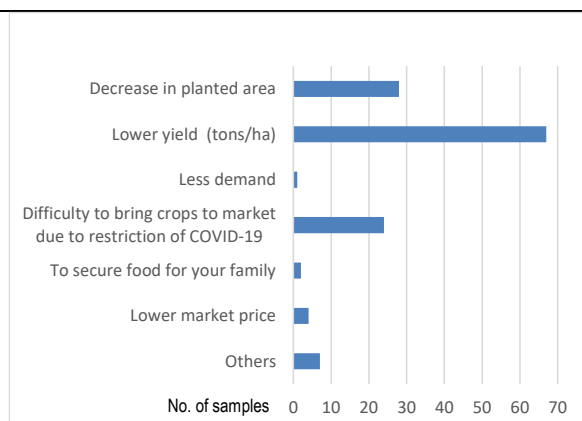


Figure 3-19 Zambia: Reasons for decrease in sales of the target crops in 2020

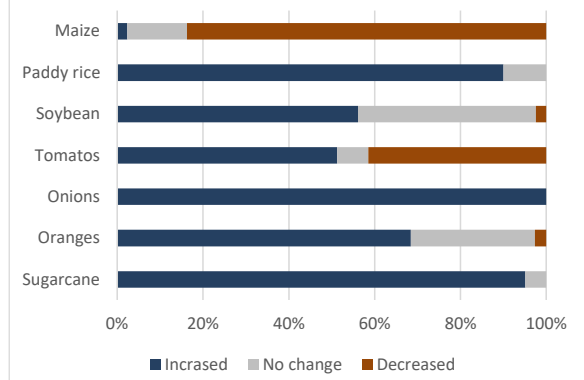


Figure 3-20 Zambia: Changes in farm gate prices of the target crops in 2020 (compared to 2019)

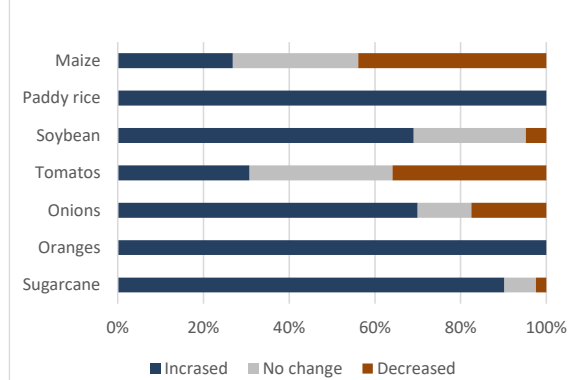


Figure 3-21 Zambia: Changes in farm gate prices of the target crops in 2021 (compared to 2019)

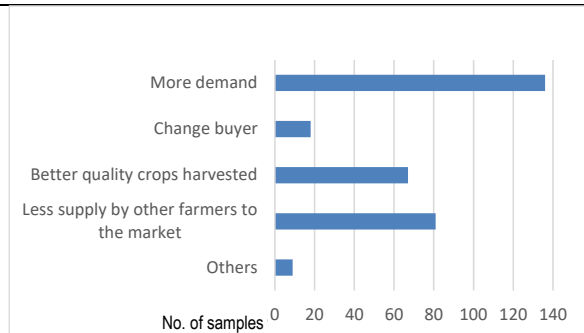


Figure 3-22 Zambia: Reasons for increase in farm gate prices in 2020

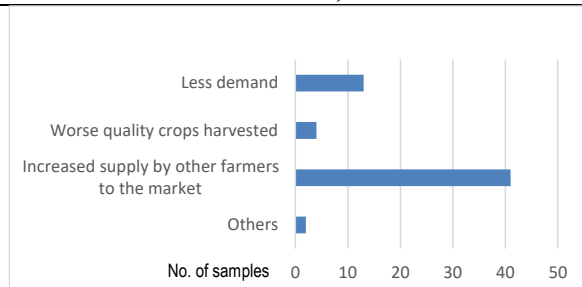


Figure 3-23 Zambia: Reasons for decrease in farm gate prices in 2020

5) Impact on the activities of agricultural cooperatives

Figure 3-24 shows the changes in various services provided by agricultural cooperatives (compared to 2019).

About 70 percent of the agricultural cooperatives surveyed were engaged in the joint purchase of fertilizer. Co-purchasing pesticides and seeds and co-selling crops are also practiced, but only about 10-30% of agricultural cooperatives provide these services. Agricultural machinery hiring services and financial services are rarely implemented. In other words, the main business of agricultural cooperatives is the joint purchase of fertilizer. This is because beneficiaries of the government's Farmer Input Support Program (FISP) are selected from the members of agricultural cooperatives. Farmers pay a certain amount of co-payment to the government through a cooperative they belong to, and the government provides subsidies to the cooperative.

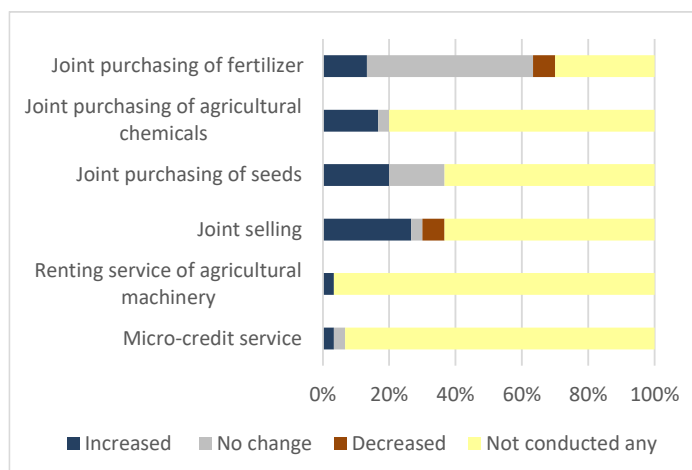


Figure 3-24 Zambia: Changes in services provided by agricultural cooperatives in 2020 (compared to 2019)

The above-mentioned services provided by agricultural cooperatives are on the rise. While only about 30% of agricultural cooperatives engage in joint purchasing, 75% of them have increased the amount of crops they sell. The reasons for the increase were increased production and increased demand. Among the crops sold jointly, those with increased sales were maize, soybean, and sugarcane, and as shown in Figure 3-12, the production of these crops was also increasing.

The changes in the services provided by agricultural cooperatives in 2021 (compared to 2019) were similar to the trends in 2020 described above.

(4) Processing

1) Highlights

As shown in Figure 3-25 and Figure 3-26, only rice showed a clear downward trend in processing volumes in 2020 and 2021 compared to 2019. In 2021, almost all respondents, except for rice millers, increased processing volume compared to 2019.

The reason for the increase in processing volume is due to the increase in domestic demand and supply of raw materials (Table 3-9). This is consistent with the fact that the production of raw materials in 2020 was higher than in 2019, as discussed in (3) Production. However, Figure 3-26 shows that the most common reason for an increase in processing in 2021 is an increase in demand, suggesting that the recovery in demand has continued to progress. Table 3-10 shows that the main reason for the decrease in processing volume was the decrease in domestic and export demand. The survey team also heard from some processors that they reduced the number of workers in their factories and introduced telework for office workers to prevent the spread of the COVID-19 infections according to

recommendations by the government, which resulted in a decline in operation rate. Some also said that they responded to such measures by extending operating hours to meet the high demand. Overall, the direct impact of COVID-19 on processing seems to be limited.

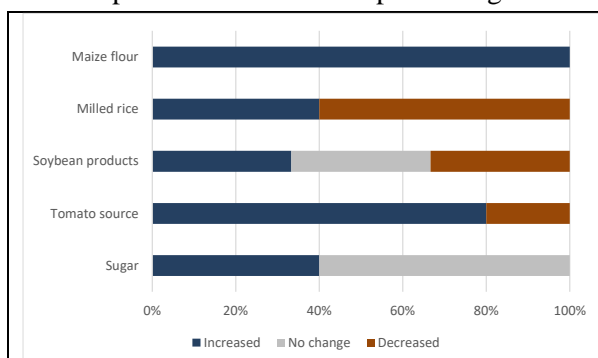


Figure 3-25 Zambia: Changes in the volume of processed target crops in 2020 (by crop, compared to 2019)

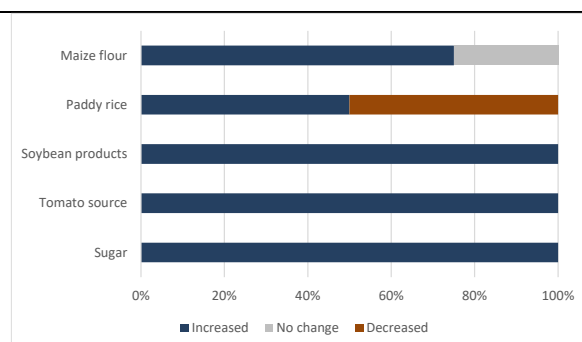


Figure 3-26 Zambia: Changes in the volume of processed target crops in 2021 (by crop, compared to 2019)

Table 3-9 Zambia: Reasons for increase in processing volume

Answers	Numbers
Export demand increased.	0
Demand in the domestic market increased.	4
The production cost decreased.	1
Production capacity increased, e.g., introduction of a new machine.	0
The suppliers could supply more raw materials.	4
Others	0

Table 3-10 Zambia: Reasons for decrease in processing volume

Answers	Numbers
Sufficient raw materials were not available.	0
Other means of production were insufficient.	0
The cost of raw materials increased.	0
The cost of other means of production increased.	0
Production capacity decreased, e.g., closing down.	0
Lack of monetary resources to operate the factory.	0
Factories voluntarily closed due to lockdown.	0
Factories voluntarily closed to reduce the risk of infection.	0
Government direction to close factories.	0
Demand in the domestic market decreased.	2
Export demand decreased.	3
Others	1

2) Changes in raw material procurement

As shown in Figure 3-27, the largest number of respondents answered that there was no change in the quality of the target crops as raw materials, and respondents were equally split regarding whether 2020 or 2019 was better. As for prices of the target crops, Figure 3-28 shows that the number of respondents who answered that prices were decreased from 2019 to 2020 exceeded the number who answered that prices were increased. It should be noted that the target crops (maize, paddy rice, soybean, and sugarcane) used for processing in 2020 were produced during the rainy season of 2019-20, and thus were hardly affected by COVID-19¹³.

The main suppliers of the target crops as raw materials are producers (small, medium, and large farmers and agricultural cooperatives), as shown in Figure 3-31, and their procurement from them has increased. Very few respondents reported a decrease between 2019 and 2020, supporting the

¹³ The survey team heard from some farmers that the harvesting was delayed due to lack of manpower, but the loss caused by this was limited.

increase in processing volumes as shown in Figure 3-25.

The quality of the target products as a raw material for processed products in 2021 compared to 2019 is shown in Figure 3-29. There were no longer any responses indicating that the crop was better in 2019, suggesting that the quality of the crop was better in 2021 than in 2020. Reflecting this, Figure 3-30 shows the change in unit purchasing prices in 2021 compared to 2019, with more respondents saying that prices increased in 2021 than in 2020. As for suppliers, Figure 3-32 shows that small-, medium-, and large-scale farmers are the main suppliers, and their supply increased. This trend was the same as in 2020.

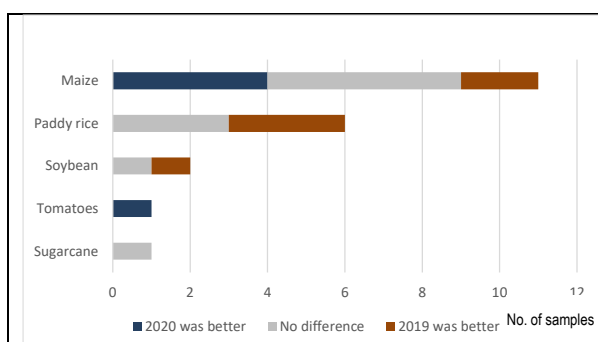


Figure 3-27 Zambia: Changes in quality of the target crops as raw material in 2020 (compared to 2019)

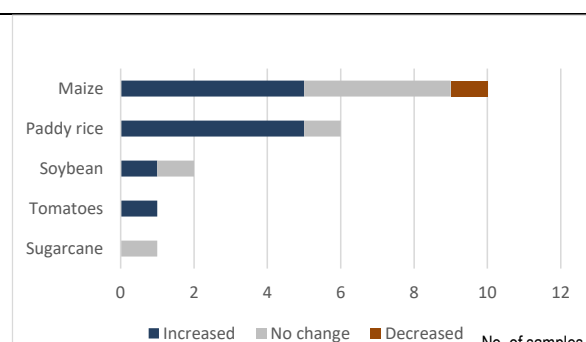


Figure 3-28 Zambia: Changes in purchase price of the target crops by processors in 2020 (compared to 2019)

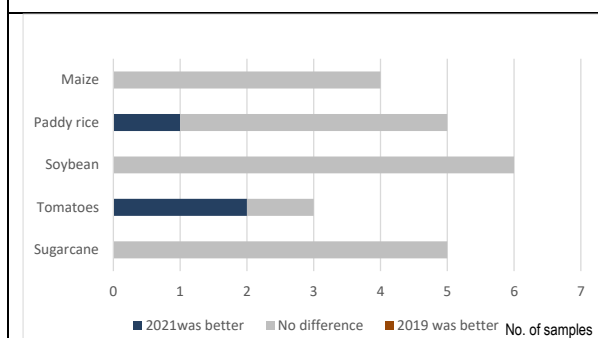


Figure 3-29 Zambia: Changes in quality of the target crops as raw material in 2021 (compared to 2019)

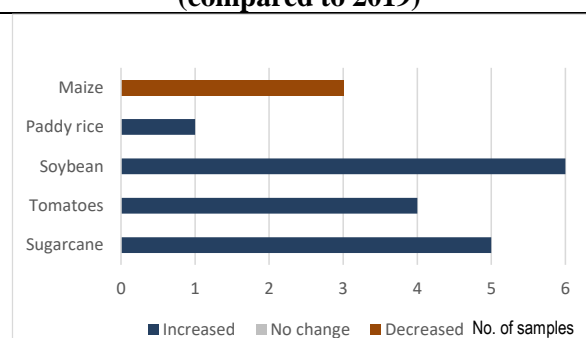


Figure 3-30 Zambia: Changes in purchase price of the target crops by processors in 2021 (compared to 2019)

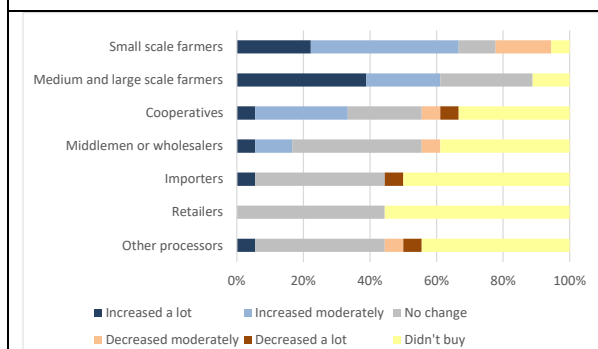


Figure 3-31 Zambia: Changes in volume of the target crops procured by processors in 2020 (by supplier, compared to 2019)

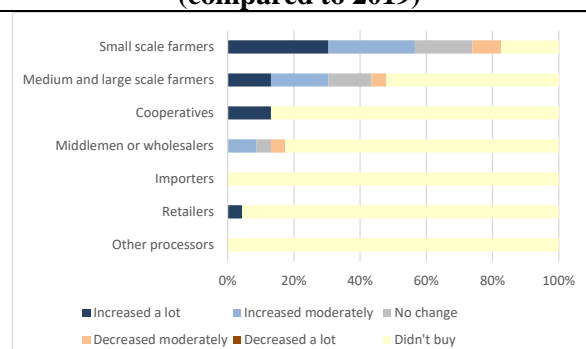


Figure 3-32 Zambia: Changes in volume of the target crops procured by processors in 2021 (by supplier, compared to 2019)

3) Changes in sales

As shown in Figure 3-33, the main customers of processors are intermediaries and retailers. Looking at the change from 2019 to 2020, it can be seen that sales to intermediaries have slightly increased, while retailers, on the contrary, have slightly decreased. There is a certain number of processors who sold their products to exporters and other processors, but no significant change has occurred between 2019 and 2020.

As for the selling price, as Figure 3-34 shows, more respondents reported a decrease in 2020 than an increase in 2019. Figure 3.28 shows that all of the reasons for the decline were lower production costs, and these responses all came from maize millers. As shown in Figure 3-34, the price of maize as a raw material for processing has decreased, and this is reflected in the low product price. On the other hand, as Figure 3-35 shows, the main reasons for the increase in selling prices were accounted for by higher domestic demand and higher raw material prices. The latter reason was cited by all rice millers, which is consistent with the increase in the prices of paddy rice as raw material for rice millers shown in Figure 3-28. Overall, it can be said that the selling prices in 2020 largely reflected the prices of raw materials. In addition, 90% of the respondents sold all processed products produced in 2020, and the sales volume was higher in 2020 than in 2019.

The survey team heard from some processors that the cost of production has increased due to price escalation of imported packaging materials and measures against COVID-19 such as disinfection of processing facility, but prices were kept unchanged because consumers are highly price-sensitive and cannot easily pass on the cost.

The changes in sales volume of processed products by the customer in 2021 (compared to 2019) were similar to those in 2020, although fewer respondents reported a decrease in sales to intermediaries and retailers and more reported an increase in sales. In terms of selling prices, the changes in 2021 (compared to 2019) were similar to those in 2020; only maize flour decreased its price and other products increased their prices. The reasons for the decrease were the same in 2021 as in 2020 as described above. However, different reasons were provided for the increase in selling prices between 2020 and 2021. As shown in Figure 3-37, in 2021, the increase in export demand was cited by many processors, while the increase in production costs was cited less in 2021. The latter can be explained by the fact that in 2021 there were no increases in costs due to sudden logistical disruptions, etc., which occurred in 2020 as a result of the COVID-19.

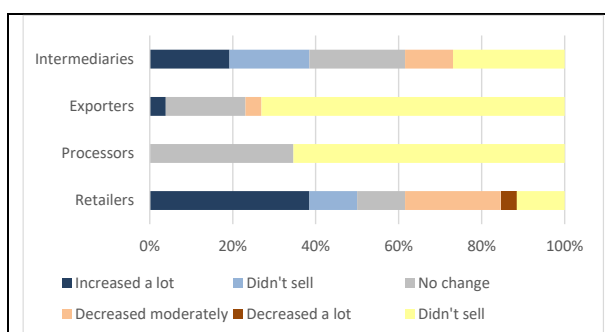


Figure 3-33 Zambia: Changes in sales volume of products made from the target crops in 2020 (by customer, compared to 2019)

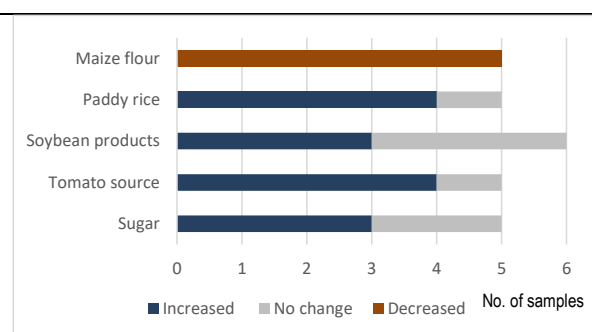


Figure 3-34 Zambia: Changes in selling price of processed products from the target crops in 2020 (by crop, compared to 2019)

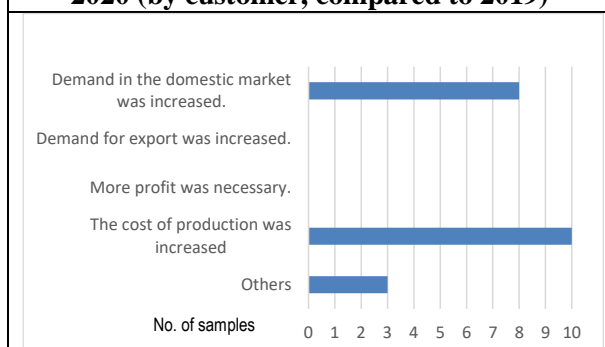


Figure 3-35 Zambia: Reasons for increase in selling price of processed products in 2020

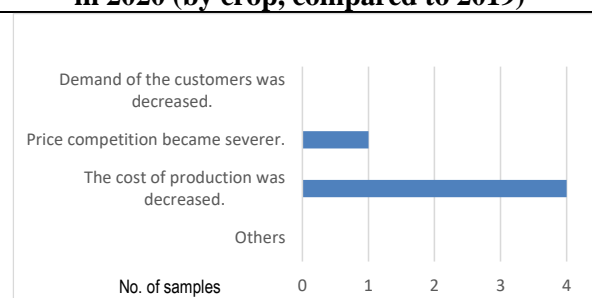


Figure 3-36 Zambia: Reasons for decline in selling price of processed products in 2020

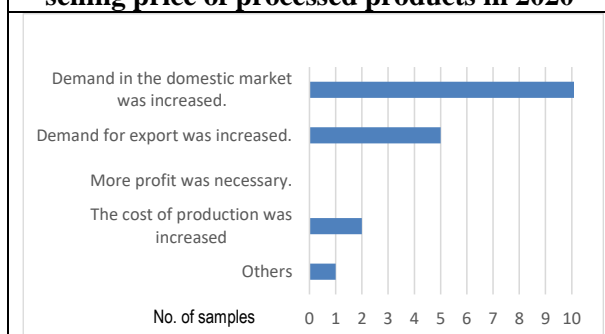


Figure 3-37 Zambia: Reasons for increase in selling price of processed products in 2021

4) Changes in awareness of hygiene and safety

As shown in Figure 3-38 and Figure 3-39, after the outbreak of COVID-19, processors and their customers become more hygienic and safety-conscious about both raw materials and processed products. The percentage of them is greater than 50% (multiple answer question) but not as great as the majority. The proportions of respondents who became more hygienic and safety-conscious were similar among processors and their customers, which may indicate the general hygiene awareness about processed food products in 2020.

Regarding the awareness of hygiene and safety in 2021 (compared to 2019), more processors paid more attention than in 2020. Changes in the awareness of processors' customers were similar in 2021 and 2020.

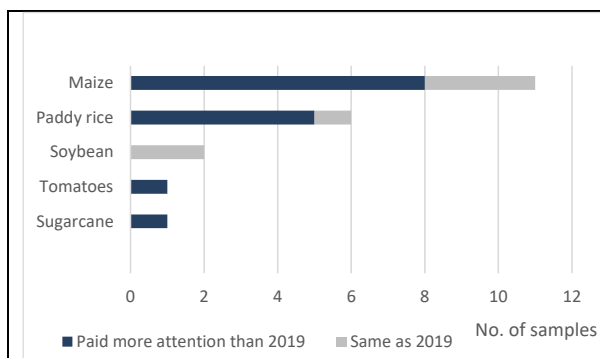


Figure 3-38 Zambia: Changes in processors' awareness of safety and hygiene when purchasing the target crops in 2020 (compared to 2019)

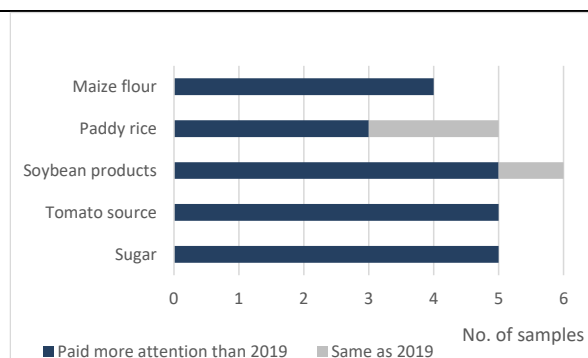


Figure 3-39 Zambia: Changes in awareness of safety and hygiene of processed products among processors' customers in 2020 (compared to 2019)

(5) Distribution

1) Intermediaries (wholesalers and middlemen)

a) Highlights

The price of maize, which had a good harvest during the 2019-20 season, dropped and the transaction volume increased because it is popularly consumed as a staple food. The demand for soybean products increased, as did the transaction volume, despite the price hike. The volume of traded rice decreased due to an aversion to rising prices. The volume of traded sugar also showed a slight downward trend. COVID-19 does not have a direct impact but has an indirect impact on the changes in transaction volume and prices of the target products, as described in (6) 1) Personal Consumption, the decrease in income, and the increase in the price of the target products are likely to have an impact on the demand for each target product.

The situation in 2021 was almost identical to that in 2020.

b) Changes in the procurement of the target products

As shown in Figure 3-40, the main suppliers for intermediaries were other intermediaries, followed by processing companies and farmers. As a whole, the number of responses for increase and decrease in procurement is almost the same. Procurement from processors for soybean oil and soybean meat is increasing because demand is growing. Some respondents said that procurement from other intermediaries has also increased in several target crops.

Individual interviews confirmed that the reason for the decrease in procurement volume was a decrease in demand.

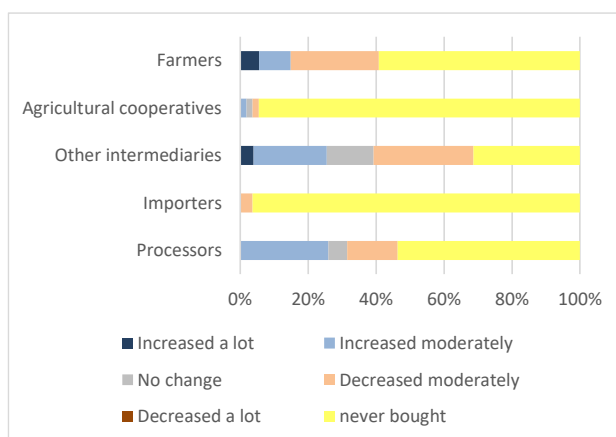


Figure 3-40 Zambia: Changes in volume of target products purchased by intermediaries in 2020 (compared to 2019)

Changes in the volume of target products purchased by intermediaries in 2021 (compared to 2019) were not significantly different from those in 2020.

c) Changes in sales

As shown in Figure 3-41, the volume traded by intermediaries increased or decreased before and after COVID-19 depending on the target product. For maize/maize flour and soybean/soybean products, the majority of intermediaries increased their sales volume in 2020. Maize/maize flour dealers responded that the reason for this was a price decrease. In fact, all respondents decreased the selling price. This coincides with how the farm gate price (i.e., the purchase price for processors, intermediaries, and retailers) of maize decreased, as shown in Figure 3-20 of (2) Production above. For soybean/soybean products, the reasons for an increase in sales are increased demand from customers and an increase in the number of customers. Individual interviews confirmed that domestic demand for soybean oil is beyond the domestic production volume, and exports of soybean meal were strong.

On the other hand, the volume of traded milled rice decreased for most of the intermediaries. All rice traders who responded cited this as the main reason for the increase in unit selling price. The purchasing price of rice = the farm gate price, as shown in Figure 3-20, and has increased.

The reason for the rise in prices may be the decrease in both imports and the number of middlemen coming to buy rice in the producing areas (Mongu, Western Province) resulting in the shortage of milled rice in the consuming areas (mainly Lusaka). The direct impact of COVID-19 was assumed to be government regulations and reduced transportation capacity, but even more so, the reasons on the customer side (reduced demand, closure of customers, decrease in the number of customers, and higher prices) had an impact on the decrease in traded volumes. The change in selling price depended on the product. All traders of maize and maize flour increased their prices, and all traders of rice, soybean, processed soybean products, and sugar increased their prices.

The changes in the volume of intermediaries' sales in 2021 (compared to 2019) and the reasons for the increases and decreases did not differ significantly from those in 2020.

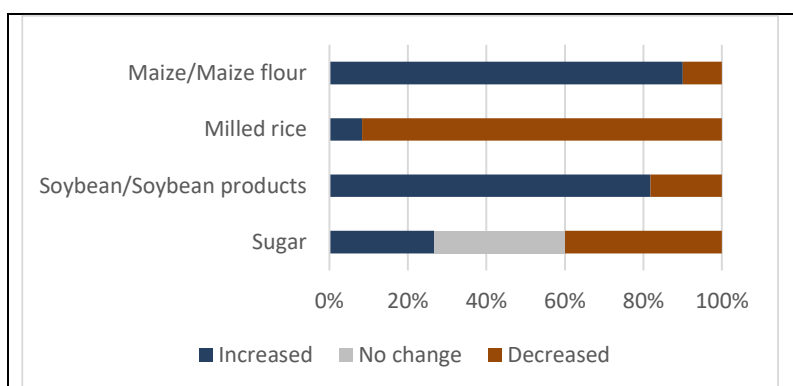


Figure 3-41 Zambia: Changes in sales volume of products by intermediaries in 2020 (by product, compared to 2019)

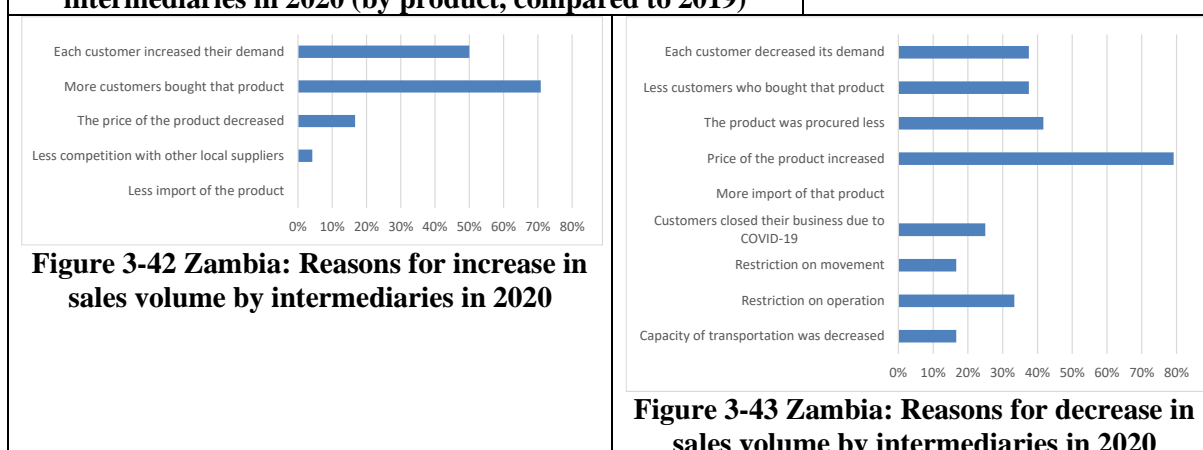


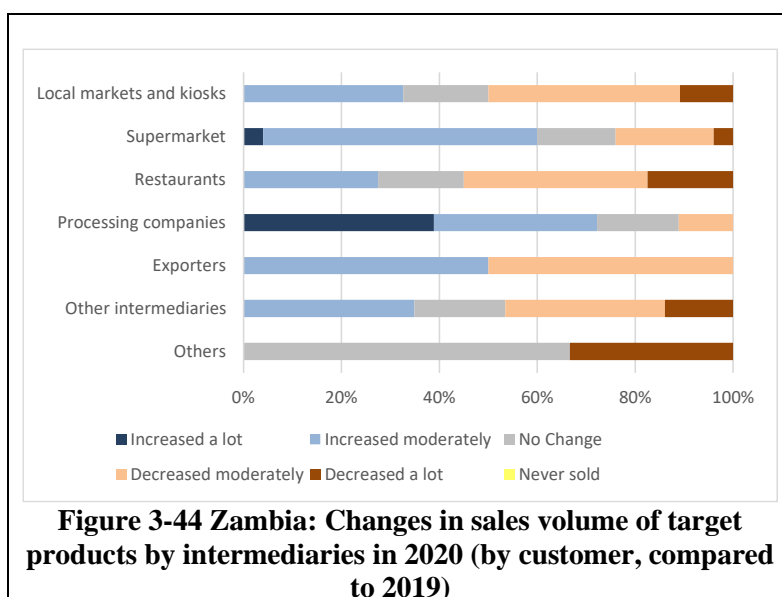
Figure 3-42 Zambia: Reasons for increase in sales volume by intermediaries in 2020

Figure 3-43 Zambia: Reasons for decrease in sales volume by intermediaries in 2020

d) Changes of customers

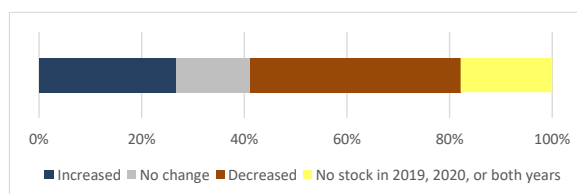
As shown in Figure 3-44, for the volume of sales from intermediaries to processors and supermarkets, the majority of responses were an increase; for the other customers, increase and decrease were generally the same level. Looking at the increase in detail, it is uncovered that majority of respondents deal with soybean. Sales to processors increased in order to increase production of processed soybean products, for which demand is growing, and the intermediaries handling these soybean products increased their sales to supermarkets. The processed soybean products are soybean meat and soybean oil.

The changes in the volume of sales by intermediaries by the customer in 2021 (compared to 2019) were not significantly different from those in 2020.



e) Changes in stock volume

As shown in Figure 3-45, the responses of intermediaries for the decrease in stock volume exceeded the increase. The reason for the decrease in inventory was due to a reduction in procurement, but that occurred because of a decrease in demand. There were also a certain number of respondents who said they could not hold stock because they did not have warehouses. The reason for the increase was an increase in demand and sales, which was common regardless of the difference in commodity. Because of the COVID-19 pandemic, there were few cases of inventory buildup due to lack of sales or in anticipation of future sales.



The change in stock volume held of the target products by intermediaries in 2021 (compared to 2019) was not significantly different from that in 2020.

2) Importers

a) Changes in import volume

As shown in Figure 3-46, some importers decreased while others increased their import volume of the target products in 2020 compared to 2019. The major reasons for the decrease were restrictions on imports and exports in Zambia and the exporting countries according to Figure 3-47. However, Figure 3-48 shows that the import volume of the target products in 2021 was in an upward trend as compared to 2019. The main reasons for this were increased demand and the removal of import restrictions by the Zambian Government (Figure 3-49). An example is the removal of import restrictions on onions to meet increased domestic demand.

Import prices have shown an upward trend in 2020 and 2021 as compared to 2019 for all crops compared to 2019.

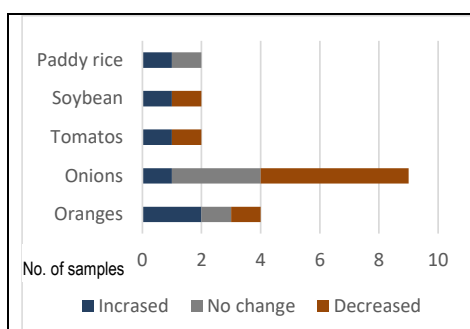


Figure 3-46 Zambia: Changes in import volume of the target products in 2020 (compared to 2019)

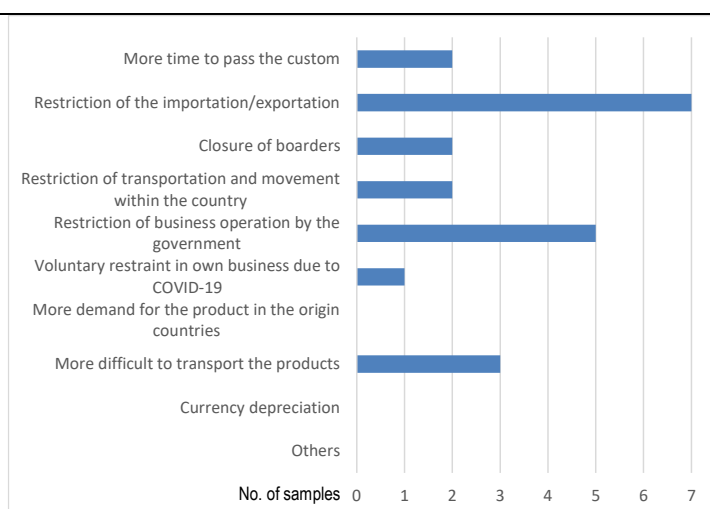


Figure 3-47 Zambia: Reasons for decrease in import volume in 2020 (compared to 2019)

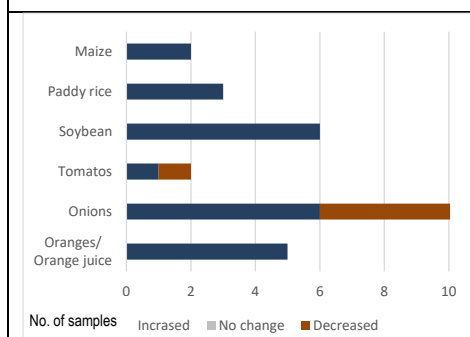


Figure 3-48 Zambia: Changes in import volume of the target products in 2021 (compared to 2019)

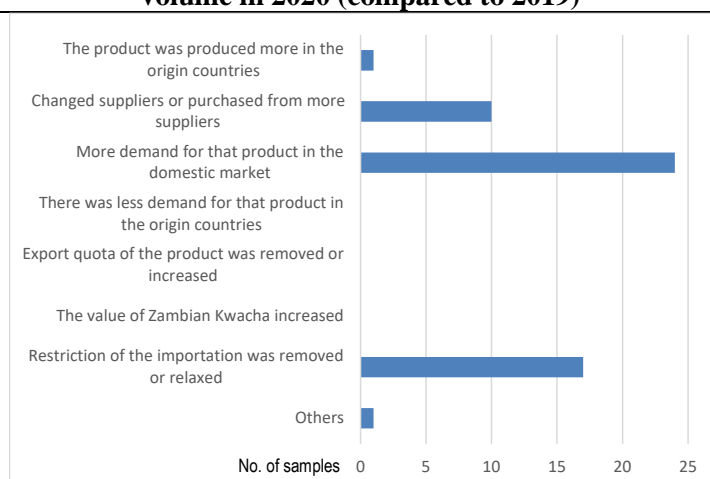


Figure 3-49 Zambia: Reasons for increase in import volume in 2021 (compared to 2019)

b) Changes in countries from which the target products are imported

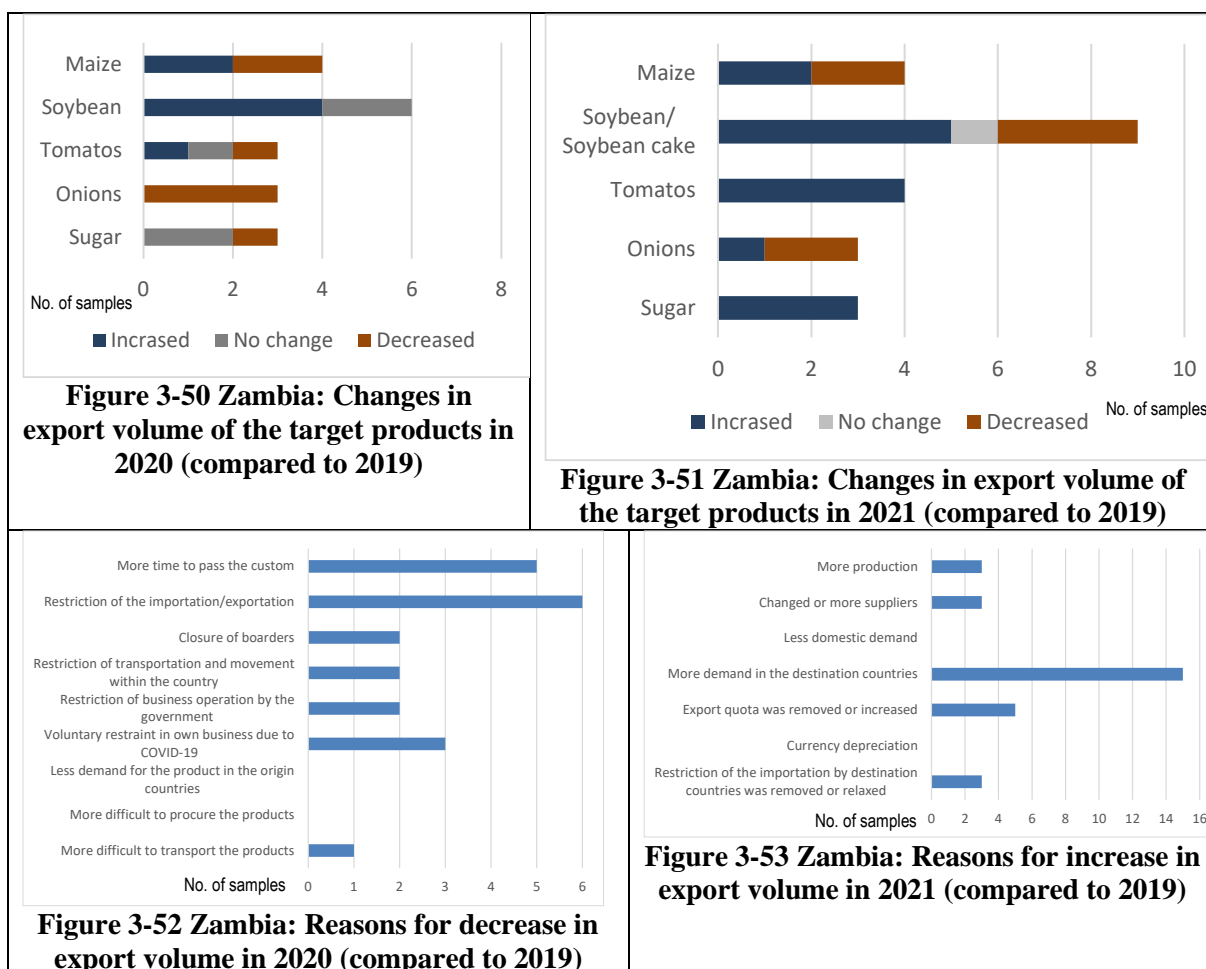
South Africa was the major exporting country of the target products to Zambia in 2019, and this trend has intensified in 2020 and 2021. In 2019, rice was imported only from Tanzania, but in 2021, imports from South Africa increased. Soybean oil was imported from Brazil and Saudi Arabia, but South Africa was the main source in 2021.

3) Exporters

a) Changes in export volume

As shown in Figure 3-50, exports of the target products in 2020 showed a downward trend compared to 2019 except for soybean, mainly due to longer customs clearance times and import and export restrictions in Zambia and the destination countries. However, in 2021, there was an upward trend in soybean and soybean cake, tomatoes, and sugar compared to 2019 as indicated in Figure 3-51, mainly due to increased demand at export destinations (Figure 3-53).

Export prices were on an upward trend in both 2020 and 2021 compared to 2019.



b) Changes in destination for export

Tomatoes and onions were exported to DR Congo and did not change between 2019 and 2021. For maize, in 2019 and 2020 it was mainly exported to Zimbabwe, but in 2021 it was exported to DR Congo. For soybean and soybean cake, in 2019 and 2020, exports were to neighboring countries such as Botswana, Angola, Malawi, Tanzania, and its neighbor, Kenya. While in 2021, Zimbabwe was the main export destination. Maize, soybean, and soybean cake exports have tended to be concentrated in specific countries over the past two years. The main destination for sugar exports, Burundi, remained unchanged in 2020 and 2021.

(6) Retail

1) Highlights

The sales volume of target products was on a downward trend from 2019 to 2020. As explained in (7) Consumption, this was a natural reaction from consumers in a situation where prices are rising while incomes are declining. This is an indirect effect of COVID-19 rather than a direct one.

2) Changes in procurement

Figure 3-54 shows the change in the procurement volume by retailers from 2019 to 2020. The main suppliers were farmers, intermediaries, and processors, and except for procurement from farmers, the quantity of procurement decreased.

As shown in Figure 3-55, the change in the volume of purchases by retailers in 2021 (compared to 2019) was similar to that in 2020, but the purchases from importers were all increased or significantly increased in 2021. This is probably because of the recovery of production and logistics and the relaxation or removal of regulations in exporting countries.

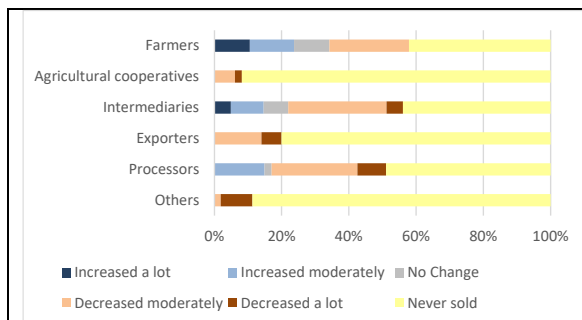


Figure 3-54 Zambia: Changes in volume of target products purchased by retailers in 2020 (compared to 2019)

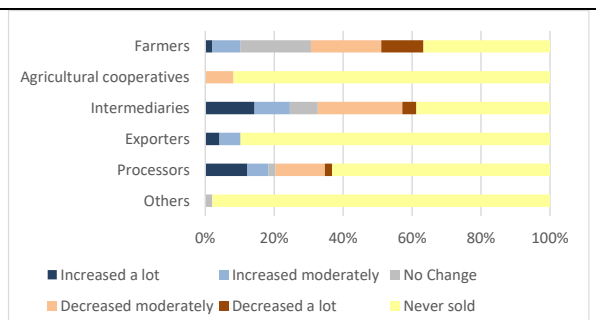


Figure 3-55 Zambia: Changes in volume of target products purchased by retailers in 2021 (compared to 2019)

3) Changes in sales

As shown in Figure 3-56, the sales volume at retail stores decreased for all products. However, for maize flour, which is a staple food, there were an almost equal number of responses for decrease and increase. As shown in Figure 3-57, the main reason for the decrease was an increase in sales price. Some respondents reported an increase in sales of maize flour, soybean meat, tomatoes, and sugar. Government restrictions on people's movement and retailers' operation due to COVID-19 also had some impact, but it was relatively small.

The change in sales volume (compared to 2019) among retailers in 2021 was similar to that in 2020, but as shown in Figure 3-58, most responses for soybean meat were either increased or significantly increased. This indicates that soybean meat is becoming more popular as a cheaper meat alternative.

The reasons for the decrease in sales by retailers in 2021 (compared to 2019) are shown in Figure 3-59. The decrease in responses to less customers, restrictions on movement, and other restrictions on operation indicates that sales in retail were returning to 2019 levels.

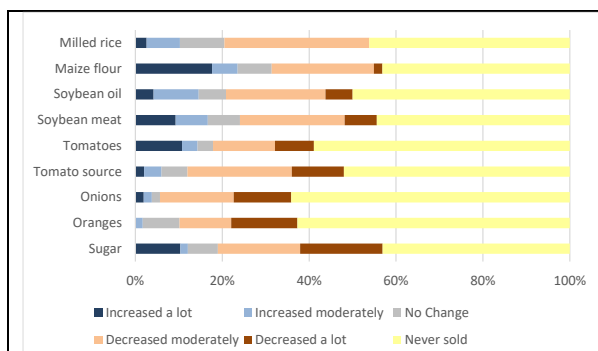


Figure 3-56 Zambia: Changes in sales volume of target products by retailers in 2020 (by product, compared to 2019)

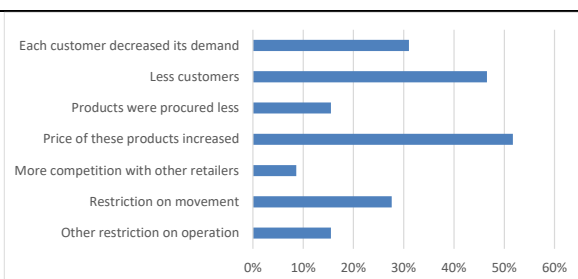


Figure 3-57 Zambia: Reasons for decrease in sales volume by retailers in 2020

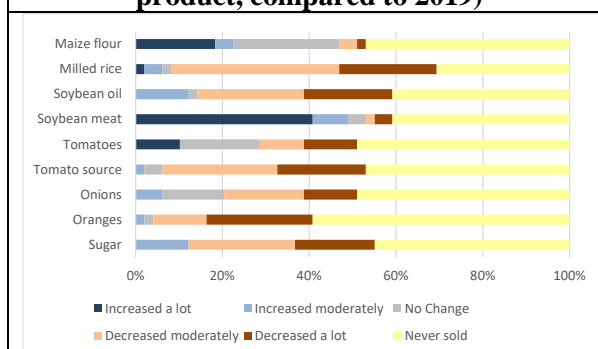


Figure 3-58 Zambia: Changes in sales volume of target products by retailers in 2021 (by product, compared to 2019)

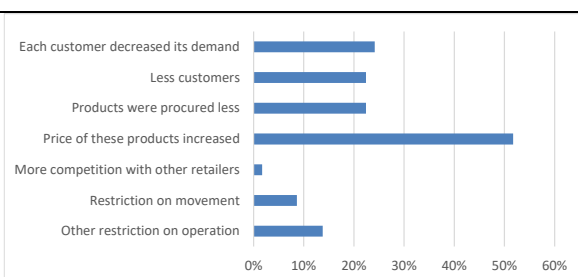


Figure 3-59 Zambia: Reasons for decrease in sales volume by retailers in 2021 (compared to 2019)

4) Changes in sales price

As shown in Figure 3-60, more retailers increased unit prices than decreased them in 2020 for all products except oranges. Note that a higher proportion of retailers increased prices for cereals and processed soybean products than for horticultural crops (tomatoes, onions, and oranges).

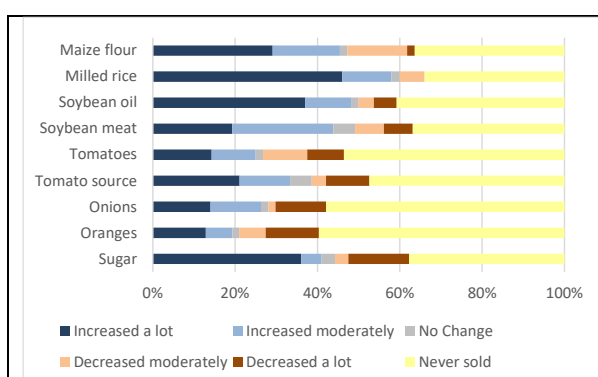


Figure 3-60 Zambia: Changes in retail price of the target products in 2020 (by product, compared to 2019)

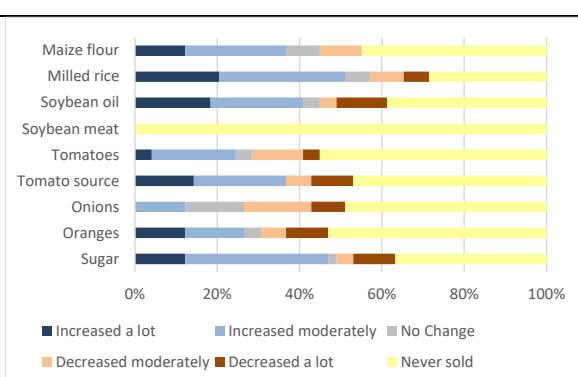


Figure 3-61 Zambia: Changes in retail price of the target products in 2021 (by product, compared to 2019)

As mentioned in (4) 1) intermediaries, the purchase price of maize in 2020 by intermediaries is lower than in 2019, but Figure 3-60 shows that the price of maize flour has increased at many retailers. The fact that cheaper maize producer prices are not reflected in retail prices suggests that processors,

wholesalers, and retailers might be making significant profits from the maize trade.

As shown in Figure 3-61, the change in the selling prices of the products in 2021 (compared to 2019) for retailers still showed an increasing trend, but fewer respondents indicated “increased a lot” compared to 2020, indicating that the price hikes have calmed down.

5) Changes in stock volume

As shown in Figure 3-62, the stock volume held by retailers decreased from 2019 to 2020. The reason behind this is the decrease in demand and the consequent decline in the quantity of procurement. In the individual interviews, the survey team heard that purchase prices of the target products are rising every month resulting in tight cash flow, and retailers are unable to stock more of the fast-moving products in anticipation of future price increases though they would like to do so.

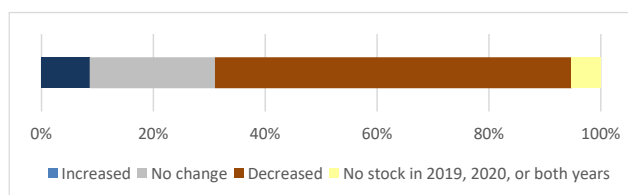


Figure 3-62 Zambia: Changes in stock volume of target products in retailers in 2020 (compared to 2019)

The change in stock volume at retailers in 2021 (compared to 2019) shows the same downward trend as in 2020.

(7) Consumption

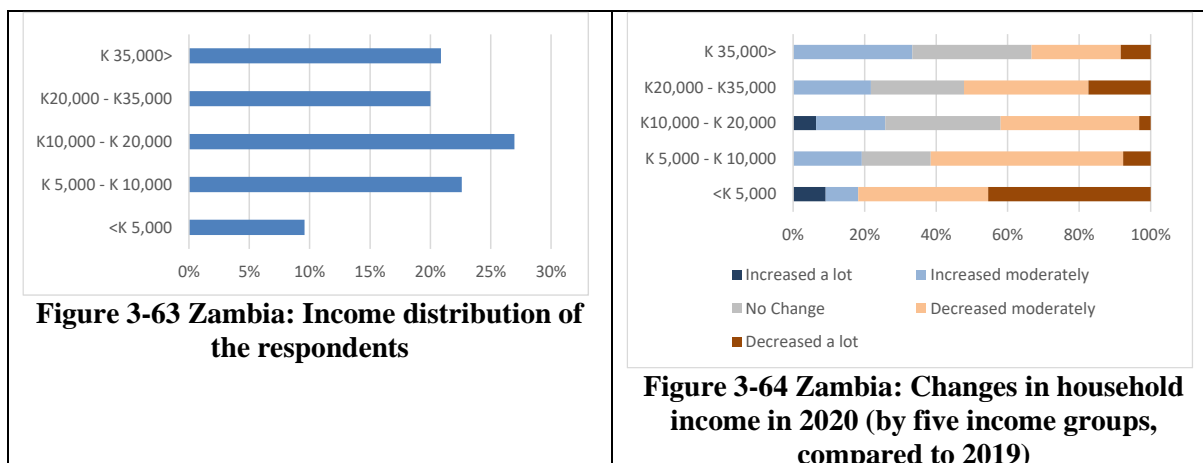
1) General consumers

a) Changes in household income

Figure 3-63 shows the annual income in the survey sample of general consumers. The data were collected from samples chosen to follow the distribution of the five income deciles¹⁴ as closely as possible. Figure 3-64 shows the levels of household income in 2020 compared to 2019. With the exception of the second tier from the top (K 20,000-K 35,000), we can see that the lower the annual income, the more the income decreased.

The change in consumers' incomes in 2021 (compared to 2019) was similar to the change in 2020.

¹⁴ In consultation with the sub-contractor of the panel survey, income levels which divide Zambia citizen into five deciles: the top 5% and 5-25%, the bottom 5% and 5-25%, and the middle 40%, was determined.



b) Changes in consumption of the target products

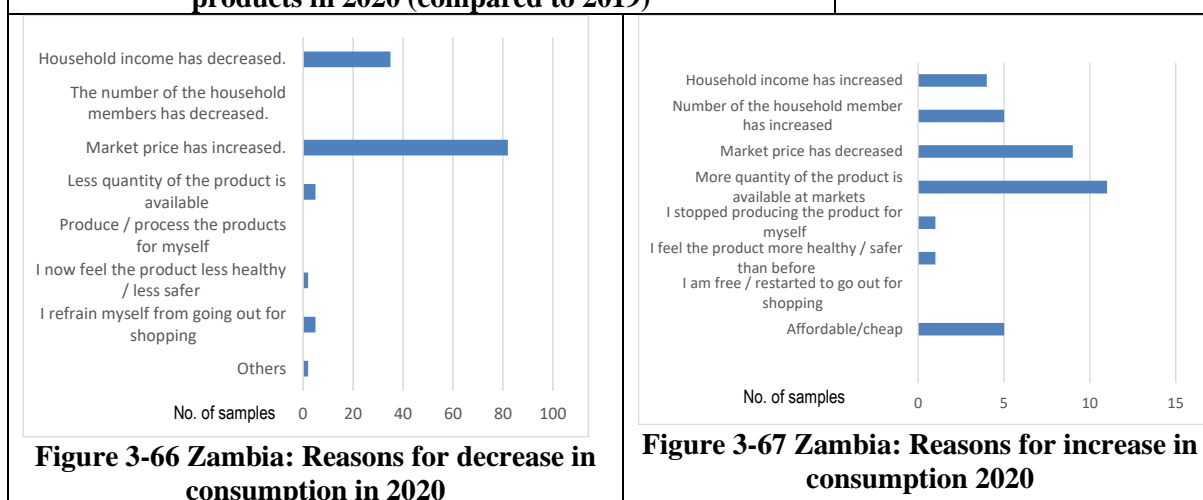
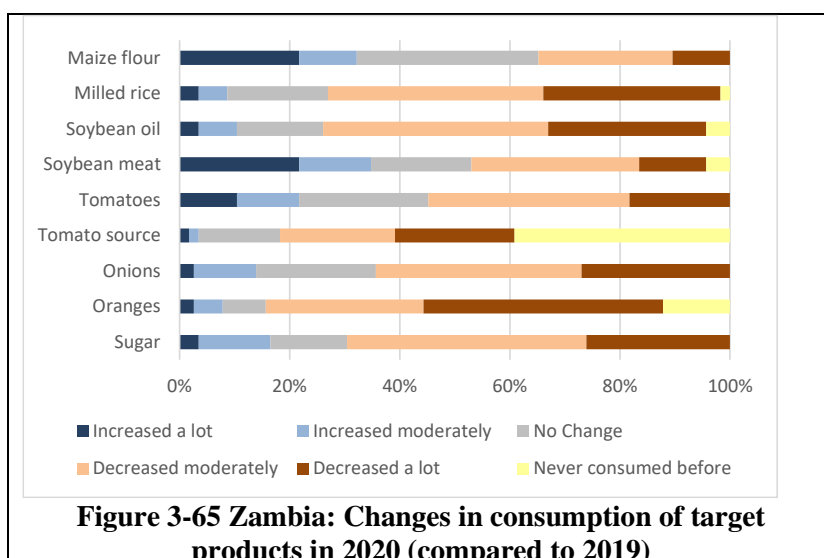
Figure 3-65 shows the change in consumption of the target products. A decrease in consumption was observed for almost all products. The reasons for the decrease are an increase in prices and a decrease in household income. The individual interviews with the survey team showed that there was a shortage of goods due to logistical disruptions and a decrease in the frequency of shopping due to the recommendation to stay home, but these were not shown in Figure 3-66 as reasons for the decrease in consumption.

The price elasticity of oranges and rice seems to have been high. Oranges are regarded as healthy food to be eaten when one is sick, and rice, although a staple food for producers, is a luxury food¹⁵ for non-rice farmers. On the contrary, maize flour, soybean meat, and tomatoes, all of which are self-sufficient, received significantly fewer responses for a decrease in consumption. The small decrease in maize and tomatoes was probably because they are essential for daily cooking and eating. Soybean meat had the highest number of respondents who answered that consumption had increased (when the sum of those who answered that it had increased a lot and those who answered that it had increased were combined). Many respondents said this was because the products were affordable or inexpensive.

Some respondents answered that there was an increase in consumption for every product, indicating that a decrease in prices and the abundance of products available were the reason for the increase (Figure 3-67).

The change in consumers' consumption of the target products in 2021 (compared to 2019) was almost identical to the change in 2020, indicating that consumption was still decreasing. There was no difference in the changes between 2020 and 2021.

¹⁵ As stated by the interviewee.



c) Changes in consumption of other foods due to changes in consumption of the target products

With the exception of soybean meat, all of the target products showed a trend of decreasing consumption. To compensate for the decrease, sweet potatoes, pumpkins, and maize were the main crops where consumption increased. According to the individual interviews, the consumption of sweet potatoes for breakfast or lunch increased because they are easy to cook and inexpensive. Pumpkin is cooked as a side dish and is preferred because, unlike leafy vegetables, it does not lose its volume after cooking. Regarding maize, respondents told that it could substitute for any target product where consumption decreased. There was no difference between these trends in 2020 and 2021.

d) Changes in attitude toward food purchasing

Figure 3-68 shows the change in awareness of food purchasing after the outbreak of COVID-19. Awareness of hygiene and interest in traceability has increased. As the background of awareness, infection prevention and preference for safer food can be seen. The individual interviews confirmed that domestically produced foods are preferred because they are relatively inexpensive compared to imported foods.

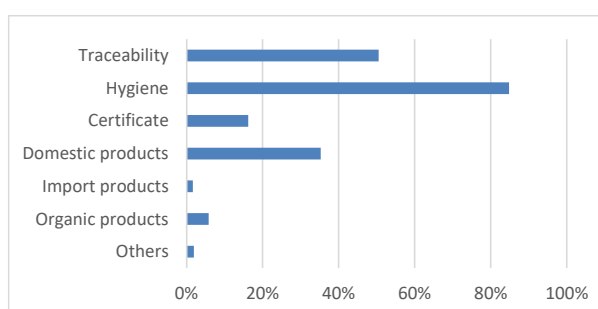


Figure 3-68 Zambia: Changes in attitudes towards food purchasing after the outbreak of COVID-19 in 2020

The change in consumer attitudes in 2021 (compared to 2019) was similar to the change in 2020.

e) Changes in food purchasing behavior

As shown in Figure 3-69, the frequency of grocery shopping and the amount of food bought per trip has decreased, which is consistent with the decrease in consumption of the target products shown in Figure 3-65. The increase in the use of online/telephone shopping for groceries and restaurant delivery services may be due to the stay home recommendation by government agencies and increased awareness of infection prevention. The individual interviews confirmed that the decrease in the frequency of eating out was due to restaurant business regulations imposed by the government, decreased business and personal travel, and decreased household income.

Figure 3-70 shows that after the outbreak of COVID-19, consumers used less cash and more mobile money as payment methods. We confirmed through individual interviews that this is due to the increased awareness of infection prevention.

The changes in consumer purchasing behavior in 2021 (compared to 2019) are very similar to those in 2020.

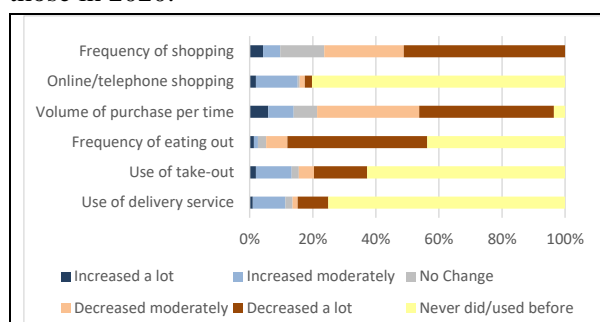


Figure 3-69 Zambia: Changes in food purchasing behavior after the outbreak of COVID-19 in 2020

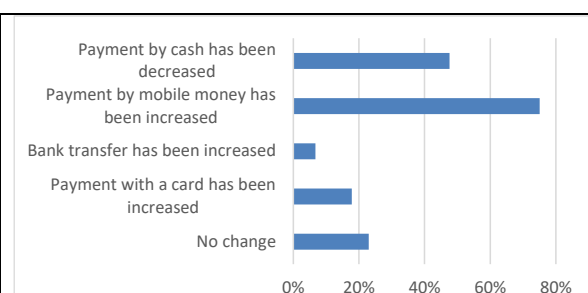


Figure 3-70 Zambia: Changes in consumers' payment methods after the outbreak of COVID-19 in 2020

2) Restaurants

a) Restaurant

i) Changes in sales and number of customers

As shown in Figure 3-71, sales have decreased in most restaurants, as has the number of customers, shown in Figure 3-72. The individual interviews confirmed that the direct cause of the decrease was the government's restrictions on business, such as total closure or limiting operation to only take-away, and the decrease in people going out due to the recommendation to stay home, as well as the increase in food prices and the decrease in income of the customers.

As shown in Figure 3-73, the change in the number of customers to restaurants in 2021 (compared to 2019) was similar to the change in 2020, but the number of increased responses increased, and the number of significantly decreased responses decreased. This indicated that the respondents were recovering from the decline caused by the COVID-19.

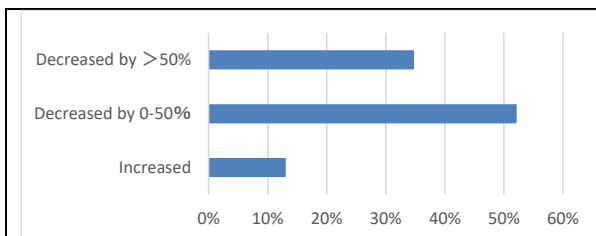


Figure 3-71 Zambia: Changes in sales at restaurants in 2020 (compared to 2019)

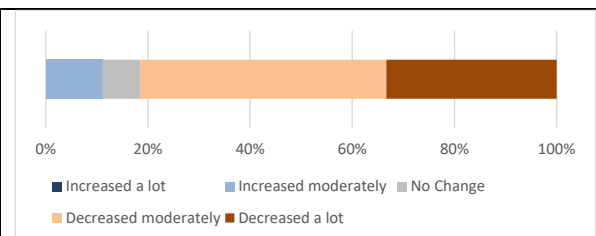


Figure 3-72 Zambia: Changes in number of customers in restaurants in 2020 (compared to 2019)

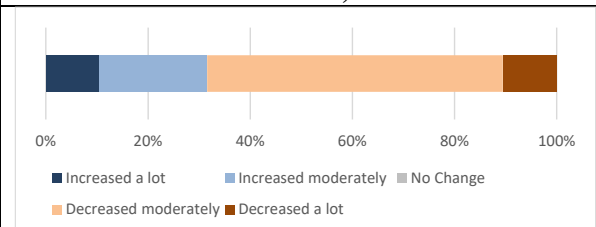


Figure 3-73 Zambia: Changes in number of customers in restaurants in 2021 (compared to 2019)

ii) Changes in procurement

As shown in Figure 3-74, the quantity of the target products purchased by restaurants decreased from 2019 to 2020. Both rice and maize are staple foods, but the decrease in rice purchases is larger than that of maize. This is due to the fact that the price of rice was originally higher than that of maize, and the price of rice, which is one of the major imported foodstuffs, has further increased due to the significant depreciation of the currency after COVID-19. In addition, soybean meat, which many respondents said had increased in consumption, was found to be an ingredient not widely used in restaurants.

Figure 3-76 shows the change in the quantity of the target products purchased in 2021 compared to 2019, with an increase in the number of respondents who answered increased a lot and increased moderately and a decrease in the number of respondents who answered decreased a lot and

decrease moderately. As mentioned above, the respondents' business was on a recovery trend from 2020 to 2021, which suggests that respondents increased their purchasing in 2021 compared to 2020 in order to cope with this trend.

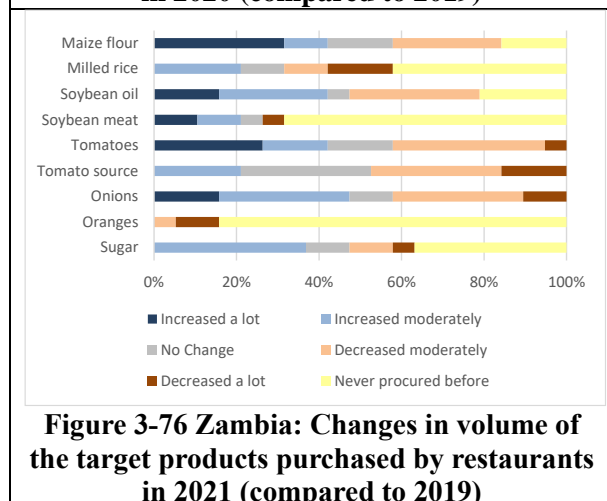
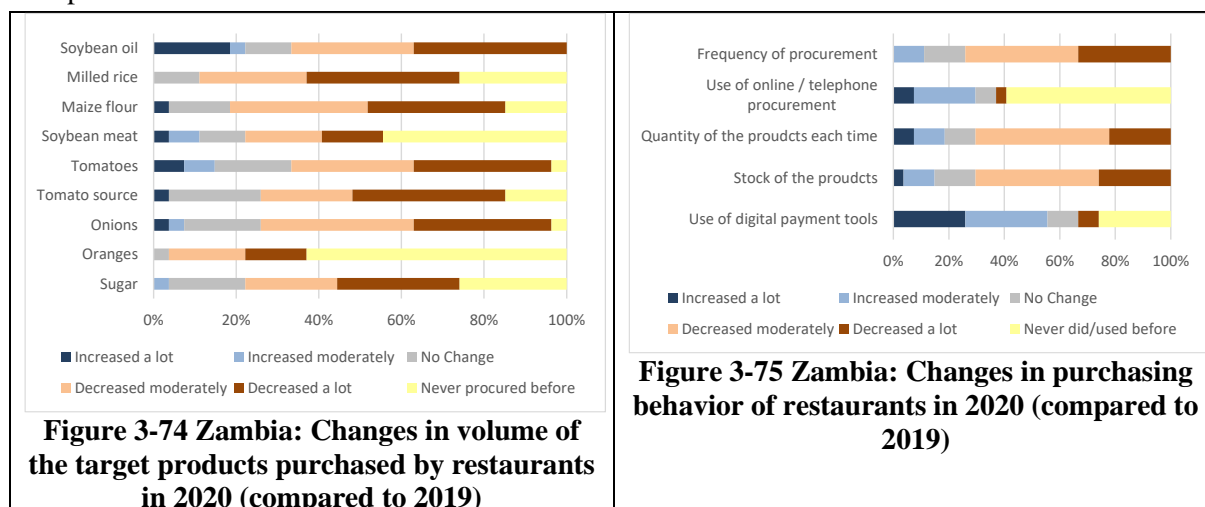
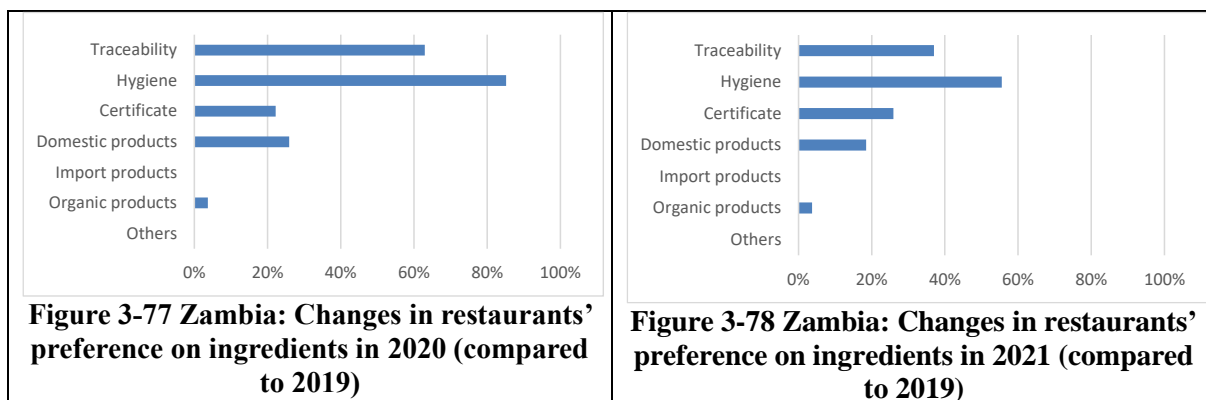


Figure 3-75 shows the changes in the procurement behavior of restaurants. The frequency of procurement, the amount of procurement each instance, and the volume of stock all decreased. According to the individual interviews with the survey team, the main reasons were the decrease in the number of business days, customers, and sales, and the direct impact of COVID-19 infection was not significant. On the other hand, the use of online and telephone ordering and digital payment tools to prevent COVID-19 infection was on the rise. In these respects, the trend of change in 2021 is similar to the change in 2020 described above.

As shown in Figure 3-77, more than 80% of restaurants were more hygiene-conscious in their attitudes toward the ingredients they purchased in 2020 as compared to 2019. In addition, more than 60% of the restaurants showed interest in traceability.



The pattern of change in restaurants' awareness of food safety in 2021 (compared to 2019) was generally the same as in 2020, but as shown in Figure 3-78, there was a decrease in the number of respondents who said that awareness of traceability and hygiene had increased. However, in comparison with Figure 3-77, one can observe that there was a decrease in the number of respondents who said that they had become more aware of traceability and hygiene. This may be due to a decrease in awareness as the number of new cases of the COVID-19 decreased¹⁶.

(8) Financial institutions

The survey was conducted with two microfinance institutions (MFIs) and one commercial bank. The characteristics of one of the two MFIs and the commercial bank are shown in Table 3-11 and Table 3-12 respectively.

1) Microfinance institution

The surveyed MFIs are small, community-based financial institutions, and their customers are mostly local small farmers. As the characteristics of one of the two MFIs Table 3-11 show, there is little change in the number of customers and the total amount of loans between 2019 and 2021. The Portfolio At Risk over 30 (PAR30) has also been maintained at the same level over the last three years. As a result of COVID-19, there has been a growing demand for internet and mobile inquiry services to avoid face-to-face inquiries.

Table 3-11 Zambia: Financial services provided by a microfinance institution

Features	Community-based MFI, providing loans as small working capital and capital investment to small farmers.						
Year	2019	2020	2021	Year	2019	2020	2021
Number of Customers	250	250	220	Agricultural Loan Amount (ZMK 000)	1,600	1,850	1,700
Total Loan Amount (ZMK 000)	1,500	1,850	1,700	PAR30	1	1	1
Total number of loans	250	250	270	ROA ¹⁷	15	15	56
Increase/decrease in	There was no change in the number of customers immediately after the COVID-19						

¹⁶ However, as shown in Figure 3-3, the number of new cases of the COVID-19 reached a record high in June 2021.

¹⁷ Return On Asset

the number of customers and reasons	pandemic began in 2020, but it decreased in 2021. The main reason for the decrease was stricter lending conditions, but the demand for funds from customers increased.
Increase/decrease of PAR30 and its reasons	No change.
Change in loan conditions	Tightened.
Financial services offered	Working capital and capital investment for agriculture. Internet and mobile money transfer and payment. Internet and mobile inquiry services.
Financial services desired by customers	Demand for internet and mobile inquiry services has increased. There was no change in other services.

2) Commercial bank

This commercial bank is one of the largest banks in Zambia, with financial operations throughout the country. Figure 3-13 shows the outline of the services provided by the bank. The number of customers and total lending has continued to grow in the wake of the COVID-19 pandemic. Lending to the agricultural sector rose sharply in 2020 but fell below 2019 levels in 2021. Because of the risk of COVID-19 infection, demand for internet/mobile banking and credit/debit cards has increased in place of cash handling and face-to-face services.

Table 3-12 Zambia: Financial services provided by a commercial bank

Features	Zambia's leading commercial bank. It provides loans to medium- and large-scale farmers for working capital and capital investment purposes.						
Year	2019	2020	2021	Year	2019	2020	2021
Number of Customers	368,032	408,630	440,100	Agricultural Loan Amount (ZMK 000)	1,509,163	2,299,051	1,320,300
Total Loan Amount (ZMK 000)	5,030,541	7,663,501	8,240,003	PAR30 (%)	5	7	5
Total number of loans	368,032	408,630	440,100	ROA (%)	N/A	N/A	80
Increase/decrease in the number of customers and reasons	Upward trend.						
Increase/decrease of PAR30 and its reasons	No change. However, lending conditions were tightened in light of the COVID-19 pandemic, so there was less lending in 2021.						
Change in loan conditions	Tightened.						
Financial services offered	Working capital and capital investment for agriculture. Internet and mobile money transfer and payment. Internet and mobile inquiry services.						
Financial services desired by customers	Demand for internet and mobile inquiry services has increased.						

(9) Cross-cutting issues

1) Financial services

a) Financing needs

As shown in Figure 3-79, the number of customers that received loans before the outbreak of COVID-19 was small, but after that, the need for loans increased regardless of the line of customers' business. However, the number of customers that received loans after COVID-19 was very small. The major reasons for this are the severe loan conditions as well as difficulty in repayment, as shown in Figure 3-80. Respondents who said they did not know of any financial institutions that could provide loans were also identified among agricultural cooperatives, retailers, and restaurants, which generally have smaller businesses and lower capacity.

In 2021, there was an overall increase in the number of respondents stating that they had new financing needs compared to 2020. Regarding the reasons for not taking out a loan, there was no significant difference between 2020 and 2021.

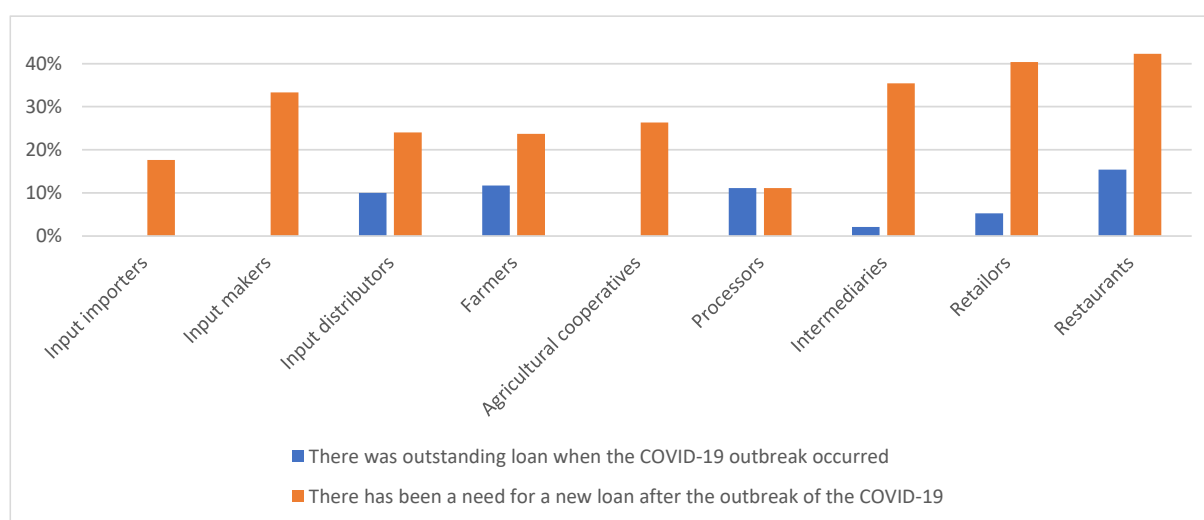


Figure 3-79 Zambia: Borrowing as of the outbreak of COVID-19 and needs for new loans afterward

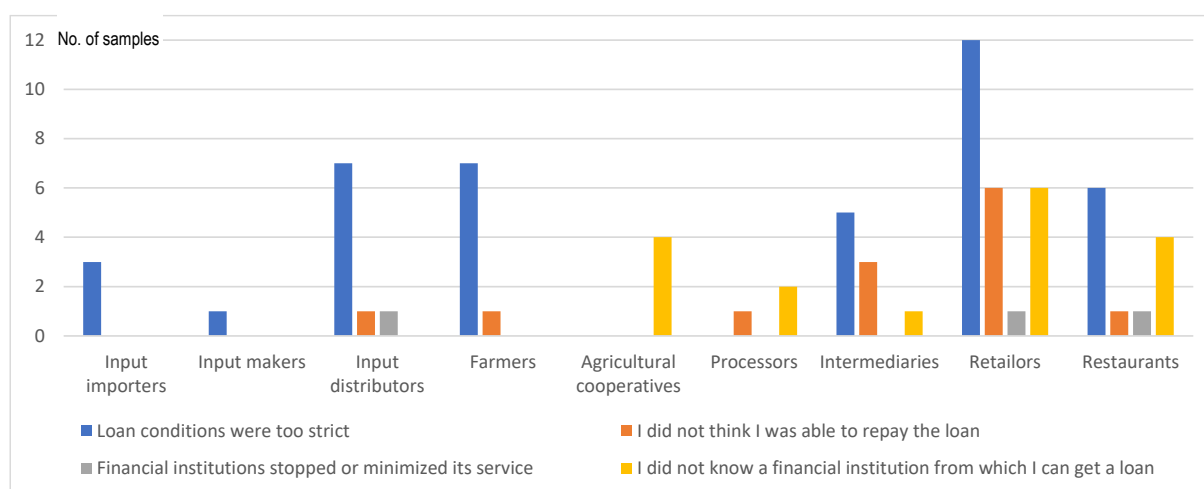


Figure 3-80 Zambia: Reasons for not obtaining loans in 2020

b) Needs for financial products other than loans

Financial needs for products other than loans are shown in Table 3-13. The need for business/disaster insurance and life/health insurance for employees is high in almost all types of businesses. The need for ICT-based services, such as online/mobile payments, credit/debit card payments, and online/mobile inquiry services is high among input importers and input manufacturers. Although the question was asked about the need for several types of deposits, the need was low. This trend was the same in both 2020 and 2021.

Table 3-13 Zambia: Financial needs for products other than loans after the outbreak of COVID-19

Line of business	Fixed Term deposit	Non-fixed term saving account	Current account for payment	International transfer	Business or disaster insurance	Life or health insurance for employees	Internet or mobile payment	Credit or debit card payment	Internet or mobile inquiry service
Input importers	0%	0%	0%	0%	5%	81%	67%	5%	0%
Input makers	0%	8%	5%	3%	11%	11%	11%	11%	11%
Input distributors	8%	6%	6%	6%	62%	54%	40%	20%	20%
Farmers	1%	1%	1%	0%	9%	8%	5%	2%	3%
Agricultural cooperatives	3%	0%	0%	3%	29%	23%	6%	0%	3%
Processors	0%	4%	0%	4%	54%	27%	8%	0%	4%
Intermediaries	1%	0%	1%	4%	42%	34%	8%	0%	6%
Retailers	9%	5%	7%	2%	49%	37%	14%	9%	7%
Restaurants	10%	7%	7%	3%	59%	52%	24%	21%	14%

Legend:

	>50%
	25%-50%

2) Changes in business practices

The changes in ICT-based business practices after the outbreak of COVID-19 are summarized in Table 3-14. Input importers and input manufacturers are actively using ICT to cope with the COVID-19 pandemic. The use of digital money, such as mobile money, is being actively adopted regardless of the specific type of business. Farmers, agricultural cooperatives, and processors are relatively less advanced in adopting ITC in their businesses. This trend was the same in both 2020 and 2021.

Table 3-14 Zambia: Changes in ICT-based business practices after the outbreak of COVID-19

Line of business	Face to face business talk	Use of SNS for online marketing	Use of SMS for online marketing	Use of digital money	Online buying, selling and business matching	Introduction of IC tag
Input importers	95%	10%	86%	86%	100%	71%
Input makers	67%	22%	67%	67%	89%	44%
Input distributors	14%	48%	54%	70%	80%	48%
Farmers	20%	30%	17%	23%	60%	11%
Agricultural cooperatives	19%	23%	23%	29%	65%	13%
Processors	58%	27%	50%	69%	77%	46%
Intermediaries	39%	24%	35%	41%	65%	29%
Retailers	35%	18%	14%	26%	61%	18%
Restaurants	17%	28%	38%	38%	72%	28%

Legend:

	>50%
	25%-50%

3.2. Zimbabwe

3.2.1. Socio-economic overview focusing on the agricultural sector

Table 3-15 shows the demographics of Zimbabwe. In 2020, Zimbabwe had the highest GDP per capita of the five countries covered in this study at USD 1,128, while the lowest GDP growth rate of -9%¹⁸ is reported for the same year. This is due to the decline in the manufacturing, service, trade, and transport sectors caused by the COVID-19 pandemic, but the reintroduction of the Real Time Gross Settlement (RTGS) dollar as legal tender in June 2019 and its depreciation against the US dollar has further disrupted the economy¹⁹. As a result, the exchange rate, which was 2.5 RTGS dollars to one US dollar when RTGS was introduced has depreciated to 107.1 RTGS dollars as of December 2021 (Figure 3-81). Due to the rapid depreciation of the currency in addition to the logistical stagnation and economic downturn caused by the pandemic of COVID-19, Zimbabwe's food inflation rate has remained above triple digits since May 2019 (Figure 3-82). This then subsided to around 50% by August 2021 but increased to 65.4% as of November 2021 due to the impact of the depreciation of the RTGS exchange rate from around October 2021.

Table 3-15 Zimbabwe: Population and Economic Statistics

Population, growth rate (2020)	14,863,000 persons 1.47%.	Source: Population growth rate: https://data.worldbank.org/indicator/SP.POP.TOTL?locations=ZW Population density https://data.worldbank.org/indicator/EN.POP.DNST?locations=ZW GDP per capita: https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=ZW Gini coefficient https://data.worldbank.org/indicator/SI.POV.GINI?locations=ZW Other: https://data.worldbank.org/country/ZM
Population density (2018)	37.3 persons/km ²	
GDP per capita (2020)	USD 1,128	
(Poverty rate 2019)	39.5 %	
Gini coefficient (2019)	0.50	
Life expectancy (2019)	61.5 years old	

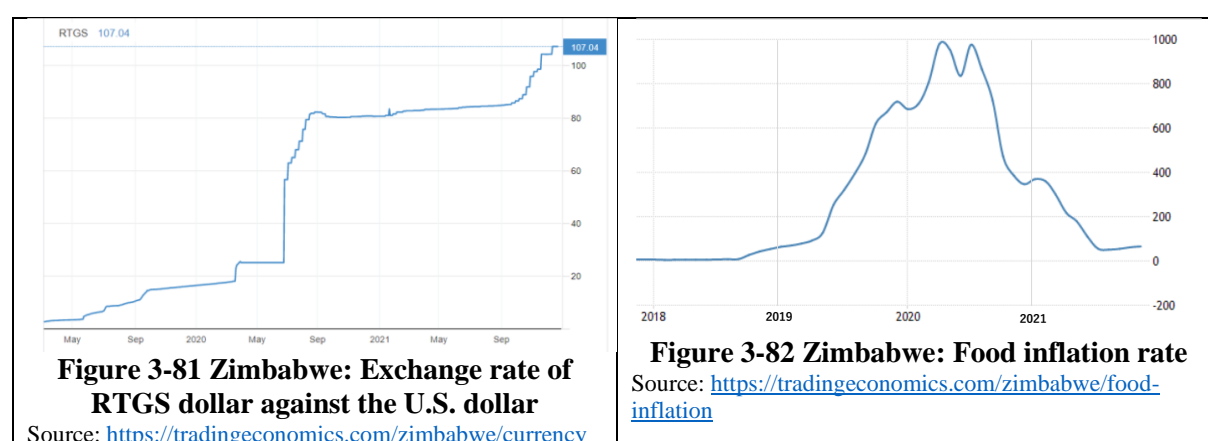


Table 3-16 shows the composition of GDP and the working population by sector in Zimbabwe. The agricultural sector is reported to account for 12% of GDP, which is low compared to other sectors; it employs 35.7% of the population, which is the second highest after the services sector. Among the

¹⁸ <https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG?locations=ZW>

¹⁹ With the reintroduction of the US dollar as part of the Corona measure in March 2020, the value of the RTGS dollar currency shrank sharply when the Foreign Exchange auction trading system was introduced on 17 June 2020.

five countries surveyed through this project, Zimbabwe has a relatively small working population in the agricultural sector.

Table 3-16 Zimbabwe: Sectoral composition of GDP and employment population

	Agriculture	Industry	Services
GDP composition (2017)*	12.0%	22.2%	65.8%
Composition of the employment population (2017)**	35.7%	19.1%	45.1%

* CIA World Fact Book, ** <https://ilostat.ilo.org/data/country-profiles/>

Zimbabwe is a major producer of industrial crops such as sugarcane, tobacco, and cotton, which are the country's top agricultural exports. Exports of tobacco are the highest, accounting for 76% of total exports, and are an important source of foreign currency for the country. In terms of imports, maize is the largest commodity, followed by soybean oil, wheat, and rice. Zimbabwe has imported an average of USD 133,8 million worth of maize over the decade 2010-2019, but due to the expected bumper harvest in 2021 and to save foreign currency, the Zimbabwean government introduced a ban on maize imports from June 2021 onwards²⁰.

Table 3-17 Zimbabwe: Top 10 agricultural products in terms of production, exports, and imports (2019)

Top 10 products in production	Volume (Tons)	Top 10 products in export	Value (1,000 USD)	Top 10 products in import	Value (1,000 USD)
Sugar cane	3,562,000	Tobacco, unmanufactured	782,997	Oil, soybean	72,220
Maize	777,000	Sugar Raw Centrifugal	57,323	Wheat	51,617
Tobacco, unmanufactured	257,764	Cotton lint	36,898	Rice, paddy (rice milled equivalent)	50,488
Cassava	253,835	Tobacco products nes	30,134	Rice, broken	38,384
Vegetables, fresh nes	194,117	Tea	21,095	Maize	30,881
Bananas	142,380	Nuts nes	20,944	Food wastes	22,276
Seed cotton	107,338	Cigarettes	15,358	Food prep nes	20,693
Oranges	98,007	Oranges	7,556	Cake, soybeans	12,062
Groundnuts, with shell	90,000	Peas, green	5,729	Rice, milled	11,663
Wheat	80,000	Crude materials	5,656	Oil, palm	7,474

Source: FAOSTAT

3.2.2. COVID-19 situation, relevant measures and policies, and responses by development partners

(1) COVID-19 situation and regulations against COVID-19 in Zimbabwe

As Figure 3-83, the number of COVID-19 infections in Zimbabwe reached a small peak in June-August 2020, followed by a larger peak in January-February 2021. Since then, the number of infections has been declining, but began to rise again in May 2021. Restrictive measures taken by the government to prevent the spread of COVID-19 infections are mainly notified and enforced by the Ministry of Health and Childcare in the form of Statutory Instruments. The basis for all COVID-19 control instruments is Notification No. 2020-77 of March 23, 2020 and Notification No. 2020-83 of March 28, 2020, which have been amended a total of 52 times as of the end of December 2021. They

²⁰ <http://www.fao.org/giews/food-prices/food-policies/detail/en/c/1402127/>

were enforced as of March 30, 2020, with no fixed date of expiration and may be tightened or relaxed depending on the number of COVID-19 infections. If the number of COVID-19 infections increases and a Level IV national lockdown occurred²¹, strict restrictions on the private sector's economic activity would apply, although the mining, manufacturing, and tobacco industries might be exempted from strict restrictions due to their economic importance. Regarding restrictions on gatherings and on the opening of retail outlets, the maximum number of gatherings and opening hours would be set according to the number of new COVID-19 infections. In addition, the Minister of the Interior would be empowered to seal borders extrajudicially, regardless of what is stated in existing legal instruments.

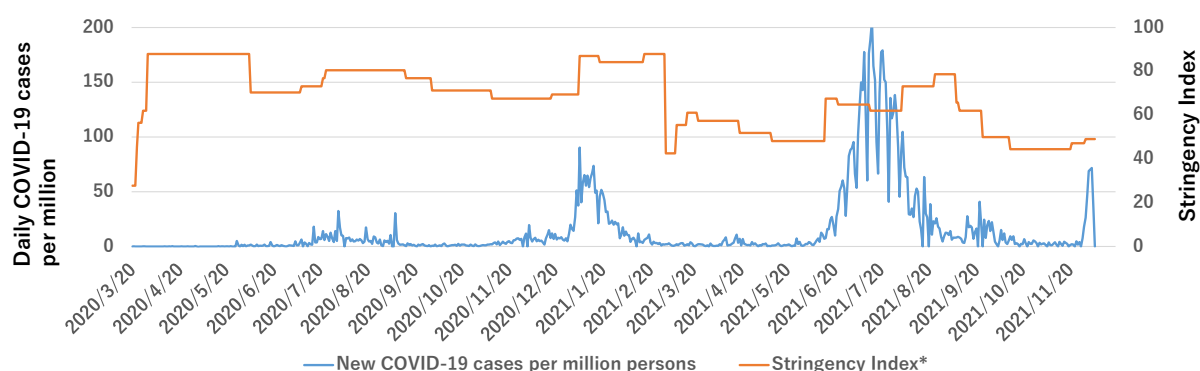


Figure 3-83 Zimbabwe: Newly confirmed COVID-19 cases per week (from March 2020 to December 2021)

Source: <https://ourworldindata.org/grapher/covid-stringency-index>* Stringency Index : This is a quantification of the severity of the COVID-19 response of each government. It is calculated using nine indicators, including restrictions on gatherings and requests to refrain from going out.

(2) Measures against COVID-19 by the Zimbabwe government in the agricultural sector

The Government of Zimbabwe developed the National Agriculture Policy Framework (2018-2030) prior to the pandemic of COVID-19. The document set out a development vision of “a diversified and competitive agricultural sector that ensures food and nutrition security and contributes significantly to national development” and outlined nine guiding principles as shown in Table 3-18. There is no document available as of this writing that specifies the measures to be taken by the agricultural sector after the pandemic of COVID-19. The Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (henceforth, the Ministry of Agriculture) is considering an agricultural knowledge, technology, and innovation system, with a particular emphasis on the use of digital tools for agricultural extension and improved market access for farmers.

²¹ In addition to the suspension of business activities or reduction of opening hours for non-essential work activities, there is a ban on intra- and inter-city transport services (exception: Zimbabwe United Passenger Company (ZUPCO)) and strict infection control measures in vehicles. Food service are prohibited in restaurants, except in hotels (take-away service is allowed). It should be noted that businesses related to agricultural production and inputs are considered Essential Work and the government's position is that there are no restrictions on them.

Table 3-18 Zimbabwe: Summary of National Agriculture Policy Framework (2018-2030)

Guidelines	Contents (summary)
Food and nutrition security	Development and implementation of policies that promote crop diversity and the availability of nutritious food for home production and local markets.
Agricultural knowledge, technology, and innovation systems	Development and promotion of an efficient agricultural knowledge, technology, innovation, and communication (exchange and dissemination) system
Production and supply of agricultural inputs	Strengthening the input material supply chain to increase input material volumes and reduce input material costs Promoting input procurement by farmers through improved access to finance
Agricultural infrastructure development	Development, rehabilitation, and modernization of agricultural infrastructure Improved access to appropriate agricultural technologies Reducing fuel costs across the agricultural value chain
Agricultural marketing and trade promotion	Promoting the participation of smallholder farmers in the agricultural value chain Revitalization of agricultural marketing and reduction of business costs Expanding exports of agricultural products
Agricultural finance and credit	Promotion of long-term/low-interest credit services Strengthening access to finance for the agricultural sector Priority support for the development of agricultural value chains based on the comparative advantages of the region.
Land tenure systems and land management	Strengthening of the land management system
Sustainable agriculture	Strengthening the resilience of agricultural production systems to climate change, pests, and diseases Mobilizing funds for climate change adaptation and mitigation programs

Source: National Agriculture Policy Framework (2018-2030)

(3) Responses against COVID-19 by development partners in the agricultural sector in Zimbabwe

IFAD provided the beneficiaries of the Smallholder Irrigation Revitalization Program with inputs to enable them to resume production after suffering losses due to COVID-19. The project will continue to improve agricultural productivity in the irrigation schemes, create a marketing platform to connect farmers with buyers, and provide technical training to farmers and extension workers. In addition, the World Bank, UNDP, UKAID, USAID, EU, etc. are aiding the health and sanitation sector (vaccination programs, support to medical personnel, etc.), but no direct assistance to the agricultural sector has been identified.

On the other hand, a number of donors and related organizations have been conducting research on the impact of COVID-19 on the agricultural supply chain, and FAO has reported on the impact of government regulations and support measures implemented as part of the COVID-19 control measures on the agricultural supply chain²². UNDP has also assessed the impact of COVID-19 on the socio-economy of Zimbabwe and made recommendations on policies to address it²³. WFP regularly conducts vulnerability assessments of food markets in order to assess the food security situation in the country²⁴.

3.2.3. Impact of COVID-19 on the value chain of the target products

(1) Summary of the impact of COVID-19 on FVC in Zimbabwe

Table 3-19 summarizes the impact of COVID-19 on each VC in 2020 and 2021 compared to

²² FAO, 2021, National agri-food systems and COVID-19 in Zimbabwe

²³ UNDP, 2020, A Preliminary Assessment of the Socio-economic Impact of Coronavirus (COVID -19) on Zimbabwe

²⁴ FAO, 2021, National agri-food systems and COVID-19 in Zimbabwe

2019. In 2020, while the responses to the survey varied, with some individuals and companies experiencing an improvement in their business environment and others experiencing a deterioration, the overall trend was as follows. In terms of inputs, the sector as a whole is generally buoyant, with strong demand despite difficulties in procuring inputs due to government restrictions on movement and border control. On the other hand, the business situation in the supply chain from production to consumption has been generally worse, although the impact has varied in type and severity. The main reason for this is that the government restrictions imposed by COVID-19, particularly the strict movement restrictions, have disrupted logistics for agricultural commodity distribution. In 2021, crop production and sales have improved due to an improving trend in consumer income, a slight recovery in domestic demand, and favorable weather conditions for agricultural activities. On the other hand, the supply chain of some crops such as tomatoes and sesame are still affected by government restrictions on movement and border control.

Table 3-19 Zimbabwe: Impact of COVID-19 on each VC

VC	2019/2020		2019/2021	
	Results	Factors	Results	Factors
Input	Sales volume of inputs were normal or slightly increased despite difficulties in procuring input materials.	Trade in fertilizer and agrochemicals has been continued after COVID-19. However, the procedures required at border crossings for input importing have become more complex, increasing both transport time and costs.	Sales of inputs tended to increase.	Logistical issues with inputs continue, but the demand itself is strong due to government subsidy policies.
Production	Farmers' production, yields and sales volume tend to decline.	The weather conditions (drought) have had more a significant impact on crop production than COVID-19. However, the government restrictions on movement have reduced marketing opportunities for farmers.	Farmers' production and sales volume increased slightly.	Production increased due to good weather. Some difficulties continued for producers in selling some crops.
Processing	A downward trend in both production and sales volume by processors.	Shortage of raw materials for processing is the most significant factor. Government restrictions on movement have led to a reduction in the sourcing of raw material, particularly from farmers.	Production and sales volumes of processors tended to increase.	The issue of raw material supply has been largely resolved. Restrictions on operations by the government became the bottleneck for their businesses.
Distribution	The volume of purchases and sales by wholesalers are both on a downward trend.	Government restrictions on movement have tended to reduce wholesalers' procurement, particularly from farmers, cooperatives, and importers.	The volume of purchases and sales by wholesalers tended to increase.	The issue of procuring raw materials from producers has largely been resolved. Domestic movement restrictions are still a bottleneck for their business.
Retail	Sales volumes of target commodities are generally declining.	Government restriction (movement and business activities), reduced demand and procurement of commercial goods, etc.	Sales volume of the target crop increased slightly.	Domestic demand tended to recover, but not to pre-COVID-19 levels.
Consumption	Household income and consumption of target commodities declined.	This was due to the lower incomes of consumers and higher prices for commodities. The rise in commodity prices might be due to a fall in currency value.	Household income and consumption of target crops increased slightly.	Consumer incomes tended to recover.

Source: JICA Survey Team

(2) Agricultural inputs

1) Highlights

The COVID-19 pandemic has had a considerable impact on the business of those involved in agricultural inputs, but it has been different for each of the companies involved; some of them are selling their products more steadily than before COVID-19. This is probably due in part to the government's subsidy policy, which is supporting demand in the input market. The unit price of input such as fertilizer tends to be higher than before COVID-19, but this is mainly due to inflation caused by the sharp depreciation of the currency, in addition to the increased logistics costs caused by the COVID-19.

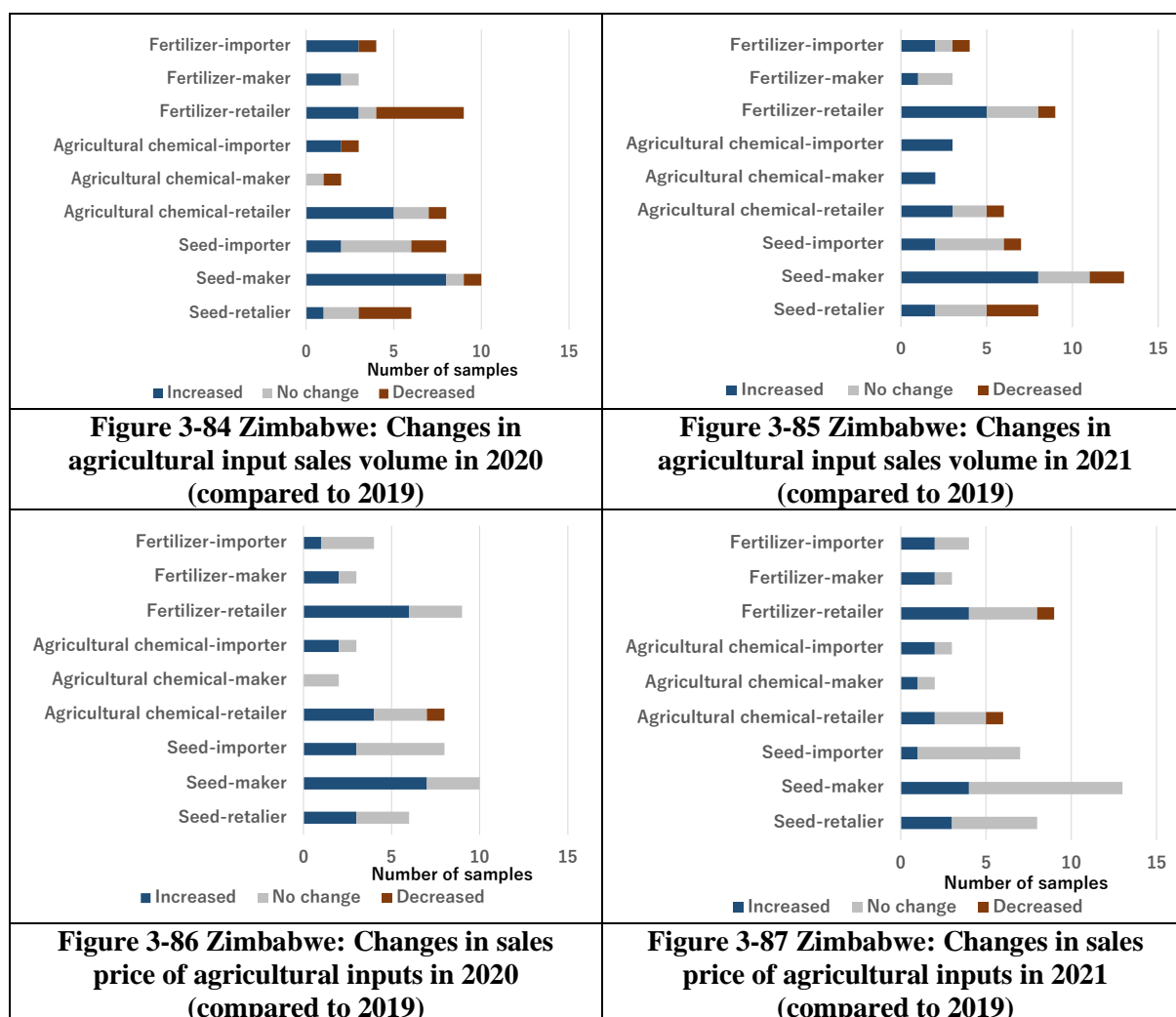
2) Changes in sales

Figure 3-84 shows the change in the sales volume of input suppliers in 2020 compared to 2019. With regard to the sales volume of inputs, there were a certain number of companies whose sales volume increased, regardless of the type of products they handled. Reasons for increased sales included 1) increased domestic and international demand, 2) a less competitive environment, and 3) government subsidies especially for manufacturers and retailers of maize and sorghum seeds. Lower sales volumes were observed in a certain number of companies and were attributed to 1) lower domestic demand, 2) logistical constraints²⁵²⁶, and 3) difficulties in procuring the materials of inputs. Figure 3-85 shows the change in the sales volume of input suppliers in 2021 compared to 2019. The trend was generally similar to that in 2020, but there was a slight increase in fertilizer sales volume by retailers.

Figure 3-86 shows the change in the unit sales prices of the input suppliers in 2020 compared to 2019. With the exception of agrochemical manufacturers and retailers, unit sales prices are generally on an upward trend, with the significant reason of 1) inflation, followed by 2) increased transport costs. In contrast, the agrochemical manufacturers and retailers indicated that they had discounted their sales prices due to the decline in domestic and international demand. Figure 3-87 shows the change in unit sales prices of input suppliers in 2021 compared to 2019, which was generally similar to the trend in 2020.

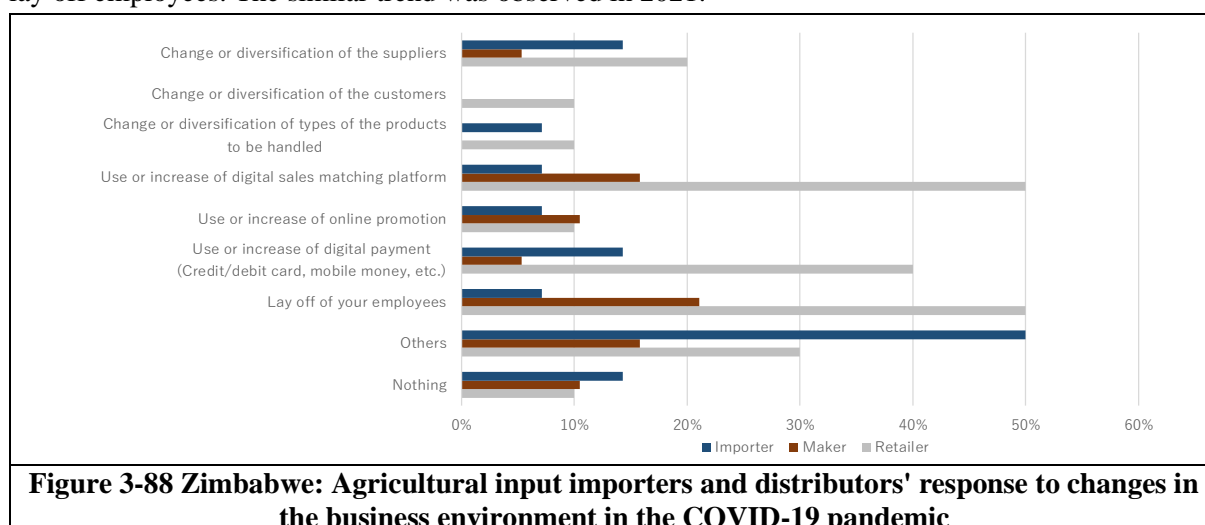
²⁵ Workshop discussion 1: Activities of fertilizer, agrochemical and seed manufacturers were carried out under the pandemic of COVID-19 without any specific restrictions, but those producing product packages were subject to operational restrictions. In some cases, input production lines were shut down due to unavailability of packages.

²⁶ Workshop discussion 2: Input-related businesses are included in Essential Work, but there were frequent cases where transporters of input products were not regarded as Essential Work. This hindered the purchasing of input materials by input retailers.



3) Response to COVID-19

Figure 3-88 shows the response of input suppliers to COVID-19. About 10% of the companies have not taken any action, while the rest have taken some kind of action. For input retailers, the most common response was to use customer matching services and digital payments, as well as to temporarily lay off employees. The similar trend was observed in 2021.



4) Changes in countries from which agricultural inputs are imported

Zimbabwe imports most of its inputs such as fertilizers, pesticides, and seeds from South Africa. Statistics show that about 41% of fertilizer, 53% of pesticides, and 54% of vegetable seeds were imported from South Africa in 2020. Many of the input importers surveyed also imported their products from South Africa, and this did not change significantly before or after COVID-19.

(3) Production

1) Highlights

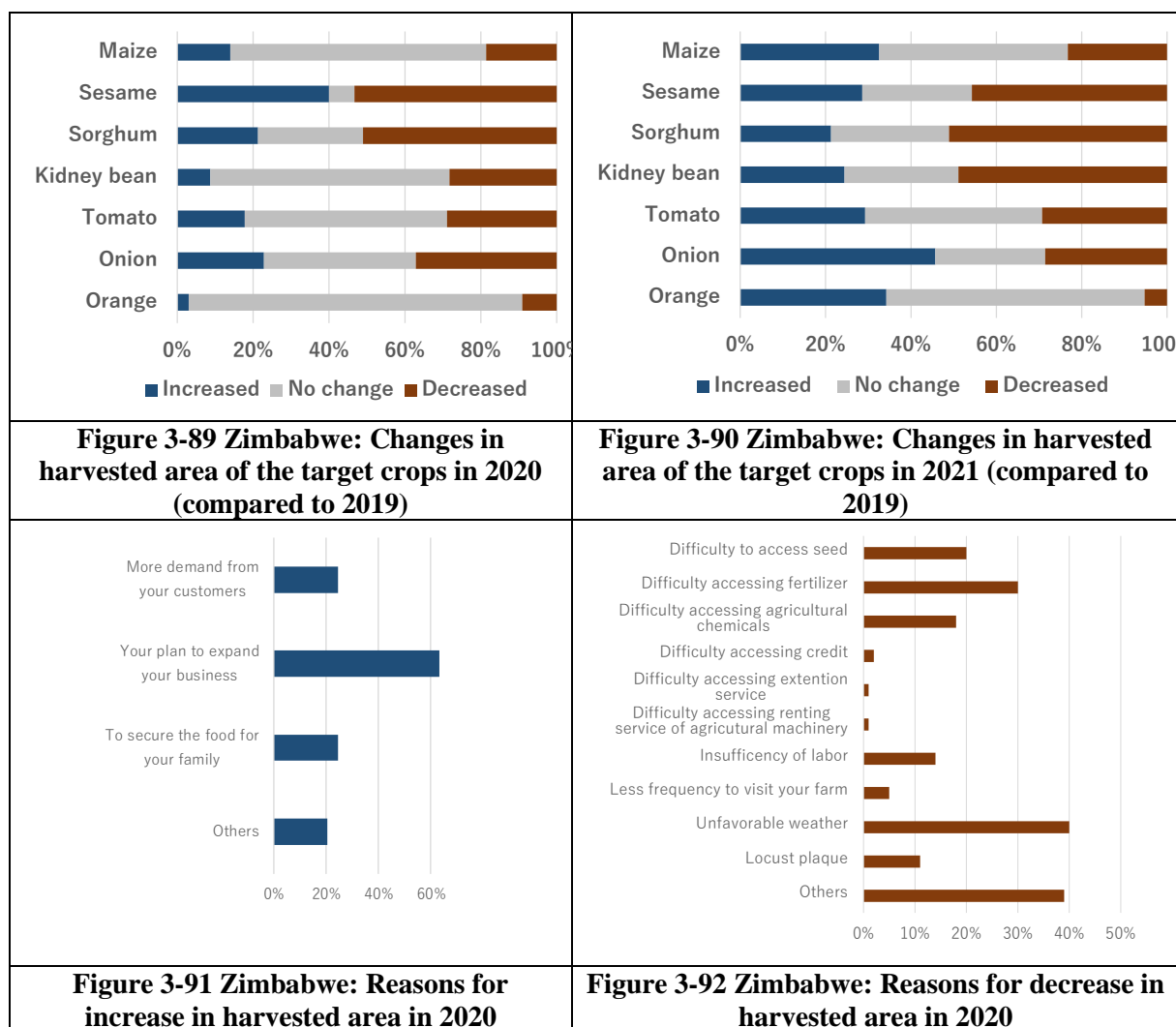
In terms of the impact of the COVID-19 on agricultural production, the deterioration of access to agricultural input exists, but the impact of unseasonable weather and locust damage is considered to be higher. Regarding crop sales, there was a tendency for the volume and unit price of some crops to fall due to lower demand and logistic issues. In 2021, the production of each crop showed an upward trend due to favorable weather, but issues in sales and distribution became apparent, especially for tomatoes, which do not last long on the shelves, and sesame, which is an export crop.

2) Changes in harvested area

Figure 3-89 shows the change in harvested area for each of the target crops in 2020 compared to 2019. Overall, about 18% of the crops show an increase in harvested area, and about 32% show a decrease, although the extent of the increase or decrease varies between crops. Figure 3-91 and Figure 3-92 show those reasons, with farmer's planned expansion being the most common reason for increases, and unfavorable weather being the most common reason for decreases. Farmer's own planned expansion was chosen mainly by tomato, onion, and sesame producers, probably in anticipation of increased profits from crop sales. Unfavorable weather tended to be selected as the reason for the decrease in the harvested area, mainly by sorghum and sesame farmers. Since these crops are generally grown in rainfed conditions, the lack of rainfall and the delay in rainfall during the rainy season may have contributed to the decline in the area harvested. About 20% of the farmers reported poor access to seeds, fertilizers, and pesticides as the reason for the reduction in area harvested, mainly from tomato, onion, kidney bean, and maize farmers. This may be because, as a matter of local practice, sorghum and sesame farmers are less likely to apply fertilizers and pesticides.

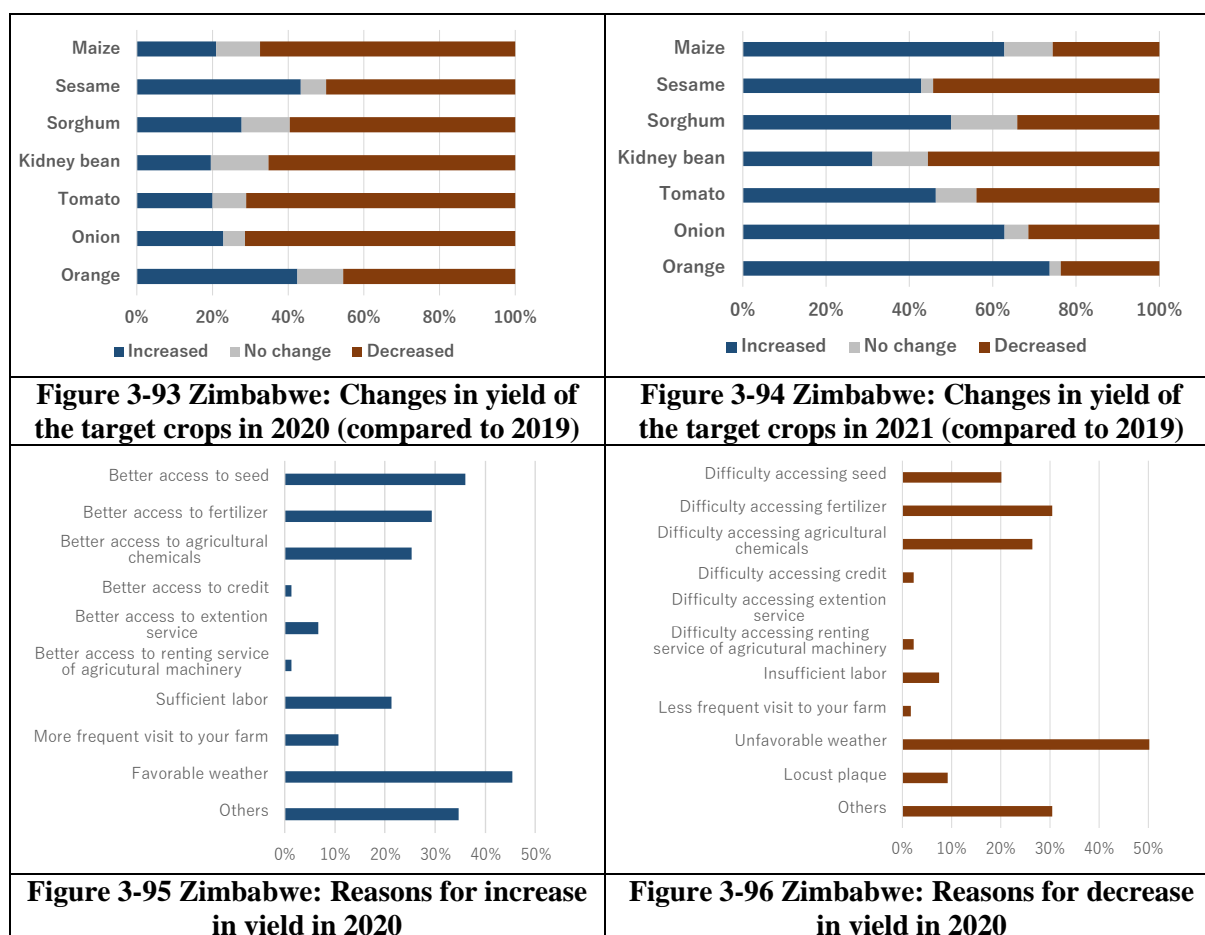
Figure 3-90 shows the change in the harvested area of each target crop in 2021 compared to 2019, showing a slight increase in the harvested area of maize, kidney bean, tomatoes, onions, and oranges compared to the results of 2020. This may reflect how the 2020-2021 planting season for maize had favorable weather, which allowed for timely planting. For onions, the area harvested has increased significantly, probably because more farmers expanded their production area of this crop in response to the Zimbabwean government's ban on onion imports²⁷. Regarding oranges, the harvested area increased due to the decrease in the irrigable area caused by the lack of rainfall and electricity in 2019, and also due to the fact that the fruit trees planted in recent years have reached the harvestable age. The reasons for the change in harvested area in 2021 are similar to those in 2020.

²⁷ Newsletter July 2021, AMA



3) Changes in production and yield

Figure 3-93 shows the change in yield for each of the target crops in 2020 compared to 2019. Overall, about 27% of the crops show an increase in yield, while about 62% show a decrease. All crops have a certain number of farmers who have seen a decrease in yield, with tomatoes, onions, maize, and kidney bean farmers being more likely to fall into this category. Figure 3-95 and Figure 3-96 show the reasons for yield change, with the weather condition being the most common reason for both yield increases and decreases. The two most common reasons for yield decreases were 1) poor access to inputs such as seed, fertilizer, and pesticides and 2) other reasons. The former was cited by a large number of tomato, onion, maize, and kidney bean producers, while the latter was cited by sesame producers (insufficient water and pest damage) and orange producers (lack of electricity for irrigation). Figure 3-94 shows the change in yield of each target crop in 2021 compared to 2019, showing a trend of increased yield for all crops compared to 2020. About 80 percent of farmers cited good weather as the main reason for yield increase in 2021, including improved access to irrigation water due to good rainfall, which was frequently mentioned by orange producers.



4) Changes in sales

Figure 3-97 shows the change in sales of each target crop in 2020 compared to 2019. Overall, about 24% of respondents reported an increase in sales, while about 56% reported a decrease. The degree of change in sales volume varied by crop, with more farmers reporting a decrease in sales for tomatoes and onions, and relatively fewer for sorghum. Figure 3-101 and Figure 3-102 show the reasons for the change in crop sales. The most common reason given for an increase in crop sales was an increase in yield, chosen by many orange farmers who have planted trees in recent years and whose yields increase as the trees grow. On the other hand, the most common reason for a decrease in crop sales was also a decrease in yield, and this was the case for a certain number of farmers for all crops. Difficulty in transporting the crop to market was also a relatively common reason for the decline in sales, particularly for tomato, onion, and kidney bean farmers^{28,29}. Figure 3-98 shows the change in the sales volume of each crop in 2021 compared to 2019. The sales volume showed an increasing trend for all crops except sesame and kidney bean. This can be attributed to an increase in harvest area and yield due to favorable weather conditions. Despite this, more than 60% of farmers reported a decrease in sales of sesame and

²⁸ Workshop discussion 3: Under the strict lockdown, the police have intensified their crackdown, with some demanding bribes in exchange for movement permits. More and more transporters (including middlemen), who are responsible for transporting agricultural products, have stopped their services due to the fear of infection and also to avoid such crackdowns. Those that continue to provide transport services demand higher rates, making it difficult for farmers to transport crops to market.

²⁹ The sharp fall in the RTGS dollar (June 27, 2020) coincided with the sale of tomatoes and other horticultural crops, which made it impossible to pay transport charges in RTGS dollars at this time.

tomatoes in 2021, with the most common reasons being 1) low yields, 2) difficulty in transporting to market, and 3) low market prices.

Figure 3-99 shows the change in unit sales prices for each target crop in 2020 compared to 2019. The changes in unit sales prices tend to vary significantly between crops, with a particular trend toward an increase for maize and a decrease for sesame. Figure 3-103 and Figure 3-104 show the reasons for the change in crop unit sales prices. The most common reason for an increase in unit sales price was an increase in demand, followed by a decrease in market volume, which was the case for many farmers of tomatoes, onions, and maize, which had increased in crop sales volume. On the other hand, the most common reason given for the decline in unit sales price was lower demand, which was the case for sesame, tomato, and onion farmers. Although the area under sesame cultivation has been increasing in recent years as an export crop, the number of traders buying sesame has decreased due to the impact of COVID-19, making it a buyer's market, which may be why the unit sales price decreased. Figure 3-100 shows the change in the unit sales price of each target crop in 2021 compared to 2019, demonstrating the tendency for unit sales price to decrease especially for tomatoes, onions, and oranges. The most common reasons given for the decrease in unit sales prices for these crops were 1) lower demand and 2) increased supply of those crops to the market. The reason for these results may be that while the supply of these items to the market has increased, the demand itself has not fully recovered yet.

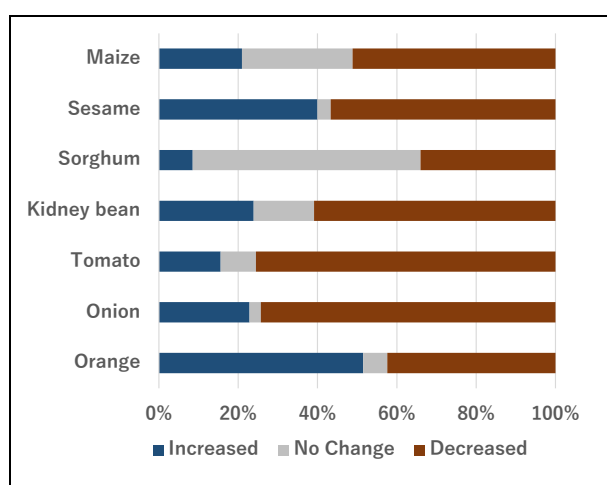


Figure 3-97 Zimbabwe: Changes in sales volume of the target crops by farmers in 2020 (compared to 2019)

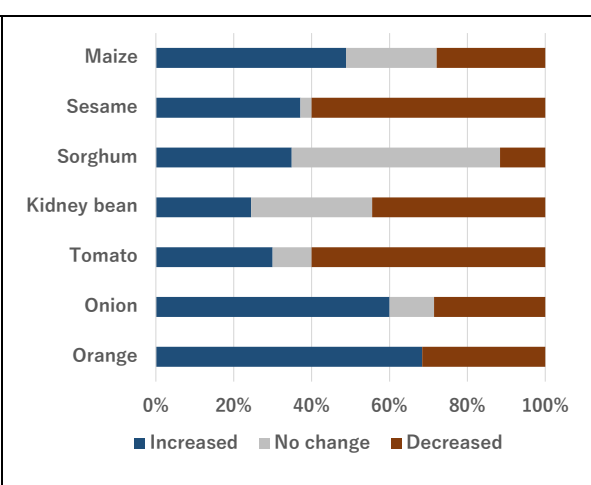


Figure 3-98 Zimbabwe: Changes in sales volume of the target crops by farmers in 2021 (compared to 2019)

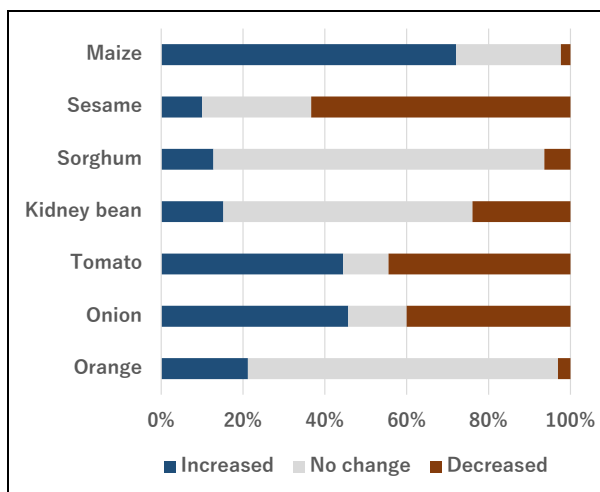


Figure 3-99 Zimbabwe: Changes in farm gate prices of the target crops in 2020 (compared to 2019)

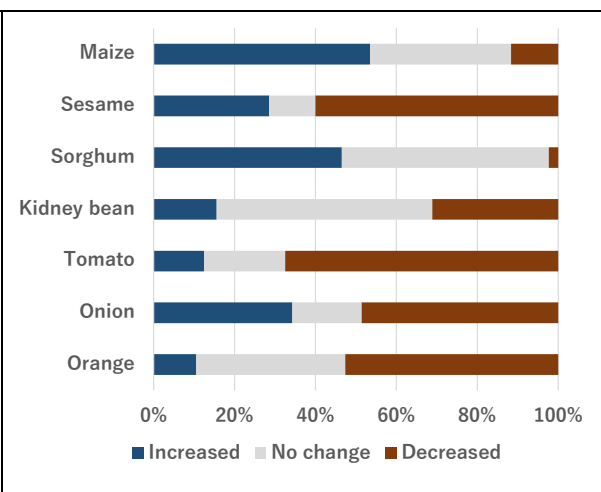


Figure 3-100 Zimbabwe: Changes in farm gate prices of the target crops in 2021 (compared to 2019)

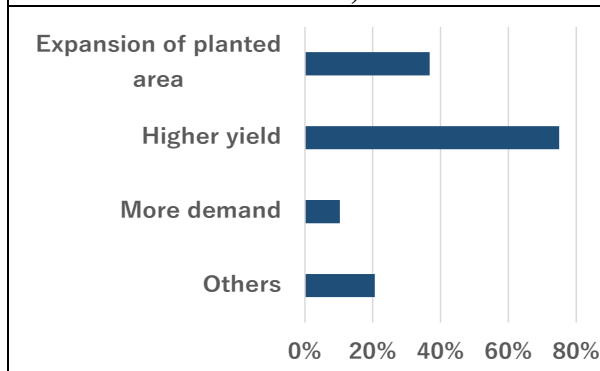


Figure 3-101 Zimbabwe: Reasons for increase in sales of the target crops in 2020

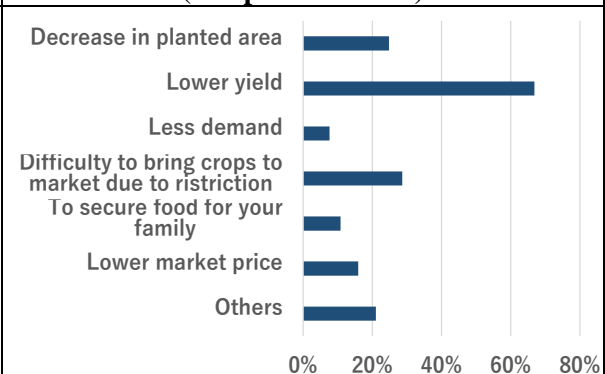


Figure 3-102 Zimbabwe: Reasons for decrease in sales of the target crops in 2020

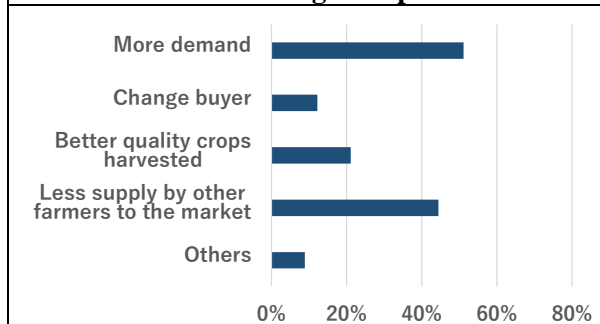


Figure 3-103 Zimbabwe: Reasons for increase in farm gate prices in 2020

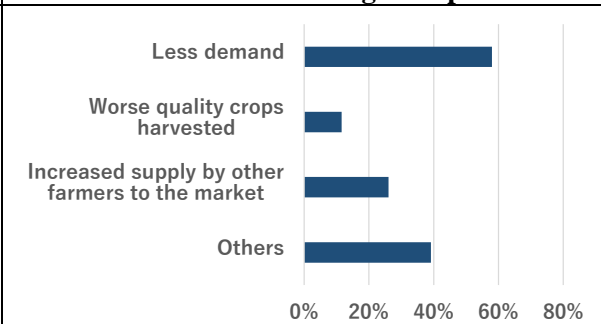


Figure 3-104 Zimbabwe: Reasons for decrease in farm gate prices in 2020

Box: Mechanisms of the impact of government restrictions on the logistics of fresh tomatoes.

The biggest issue for tomato producers in selling their tomatoes was the curfew that was imposed in response to the increasing number of COVID-19 cases. The production and distribution of agricultural products are recognized as “essential work” by the government and are therefore not subject to the curfew in principle. However, when traveling during curfew hours, it is necessary to show proof that they are engaged in essential work. The producers and informal traders who are responsible for most of the logistics of agricultural products and are not registered as companies with any official organization need to obtain an essential work certificate issued by the government. Needless to say, obtaining this certificate is not an easy task, and the number of traders has significantly decreased especially for those who deal with perishable crops such as tomatoes. In addition, producers and traders who still transport crops have started to avoid traveling between 6 p.m. and 6 a.m. Originally, tomato producers in Zimbabwe harvested the previous evening or early morning and arrived at the market with their harvest before the wholesale market opened at 6 a.m. Due to the curfew that has been imposed, the arrival at the wholesale market has been delayed more than usual. The wholesale market is generally open from 6:00 a.m. to 11:00 a.m., but the tomatoes transported from distant places arrive at the market just before closing time, and depending on road congestion, it may be necessary to wait with the harvest until the market opens the next day. This situation increased the transaction cost and decreased the value of the harvest. Currently, the situation is improving with the Zimbabwe Farmer's Union issuing certificates for essential work, but this case highlights the vulnerability of agricultural supply chains, especially for perishable crops such as tomatoes and cabbages.



Fresh tomatoes in wholesale market

5) Impact on the activities of agricultural cooperatives

Figure 3-105 shows the changes in the services offered by agricultural cooperatives in 2020 compared to 2019. About 80% of the agricultural cooperatives surveyed were engaged in joint marketing of agricultural products. Hence, about 30% of the cooperatives also engaged in joint purchasing of agricultural inputs. On the other hand, none of the cooperatives offered agricultural machinery rental services or financial services. The services provided by the cooperatives are shrinking as a whole, and in terms of joint sales, about half of the cooperatives have reduced their sales volume. The most common reasons for this were 1) lower yields from members, 2) lower demand from customers, as well as 3) difficulties in transport due to government traffic restrictions. With regard to the joint purchase of inputs, the most common reasons given for the decrease in input procurement were 1) higher prices and 2) difficulties in transport. These results are consistent with the reasons for decreased sales by individual farmers as shown in Figure 3-97 and the increase in input sales prices shown in Figure 3-86. Figure 3-106 shows the changes in services provided by agricultural cooperatives in 2021 compared to 2019, demonstrating the tendency for more cooperatives to engage in joint purchasing of agricultural inputs and joint marketing of agricultural products. In 2021, government restrictions were still in place, but they may have been relaxed for a period of time compared to 2020, and some cooperatives and farmer

groups may have resumed their activities.

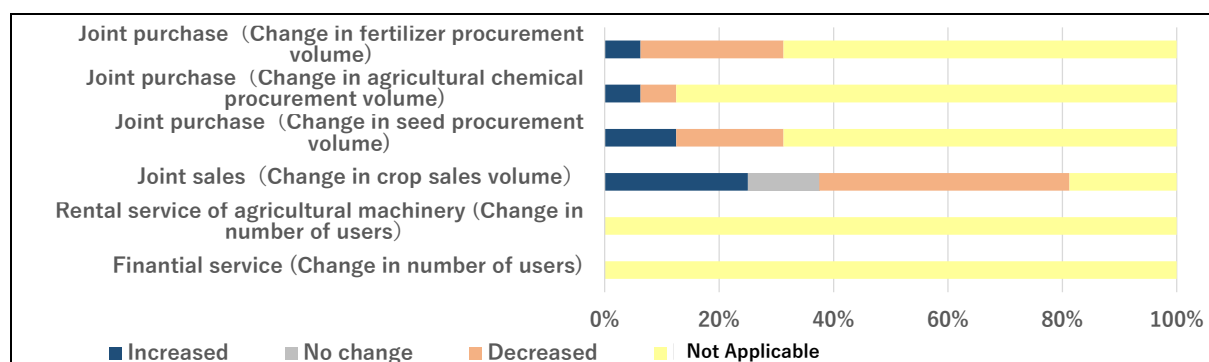


Figure 3-105 Zimbabwe: Changes in services provided by agricultural cooperatives in 2020 (compared to 2019)

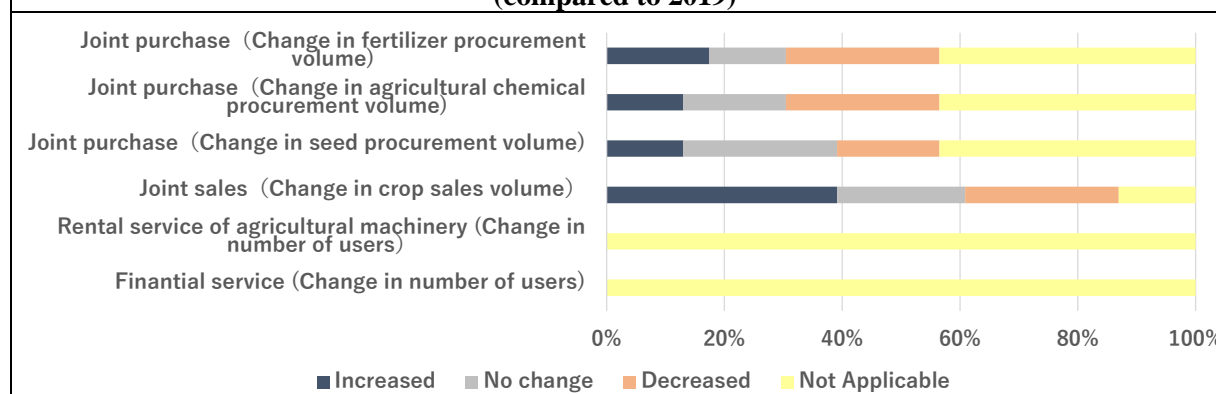


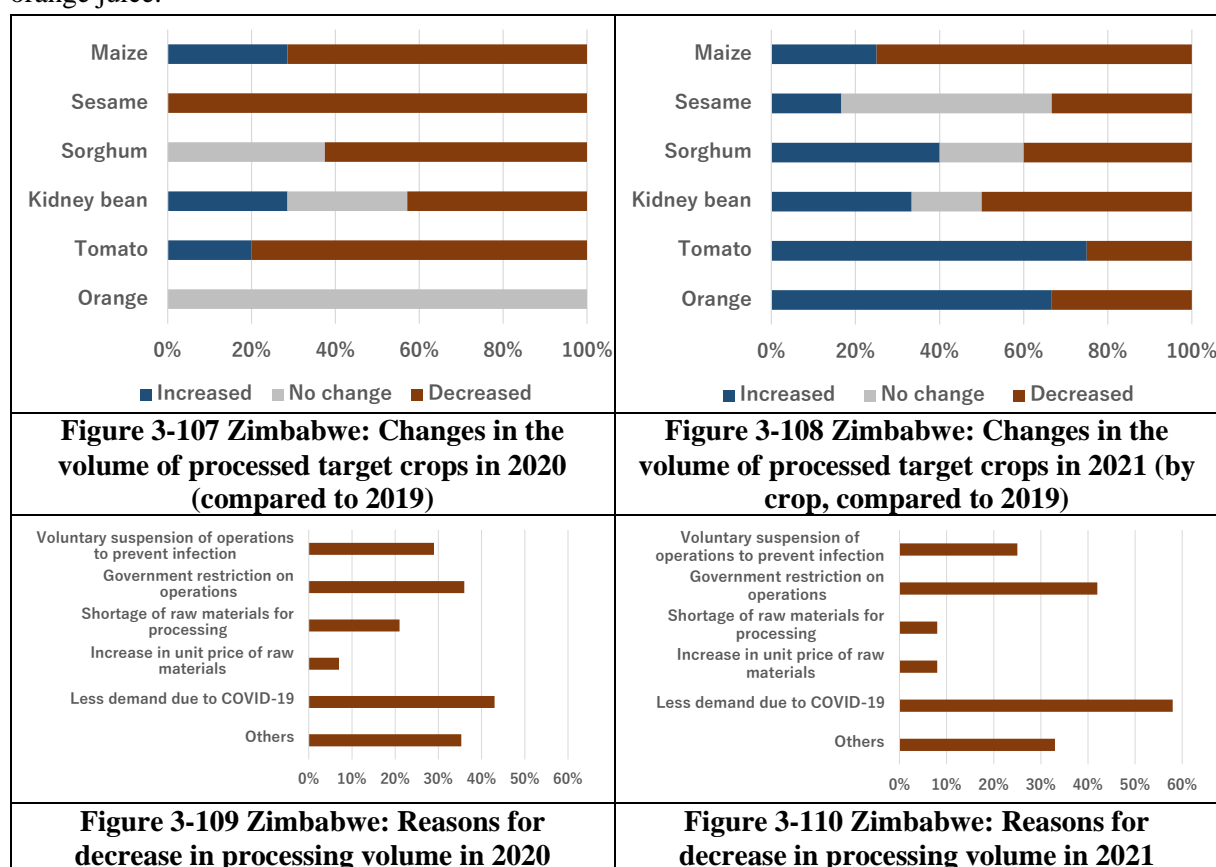
Figure 3-106 Zimbabwe: Changes in services provided by agricultural cooperatives in 2021 (compared to 2019)

(4) Processing

1) Highlights

Figure 3-107 shows the change in processing volume for each processor in 2020 compared to 2019. Overall, 21% of processors reported an increase and 71% reported a decrease. Processors that increased their processing volume mainly did so through diversification of sales destinations and processed products as well as the development of sales promotion activities. As shown in Figure 3-109, the most common reason for decreasing the processing volume was a decline in consumption due to COVID-19, followed by government restrictions on operations and voluntary suspension of operations by processors. As for the shortage of raw materials for processing, this was particularly significant for processors of maize, sorghum, and tomatoes. This can be attributed to 1) an increase in the number of farmers securing a certain amount of food for their consumption during the COVID-19 pandemic, 2) a decrease in the amount of food distributed in the market due to stagnant logistics, and 3) a decrease in the amount of crops sold by farmers as shown in Figure 3-97. Figure 3-108 shows the change in the processing volume of each processor in 2021 compared to 2019. Compared to the results for 2020, the processing volume of tomatoes and oranges showed an increasing trend. As for tomatoes, many respondents answered that the easing of COVID-19 restrictions had increased the processor's processing capacity of tomato paste as well as the domestic demand. For oranges, the reasons cited were increased

orange yields and easier procurement of raw materials, as well as an increase in the export volume of orange juice.



2) Changes in raw material procurement

Figure 3-111 shows the changes in the quality of raw materials for processing in 2020 compared to 2019. Overall, 13% of processors indicated that the quality in 2020 was better, while 29% indicated that the quality in 2019 was better. In addition, 85% of processors who reported better raw material quality in 2019 were processors of maize and sorghum³⁰. Figure 3-112 shows the change in the quality of processing materials in 2021 compared to 2019, which is generally similar to the results for 2020, although there are some differences among crops.

Figure 3-113 shows a change in the source of raw materials for processing by supplier compared to 2019, showing a downward trend in sourcing, particularly from small-scale farmers. As noted above, the most common reason given by processors for the decrease in processing volume was a shortage of raw materials for processing, which may have been related to the decrease in procurement from small-scale farmers³¹. On the other hand, the change in the procurement volume of processing raw materials by suppliers in 2021 compared to 2019, represented in Figure 3-114, shows that the procurement volume from small-scale farmers showed an increasing trend compared to the results for

³⁰ Workshop discussion 4: It was suggested that the farmers themselves sometimes stored maize and sorghum temporarily in an inappropriate way due to reduced marketing opportunities and reluctance to sell due to the impact of COVID-19, causing a decline in crop quality.

³¹ Workshop discussion 5: Some processors introduced online ordering and payment systems to improve the efficiency of communication with their customers. Communication between farmer and processor can be hampered by very high data charges for farmers, making it difficult for both parties to communicate online.

2020. In addition, the amount procured from agricultural cooperatives also shows an increasing trend. These results are consistent with the fact that shortage of raw materials for processing is not a major issue for processors in 2021 (Figure 3-110), and that efforts by agricultural cooperatives for joint sales of agricultural products are increasing (Figure 3-106). In addition, the amount of processed raw materials procured from retailers tends to increase. Some small-scale processors have been observed to avoid sourcing raw materials from other regions and to procure raw materials from local retailers due to the impact of COVID-19 restrictions (inter-region movement restrictions).

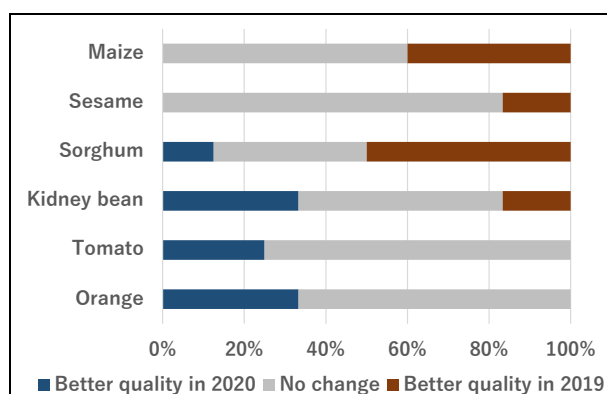


Figure 3-111 Zimbabwe: Changes in quality of the target crops as raw materials in 2020 (compared to 2019)

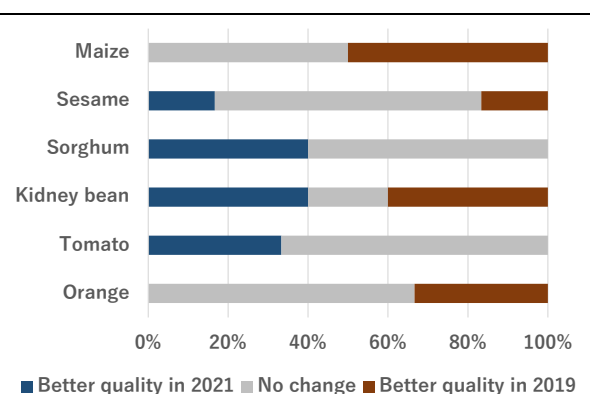


Figure 3-112 Zimbabwe: Changes in quality of the target crops as raw materials in 2021 (compared to 2019)

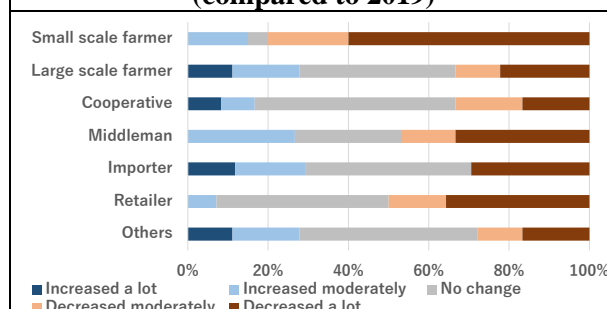


Figure 3-113 Zimbabwe: Changes in volume of the target crops procured by processors in 2020 (by supplier, compared to 2019)

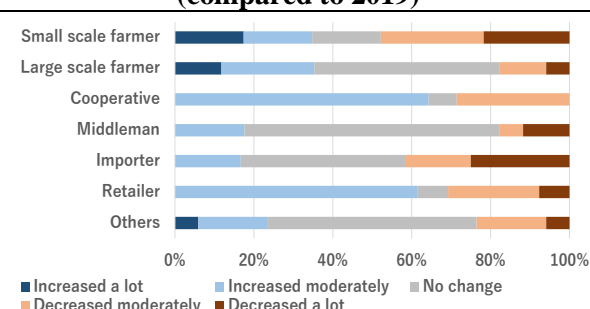


Figure 3-114 Zimbabwe: Changes in volume of the target crops procured by processors in 2021 (by supplier, compared to 2019)

3) Changes in sales

Figure 3-115 shows the change in unit sales prices for each processed product in 2020 compared to 2019. Overall, 33% of processors reported an increase in the unit sales price, while 20% reported a decrease. Most maize and kidney beans processors reported an increase in the unit sales price of processed products due to inflation derived from currency depreciation³². In addition, as shown in Figure 3-99, it can be inferred that processing costs have increased due to higher procurement costs for maize from producers. Conversely, those processing companies that reported a decrease in unit sales prices cited intentional price discounting due to an increasingly competitive environment and a decrease

³² All imports in Zimbabwe (including foods) are denominated in US dollars, and the fall in the value of the RTGS dollar causes significant inflation. Processed products are also affected by inflation in the procurement of raw materials and containers, which also increases the price of processed products.

in the number of customers due to the impact of COVID-19. Figure 3-116 shows the change in the unit sales price of each processed product in 2021 compared to 2019. Although the trend was generally similar to the results for 2020, unit sales price increased slightly for sesame and oranges. In both cases, a recovery in demand (especially in export markets) is cited as the main reason for the change.

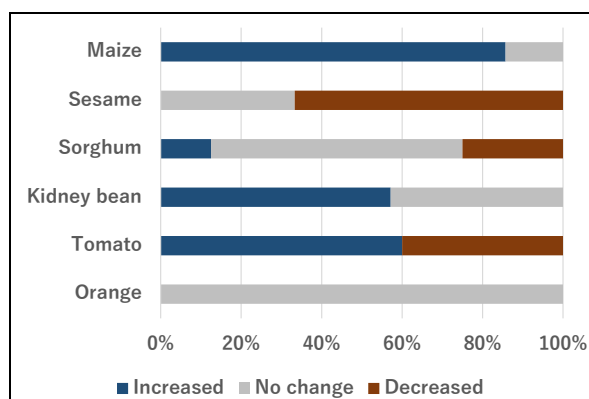


Figure 3-115 Zimbabwe: Changes in selling price of processed products from the target crops in 2020 (by crop, compared to 2019)

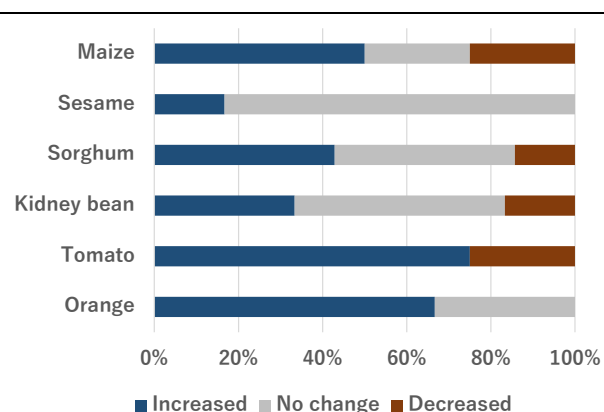


Figure 3-116 Zimbabwe: Changes in selling price of processed products from the target crops in 2021 (by crop, compared to 2019)

4) Changes in awareness of hygiene and safety

Figure 3-117 shows a change in processors' awareness of hygiene and safety in 2020 compared to 2019. Overall, around 70% of processors have increased their awareness of hygiene and safety since the COVID-19 pandemic began. In addition to this, as shown in Figure 3-118, about 66% of the processors reported that their customers had requested hygiene and safety for their food products. These trends are not strongly related to differences in the commodities and suggest that most processors and customers tend to be more aware of hygiene and safety. The results of the 2021 survey showed the same trend as the 2020 survey results.

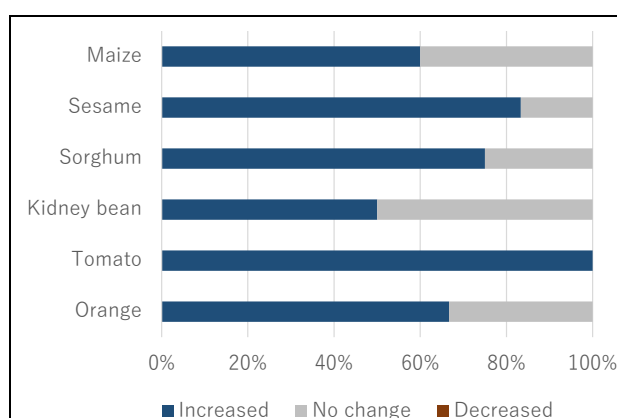


Figure 3-117 Zimbabwe: Changes in processors' awareness of safety and hygiene when purchasing the target crops in 2020 (compared to 2019)

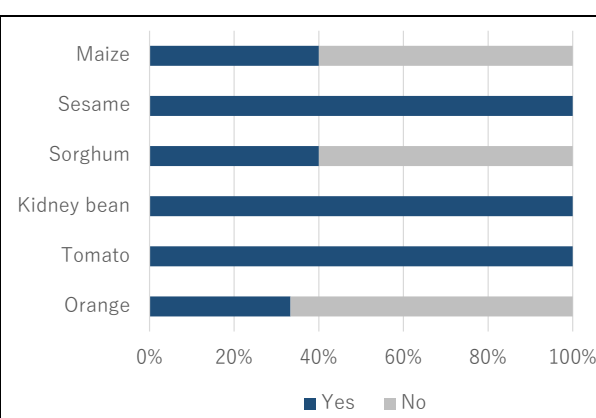


Figure 3-118 Zimbabwe: Changes in awareness of safety and hygiene of processed products among processors' customers in 2020 (compared to 2019)

(5) Distribution

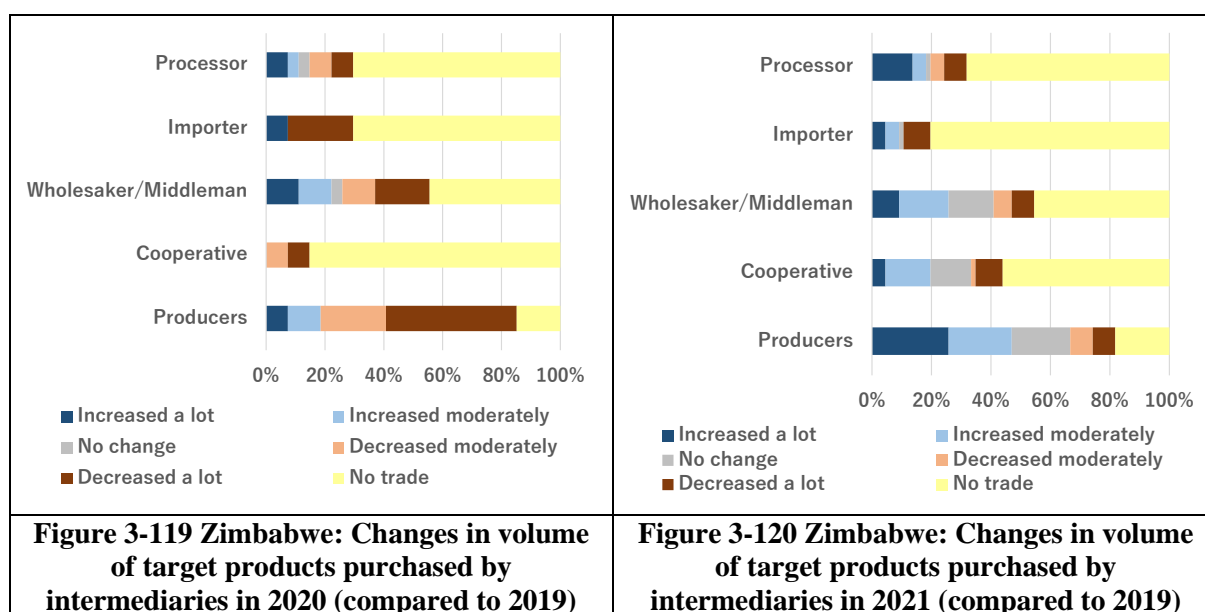
1) Intermediaries (wholesalers and middlemen)

a) Highlights

The volume purchased by intermediaries has been declining after COVID-19, especially from individual farmers. Sales volumes have also been declining due to government restrictions on movement and business activities. Depending on the crop handled, some intermediaries have increased their purchasing and sales volumes due to increased customer demand and a less competitive environment. In 2021, the volume of agricultural products distributed was on a recovery trend due to a slight recovery in domestic demand and an increase in the supply of agricultural products grown under good weather conditions.

b) Changes in the procurement of the target products

Figure 3-119 shows the change in suppliers of target commodities for intermediaries between 2019 and 2020. Farmers are the most common supplier of the commodity, with around 85% of intermediaries trading with them. There is an overall trend towards a reduction in the traded volume, with the largest decrease in purchases from individual farmers, followed by importers and other intermediaries (wholesalers and middlemen). This result is consistent with the decline in the volume of crop sales by farmers shown in Figure 3-97. Some intermediaries, however, especially those who deal with sorghum, kidney beans, and orange juice, increased their purchasing volume. Figure 3-120 shows the change in wholesalers' suppliers in 2021 compared to 2019. One clear trend is an increase in the volume of purchases from agricultural cooperatives and producers. This result is consistent with the increase in the volume of crop sales by farmers shown in Figure 3-98 and the increase in efforts for joint sales by agricultural cooperatives shown in Figure 3-106.



c) Changes in sales

Figure 3-121 shows the change from 2019 to 2020 for intermediaries' sales volumes by

commodities. Overall, 19% of intermediaries reported an increase in sales volume and 61% reported a decrease in it. A downward trend in sales volume was observed for all crops except maize. Figure 3-122 shows the reasons for the decline in intermediaries' sales volumes, according to the main reason cited, such as government restrictions (movement and business activity) and lower demand (fewer customers and lower sales volumes per customer). As mentioned above, sesame is an export crop, so it is likely that the impact of the movement restrictions and border restrictions imposed by COVID-19 resulted in lower sales volumes. As for sorghum, the decline in sales volume is inferred to have been caused by a decline in demand for sorghum beer produced in Zimbabwe, as well as a reduction in the traded volume in the market as farmers increased their stockpiles for their own consumption. On the other hand, a certain amount of maize has been stockpiled as a matter of national policy, and the impact on procurement and sales of maize was not significant compared to other crops. The intermediaries who have increased their sales volumes have attributed this to increased customer demand and changes in the business environment, including a lower volume of imported commodities in the market³³. Figure 3-123 shows the change in the sales volume of each commodity by wholesalers in 2021 compared to 2019, with the exception of maize, sesame, and sorghum, which show an increasing trend in sales volume. This can be attributed to the easing of various restrictive measures by the government in 2021, a slight recovery in demand, and an increase in crop production due to favorable weather conditions, which facilitated the procurement of commercial products, suggesting a recovery trend in the distribution of agricultural products through wholesalers.

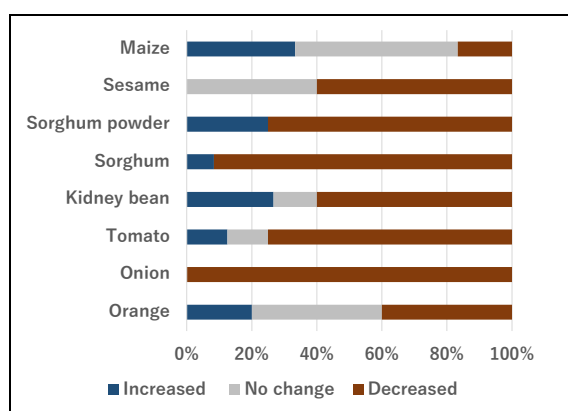


Figure 3-121 Zimbabwe: Changes in sales volume of products by intermediaries in 2020 (by product, compared to 2019)

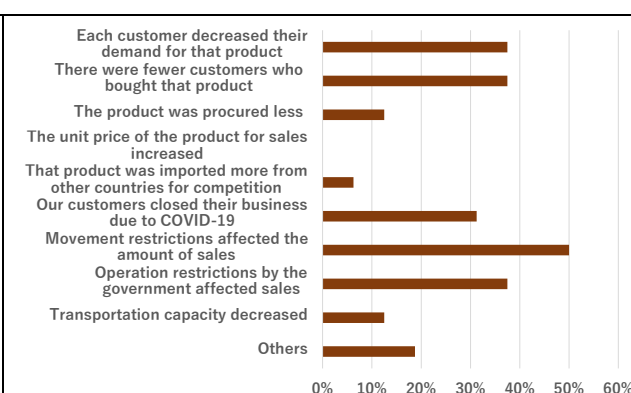
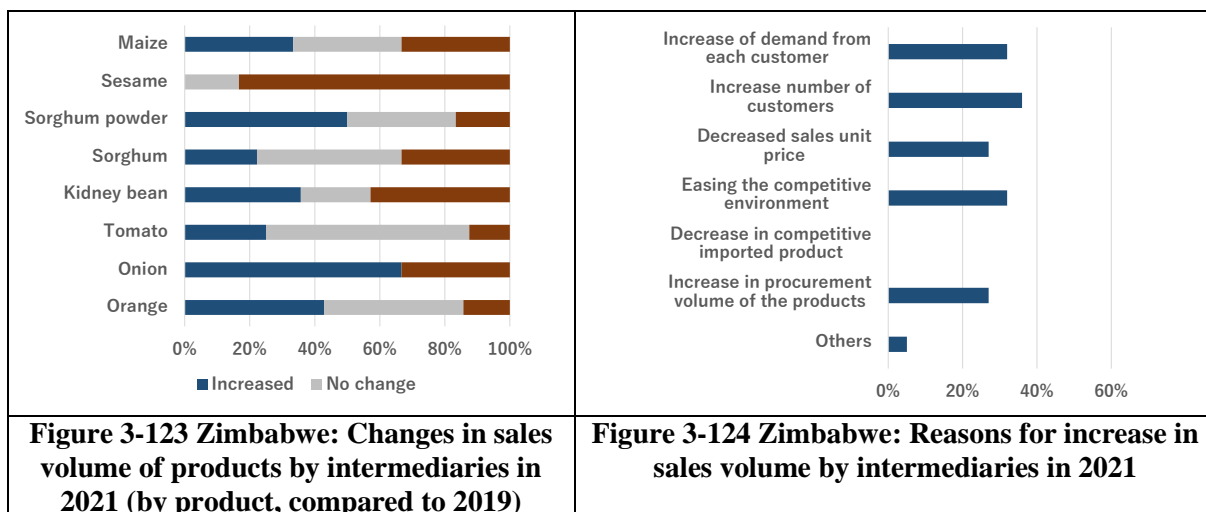


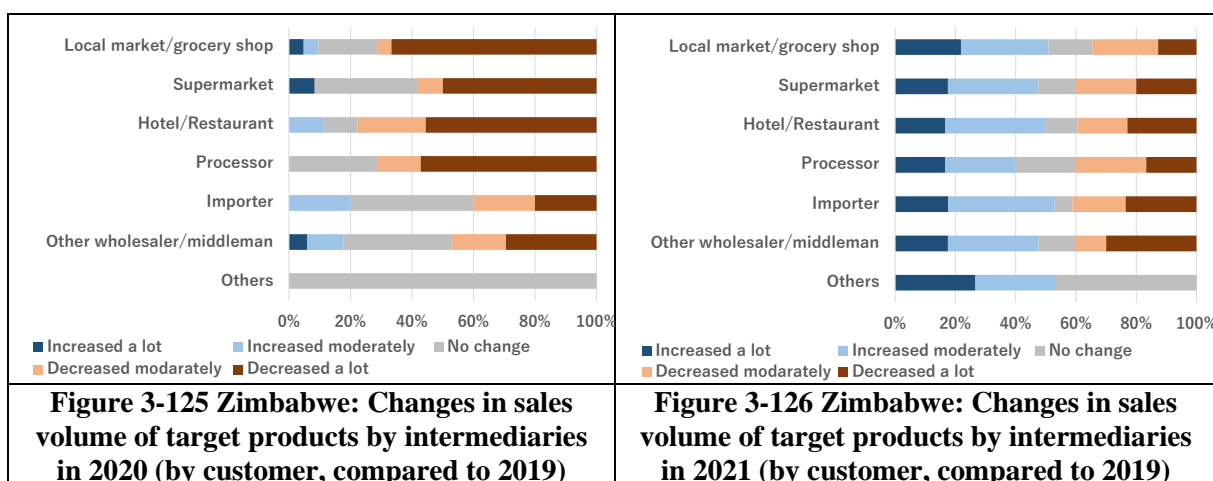
Figure 3-122 Zimbabwe: Reasons for decrease in sales volume by intermediaries in 2020

³³ A response from an oranges wholesaler. Oranges are mainly imported from South Africa, but the blockade of the South African-Zimbabwean border in Beitbridge is expected to have increased the volume of domestically grown oranges, which are widely grown in the region.



d) Changes of customers

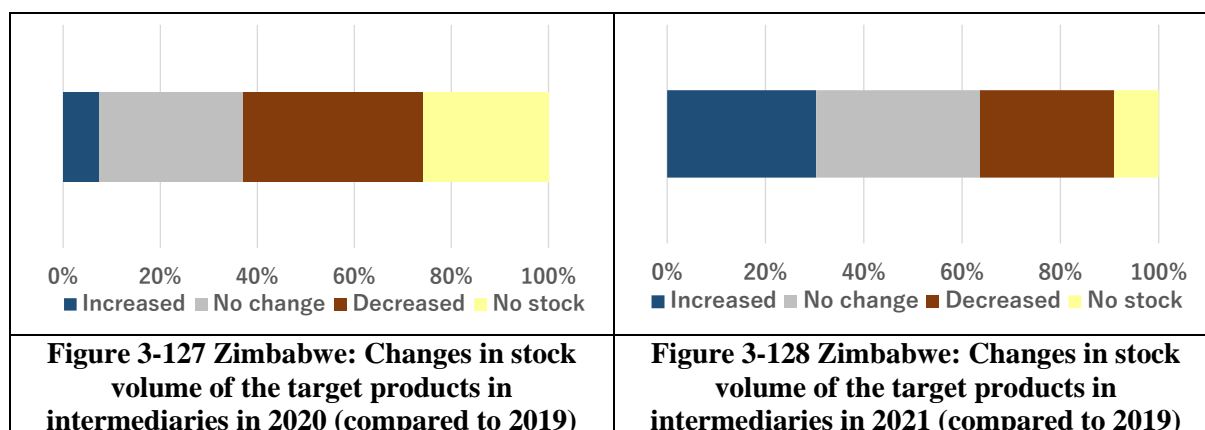
Figure 3-125 shows the change from 2019 to 2020 for intermediaries' sales destinations. Sales as a whole were on a downward trend, with only a limited number of cases where sales volumes have increased. The largest declines in sales were in hotels and restaurants, markets and general shops, processors, and supermarkets. This may have been due to the government's restrictions on business and movement, particularly in the local markets, where the opening hours were limited, reducing sales opportunities. Regarding the reduction in sales to processors, this was mainly due to sorghum wholesalers, who saw a drop in demand from processors as a result of lower demand for processed sorghum products (e.g., beer). Figure 3-126 shows the change in wholesalers' sales destinations in 2021 compared to 2019, and the sales volume to all destinations shows an increasing trend, suggesting that the relaxation of the above-mentioned restrictions in 2021 may have somewhat restored sales opportunities for wholesalers.



e) Changes in stock volume

Figure 3-127 shows the change in intermediaries' stock situation in 2020 compared to 2019, with approximately 37% of intermediaries reporting a decrease in stock volume compared to 2019. Many of these intermediaries cited 1) an inability to procure the expected number of commodities, and

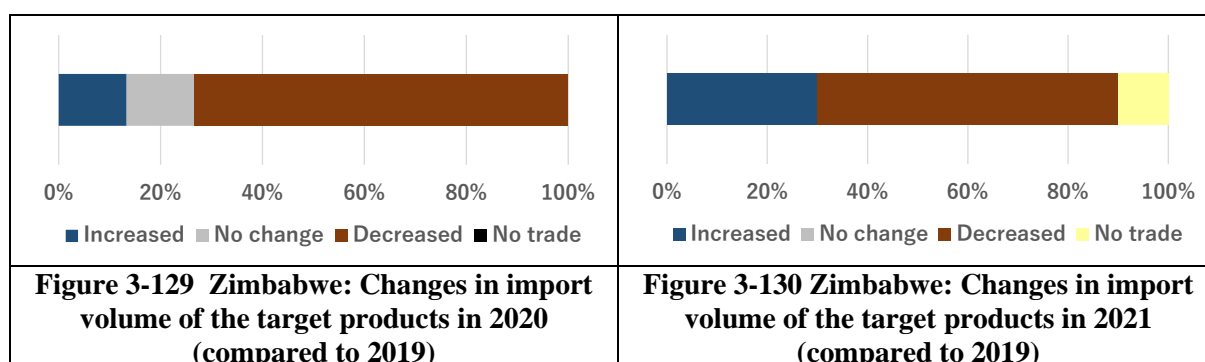
2) a reduction in the stock volume itself due to lower demand. In addition, 25% of intermediaries responded that they generally do not carry stock. Figure 3-128 shows the same results for 2021, with a slight increase in the number of wholesalers who increased their stocks, which can be attributed to 1) an increase in domestic demand and 2) an increase in the supply of each agricultural product due to favorable weather, suggesting that the above-mentioned issues may be being in process of recovering.



2) Importers

a) Changes in import volumes

Figure 3-129 shows the change in importers' sales volume in 2020 compared to 2019. Overall, more than 70% of importers have reduced the volume of imports, with about 90% of respondents citing delays in quarantine procedures at the border. Of the respondents, 33% also cited restrictions on movement within Zimbabwe. In addition to the impact of these government restrictions, about half of the respondents cited the shortage of USD currency needed to purchase goods³⁴. Figure 3-130 shows the change in sales volume of importers in 2021, with a slight increase in the number of importers who increased their sales volume, citing 1) easing of restrictions and 2) increased domestic demand as the reasons.



³⁴ Since the introduction of the Foreign Exchange auction trading system on June 17, 2020, all the USD required for foreign business transactions have been traded in the form of auctions. Auctions are held every week, and depending on the bidding price, there have been situations where the planned amount of USD could not be procured.

b) Changes in countries from which the target products are imported

Maize, sorghum, and beans were mostly imported from Zambia, South Africa, and Malawi. On the other hand, oranges and sesame seeds were all imported from South Africa. Tomatoes and onions are restricted by the Zimbabwean government, and no actual imports of these items were confirmed during this survey. These trends have not changed from 2019 to 2021.

3) Exporters

a) Changes in export volume

Figure 3-131 shows the change in exporters' sales volume in 2020 compared to 2019. The exporters surveyed were mainly exporters of sorghum, oranges, and sesame. Overall, about 54% of the exporters decreased their sales volume, and the reasons given were 1) border blockade on the Zimbabwean side, 2) increased time required for quarantine, and 3) difficulty in procuring the export crop itself. Figure 3-132 shows the results of the same survey in 2021, demonstrating that the sales volume of oranges, in particular, tends to increase. The most common reason for this was an increase in the supply of oranges, which is thought to be related to an increase in yield due to the good rainfall in 2021 and the resulting improved access to irrigation water.

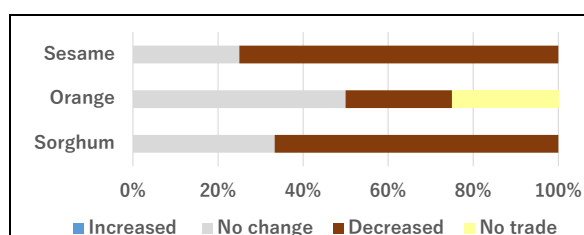


Figure 3-131 Zimbabwe: Changes in export volume of the target products in 2020 (compared to 2019)

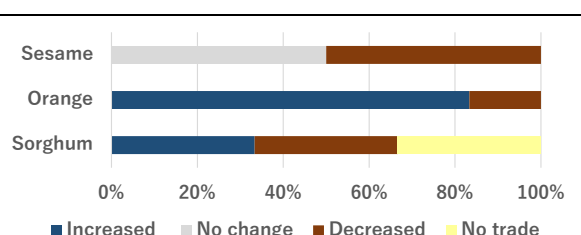


Figure 3-132 Zimbabwe: Changes in export volume of the target products in 2021 (compared to 2019)

b) Changes in destination for export

Sorghum was exported to Zambia, DRC, South Africa, and other countries. In terms of oranges, exports to Europe and the Middle East were high in 2019, but no exports were made to Europe in 2020. On the other hand, exports to South Africa and Zambia have been increasing. As for sesame, exports to Mozambique and some to South Africa were also observed. These trends remained unchanged in 2021.

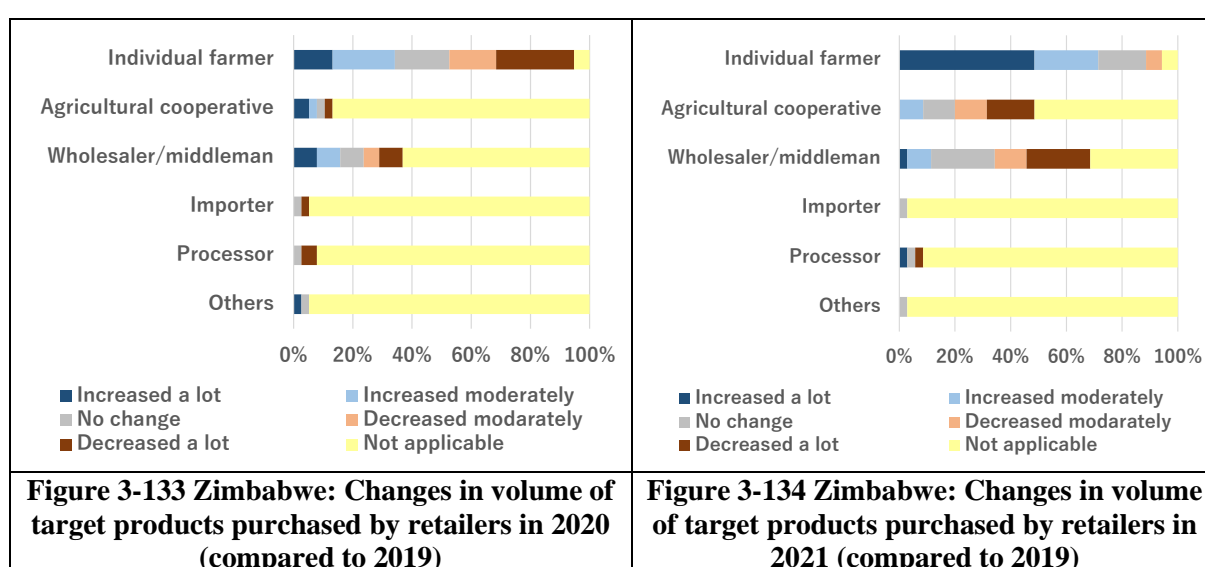
(6) Retail

1) Highlights

Retailers purchased most of their commercial products from individual farmers and intermediaries. There are an equal number of companies that have increased and decreased the volume of their purchases. In terms of retailers' sales, there was a downward trend due to government restrictions on movement and business activities, while unit sales prices tended to increase overall. In 2021, domestic demand was showing signs of recovery, and retailers' sales volume increased slightly.

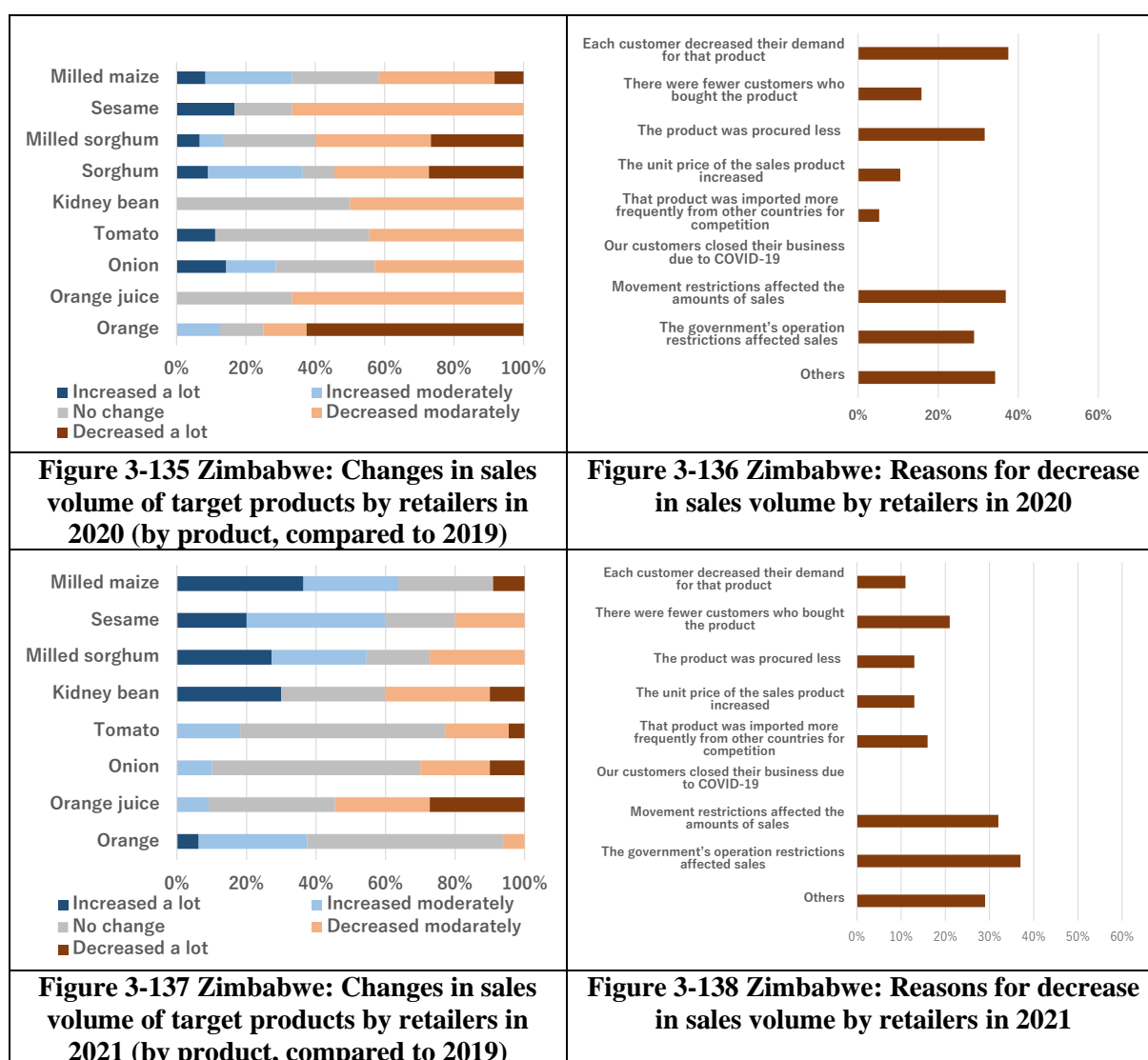
2) Changes in procurement

Figure 3-133 shows the change from 2019 to 2020 in retailers' procurement volumes by suppliers. The majority of retailers tend to procure from individual farmers and wholesalers/middlemen. In terms of changes in procuring volumes, the results show that there was sometimes an increase and sometimes a decrease. There was no particular relationship between the change in procurement volume and the crops or products handled. Figure 3-134 shows the same results in 2021 as well as a trend toward an increase in the volume of purchases from individual farmers and agricultural cooperatives. Another significant change is the increase in the number of retailers doing business with agricultural cooperatives, wholesalers, and middlemen, although the volume of purchases itself tends to be lower than in 2019. This may be due to the diversification of suppliers in increasing the volume of commercial products procurement in response to rising domestic demand.



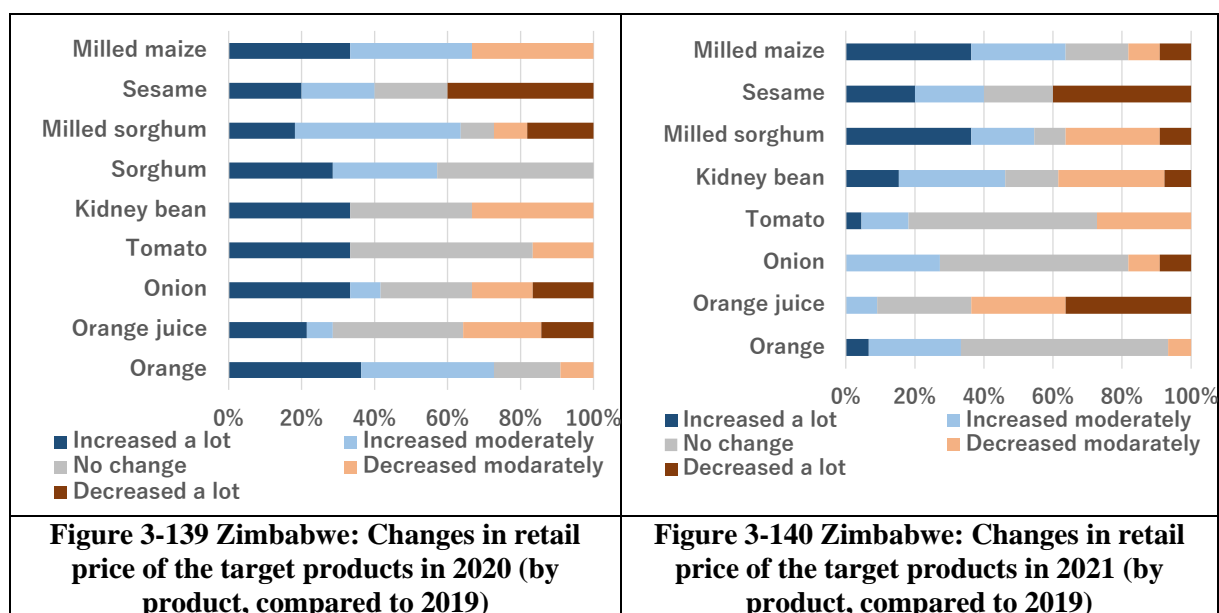
3) Changes in sales

Figure 3-135 shows a change in the volume of sales of the different commodities by retailers in 2020 compared to 2019. Overall, about 40-60% of retailers reported a decrease in sales volume, which was higher than the number who reported an increase. As shown in Figure 3-136, the reasons given for the decrease in sales volume include government restriction (movement and business activities), a decrease in demand, and a decrease in the amount of commodities procured. About 20-40% of the retailers reported an increase in sales of maize flour, kidney beans, and onions. The main reasons for this were an increase in the number of customers buying these products and a less competitive environment for selling these products, which may be related to the decrease in imports of agricultural products by importers as shown in Figure 3-129. Figure 3-137 shows the change in the sales volume of each commodity by retailers in 2021 compared to 2019, demonstrating that the sales volume of items such as maize, sesame, sorghum, and orange increased slightly. Fewer respondents cited a decrease in demand from each customer as the reason for the decrease in sales volume in 2021 than had in 2020 (Figure 3-138), which suggests that the demand for food products was recovering.



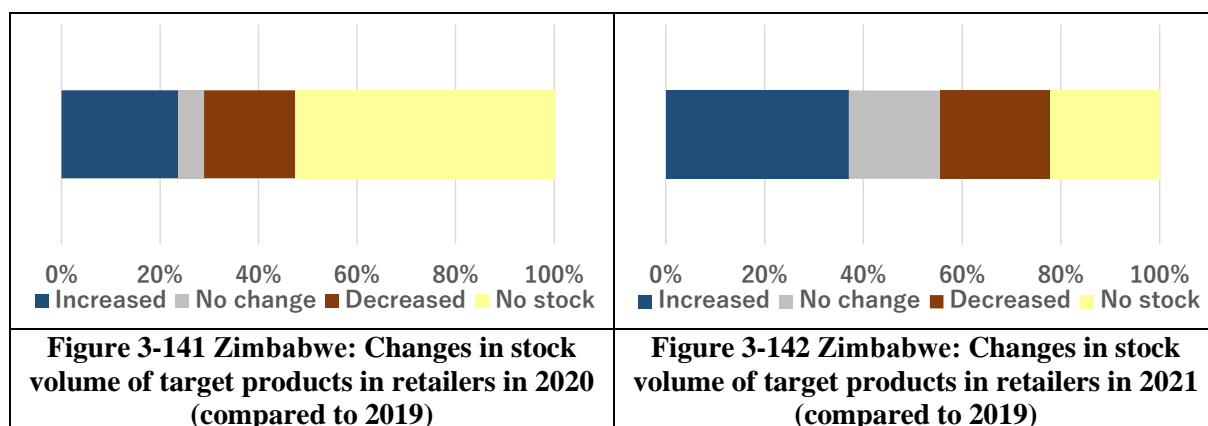
4) Changes in sales price

Figure 3-139 shows the change in retailers' unit selling prices from 2019 to 2020. Depending on the commodity, around 30-70% of retailers reported an increase in unit selling price, while around 10-30% reported a decrease. In particular, more than 50% of retailers cited maize flour, sorghum flour, kidney beans, and oranges as commodities where the selling price increased. These increases can be attributed to a combination of factors, including lower volumes supplied from farmers and intermediaries, inflation due to currency depreciation, lower imports, and higher distribution costs. On the other hand, a relatively large number of retailers reported a decrease in the unit price of sesame. It is possible that the price decline was caused by a reduction in the amount of sesame exported, which in turn caused a surplus in the domestic market. Figure 3-140 shows the same results for 2021, which shows generally the similar trend as for 2020, although there are some differences among crops.



5) Changes in stock volume

Figure 3-141 shows the change in retailers' stock situation in 2020 compared to 2019. Roughly 50% of retailers (especially small-scale retailers) reported that they do not carry any stock. Around 20% of retailers reported an increase in stock levels, citing lower than expected sales volumes and a tendency to overstock. Hence, most of the retailers reported that their stock levels decreased due to a shrink in demand. Figure 3-142 shows the same results for 2021, with a trend toward higher stock levels for retailers compared to 2020, suggesting that domestic demand for food was recovering in 2021, and that more retailers may have increased their stocks to meet this demand.



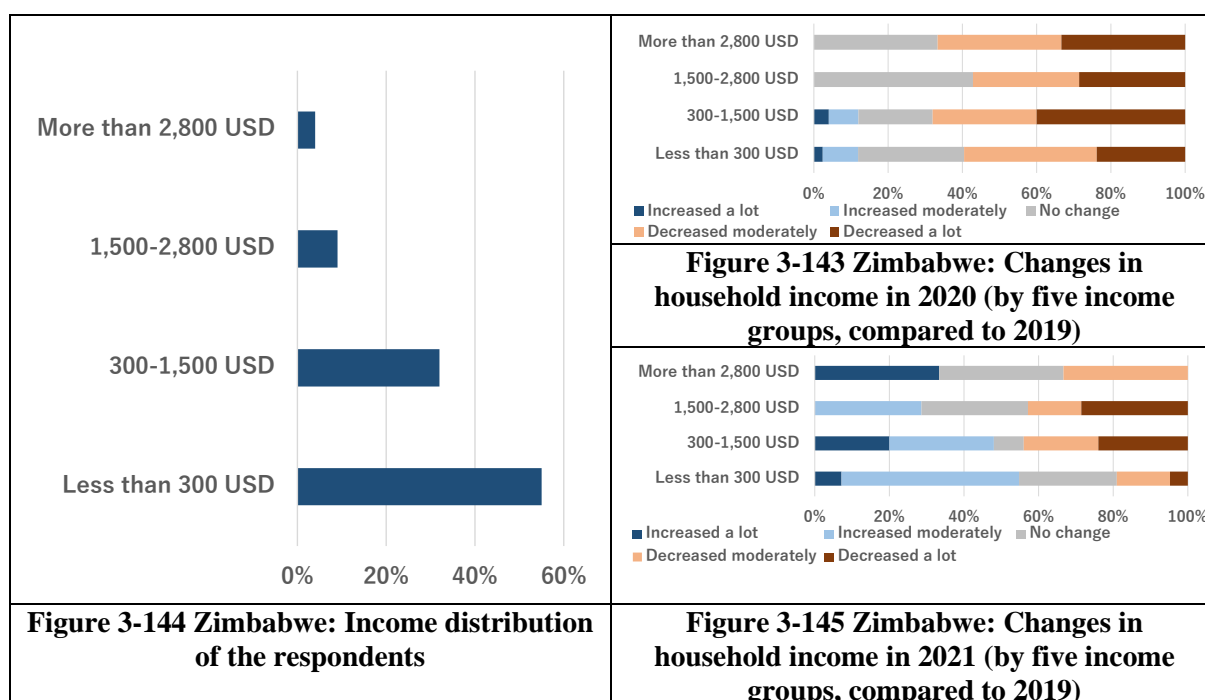
(7) Consumption

1) General consumers

a) Changes in household income

Figure 3-144 shows the distribution of annual income in the survey sample and Figure 3-143

shows a change in household income for each income group³⁵ in 2020 compared to 2019. Approximately 15-20% of consumers reported an increase in annual income, while 30-40% reported a decrease in annual income. Figure 3-145 shows the change in household income in 2021 compared to 2019 for each income category, and household income tends to increase for all income categories. It can be inferred that this recovery in consumer income is related to the recovery trend in domestic demand in 2021.



b) Changes in consumption of the target products

Figure 3-146 shows the change in consumption of the target products in 2020 compared to 2019. Overall, there is a tendency for the consumption of the products to decrease by varying degrees. On the other hand, respondents also reported an increase in consumption, particularly of maize, where around 20% of consumers increased their consumption. Figure 3-148 shows reasons for the increase in consumption, with the most common response being other, either because there was no particular reason, or because the food was affordable on their current income. This suggests that the increase in consumption of maize could be the result of prioritizing the purchase of staple foods. The product with the largest decrease in consumption was kidney beans. Comments in the workshop indicated that the price increase of fuel during COVID-19 may have led to a decrease in the consumption of beans as they require a lot of fuel for cooking. Considering commodities where there was a significant decrease in consumption, tomato sauce and orange juice were notable. Figure 3-149 shows the reasons for the decline in consumption of these commodities, with the main reasons being lower incomes and higher prices. Regarding the consumption of the target items in 2021, more consumers indicated that their consumption increased or significantly increased, and the percentage of those who said that their

³⁵ Based on the income distribution in Zimbabwe as shown in the Index mundi (2014) and the average number of people in a household in 2019, calculated from information provided by the World Bank, the research team has classified the income distribution into five levels.

consumption decreased or significantly decreased was slightly lower, indicating that domestic demand may be on a gradual recovery trend (Figure 3-147).

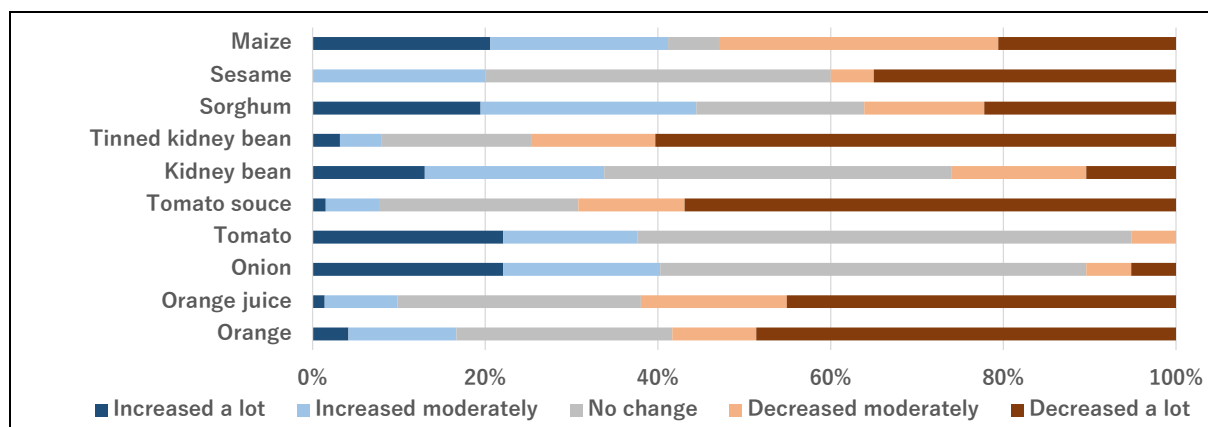


Figure 3-146 Zimbabwe: Changes in consumption of target products in 2020 (compared to 2019)

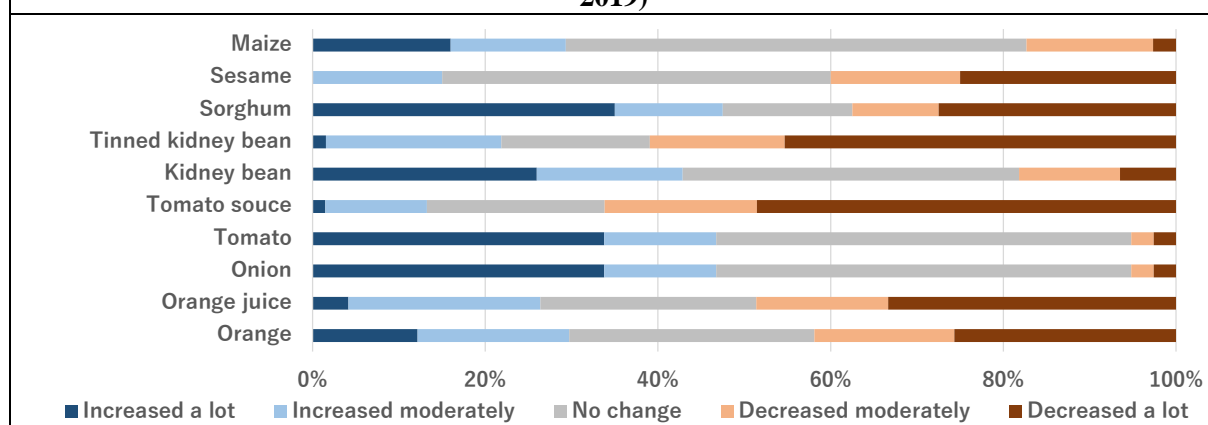


Figure 3-147 Zimbabwe: Changes in consumption of target products in 2021 (compared to 2019)

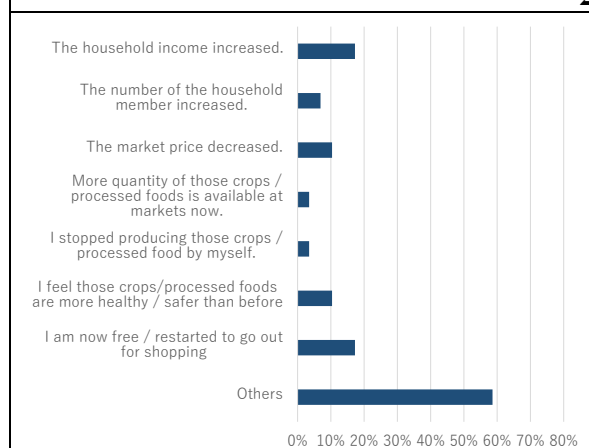


Figure 3-148 Zimbabwe: Reasons for increase in consumption in 2020

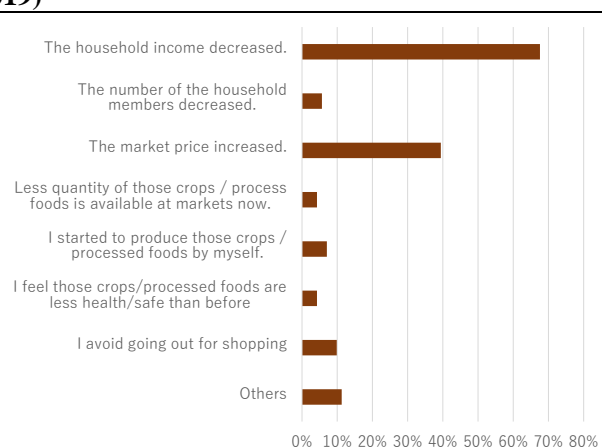
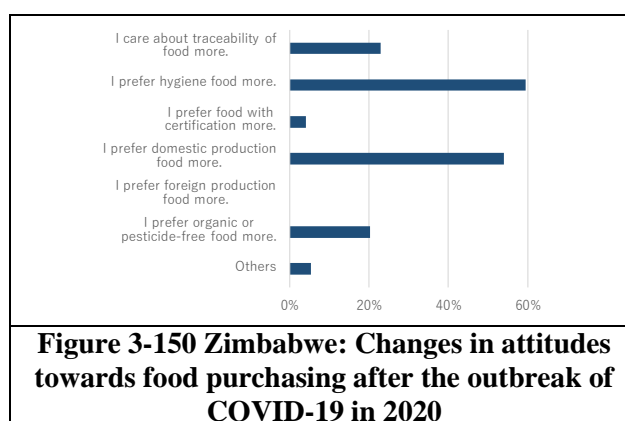


Figure 3-149 Zimbabwe: Reasons for decrease in consumption in 2020

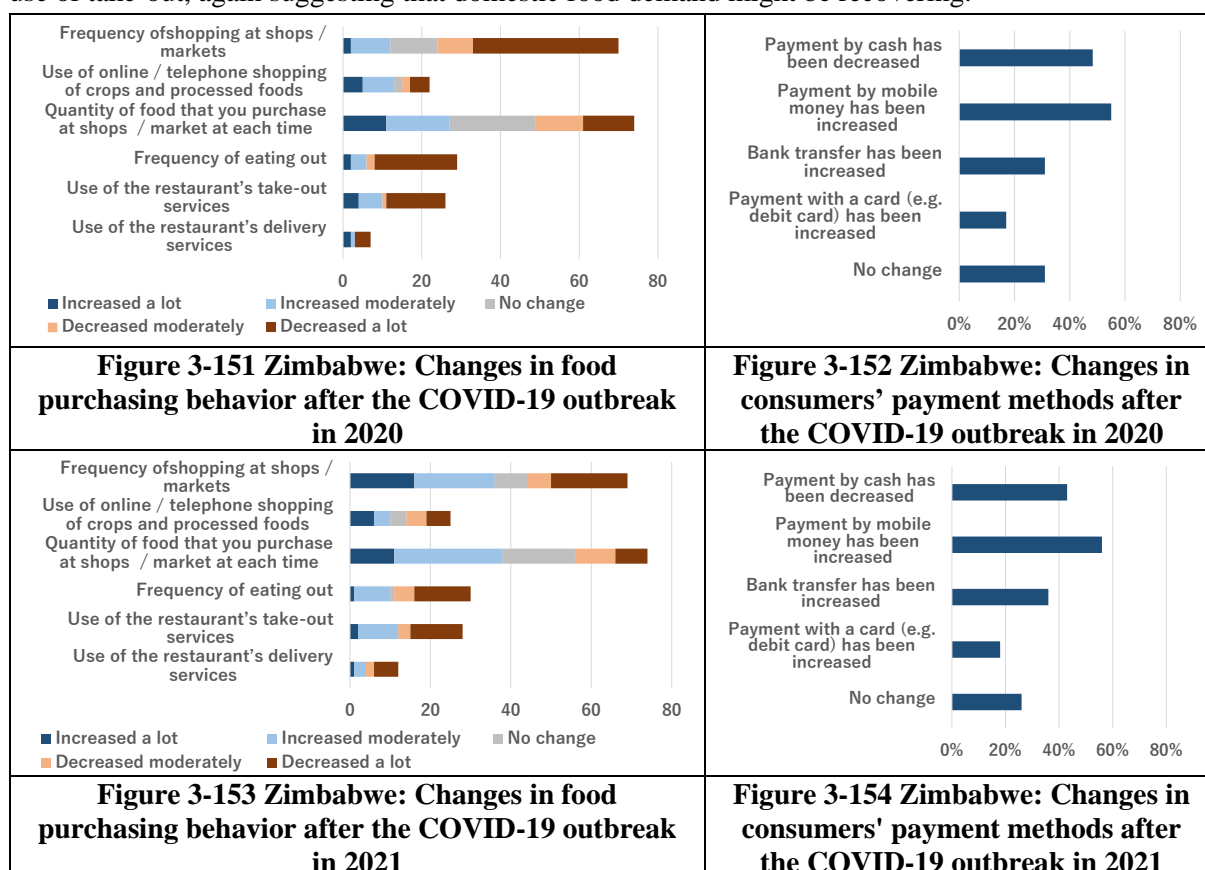
c) Changes in attitude toward food purchasing

Figure 3-150 shows the change in consumer attitudes towards food purchases after COVID-19. There is an increase in the number of consumers who are aware of food hygiene and prefer domestic food. None of the consumers who responded reported a preference for foreign food products. These results did not change significantly between 2020 and 2021.



d) Changes in food purchasing behavior

Figure 3-151 shows the change in grocery shopping behavior after COVID-19. Many consumers reported a decrease in the frequency of shopping and in the amount of shopping per visit. The frequency of eating out also decreased a lot for many consumers. In terms of the frequency of online/telephone-shopping and take-away/delivery, only around 59% of respondents reported an increase in the former, and rather 61% decrease in the latter. Figure 3-152 shows changes in payment methods after COVID-19. More than 40% of consumers reported that cash payments have decreased, while mobile money payments have increased by about the same amount. Figure 3-153 and Figure 3-154 show the same results for 2021 as well as a trend toward an increase in the frequency of shopping and the amount of shopping per visit. There was also a slight increase in the frequency of eating out and the use of take-out, again suggesting that domestic food demand might be recovering.



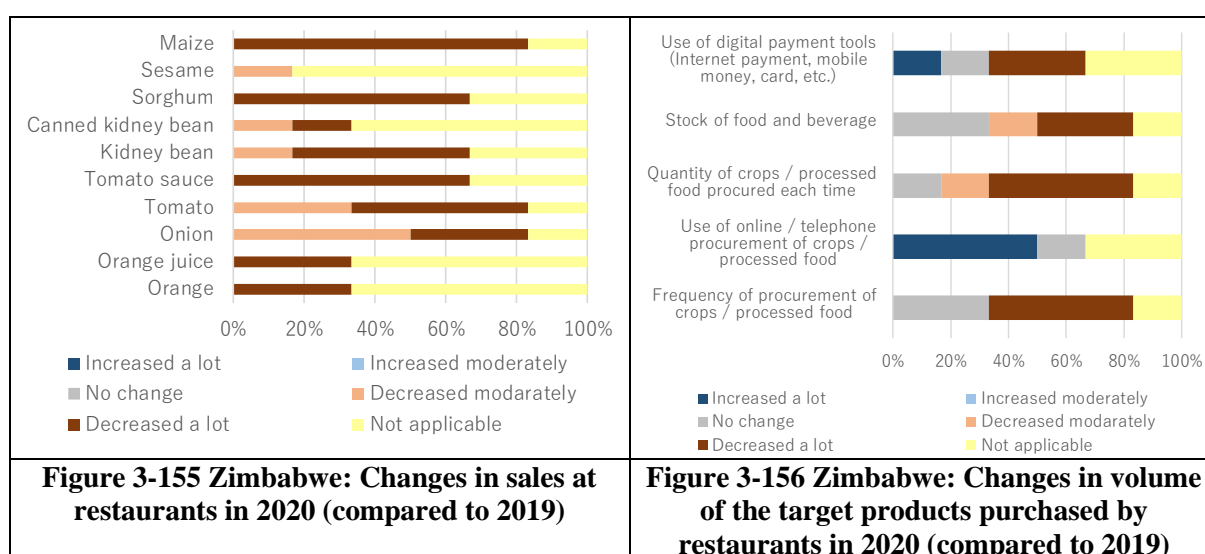
2) Restaurants

a) Changes in sales and number of customers

A total of six shops were surveyed. In terms of the number of customers, four shops reported that sales had decreased a lot and the remaining two shops had decreased moderately. These were due to government restrictions (ban of business activities and reduced opening hours). The same result was obtained in the 2021 survey.

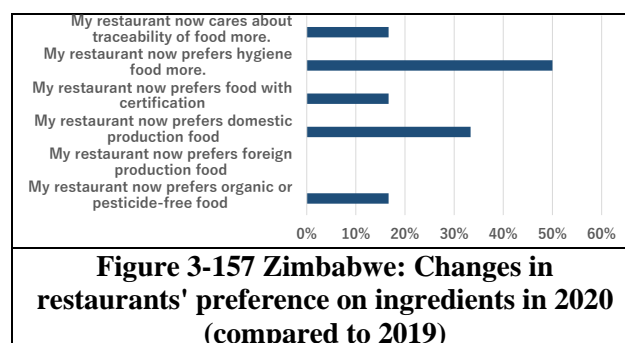
b) Changes in procurement

Figure 3-155 shows a change in the quantity of each target product purchased by restaurants in 2020 compared to 2019. With the exception of the restaurants that have not purchased any of the commodities, all of the restaurants have reported that the quantity of commodities they stock had decreased moderately or decreased a lot. One restaurant had completely ceased to operate in 2020 and therefore had no stock. Although there were some differences among stores, the stocking volume in 2021 showed a similar trend to the results for 2020. Figure 3-156 shows a change in purchasing behavior for each restaurant, with many respondents decreasing the frequency and volume of purchasing commodities. Half of the restaurants reported a significant increase in the use of online and telephone ordering.



c) Change in preference for the foods

Figure 3-157 shows the preference of the food ingredients used by restaurants. Half of the restaurants have increased their awareness of food hygiene, but only a small number of restaurants indicated that the other categories such as the food with safety certifications were applicable. These results are similar to those found in the 2021 survey.



(8) Financial institution

Table 3-20 summarizes the provision of financial services by commercial banks. The actual number of loans provided to the agricultural sector increased, mostly for the purpose of expanding business scale, but also to secure working capital in 2021. Loan conditions became stricter, and interest rates were raised in addition to a reduction in the maximum loan amount.

Table 3-20 Zimbabwe: Availability of financial services by commercial banks

Characteristic	The surveyed bank is one of the largest and longest established commercial banks in Zimbabwe with 32 branches in the country. It provides loans to farmers for working capital and capital investment purposes.						
Year	2019	2020	2021	Year	2019	2020	2021
Number of Customers	5544	5256	5996	Amount of agricultural loans (Million RTGS)	N/A	N/A	1,535
Total Loan Amount (Million RTGS)	5,578	1,811	4705	PAR30	N/A	N/A	1
Total number of loans	1578	1415	3023	ROA ³⁶	N/A	N/A	7.4
Increase/decrease in the number of customers and reasons	The number of loans to the agricultural sector has been increasing. There are many requests for loans to expand the scale of production. In addition, loan requests for working capital for businesses have increased in 2021.						
Increase/decrease of PAR30 and its reasons	No change						
Change in loan conditions	Major changes in conditions include 1) a reduction in the maximum loan amount and 2) an increase in the interest rate.						
Financial services offered	Working capital and capital investment in agriculture. Medical insurance. Internet banking. Debit and credit cards. Electronic money. Internet and mobile inquiry services.						
Financial services desired by customers	Demand for internet and mobile banking and credit/debit cards has increased.						

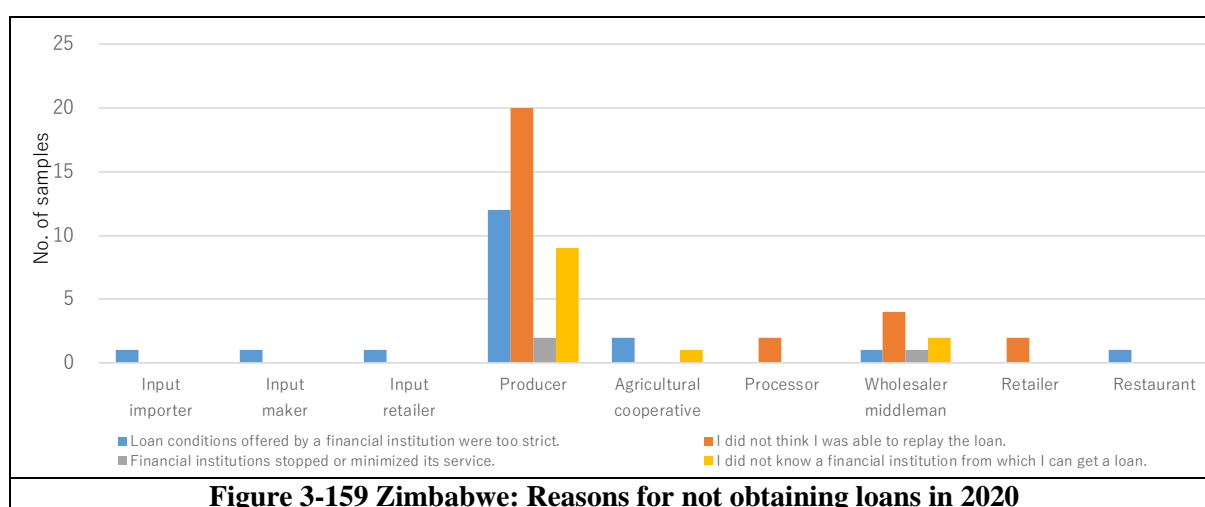
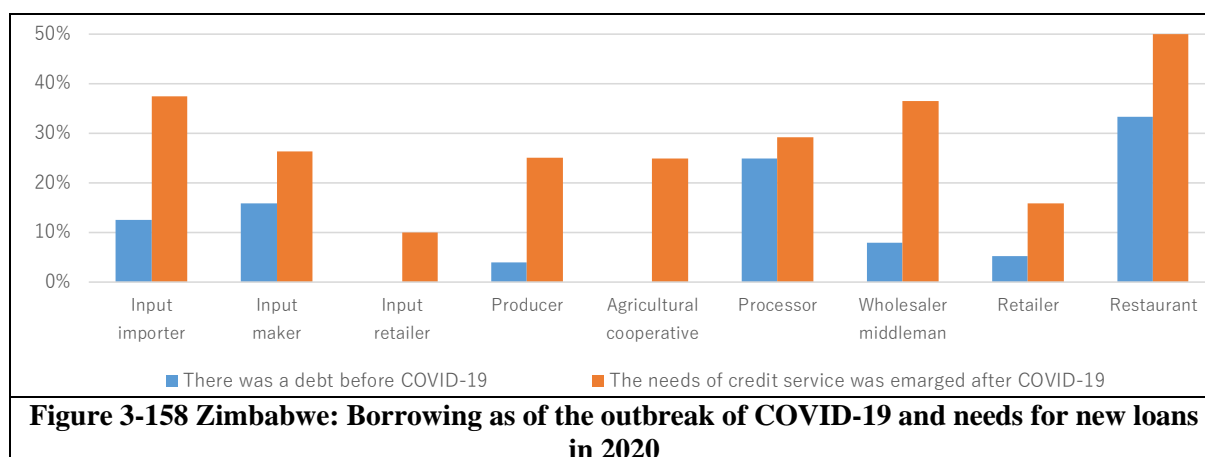
(9) Cross-cutting issues

1) Financial services

a) Financing needs

Figure 3-158 shows financing needs before and after the COVID-19 pandemic. For all VC actors, the need for loans increased after COVID-19. On the other hand, not all VC actors were able to obtain additional financing, and overall, only about 15% of applicants were able to obtain financing. In terms of sector, relatively more input importers, manufacturers, processors, and food exporters were able to access finances than those in other sectors. Figure 3-159 shows reasons for the lack of access to finance, the main ones being lack of prospects for repayment, strict loan conditions, and lack of knowledge of available financial institutions. The same trend was observed in the 2021 survey.

³⁶ Return On Asset



b) Needs for financial products other than loans

Financial needs for products other than loans are shown in Table 3-21. The products with relatively high needs are business/catastrophe insurance, life/health insurance for employees, and internet/mobile payments. The same trend was observed in the 2021 survey.

Table 3-21 Zimbabwe: Financial needs other than loans after the outbreak of COVID-19 in 2020

	Fixed Term deposit	Non-fixed term saving account	Current account for payment	International transfer	Business or disaster insurance	Life or health insurance for employees	Internet or mobile payment	Credit or debit card payment	Internet or mobile inquiry service
Input importer	0%	0%	0%	13%	0%	6%	0%	0%	13%
Input maker	0%	0%	0%	0%	32%	11%	32%	5%	0%
Input retailer	10%	0%	10%	20%	30%	30%	10%	10%	10%
Producer	1%	1%	1%	1%	31%	4%	3%	3%	3%
Agricultural cooperative	0%	0%	6%	0%	13%	13%	0%	0%	13%
Processor	4%	4%	4%	21%	17%	25%	29%	17%	13%
Wholesaler/middleman	2%	0%	2%	3%	10%	11%	2%	5%	3%
Retailer	0%	0%	0%	0%	13%	0%	0%	3%	0%
Restaurant	0%	0%	0%	0%	0%	0%	0%	0%	0%

Legend

- More than 20 %
- More than 30 %

2) Changes in business practices

The changes in business practices after COVID-19 are summarized in Table 3-22. The input suppliers, processors, intermediaries, and restaurants have a high rate of ICT technology application as a business response to COVID-19. On the other hand, farmers, agricultural cooperatives, and retailers were relatively less likely to use ICT technology. The same trend was observed in the 2021 survey.

Table 3-22 Zimbabwe: Changes in ICT-based business practices after the outbreak of COVID-19 in 2020

	Frequency of online business talk	Use of SNS for online marketing	Use of SMS for online marketing	Use of digital money for paying and receiving money	Online buying, selling and business matching	Introduction of IC tag
Input importer	94%	81%	63%	75%	50%	50%
Input maker	100%	89%	84%	84%	79%	58%
Input retailer	60%	70%	80%	100%	70%	60%
Producer	6%	7%	39%	34%	5%	0%
Agricultural cooperative	19%	19%	50%	50%	6%	6%
Processor	75%	54%	71%	88%	50%	42%
Wholesaler/middleman	70%	63%	67%	73%	41%	40%
Retailer	11%	3%	42%	26%	13%	3%
Restaurant	67%	50%	83%	83%	33%	0%

Legend

	50%-79%
	More than 80%

3.3. Madagascar

3.3.1. Socio-economic overview focusing on the agricultural sector

As Table 3-23 shows, the population of Madagascar is about 27,691,000 and is rapidly increasing (annual increase rate of 2.6%). Being the world's 4th largest island, Madagascar is not very dense; it has only 45.1 persons/km². It is still, however, the second densest among the five target countries in this study, with Malawi being the densest. Of the total population, 70.7% lived under the national poverty standard line in 2012, but the World Bank estimates that about 75% of the population lives on less than 1.90USD/day, which is the international poverty standard line. This rate is by far above the Sub-Sahara African countries' average of 41%³⁷. Figure 3-160 shows that the exchange rate of the Malagasy ariary against the U.S. dollar has varied over time, but has a trend towards a strong U.S. dollar and weak Malagasy ariary. The food inflation rate (compared with the same month in the previous year) was dropped down to nearly 1% in January 2020, which was just before the COVID-19 outbreak, but it has been now increasing since the COVID-19 outbreak and is at 8% as of September 2021.

Table 3-23 Madagascar: Population and economic statistics

Population, rate of increase (2020)	27,691 thousand, 2.6%	Source: Population increase rate: https://data.worldbank.org/indicator/SP.POP.GROW?locations=MG
Density (2018)	45.1 persons/km ²	Density: https://data.worldbank.org/indicator/EN.POP.DNST?locations=MG
GDP per capita (2020)	USD495.49	GDP per capita: https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=MG
Poverty rate (2012)	70.7%	Gini coefficient: https://data.worldbank.org/indicator/SI.POV.GINI?locations=MG
Gini coefficient (2012)	0.43	Other figures: https://data.worldbank.org/country/MG
Life expectancy (2019)	63.9	

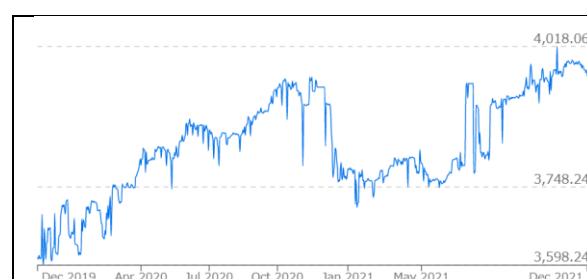


Figure 3-160 Exchange rate of Malagasy ariary against the U.S. dollar

Source: <https://www.xe.com/currencycharts/?from=USD&to=ZMW&view=5Y>



Figure 3-161 Madagascar: Food inflation rate

Source: <https://tradingeconomics.com/madagascar/food-inflation>

As Table 3-24 shows, agriculture is an important industry for Madagascar. It occupies 1/4 of the country's GDP and absorbs 3/4 of the labor population. Agriculture in Madagascar supports the lives of most of the population, especially of poor people living in rural areas, which suggests the importance of agriculture development.

³⁷ <https://www.worldbank.org/en/country/madagascar/overview>

Table 3-24 Madagascar: Sectoral composition of GDP and employment population

Item	Agriculture	Industry	Service
Madagascar: GDP Composition (2017) ¹	24%	20%	56%
Madagascar: Employment population composition (2015) ²	75%	9%	16%

Source1: CIA World Fact Book,2: ILO, <https://ilostat ilo.org/data/country-profiles/>

Rice is produced the most among all agricultural products in Madagascar, having a production volume of about 4.2 million tons per year (rice milled equivalent). It is, however, still less than the volume that achieves complete self-sufficiency, so Madagascar imports about 0.8 million tons of rice (rice milled equivalent) from other countries. Sugar cane is one of the other agricultural products with high production volume and is also one of the most exported products. Root vegetables such as cassava, sweet potatoes, and potatoes are produced mainly for domestic consumption. Products that are part of the top 10 most exported but not the top 10 most produced include beans such as groundnuts, cacao, pistachios, and peas, as well as spices such as cloves.

Table 3-25 Top 10 agricultural products in quantity (2019)

Item	Volume (Ton)
Rice, paddy	4,231,145
Sugar cane	3,174,161
Cassava	2,913,862
Rice, paddy (rice milled equivalent)	2,822,174
Sweet potatoes	1,113,142
Vegetables, fresh nes	413,223
Bananas	392,652
Mangoes, mangosteens, guavas	298,750
Fruit, tropical fresh nes	263,511
Potatoes	250,000

Table 3-26 Top 10 agricultural exports in value (2019)

Item	Volume (Ton) Value (1,000USD)
Beans, dry	33,892 (13,437)
Groundnuts, shelled	32,732 (10,026)
Sugar Raw Centrifugal	20,501 (7,111)
Fruit, prepared nes	16,669 (13,440)
Cloves	14,770 (77,324)
Cacao, beans	13,887 (28,720)
Vegetables, preserved nes	9,124 (32,830)
Fiber crops nes	8,123 (9,873)
Pistachios	5,621 (1,303)
Peas, dry	5,420 (2,234)

Table 3-27 Top 10 agricultural imports in value (2019)

Item	Volume (Ton)
Rice, paddy	406,995
Rice, milled	397,996
Flour, wheat	236,028
Sugar refined	144,204
Oil, palm	107,151
Wheat	59,386
Oil, soybean	40,924
Cake, soybeans	38,609
Food prep nes	24,847
Malt	18,939

Source: FAOSTAT

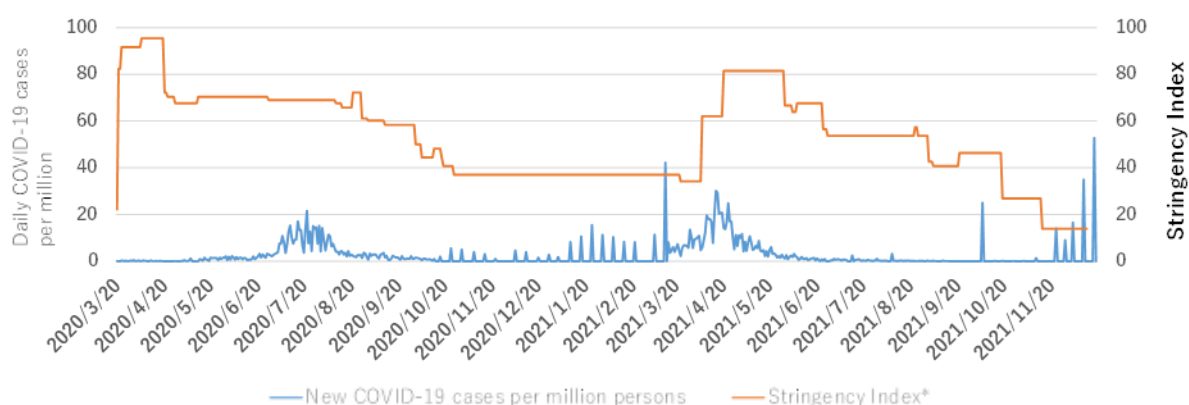
3.3.2. COVID-19 situation, relevant measures and policies, and responses by development partners

(1) COVID-19 situation and regulations to prevent COVID-19 spread in Madagascar

As Figure 3-162 shows, the number of newly confirmed cases of COVID-19 infection in

Madagascar sharply increased during the first wave of infection spread from July to August 2020. After August, it decreased until February 2021, then increased again in March 2021 and peaked in April 2021. It then began to fall in June 2021. As of December 13, 2021, there has not been a third wave; there have been 44,800 confirmed cases and 972 casualties.

The Malagasy government has taken various infection prevention measures that have been strengthened and relaxed according to the actual situation of COVID-19 infection in the country. As the Stringency Index in Figure 3-162 shows, various preventive measures were introduced during the period from the beginning of the worldwide spread of the virus until the end of the first wave of infection in Madagascar (March to September 2020) and also during the period of the second wave (March to June 2021). The government declared a state of emergency during the second wave where the infection expansion was the most serious, and took strict measures such as: (1) closure of borders by stopping the operation of international passenger flights and ships (Madagascar has no ground borders because it is an island country); (2) closure of several regions (including such measures as the prohibition of movement into and out of those regions, closure of religious places, limited opening hours of markets from 6 am to 5 pm, only one person from a household allowed to go shopping, transportation ban between 9 pm and 4 am, etc.); (3) total lockdown of the Analamanga Region (where Antananarivo, the capital city, is located) that prohibited any economic activities except for essential services and closed all the religious places during weekends); (4) prohibition of labor of vulnerable people who have a higher risk of severe illness due to COVID-19; (5) halving the number of people working at offices for companies with more than 500 employees; (6) closure of public and private schools; and (7) stopping the operation of some domestic passenger flights³⁸.



Source: WHO Website, <https://COVID-19.who.int/region/afro/country/mg>

Figure 3-162 Madagascar: Newly confirmed COVID-19 cases per week (from March 2020 to December 2021)

(2) Preventative measures against COVID-19 spread by the Malagasy government in the agricultural sector

The President of Madagascar, Mr. Andry Rajoelina, began to implement his election promise, Plan Emergence Madagascar (PEM³⁹), in 2019 with the goal of sustainable and inclusive development

³⁸ Presidential Speech on April 18, 2021

³⁹ <http://www.mefb.gov.mg/assets/vendor/ckeditor/plugins/kcfinder>

of the country. The goal of PEM is to achieve 13 priority targets that include the country's complete food self-sufficiency. Based on PEM, the government has also developed Politique Générale de l'Etat (PGE), which is the mid-term national development plan document for 2019 to 2023. With regards to agricultural development, PGE aims at accelerating initiatives that contribute to the improvement of agricultural productivity, adaptation to climate change, and promotion of agribusiness and green economy.

The Ministry of Agriculture, Livestock and Fisheries (In French, Ministère de l'Agriculture, de l'Elevage et de la Pêche. Hereinafter referred to as MAEP) has developed Programme Sectoriel Agricole, Elevage et Pêche (PSAEP), which is the strategic document for agricultural sector development, in 2015. PSAEP was developed based on Programme National de Développement (PND), the previous mid-term plan for 2015-2020, but has now been extended until 2025 so that MAEP can continue to promote agricultural sector development based on the same PSAEP.

The Malagasy government implemented several measures for the agricultural sector to support the country's economic development, which had been successful until the COVID outbreak in 2020 (annual economic growth of 2019 was 4.4% according to the World Bank). According to an interview with the General Director of the MAEP, the following are examples of the measures implemented by the government prior to 2020.

- Supporting the formation of agricultural cooperatives in collaboration with external partners such as IFAD's PROSPERER.
- Implementing DOKANY MORA HO AN'NY MPAMOKATRA (DMM) strategy, which aims to solve the difficulties farmers have in accessing agricultural inputs and technical services. One of DMM's functions is to establish and manage public agricultural input shops.

(3) Responses to COVID-19 by development partners in the agricultural sector in Madagascar

The Study Team met with the four development partners, i.e., the World Bank, GIZ, IFAD and FAO, all of which are major actors that support the Malagasy agricultural sector, to learn about their COVID-19 related support. The interviews were held in June 2021 and are summarized below.

- World Bank: The ongoing PADAP (Projet Agriculture Durable par une Approche Paysage) was supporting rice VC development. After the COVID-19 outbreak, the project supported poor farmers by increasing the budget for providing input packages, conducting technical training courses, and maintaining and repairing infrastructure by 30% compared to the previous year. The project implemented a cash-for-work-program in which the project mobilized laborers who had lost labor opportunities in urban areas and had returned to rural areas for infrastructure-related work and paid daily wages. The World Bank plans to focus more on nutrition improvement and diversification of income sources (from other crops or other jobs) in the next PADAP project, which is under preparation.
- GIZ: GIZ had been implementing PRADA (Promotion et Adaptation des Chaînes de Valeur Agricoles) in the southern severe hunger area since before the COVID-19 outbreak to promote agricultural development that is adapted for climate change. The second phase of the project will focus more on reinforcing responsiveness against external shocks such as climate change and will

begin after the first phase is completed in 2022. COVID-19 related support includes various initiatives such as the provision of haricot bean seeds, support to a start-up that produces storage facilities, and financial compensation for losses to farmers who get good results in a training course for farmers.

- IFAD: IFAD provided USD 2 million of fund support to farmers in collaboration with the MAEP. IFAD lent 20% of the funds to farmers without requiring any collateral, which was different from its usual scheme. IFAD has been implementing PROSPERER (Programme de Soutien aux Pôles de micro-Entreprises Rurales et aux Economies Régionales) in the Bongolava region for developing a pink pepper VC, but the program finished at the end of 2021, so the government sought a new development partner support that could enable the continuation of the activities.
- FAO: FAO conducted a survey on the impact on FVC in the 2020/21 season. FAO also provided support to MAEP on policy development. FAO is now preparing a new 5-year plan and is going to select five main crops to begin a new project. FFF (Forest Farm Facility), which started in 2019, has supported forestry and farmers in collaboration with GIZ. FFF, as a part of its activities, conducted enlightenment activities on COVID-19 related issues for farmers and provided them with masks and soaps.

3.3.3. Impact of COVID-19 on the value chain of the target products

(1) Overview of COVID-19's impact on FVC in Madagascar

As mentioned above, the first wave of COVID-19 infection spread occurred from May to September 2020 in Madagascar, and the second from March to June 2021. Various restriction measures were introduced during those periods, so FVC actors who had major activities during the same periods suffered. The following sections first describe the situation in 2020 when more strict measures were taken, followed by the different trends in 2021.

Table 3-28 is a summary of the overall COVID-19 impact. Madagascar, like other Southern African countries, suffered from the disruption of domestic and international logistics that resulted in increasing sales prices for agricultural inputs, which made them difficult for farmers to procure. However, the impact of COVID-19 on the yield was limited, and some target crops suffered more from bad weather and diseases. Tomato sales were affected by market closures because of their low preservability. Export crops such as pink pepper and cacao were affected by the decreased international demand. Rice VC did not show any significant COVID-19 impact because of its stable domestic demand and the government's protective policies. Processors and retailers reduced their sales because of the opening hour restriction by the government. Consumers did not decrease their demand for rice and fresh vegetables but did decrease their demand for processed food. Many consumers and companies raised their awareness of food safety and promoted the use of ICT tools, which can be considered a positive impact of the pandemic.

Table 3-28 Overview of COVID-19's impact on FVC in Madagascar

VC	Input	Production	Processing	Distribution	Retail	Consumption
Result	Sales volume decreased as a whole. Sales price increased.	Depends on the products. Decrease for tomato and pink pepper. All crops were affected by the increase in input price.	No impact on rice. Sales of tomato sauce and potato chips to retailers decreased because of the less domestic demand.	In 2020 intermediaries decreased sales of many target crops / products. Export of onion, pink pepper and cacao decreased.	Little impact on sales of target crops / products. Procurement of processed food became difficult. Less demand. Overall shop sales decreased.	Processed and export food consumption decreased. Fresh vegetable consumption increased. The decreasing trend was accelerated in 2021.
Factor	Decreased number of workers. Decreased opportunities of domestic and international transportation. Production cost increase for sales price increase.	Farmers refrained from cultivating the same size of lands for the above 2 crops because of the fear for unsold products. Weather and diseases mattered more for other crops.	Decreased market demand and sales opportunities, governmental restrictions, infection of employees due to COVID-19 pandemic.	For domestic market, decreased procurement volume. Governmental restrictions on movement and business. For export, less demand from international market.	People are now more conscious about health, so demand for rice and vegetables increased. People purchased less processed food because of less income. Opening hour restriction mattered for shops.	In 2020 income fluctuations, price changes, changes in people's awareness on food safety. In 2021 high food inflation rate throughout the year. People's income is not yet back to the levels before the COVID-19 pandemic.

(2) Agricultural inputs

1) Highlights

Input related companies did not change or moderately decreased their sales volume between before and after the COVID-19 outbreak while increasing the sales price. Input importers and makers utilized digital tools to expand their market, while retailers diversified their procurement channels and sales products to adapt themselves to the new market environment under the COVID-19 pandemic.

2) Changes in sales

Figure 3-163 and Figure 3-164 summarize changes in agricultural input sales volume and sales price between 2019 and 2020. There is no clear trend observed for the sales volume of almost any types of input companies (except for importers with fewer samples) and products (fertilizer, chemical, seed) because both “increased” and “decreased” answers are confirmed. Input makers answered that the main reason for increased sales volume had been increased demand from customers (2 out of 3). Input retailers answered that the main reasons for increased sales volume of retailers had been increased demand from customers (7 out of 9) and also increased number of customers (5 out of 9). Two seed makers answered that climate change and the decreased number of workers due to movement restriction for COVID-19 prevention had caused decreased sales volume. Input retailers answered that decreased demand from customers (9 out of 14) and the decreased number of customers (6 out of 14) had caused decreased sales volume.

Many input retailers answered that they had increased their sale prices rather than decreased

them. The main reasons for increased sales price are purchasing price increase (15 out of 18) and purchasing cost increase due to decreased transportation opportunities (9 out of 18).

Figure 3-165 and Figure 3-166 show changes in sales volume and price in 2021 compared with 2019. Both show almost the same trends as those in 2020. However, the percentage of the decrease answers slightly increased for sales volume, while the increase answers slightly increased for sales price. One of the seed importers the project team interviewed during the face-to-face survey said “In 2021 there have been fewer shipping containers available, so the transportation cost increased. It now requires 5 months for transportation although it was only 3 months before, so this also increases the overall import cost. Transportation cost increase was reflected on the consumer price. Not only because of that but also because consumers’ purchasing power is now very low, our sales decreased by 30 to 40%.”⁴⁰. It is possible that other input dealers suffered from a similar situation.

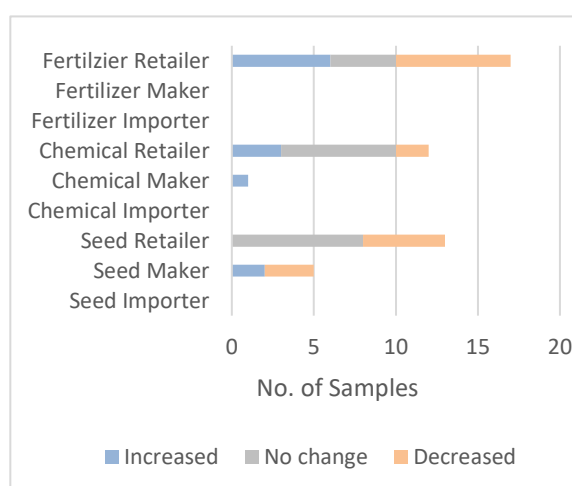


Figure 3-163 Madagascar: Changes in agricultural input sales volume in 2020 (compared to 2019)

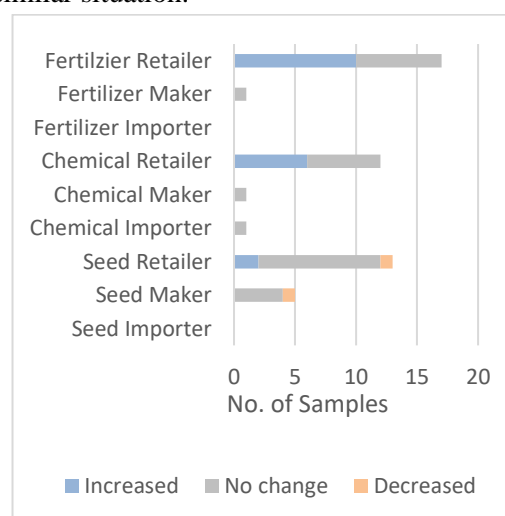


Figure 3-164 Madagascar: Changes in sales price of agricultural inputs in 2020 (compared to 2019)

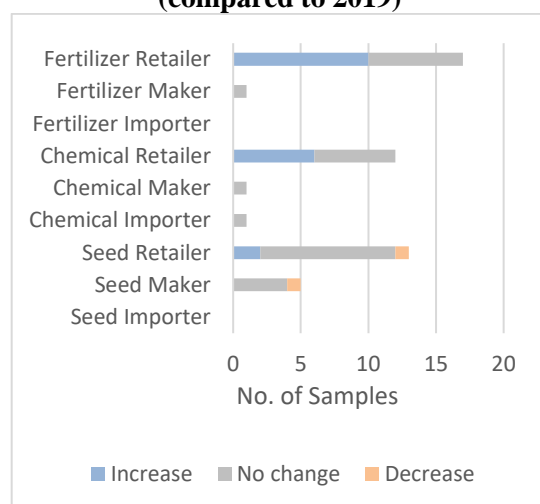


Figure 3-165 Madagascar: Changes in agricultural input sales volume in 2021 (compared to 2019)

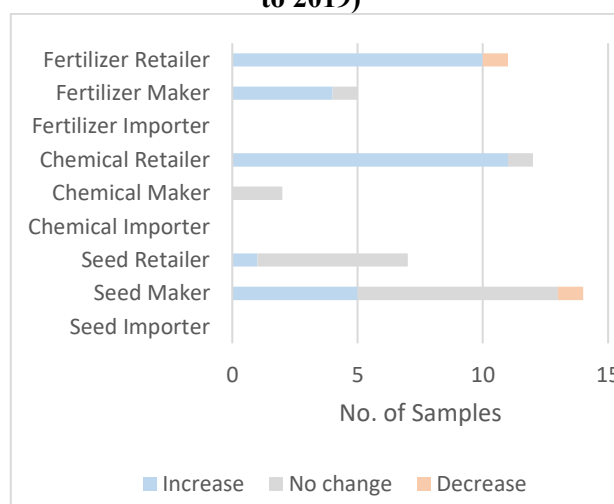


Figure 3-166 Madagascar: Changes in sales price of agricultural inputs in 2021 (compared to 2019)

⁴⁰ For more information about the scarcity of international transportation containers during the COVID-19 pandemic see Japan Logistics Association (2021), <https://www1.logistics.or.jp/news/detail.html?itemid=522&dispmid=703>, On December 2020. Only in Japanese.

3) Response to COVID-19

Figure 3-167 summarizes measures taken by input related companies through 2020. However, Figure 3-167 does not include responses from input importers because there was only one sample. The input importer has high digital literacy and tried online business matching, online sales promotion, and digital settlement to expand their market. Likewise, as shown in Figure 3-167, other makers also tried online business matching and digital settlement. Overall, however, few retailers utilized such digital tools, but many tried to secure profits even during the COVID-19 pandemic by diversifying their procurement channels, sales channels, and sales products. However, 40% of the retailers did not take any specific measures. This indicated two types of retailers: companies that were active in responding to the change in the business environment and companies that were not.

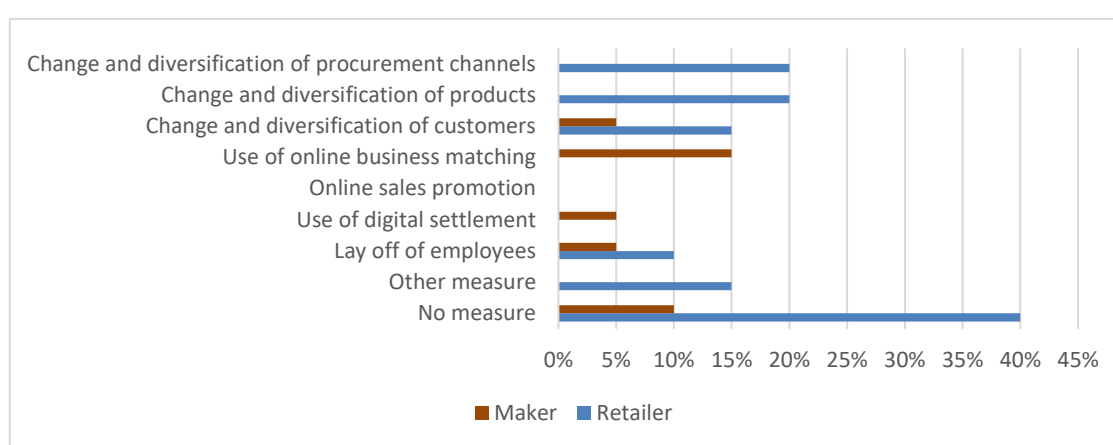


Figure 3-167 Madagascar: Agricultural input importers and distributors' response to changes in the business environment in the COVID-19 pandemic

(3) Production

1) Highlights

Based on the findings from the questionnaire survey and the interviews, Table 3-29 summarizes the impact of COVID-19 on the production activities of the seven target crops. The common impact is that the price of inputs has sharply increased since 2020 until the end of 2021, so farmers were not able to use enough chemical fertilizers and pesticides, which made it difficult for them to achieve the same productivity as they had been before the COVID-19 pandemic. Alternately, many farmers began to practice organic farming (self-production of organic fertilizer and insecticides, etc.) than before.

Table 3-29 Madagascar: Overview of the impact of COVID-19 on producers of target crops in 2020 and 2021 (compared to 2019)

Target crop	2020	2021
Rice	Harvest area, yield, sales volume, and sales price all increased. The same demand from the market (especially from the capital city).	
Haricot bean	No big impact. Yield increased due to good weather. Sales price decreased.	Yield decreased due to bad weather. Sales price increased.
Tomato	Being difficult to preserve, many products were left unsold because of market closure and transportation restrictions. Sales price decreased.	Many farmers decreased harvest area based on their experience from the previous year.
Onion	No big impact because planting and harvest seasons were not hit by the COVID-19 wave. Diseases were more serious and decreased production.	Sales prices decreased due to lower demand from the international market and lower quality from diseases.
Potato	No big impact. Yield increased due to good weather. Sales price decreased.	Yield decreased due to bad weather. Sales price increased.
Pink pepper	Sales volume decreased due to lower demand from exporters.	Sales volume decreased more sharply than in 2020 due to much lower demand from exporters. ⁴¹
Cacao	Little impact. No change in sales volume. Sales price increased. Less rainfall affected yield and the quality of beans.	

2) Change in harvested area

Figure 3-168 shows changes in harvest area of the target crops between 2019 and 2020. Of the total producers, 14% increased harvested area, while 72% did not change harvested area and 14% decreased harvested area. Therefore, it can be said that the overall harvested area did not change that much from 2019. However, there were slight differences between the crops.

Figure 3-169 shows the reasons for the increase or decrease of harvested areas. The most frequently given response for the increase was planned expansion (76%), while the most frequent responses about decrease were difficulty in access to inputs (40%), bad climate (31%), and difficulty in accessing seeds (18%).

Crop-wise analysis showed that the main reason for an increase in the harvest area of tomatoes, onions, and haricot beans is planned expansion (13 tomato producers, 9 rice producers, and 3 haricot bean producers).

The main reason for a decrease in the harvest area of cacao is a bad climate (11 producers). According to the individual interview results, the specific problem was a smaller amount of rainfall. The main reason for the harvest area decrease of onions and potatoes was difficulty in accessing inputs (fertilizer, seed, and chemicals) (17 onion producers and 3 potato producers). Analyzing both questionnaire survey results and individual interview results, these trends showed that the governmental measures for COVID-19 prevention, such as movement and business restrictions, made it difficult for producers to access agricultural inputs, which resulted in smaller harvest areas. The main reason for the harvest area decrease for pink pepper was a decrease in the number of agricultural laborers.

⁴¹ Based on the hearing interview results.

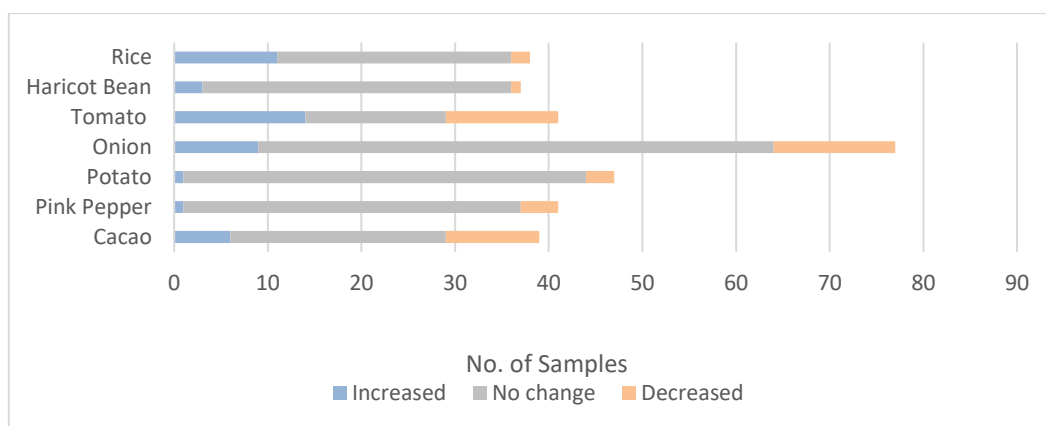


Figure 3-168 Madagascar: Changes in harvested area of the target crops in 2020 (compared to 2019)

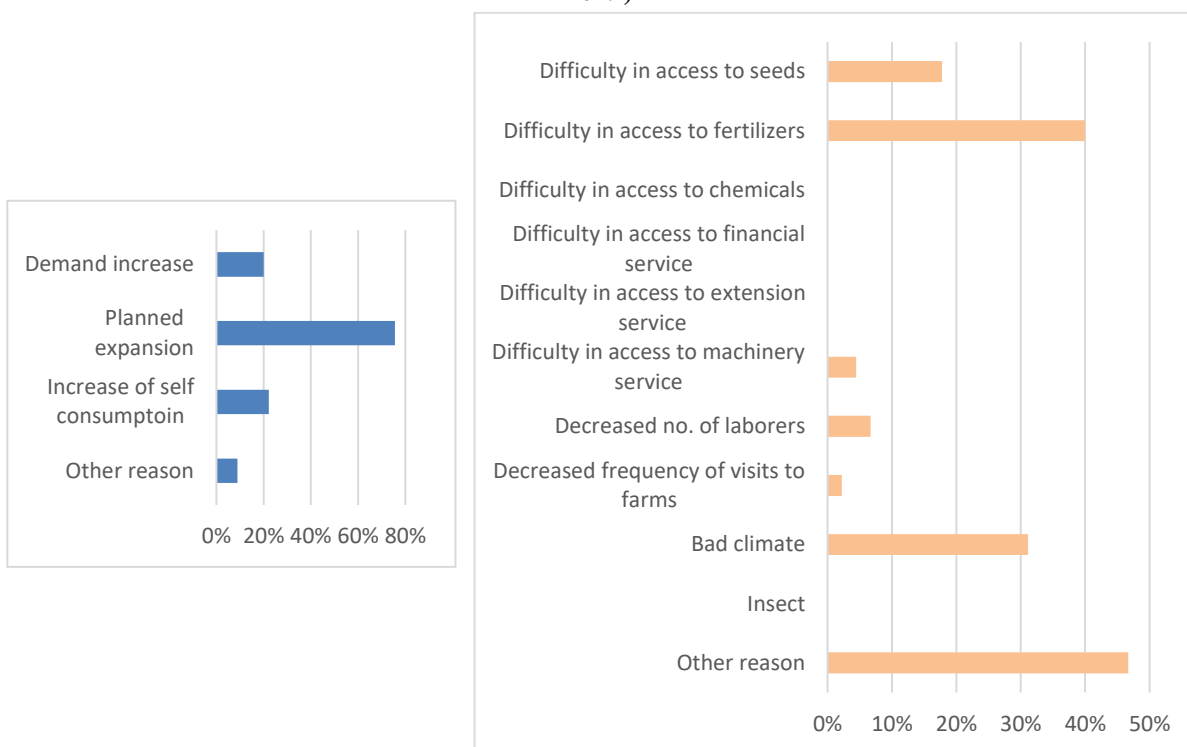


Figure 3-169 Madagascar: Reasons for changes in harvested area in 2020 (left: reasons for expansion, right: reasons for decrease)

Figure 3-170 shows changes in the harvested area of the target crops from 2019 to 2021. Compared with 2020, tomatoes, onions, and pink pepper show quite different trends. The reason that tomatoes and pink pepper decreased is that producers deliberately decreased their harvested area in 2021 because they were afraid of repeating the previous year's experience of having too many unsold products. According to the questionnaire survey results, difficult access to chemicals and bad climate were frequently mentioned as reasons for decreased onion amounts.

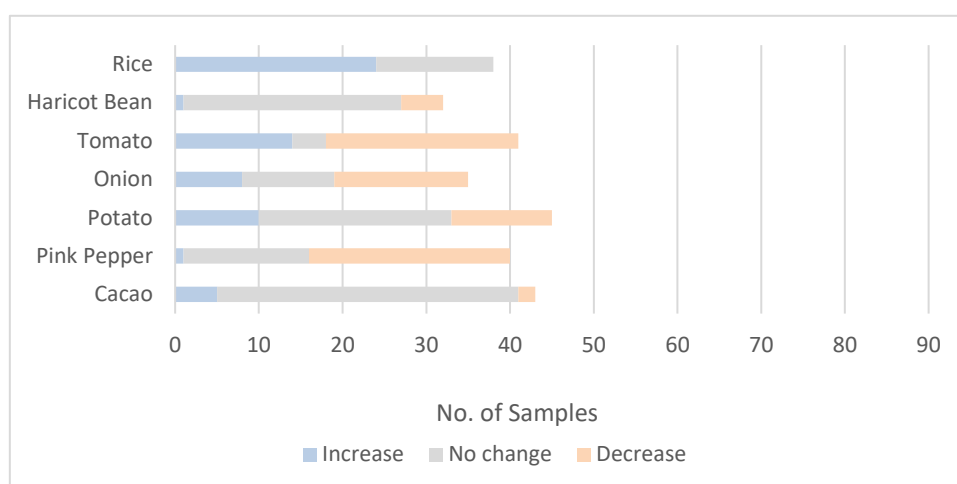


Figure 3-170 Madagascar: Changes in harvested area of the target crops in 2021 (compared to 2019)

3) Changes in production and yield

Figure 3-171 shows changes in the yield of the target crops between 2019 and 2020. Overall, 37% of the producers increased their yield, 28% kept the same yield and 36% decreased the yield. For rice, haricot beans, potatoes, and pink pepper, twice the number of farmers had higher yield in 2020 than those with lower yields, indicating that for those four crops, 2020 was a better harvest year compared to the previous year even under the COVID-19 pandemic. For the other three crops, tomatoes, onions, and cacao, the number of farmers with lower yield in 2020 exceeds that of farmers with higher yield.

Figure 3-172 shows the reasons for an increase or decrease in yield. The most frequently given reason for yield increase is a good climate (71%). Other reasons include expansion of harvest areas (4 producers), better soil conditions (2 producers), better harvest area management (2 producers), quality seeds (1 producer), and no more insects (1 producer).

On the other hand, the most frequently given reasons for decrease are difficulty accessing fertilizer (36%), bad climate (35%), difficulty accessing seeds (18%), and chemicals (16%). Other reasons include plant disease (5 producers), cyclone and flood (4 producers), water shortage (2 producers), crop rotation (2 producers), (labor decrease because of) fear for COVID-19 (1 producer for this and all the following reasons), bad quality seed, no machinery, insects and bush fire.

Crop-wise analysis shows that the most frequently given reason for an increase in rice yield was improved access to fertilizers (10 producers). The reason for the yield increase of haricot bean, potato, and pink pepper was good weather (15, 29, and 24 producers). The most frequently given reason for tomato yield decrease is difficulty accessing chemicals and fertilizers (9 and 7 producers), and the same answer was frequently given for onion yields (18, 13, and 9 producers). This is considered to be a result of the governmental measures for COVID-19 prevention as mentioned above. The main reason for cacao yield decrease is again bad climate (13 producers), as it was for the decrease in harvest area.

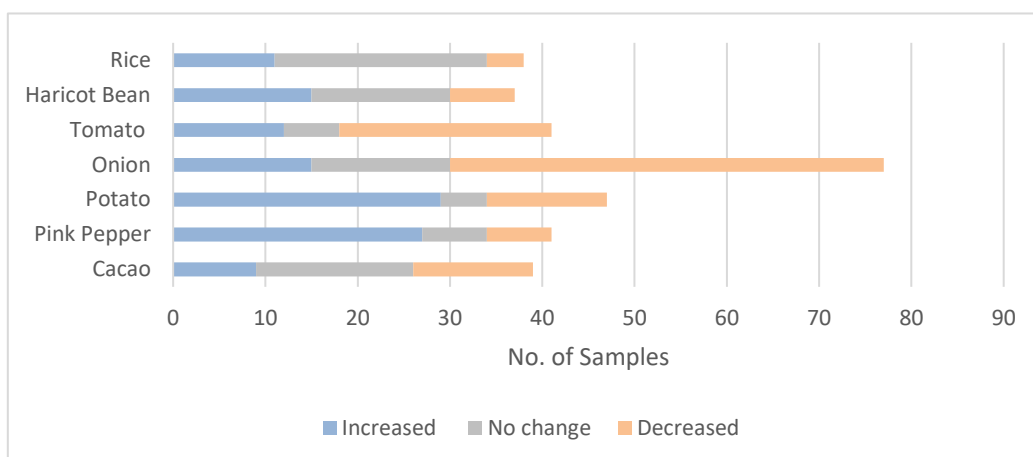


Figure 3-171 Madagascar: Changes in yield of the target crops in 2020 (compared to 2019)

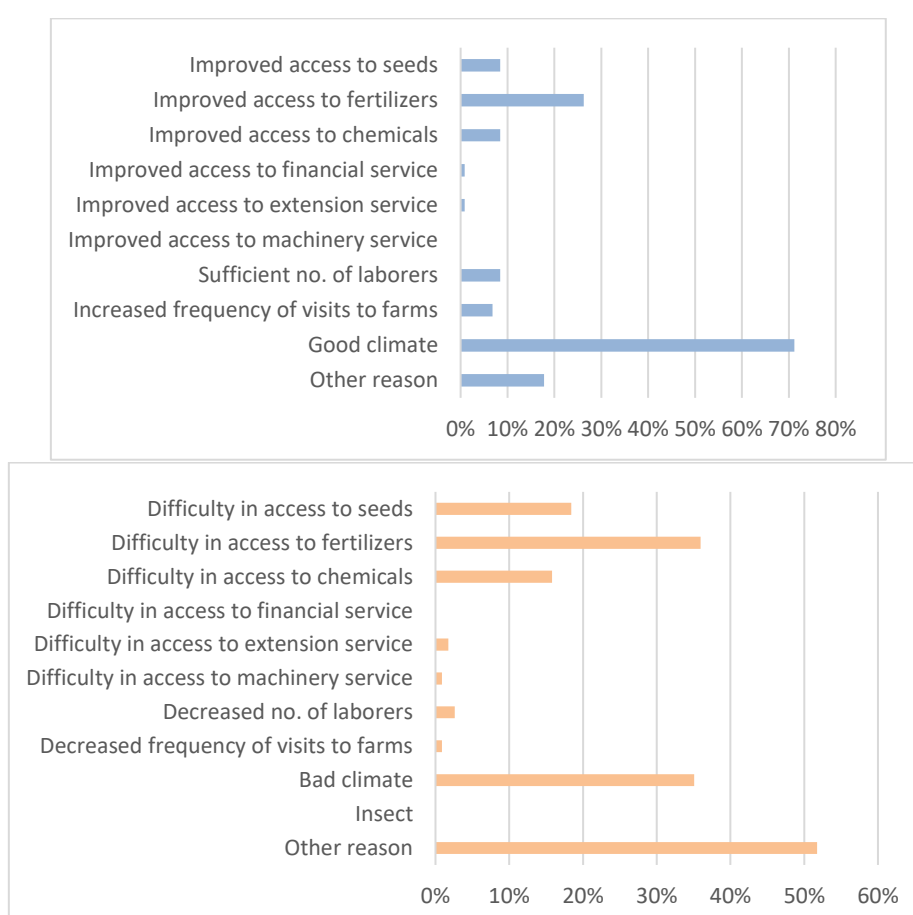


Figure 3-172 Madagascar: Reasons for changes in yield in 2020 (up: reasons for increase, down: reasons for decrease)

Figure 3-173 shows the changes in yield from 2019 to 2021. Haricot bean and potato show different trends from those in 2020 because they both had more decrease responses than increase or no change. Out of 14 haricot bean producers whose yield decreased in 2021, 13 mentioned bad climate as the reason for yield decrease, 11 mentioned difficulty accessing chemicals, 10 mentioned difficulty accessing fertilizers, and 9 mentioned difficulty in accessing seeds. Out of 24 potato producers whose yield decreased in 2021, 17 producers mentioned difficulty accessing fertilizers as the reason for yield

decrease, 14 mentioned difficulty accessing seeds and difficulty accessing chemicals, and 13 mentioned bad climate. An additional reason mentioned was financial problems in the household which was given by 2 haricot beans producers and 2 potato producers.

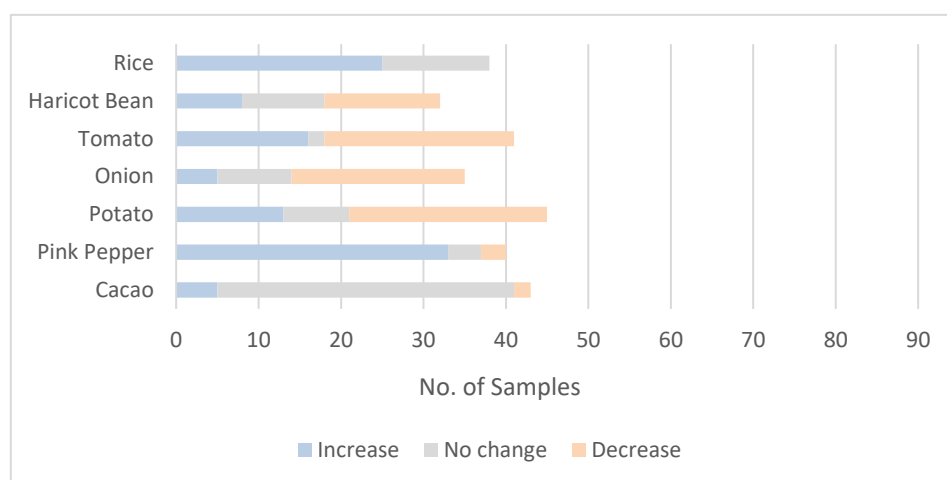


Figure 3-173 Madagascar: Changes in yield of the target crops in 2021 (compared to 2019)

4) Changes in sales

Figure 3-174 shows changes in sales volume of the target crops between 2019 and 2020. As a whole, 41% of the producers increased their sales volume, 23% kept the same volume, and 36% decreased their sales volume. The number of farmers with higher sales volume exceeds those with lower sales volume for rice, haricot beans, potatoes, pink pepper, and cacao. For tomatoes and onions, the number of farmers with less sales volume exceeds that with more volume.

Figure 3-176 summarizes the reasons for the increase or decrease of the target crop sales volume. The most frequently given response for a change in sales volume is a change in yield (73% for increase and 64% for decrease). According to the results of crop-wise analysis, the most frequent response for cacao sales volume increase is demand increase (7 producers), while for onion sales, the volume decrease was due to the decreased quantity of crop because of downy mildew (Bemavo in Malagasy) or powdery mildew (Mandavenona in Malagasy). During the interviews, many producers mentioned that wholesalers had not purchased their products or they faced difficulty in selling all the products at a local market before tomatoes went bad. This was attributed to the poor preservability of tomatoes and the market closure and transportation restriction measures during the first wave of COVID-19 infection.

Figure 3-175 summarizes changes in farm gate prices of the target crops between 2019 and 2020. As a whole, 50% of the producers increased farm gate prices, 29% kept the same price, and 21% decrease the price. According to the results of crop-wise analysis, the number of farmers with higher farm gate prices exceeds the number with lower farm gate prices for rice, haricot beans, onions, and cacao. For tomatoes, potatoes, and pink pepper, the number of farmers with lower farm gate prices exceeds the number of farmers with higher prices.

Figure 3-177 shows the reasons for changes in farm gate prices. The most frequent reason for increased farm gate prices was increase in demand (72%). For price decrease, the most common reason

was increased supply to markets (46%). The results of crop-wise analysis revealed that the reason for pink pepper price decrease was the decrease in market demand.

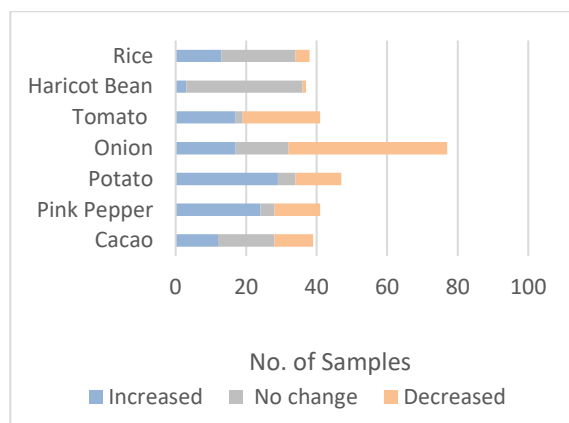


Figure 3-174 Madagascar: Changes in sales volume of the target crops by farmers in 2020 (compared to 2019)

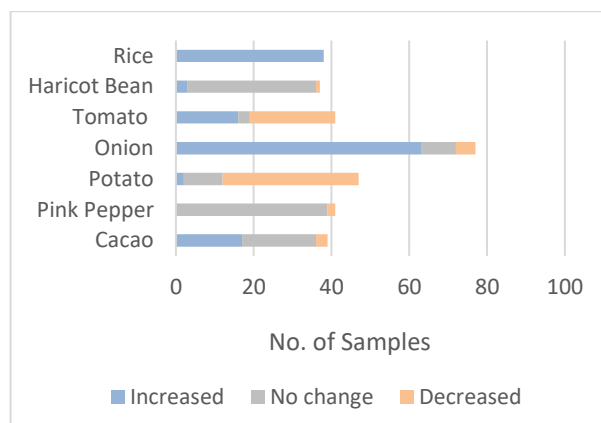


Figure 3-175 Madagascar: Changes in farm gate prices of the target crops in 2020 (compared to 2019)

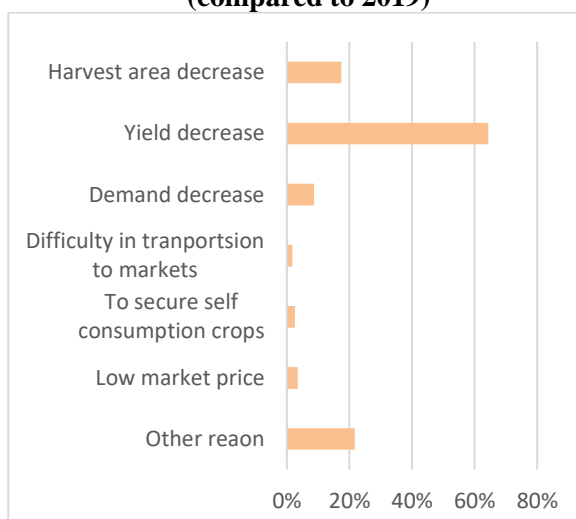
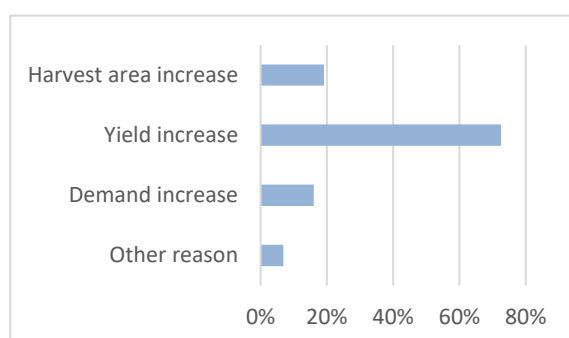


Figure 3-176 Madagascar: Reasons for changes in sales volume of the target crops by farmers in 2020 (left: reasons for increase, right: reasons for decrease)

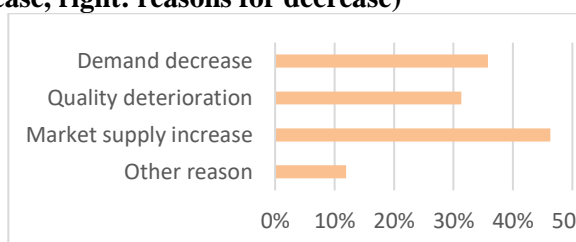
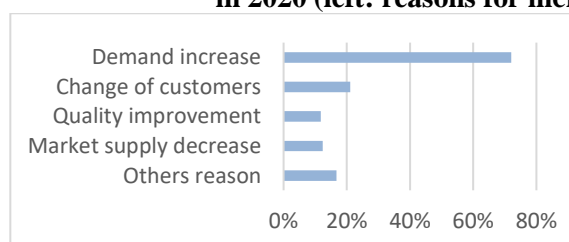


Figure 3-177 Madagascar: Reasons for change in farm gate prices (left: reasons for increase, right: reasons for decrease)

Figure 3-178 and Figure 3-179 show the changes in sales volume and price from 2019 to 2021. Major differences from the responses for 2020 were (1) sales volume decrease of pink pepper, (2) sales price increase of haricot bean and potato, and (3) increase of the percentage of responses for a sales price decrease of onion. For (1), during the interview, one of the producers in Tsironomandidy District, which is a survey target area for pink pepper, mentioned that the demand from exporters (their main

business partners) had drastically decreased in 2021 compared to 2020; in 2020 exporters continued to purchase products, but they were no longer able to purchase new products in 2021 because of the stock left over from the previous year. For (2), as previously mentioned, many producers identified that there were fewer products in the market because of the yield decrease. For (3), frequent answers are demand decrease and quality deterioration. People interviewed also mentioned the decrease of export volume⁴² to foreign countries (especially neighboring island countries such as Comoros, Reunion, Mayotte, and Mauritius) and the quality deterioration as a result of diseases lasting from the previous year.

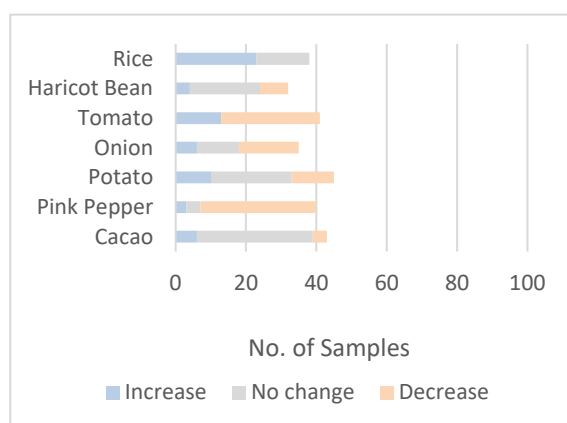


Figure 3-178 Madagascar: Changes in sales volume of the target crops by farmers in 2021 (compared to 2019)

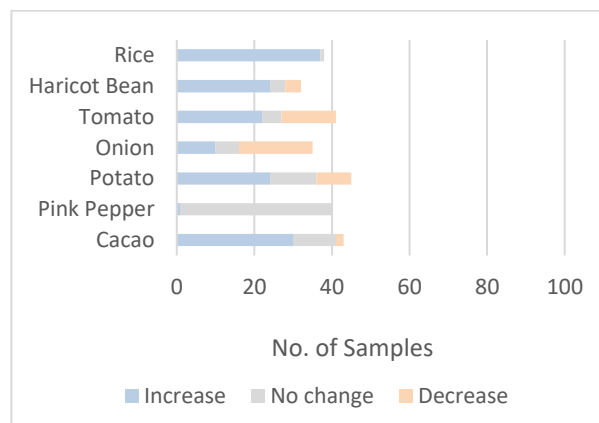


Figure 3-179 Madagascar: Changes in farm gate prices of the target crops in 2021 (compared to 2019)

5) Impact on the activities of agricultural cooperatives

Figure 3-180 shows changes in services provided by agricultural cooperatives from 2019 to 2020. Out of 14 cooperatives that answered the questionnaire survey, 8 cooperatives (3 haricot bean, 1 potato, 2 pink pepper, and 2 cacao) provide joint product sales service, but 4 of them decreased the sales volume in 2020.

The results for 2021 showed almost the same trends.

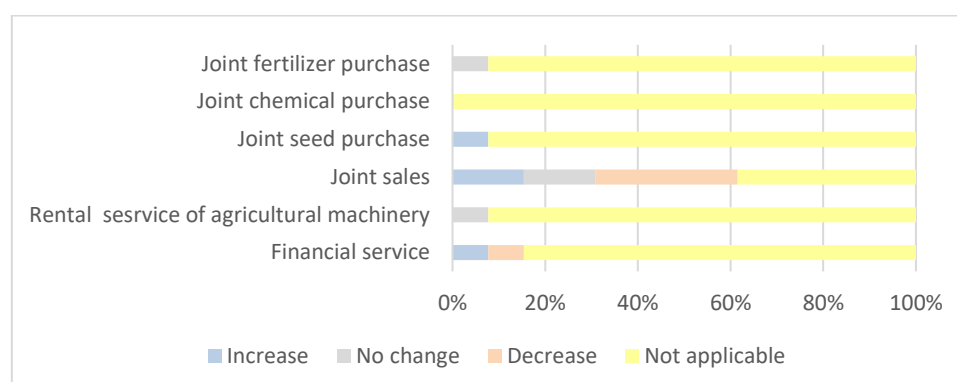


Figure 3-180 Madagascar: Changes in services provided by agricultural cooperatives in 2020 (compared to 2019)

⁴² Madagascar's onion export volume in 2019 is 2,851 tonnes, which is equivalent to about 20% of domestic production of 12,966 tonnes. (FAO)

(4) Processing

1) Highlights

Some processors deliberately decreased their processing volume to respond to decreased market demand and sales opportunities due to the COVID-19 pandemic. Other processors were forced to stop operation because of the infection of their employees and the operation hour restriction by the government. There was no clear change in raw material procurement channels, but sales to retailers decreased, which is a change of sales destination of processed products. Of the total processors, 60% increased raised their awareness on food hygiene and safety under the COVID-19 pandemic.

2) Changes in processing volume

The study team obtained numeric data for 2020 from only one processor. The tomato sauce processor, which provided the data, had decreased its processing volume by 30% between 2019 and 2020 because of demand decrease and production cost increase and also because there were no exhibition fairs where it could show and sell its processed products.

Regarding processing volume in 2021, 9 processors answered the questionnaire. Figure 3-181 shows changes in processing volume and Figure 3-182 shows reasons for the decrease. The result is that several haricot bean processors and tomato sauce processors decreased their processing volume because of a decrease in domestic market demand. Decreased domestic market demand for processed food is also confirmed in the results from the retailer questionnaire and the consumer questionnaire.

During the interviews, one of the small-size processors, which has a limited number of employees, said that they had to stop the factory because one of their employees had been infected with COVID-19 and there was no one who could replace her roles. A large-size processor mentioned that they were not able to run their factory with full capacity because of the operation hour restriction by the government during the first wave.

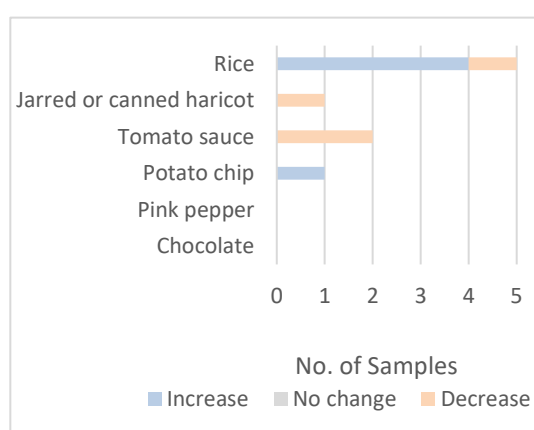


Figure 3-181 Madagascar: Changes in the volume of processed target crops in 2021 (by crop, compared to 2019)

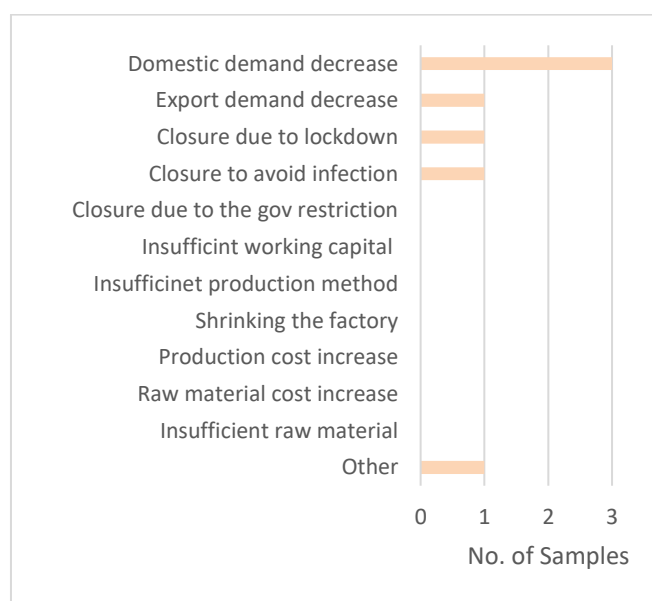


Figure 3-182 Madagascar: Reasons for decrease in processing volume in 2021

3) Changes in raw material procurement

a) Changes in 2020

Before and after the COVID-19 outbreak, two potato processors decreased the volume of raw material procurement because both companies had decreased their production volume due to decreased market demand. Only one cacao processor increased the volume of raw material procurement and they did so because market demand had increased. A large size chocolate processor said in an interview that there had not been any changes in the domestic demand for chocolate even under the COVID-19 pandemic. Only one pink pepper processor decreased the volume of raw material procurement because producers had not supplied enough raw materials to the company.

Figure 3-183 shows changes in suppliers of raw materials. Most of the processors of any target products answered that they had not changed the volume of procurement from any suppliers, so there is no clear change observed.

Regarding raw materials, one out of two rice processors, one out of one haricot bean processor, and one out of one tomato processor answered that the quality had been better in 2019 than that in 2020, while one cacao processor answered the opposite and five other processors of the target crops answered that there had been no change.

For the price of raw materials, one rice processor and two tomato processors answered that the price had been better in 2020; three other processors answered that there had been no change.

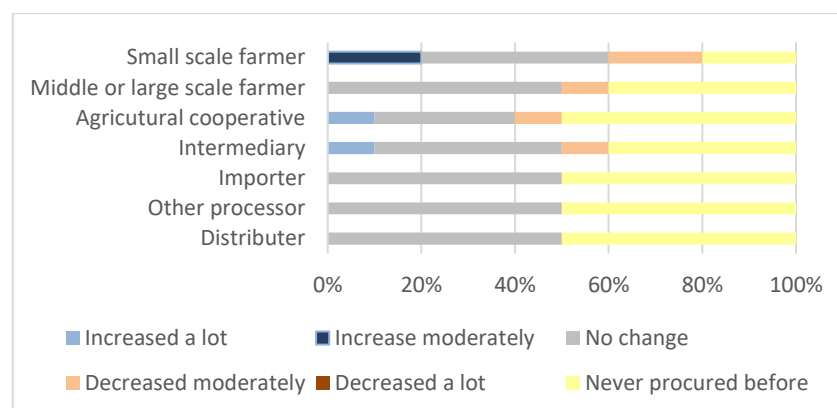


Figure 3-183 Madagascar: Changes in volume of the target crops procured by processors in 2020 (by supplier, compared to 2019)

b) Changes in 2021

As Figure 3-184 shows, out of five rice processors who responded, three processors increased procurement volume in 2021 compared to 2019. The main reasons for that are an increase in processing capacity (2 processors) and an increase in stock volume (2 processors). One of the two tomato processors increased procurement volume in 2021, while the other decreased. There was no major change observed regarding procurement channels.

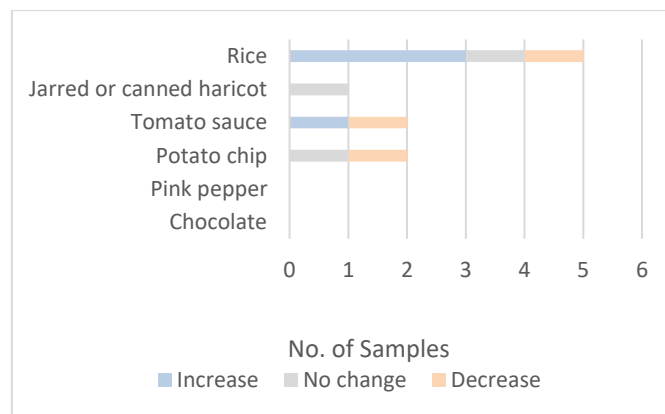


Figure 3-184 Madagascar: Changes in volume of the target crops procured by processors in 2021 (by supplier, compared to 2019)

4) Changes in sales

For changes in sales in 2020, the tomato sauce processor, mentioned in 2) above, answered that it had sold all the processed products in 2019 but not in 2020 because the market demand had been smaller than expected. There was no change in sales prices between 2019 and 2020.

Changes in sales in 2021 are shown in Figure 3-185 and Figure 3-186. For changes in sales destination, out of nine processors who answered the questionnaire, four processors, which is almost a half, answered that sales volume to retailers had decreased. For changes in sales price, all the rice processors answered that the price increased in 2021 compared to 2019 and that the reason was an increase in domestic market demand.

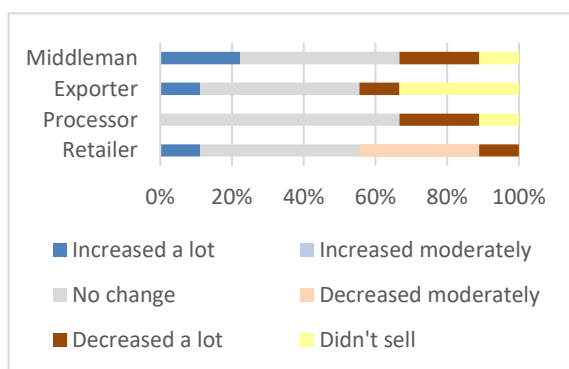


Figure 3-185 Madagascar: Changes in sales volume of products made of the target crops in 2021 (by customer, compared to 2019)

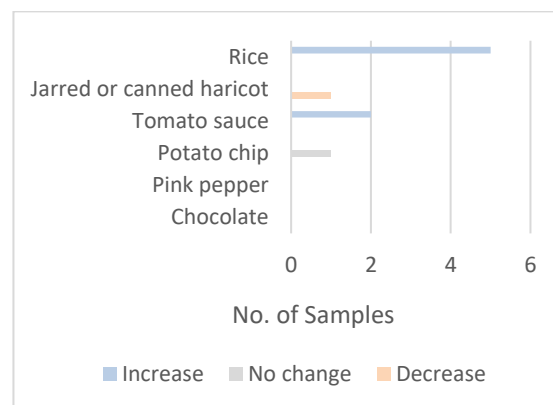


Figure 3-186 Madagascar: Changes in selling price of processed products of the target crops in 2021 (by crop, compared to 2019)

5) Changes in awareness of hygiene and safety

Of the processors, 60% answered that they had increased awareness of food hygiene and safety. The other 40% answered that they had not changed. The percentage is the same also for 2021. Answers differ among the processors of the same crops, so there is no specific difference among crops observed.

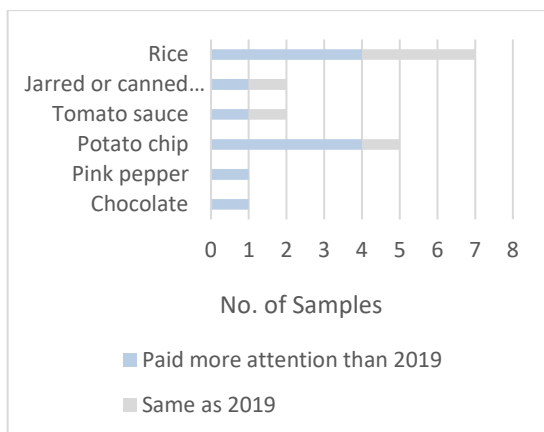


Figure 3-187 Madagascar: Changes in processors' awareness of safety and hygiene when purchasing the target crops in 2020 (compared to 2019)

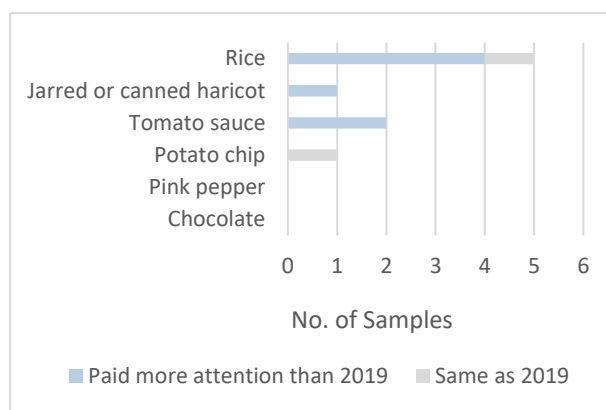


Figure 3-188 Madagascar: Changes in processors' awareness of safety and hygiene when purchasing the target crops in 2021 (compared to 2019)

(5) Distribution

1) Intermediaries (wholesalers and middlemen)

a) Highlights

In 2020, immediately after the COVID-19 outbreak, many intermediaries decreased the volume of procurement from farmers, including the volume of sales for rice, tomatoes, potatoes, onions, and cacao. In 2021, procurement volume did not decrease, but haricot beans, tomatoes, and onions continued to show a trend of decreasing sales compared to 2019. There are no pink pepper intermediaries in the survey target area, so no data is available for pink pepper.

b) Changes in procurement of the target products

Figure 3-189 shows the changes in the volume of the intermediaries' procurement of the target products from different suppliers between 2019 and 2020. Most of the intermediaries had been making procurements from farmers, but almost half of them answered that the volume of procurement was either slightly decreased or had decreased a lot. Figure 3-190 shows changes in 2021.

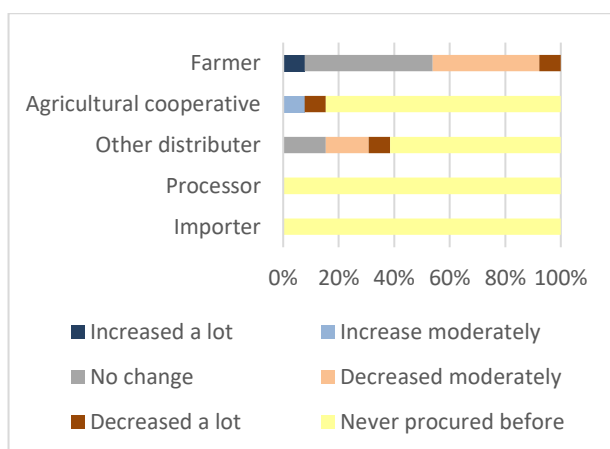


Figure 3-189 Madagascar: Changes in volume of target products purchased by intermediaries in 2020 (compared to 2019)

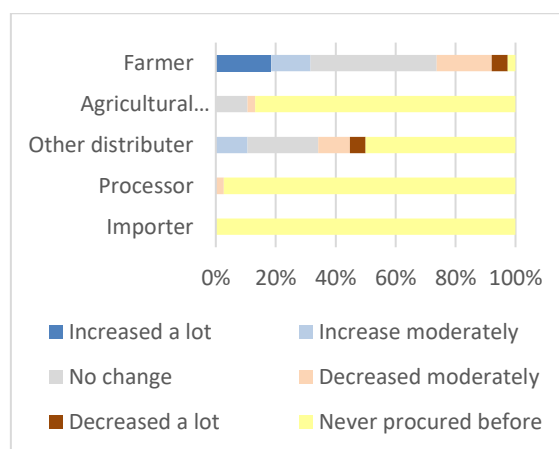


Figure 3-190 Madagascar: Changes in volume of target products purchased by intermediaries in 2021 (compared to 2019)

c) Changes in sales

Figure 3-191 shows the changes in the volume of sales of each target product between 2019 and 2020. Most of the intermediaries answered that the sales of rice, tomatoes, onions, potatoes, and cacao were decreased, but they did not report decreases in haricot beans sales. Half the intermediaries said that the major reason for the decrease in sales was the decrease in the volume of procurement. Other intermediaries raised business restrictions and movement restrictions by the government as reasons for the decrease. Business restriction and movement restriction are considered to have also affected the intermediaries' procurement behavior, and thus been major factors in the decrease of the procurement volume.

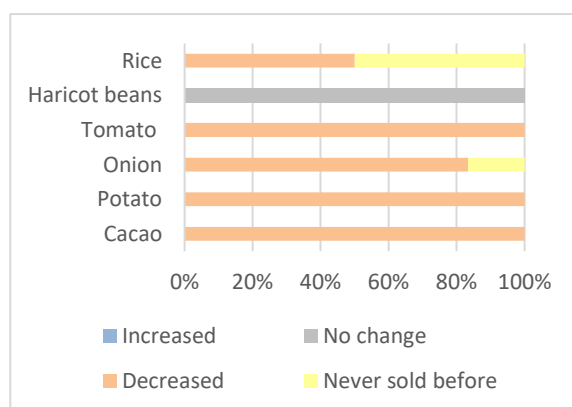


Figure 3-191 Madagascar: Changes in sales volume of products by intermediaries in 2020 (by product, compared to 2019)

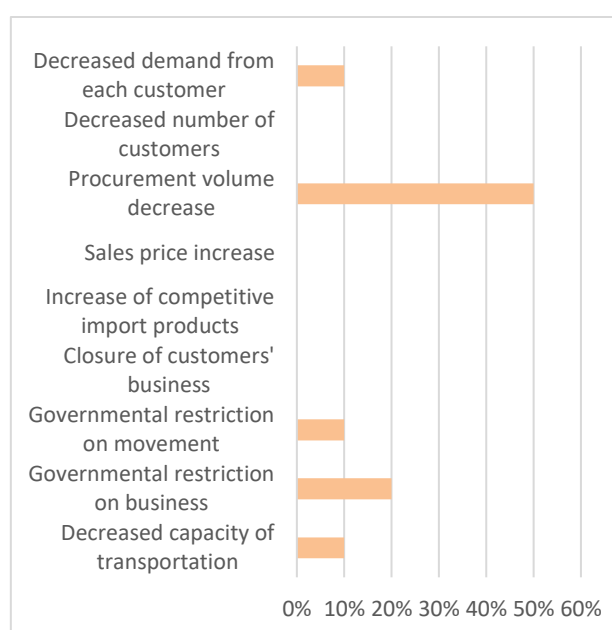


Figure 3-192 Madagascar: Reasons for decrease in sales volume by intermediaries in 2020

Figure 3-193 shows changes in the sales volume of target products in 2021. More than 60% of rice or cacao intermediaries answered that sales volume increased in 2021 compared to that in 2019 because of increases in customer demand and the number of customers. However, 50% of producers of haricot beans (12), and 100% of tomato (2) and onion (8) intermediaries answered that sales volume had decreased due to decreased customer demand and number of customers (Figure 3-194). Especially, for onions, the study team confirmed from the interview responses that export to neighboring island countries had decreased, so it is possible that decreased number of customers refers to this export volume decrease.

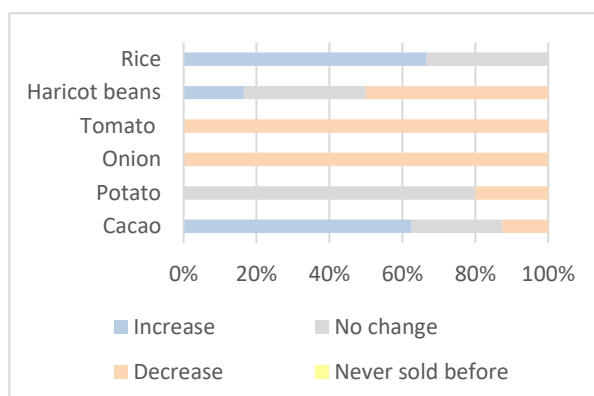


Figure 3-193 Madagascar: Changes in sales volume of products by intermediaries in 2021 (by product, compared to 2019)

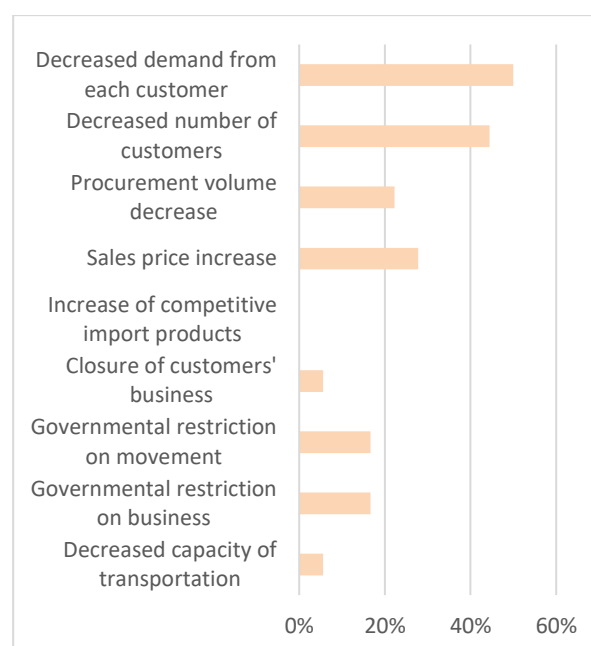


Figure 3-194 Madagascar: Reasons for decrease in sales volume by intermediaries in 2021

2) Importers

Rice is the only target product that is imported⁴³, but because there are no rice importers in the target area, the questionnaire survey was not implemented. There are several private rice importers in the country as well as a government-supported⁴⁴ rice importer called State Procurement of Madagascar (SPM), which began operating in May 2020. SPM's role is to stabilize the domestic market price of rice by supplying imported rice from foreign countries. According to SPM, it faced difficulty in finding a good rice supplier during the first wave from May until August 2020, so it called for expression of interest from rice exporters in the overseas market. However, the results were poor, so SPM had to directly negotiate with suppliers.

3) Exporters

a) Highlights

Pink pepper and cacao are the only export-oriented crops among the 10 target products. Both crops decreased the volume of export due to the stagnation of international logistics and a decrease in demand from overseas markets. About 20% of domestic onion production is exported to neighboring island countries, but because there are no onion exporters in the target area, the questionnaire survey was not conducted.

⁴³ Rice (rice paddy, equivalent of milled rice) import volume in 2019 was 406,995 tons, which is equivalent to about 10% of domestic demand, which is the sum of domestic production of 4,231,145 tons + import volume (FAO)

⁴⁴ When established, SPM received a 6-month loan by using the government guarantee, but SPM has been always financially independent from the government (CEO, SPM).

b) Changes in export volume

The pink pepper exporter decreased the export volume in 2020 compared to the previous year mainly because of the stagnation of international logistics. It said that export was completely stopped in 2021 because, according to the MAEP, pink pepper demand from the European market for the purpose of cosmetics such as perfume and soap had decreased.

One of the cacao exporters decreased their export volume in 2020 compared to 2019. In 2021, two out of three did not change their export volume compared to 2019 but the other's export volume was decreased. Conseil National du Cacao (CNC), a national industrial platform of cacao VC actors, answered in the interview with the study team that the export volume in 2020 was only 11,005 tons, which was a 20% decrease compared to 14,056 tons in 2019. The main reasons were the harvesting delay and the reduced quantity due to the delay of marine transportation.

Koloharena Federation, a regional federation of rice producer associations in Amparafalavola of Alaotra Mangro Region, answered in the interview that they had not been able to export rice in 2020 and 2021 because the government had not permitted rice export due to the national crop failure in the same year.

During the interviews and workshops, the abovementioned pink pepper and rice VC actors stressed the importance of obtaining international certification such as ECOCERT in order to fulfill international demand for organic products.

(6) Retail

1) Highlight

After the COVID-19 outbreak, procurement of imported products became difficult and procurement volume decreased. The sales volume of survey target products has increased, but some of the retailers answered that the sales volume of processed food had decreased. The sales price has been increasing for all the target products because of inflation and higher production cost due to the COVID-19 pandemic. Overall sales of retailer shops decreased because of opening hour restriction by the government and other measures.

2) Changes in procurement

Figure 3-195 shows the changes in the volume of the retailers' procurement between 2019 and 2020. More retailers answered that they had decreased the volume of procurement from importers. The interviews also confirmed the statement from a supermarket and small grocery shop that stagnated international logistics make procuring imported products difficult.

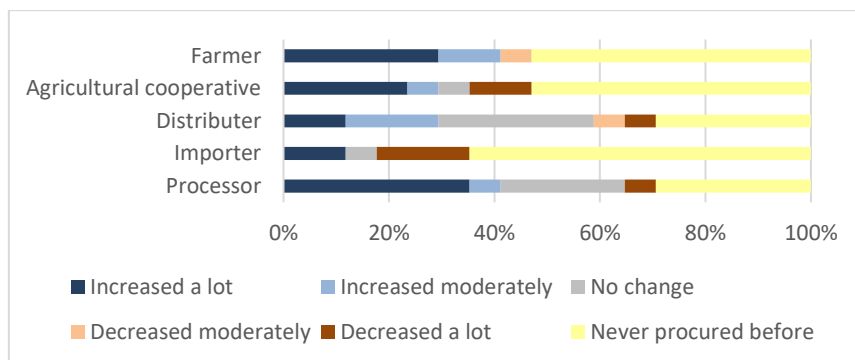


Figure 3-195 Madagascar: Changes in volume of target products purchased by retailers in 2020 (compared to 2019)

3) Changes in sales

Figure 3-196 to Figure 3-198 show the changes in the volume of sales of each target product between 2019 and 2020. Among 17 retailers who answered the questionnaire survey, the number of answers of “increase” exceeds the number of answers of “decrease” in all the target products. The most frequently answered reason for the increase was an increase in demand from customers. Findings from the interviews indicate that one of the possible reasons for that, especially for fresh vegetables such as tomatoes and onions, is that consumers’ consciousness about healthy food increased.

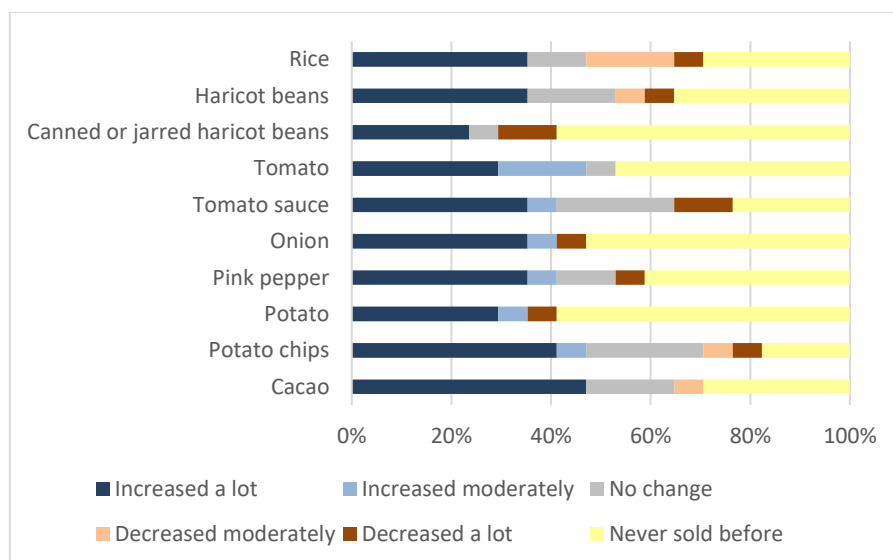


Figure 3-196 Madagascar: Changes in sales volume of target products by retailers in 2020 (by product, compared to 2019)

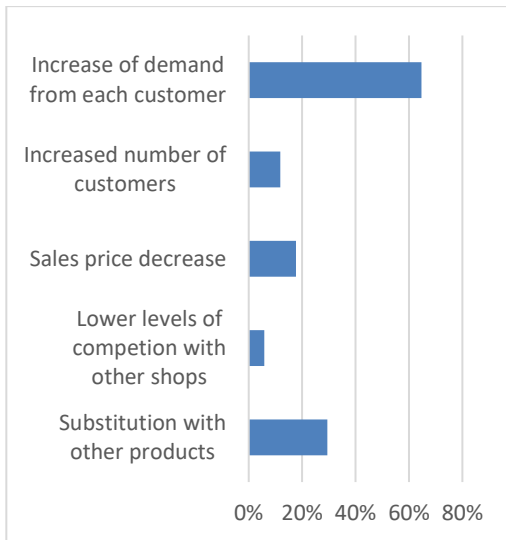


Figure 3-197 Madagascar: Reasons for increase in sales volume by retailers in 2020

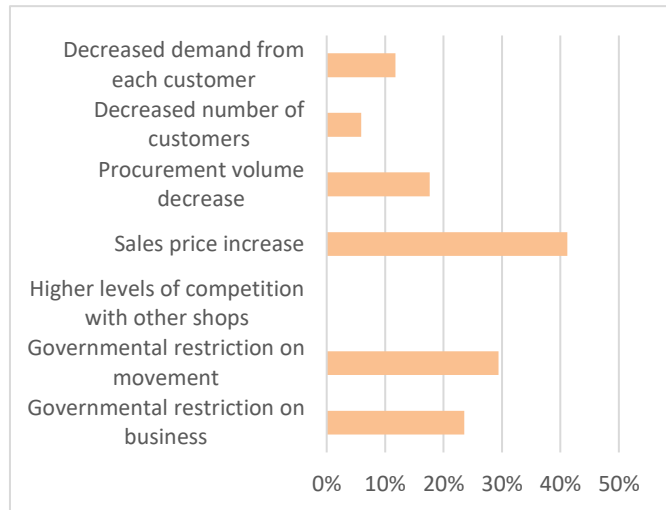


Figure 3-198 Madagascar: Reasons for decrease in sales volume by retailers in 2020

On the other hand, a supermarket and grocery shop interviewed in the capital city stated that consumers purchased only necessities such as oil and sugar and stopped buying luxury food such as imported chocolate and cookies. Overall supermarket sales (including any items other than our target products) decreased by 50% in 2020 and by 30% in 2021 compared to 2019. This is because the supermarket followed the government's opening hour restriction and also refrained from organizing marketing events to avoid people gathering in one place. The situation of the grocery shop is almost the same, with sales decreasing 40% in 2020 and 60% in 2021 compared to 2019.

4) Changes in sales price

Figure 3-199 shows the changes in the sales price of the target products between 2019 and 2020. Among 17 retailers who answered the questionnaire survey, the number of "increase" answers exceeds the number of "decrease" answers in all the target products. Based on the interview survey findings, it can be assumed that the reasons for this are the continuous increase of cost of living as well as the increase in the cost of production and distribution of the target products, which was triggered by the COVID-19 pandemic.

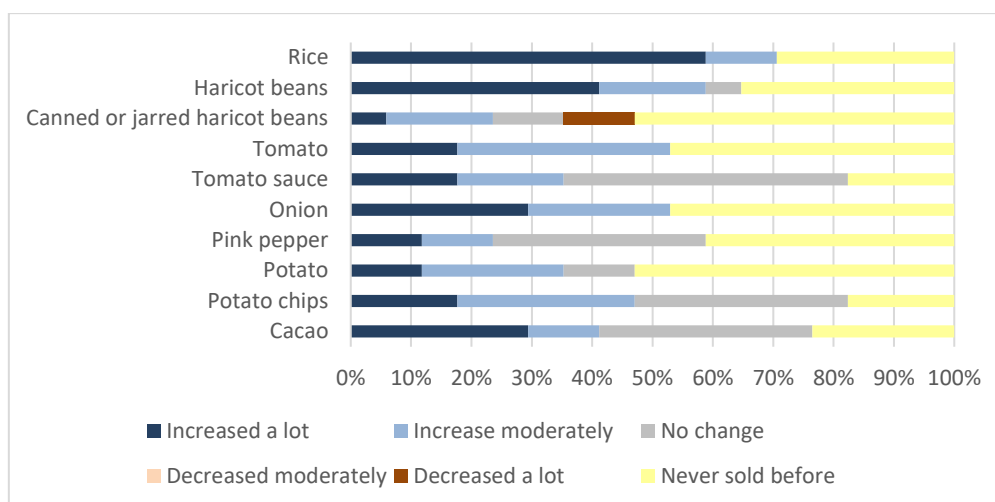


Figure 3-199 Madagascar: Changes in retail price of the target products in 2020 (by product, compared to 2019)

5) Changes in stock volume

Figure 3-200 shows the changes in the volume of stock between 2019 and 2020. About 40% of the retailers decreased the stock volume of the target products. The main reason for the decrease was the decreased demand from customers. Figure 3-201 shows the changes in stock volume from 2019 to 2021. In 2021, half the retailers increased stock volume compared to 2019. All answered that they had foreseen the possibility of procurement becoming difficult in the future.

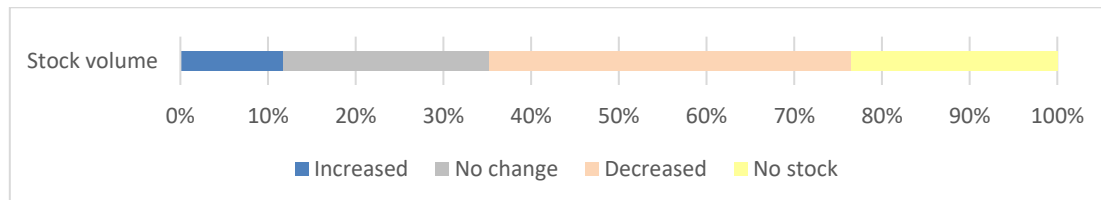


Figure 3-200 Madagascar: Changes in stock volume of target products in retailers in 2020 (compared to 2019)

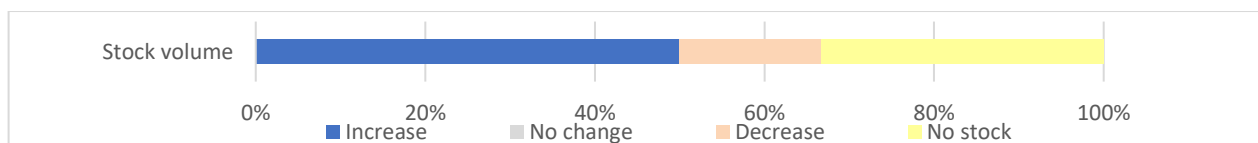


Figure 3-201 Madagascar: Changes in stock volume of target products in retailers in 2021 (compared to 2019)

(7) Consumption

1) General consumers

a) Highlights

The decreasing trend of annual income during the COVID-19 pandemic is observed in all the income groups. Even in 2021, about a half of the consumers' income levels are not yet to be back to their pre-pandemic levels. Consumption volume of processed food and export-oriented products decreased while consumption of fresh vegetables increased. In 2020, when the COVID-19 pandemic

began, consumers decreased eating out and using take-out services and became more conscious about food safety issues. However, in 2021, people’s consumption behavior is almost back to that before the COVID-19 pandemic.

b) Changes in household income

The survey samples can be divided into three categories based on their annual household income in 2019⁴⁵. The first group of less than 4.2 million ariary occupies 20% of the total samples, the second group of 4.2 to 7.2 million ariary occupies 41% and the last group of more than 7.2 million ariary occupied the remaining 40%. The percentage of the consumers whose annual income in 2020 decreased (either slightly decreased or decreased a lot) compared to that in 2019 is 47% among the group of less than 4.2 million ariary, 25% among the group of 4.2 to 7.2 million, and 38% among the group of more than 7.2 million. On the contrary, the percentage of the consumers whose annual income in 2020 increased (either slightly increased or increased a lot) compared to that in 2019 is 6% among the group of less than 4.2 million ariary, 20% among the group of 4.2 to 7.2 million and 28% among the group of more than 7.2 million. This means the number of consumers whose annual income decreased exceeds that of consumers whose annual income increased for all the three income groups. This implies the fact that COVID-19 had an impact on consumers’ annual income regardless of their income levels. The other finding is that the percentage of people with increased annual income tends to increase if their income level goes higher.

The same trend is observed for household income in 2021. Only 15% of the entire interviewees answered that their household income had increased, while 45% answered that it decreased. The result implies the fact that most people from any income level have continued to suffer lower levels of household income even though more than one year has passed since the COVID-19 outbreak.

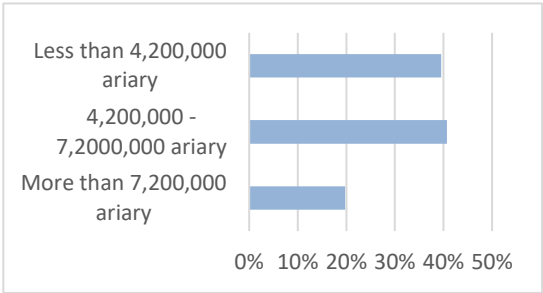


Figure 3-202 Madagascar: Income distribution of the respondents

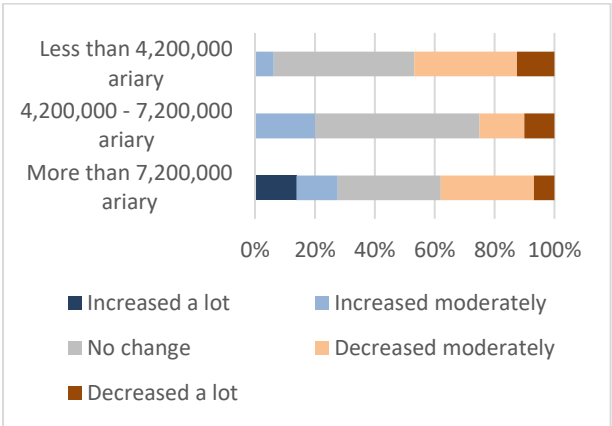


Figure 3-203 Madagascar: Changes in household income in 2020 (by three income groups, compared to 2019)

⁴⁵ The study team divided the interviewees into the three categories based on the 2014 Malagasy population income distribution data, which is obtained at Index mundi and the 2019 average household size calculated from the World Bank data.

c) Changes in consumption of the target products

Figure 3-204 shows the changes in the general consumers' consumption volume of each target product between 2019 and 2020. There are five products where increased production was reported more often than decreased consumption: rice, haricot beans, tomatoes, onions, and potatoes; onions and potatoes had the most frequent increase answers. The reason is that the people ate the products that had lost a sales opportunity due to the COVID-19 pandemic because potatoes and onions are relatively easy-to-preserve crops according to the results of the interview with a producer association.

On the contrary, five products reported that decreases were more common than increases: canned or jarred haricot beans, tomato sauce, potato chips, pink pepper, and cacao. These products also had many answers of “never consumed before,” so they are considered to be products whose consumption people are easy to adjust in such an emergency situation as the COVID-19 pandemic. Moreover, canned or jarred haricot beans, tomato sauce and potato chips are all processed food, so one of the possible reasons is that the volume of those products that were available in the market was decreased as a result of the decreased operation of processors due to COVID-19 pandemic, according to the information from individual interviews.

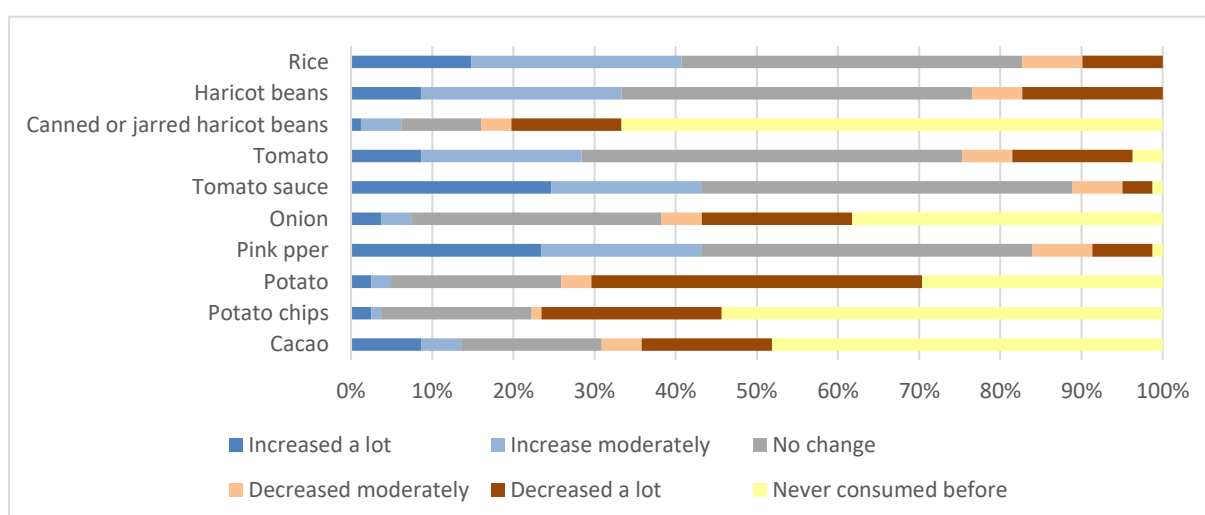


Figure 3-204 Madagascar: Changes in consumption of target products in 2020 (compared to 2019)

The two major reasons for decreased consumption were “price increase” and “income decrease.” The most frequently given reason for increased consumption was “the product is safe and also good for health.” Many of those who answered so increased their consumption of rice, haricot beans, onions, and potatoes.



Figure 3-205 Madagascar: Reasons for decrease in consumption in 2020

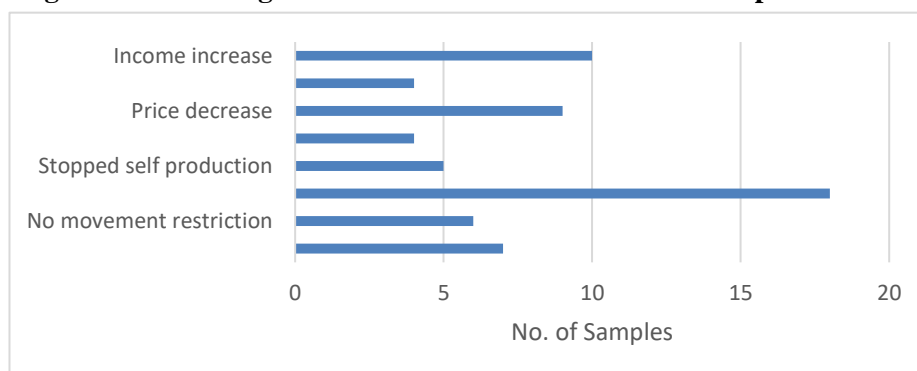


Figure 3-206 Madagascar: Reasons for increase in consumption in 2020

d) Changes in consumption of other foods due to changes in consumption of the target products

In 2020, 15 consumers increased the consumption volume of other products due to the decrease in the consumption volume of one of the target products. For example, onions (2 people), potatoes (2 people), sweet potatoes (3 people), and maize (2 people) were among the products whose consumption was increased. There is a decreasing trend in the consumption volume of fresh vegetables observed among these same people who all belong to either low- or middle-income groups. Canned food (2 people), processed food (4 people), and potato chips (2 people), all of which are processed food, are the most frequently answered products whose consumption people decreased because of the increased consumption volume of the target products. There is an increasing trend of the consumption volume of raw products such as rice, haricot beans, tomatoes, onions, and potatoes observed among those people. All 8 people belong to either middle- or high-income groups.

In 2021, there are very few answers for the increase as compared to 2019. Especially for rice, haricot beans, tomatoes, onions, and potatoes, 20 to 30% of the entire interviewees answered either “decreased a lot” or “decreased moderately.” By comparing Figure 3-207 with the answers for consumption volume in 2020, the percentage of “decrease” is almost the same for haricot beans and is higher in 2021 for the other four crops. As Figure 3-161 indicates, the food inflation rate has been high, staying between 6 and 8% through the whole year of 2021. Therefore, it can be assumed that an increase in food price and a decrease in household income resulted in a further decrease in consumption volume in 2021.

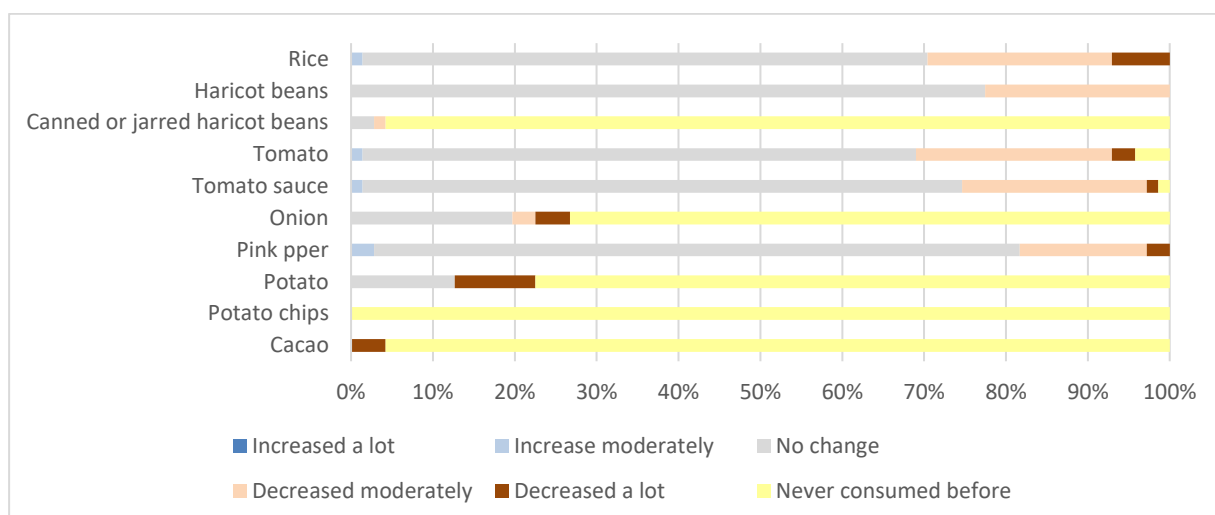


Figure 3-207 Madagascar: Changes in consumption of target products in 2021 (compared to 2019)

e) Changes in food purchasing behavior / Changes in attitude toward food purchasing

Figure 3-208 shows the changes in food purchasing behavior before and after the COVID-19 outbreak. There is no significant change observed in the frequency of shopping or the volume of purchases for a single shopping opportunity. The frequency of eating out, use of takeout, and delivery service decreased. The reasons for these might be business restrictions by the government or the decrease in income.

People's awareness about food safety issues increased among 80% of the general consumers, and 60% of them answered that they cared about the hygienic conditions of food more than before. Almost 50% now prefer domestic products, and 30% care about the traceability of products. Several people answered that they preferred certified food more than before. The study team also interviewed a female consumer from the middle class living in the capital city who said that she would be happy to purchase certified organic food for the sake of the health of her children.

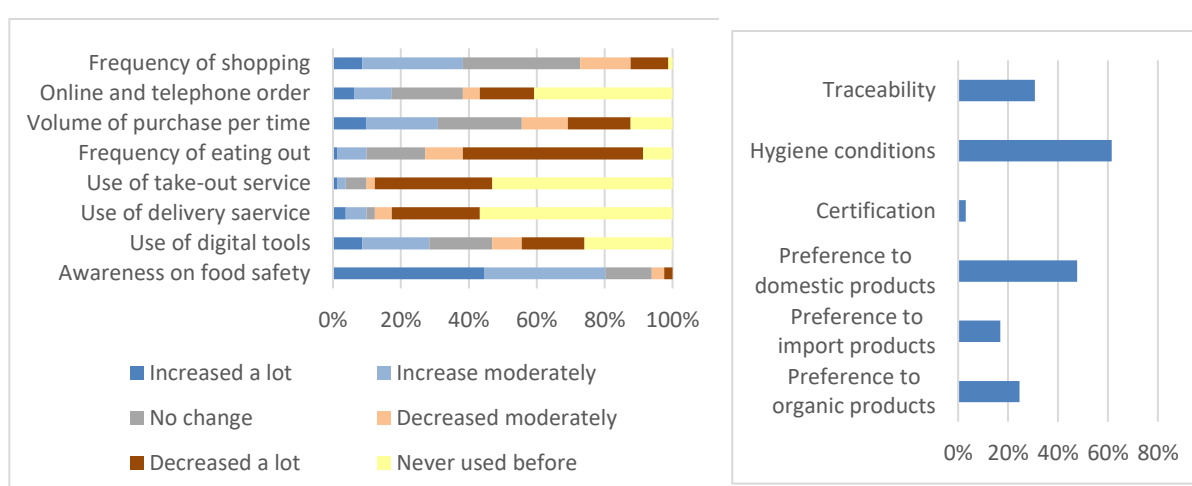


Figure 3-208 Madagascar: Changes in food purchasing behavior after the outbreak of COVID-19 in 2020

Figure 3-209 Madagascar: Changes in attitudes towards food purchasing after the outbreak of COVID-19 in 2020

As a result of such changes in purchasing behavior, 35% of the consumers have become able to live a healthier and more nutritious life than before (based on the number of answers of “nutrition balance is improved” and 28% of the consumers answered that their food intake increased. If we look at the changes in their annual income between the two years, 30% of those consumers with increased food intake are people with increased income, 60% are people with the same income and 10% are people with decreased income. Therefore, it is possible that even households with decreased income were able to increase their food intake because of self-consumption of unsold crops.

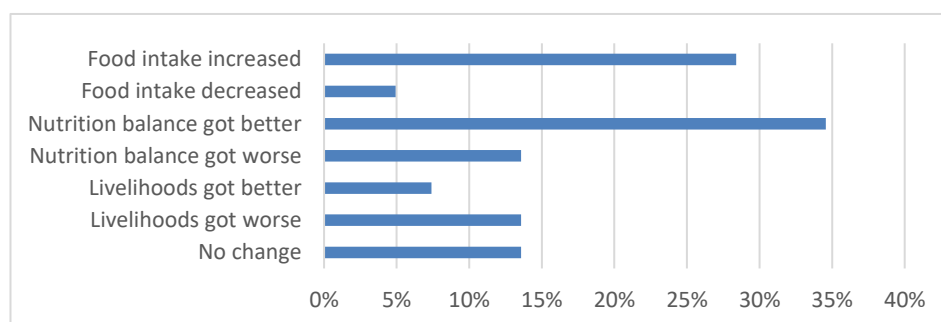


Figure 3-210 Madagascar: Changes in consumers' diet and livelihood due to changes in consumption behavior in 2020

Half of the consumers answered that they had not changed the method of payment for shopping after the COVID-19 outbreak, while 30% answered that they used mobile money more frequently than before and almost 20% answered that they used cash less frequently than before. In Madagascar, Telma, Orange, and AirTel are three major telecom operators that provide mobile money services⁴⁶.

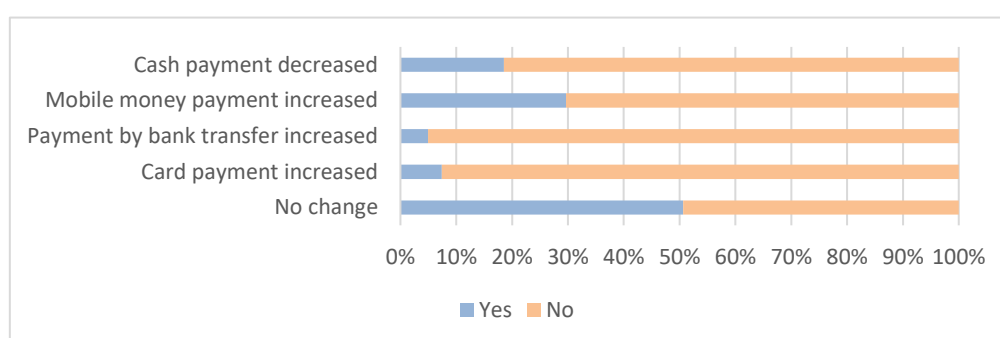


Figure 3-211 Madagascar: Changes in consumers' payment methods after the outbreak of COVID-19 in 2020

However, in 2021 the percentage of the answer “no change” for food safety consciousness, diet, and payment methods, increased compared to 2019 (65%, 63%, 76% for each). As mentioned before, people are now accustomed to life under the COVID-19 pandemic, and thus returning to original value standards and behaviors from pre-COVID-19 days.

⁴⁶Mobile Money most used in Madagascar [poll results], Simon Lee, <https://stileex.xyz/en/mobile-money-madagascar/>

2) Restaurants

a) Highlights

For the 2020 business situation, the study team collected answers from seven restaurants in urban and rural areas. After the COVID-19 outbreak, some of the restaurants decreased their annual sales by 30 to 60%, which was a serious impact and caused them to change their purchasing behavior. For example, they increased the purchase volume of crops with high preservability; decreased the frequency of purchase; decreased the volume of purchase per time; and increased the awareness on food safety. For the 2021 business situation, the team collected answers from three restaurants, and confirmed that their business situations were returning to the situation prior to the COVID-19 pandemic.

b) Changes in sales and number of customers

Table 3-30 shows the changes in sales at the interviewed restaurants in 2020 compared to the previous year. All but one of the restaurants that answered the question had decreased their sales by more than 50%. This was because of the government's stay-at-home order and business restrictions. There were no significant differences observed between the percentage of decrease in urban and rural restaurants. However, in 2021, one restaurant answered that their annual sales were almost back to the levels before the COVID-19 pandemic.

Table 3-30 Madagascar: Changes in sales at restaurants in 2020 and 2021 (compared to 2019)

	2020	2021
Urban restaurant A	Decreased by 59%	No data
Urban restaurant B	Decreased by 67%	6% decrease
Urban restaurant C	Decreased by 33%	No data
Rural restaurant D	Decreased by 55%	No data

Of the restaurants that responded, 29% answered that the number of customers had decreased a lot after the COVID-19 outbreak, while 57% answered that it had decreased moderately. The most frequently answered reason for that was the government's stay-at-home order (five restaurants). However, in 2021, two out of three restaurants answered that the number of their customers had increased compared to that in 2019.

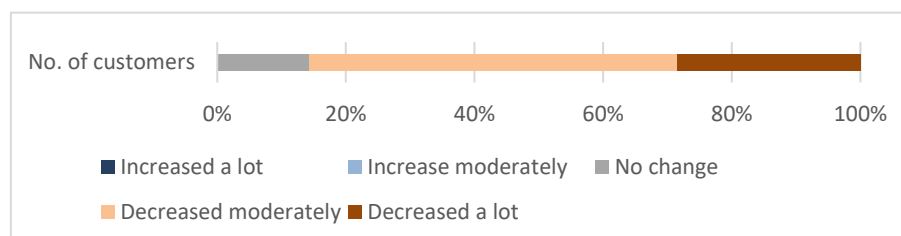


Figure 3-212 Madagascar: Changes in number of customers in restaurants in 2020 (compared to 2019)

c) Changes in procurement

Figure 3-213 shows the changes in the volume of the target products purchased by the interviewed restaurants in 2020 compared to that in 2019. More than half of the restaurants decreased

the volume of purchase of haricot beans. Other products with more answers for decreased purchase volume were rice and tomatoes. More restaurants increased the purchase volume of potatoes and tomato sauce than restaurants that decreased these purchases because the products have high preservability.

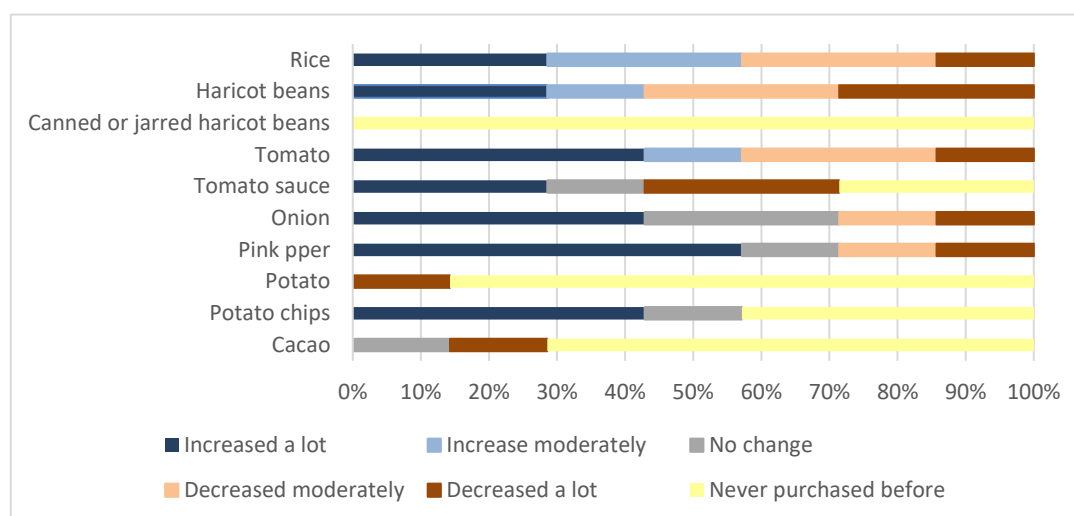


Figure 3-213 Madagascar: Changes in volume of the target products purchased by restaurants in 2020 compared to 2019

The most frequently answered reason for the decrease in the volume of purchase of the target products was “because the restaurant’s sales had decreased” (71%). The most frequently answered reason for the increase in the volume of purchase of the target products was “it was easier to find the product in the market” (29%).

The study team also asked the restaurants whether they had increased or decreased the volume of other products to compensate for the decrease or the increase in the volume of the target products, but there were no such products.

In 2021, one out of the three restaurants answered that it had decreased procurement volume of rice only; the other target products they reported no change, increased, or never purchased before. This might be because the number of customers was increased compared to 2019 at two out of the three restaurants.

d) Change in food purchasing behavior of food / Changes in attitude toward food purchasing

Figure 3-214 shows changes in purchasing behavior of the interviewed restaurants in 2020 compared to 2019. Five out of the seven restaurants answered that they had decreased the frequency of purchase. The decreasing trend in the volume of the stock is also observed. Five restaurants increased the levels of awareness on food safety. For example, they answered that they preferred domestic products more than before or that they cared about hygiene conditions and traceability of food.

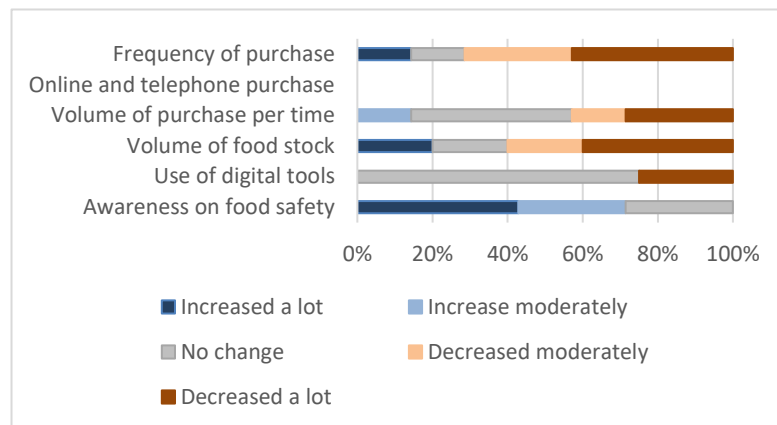


Figure 3-214 Madagascar: Changes in purchasing behavior of restaurants in 2020 (compared to 2019)

Like individual consumers, such changes faded away in 2021, and restaurants started to resume their pre-COVID-19 behaviors. However, one out of the three restaurants answered that its stock volume in 2021 was less than that in 2019, and two answered that they used digital tools more frequently in 2021 than in 2019. One answered that it was still more conscious about food safety than before.

(8) Financial Institution

The study team collected answers for the questionnaire from five financial institutions. All of them provide financial services to the agricultural sector in Madagascar. Table 3-31 and Table 3-32 show the overview of the two financial institutions of a commercial bank and an MFI respectively, and the summary of the changes in the provision of their financial service to the agricultural sector between before and after COVID-19. In general, agriculture is a high-risk sector for financial institutions and requires more operational costs for providing service to farmers living in less dense rural areas. Because of these reasons, the interest rate of loans for farmers tends to be higher. Therefore, it is still difficult for farmers to use formal financial services.

However, both institutions shown in Table 3-31 and Table 3-32 increased the number of their customers and the number of loan cases from 2019 to 2020, which implies farmers' increased demand for loans under the COVID-19 pandemic. The PAR30 of the commercial bank improved from 5% in 2019 to 2% in 2020. According to the answers from the bank, this was initially because the bank had extended the loan repayment period as an emergency measure for the COVID-19 pandemic but also because the bank had made business efforts for increasing the frequency of online communication with customers.

On the other hand, at a microfinance institution's branch, although the number of customers and total loan size has been increasing from 2019 to 2021, PAR30 in 2021 shows 8%, which is more than 5%, a common indicator for the soundness of the microfinance business (no risk). The reasons for this were that customers' cash flow had gotten worse, and that customers' business profits had decreased. Another possible reason is that the branch kept the same loan conditions under the pandemic in 2020 although customers' agricultural activities / business was not doing very well, which affected the

repayment rate of loans in 2021, leading to the high PAR30 (Stricter loan conditions were then introduced in 2021).

Both financial institutions answered that more customers needed loans for agricultural production purposes than before the COVID-19 pandemic. The need for digital transaction services such as debit cards, credit cards, and e-money also increased.

Table 3-31 Madagascar: Financial services provided by a commercial bank

Features of agricultural financial service	Micro loan for micro enterprises up to 3,000 euro with maximum 12 months of repayment period. Loan for rather bigger size enterprises (small and medium enterprises) up to 30,000 euro with maximum 60 months of the repayment period.						
Year	2019	2020	2021	Year	2019	2020	2021
No. of customers	220	250	N/A	Loan portfolio (million ariary)	175	85	N/A
Total loan size (million ariary)	1,500	2,500	N/A	PAR30	5.0	2.0	N/A
No. of loan cases	40	50	N/A	ROA	70.0	70.0	N/A
Changes in the no. of customers and the reason	Decreased a lot because of changes in customer communication methods, changes in loan conditions that did not benefit customers, and fewer customers needed to expand businesses.						
Changes in PAR30 and the reasons	Decreased a lot because of the change of loan conditions that benefitted customers so that they could respond to the COVID-19 pandemic and an increase in the frequency of online communication with customers.						
Changes in loan conditions	Easier business assessment procedures. Shorter disbursement period. Lower interest rate. Extended grace period. Extended repayment period. Low levels of requirement on guarantee and collateral.						
Other financial services	Agricultural production purpose loan. Medical purpose loan. Internet and mobile payment. Agricultural and medical insurance. E-money.						
Financial service with high customer needs	Increased demand for agricultural production purpose loan, Internet and mobile payment, debit and credit card and e-money. Decreased demand for medical purpose loans and insurance.						

Table 3-32 Madagascar: Financial services provided by a microfinance institution

Features of agricultural financial service	Has a license on loan and saving service and provides the same to members. 90% of the entire loan portfolio is of agri-purpose loan, 70% of which is for production and 30% is for construction of agri-facilities.						
Year	2019	2020	2021	Year	2019	2020	2021
No. of customers	1420	9347	17023	Loan portfolio (million ariary)	N/A	N/A	280
Total loan size (million ariary)	1800	1200	2340	PAR30	N/A	N/A	8
No. of loan cases	1420	9347	11138	ROA	N/A	N/A	0
Changes in the no. of customers and the reason	Increase a lot. Because of the increased customer needs for operational costs.						
Changes in PAR30 and the reasons	Increased moderately. Because of worse cash flow of customers. Because of decrease of customers' income.						
Changes in loan conditions	2020: No change. 2021: More strict loan assessment. Longer assessment period. Less fee.						
Other financial services	Loan for agricultural production and investment. Loan for medical purposes. Agricultural and medical insurance. Internet banking. Debit and credit cards. E-money.						
Financial service with high customer needs	Increased demand for agricultural production loans. Decreased demand for medical purpose loans, current and fix-term savings, Internet and mobile payment, and medical insurance.						

(9) Cross-cutting issues**1) Financial services****a) Financing needs**

As Figure 3-215 shows, there is no significant change regarding the loan needs of FVC actors before and after the COVID-19 pandemic except for the needs of input makers. The percentage of input makers that answered that they had a new need for a loan after the COVID-19 outbreak is highest among that of other FVC actor categories. However, half of those companies did not borrow from financial institutions. Figure 3-216 summarizes the reasons why they or other FVC actors did not borrow from financial institutions. Farmers and cooperatives answered that they had not known financial institutions from which they could borrow; that financial institutions had stopped or limited their service and; that loan conditions had been strict.

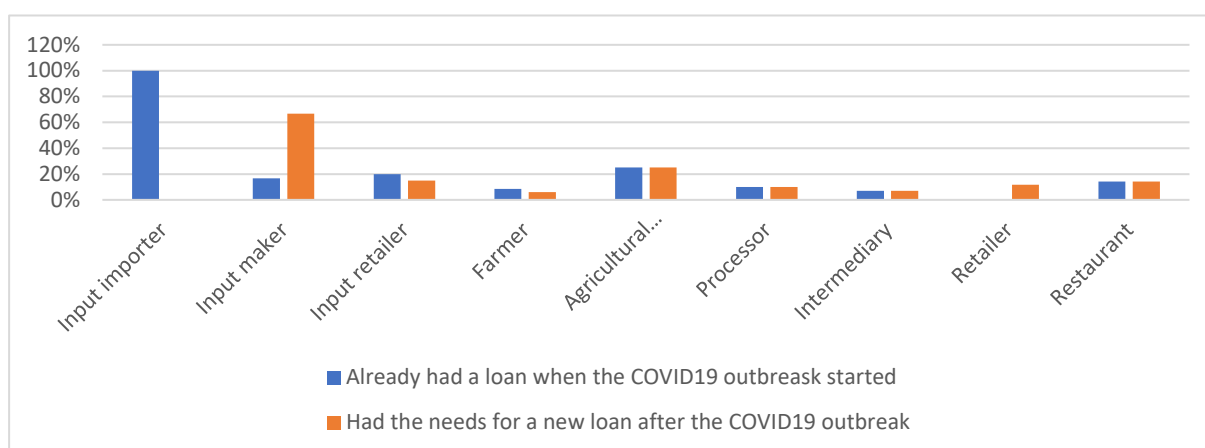


Figure 3-215 Madagascar: Borrowing as of the outbreak of COVID-19 and needs for new loans afterwards in 2020

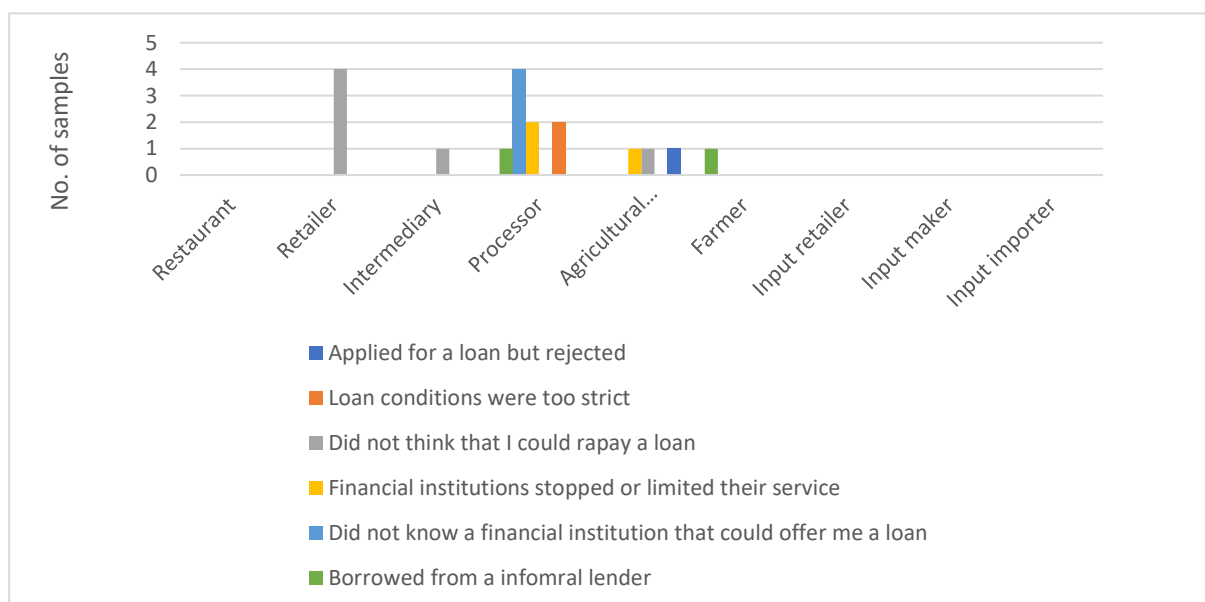


Figure 3-216 Madagascar: Reasons for not obtaining loans in 2020

In 2021, the rate of needing a new loan during the COVID-19 pandemic is always approximately 10% for any actors. However, there are slight changes regarding reasons for not obtaining loans, such as “Did not think that I could repay a loan” which increased to six total responses while “Loan conditions were too strict” increased to five responses.

b) Needs for financial products other than loans

Table 3-33 summarizes FVC actors’ needs for other financial services than loans during the COVID-19 pandemic. The table summarizes the percentage of FVC actors who needed specific financial services in each category. One of the most important findings is that such FVC actors that often exchange money with customers, e.g., restaurants and retailers (supermarkets), had larger needs for Internet, mobile, and card settlement services. Another important finding is that retailers, agricultural cooperatives, and input makers had the larger needs for business or disaster insurance.

Such changes are rarely observed in 2021. The only services that collected more than 10% of each FVC actor's needs are "Life / health insurance for employees", "Credit / debit card settlement" and "Internet / mobile inquire service." In summary, FVC actors do not demand the same types of financial services as they did in 2020. The situation is returning to pre-COVID-19 behavior.

Table 3-33 Madagascar: Financial needs other than loans after the outbreak of COVID-19 in 2020

	Fixed-term deposit	Non fixed-term deposit	Current account	International transfer	Business / disaster insurance	Life / health insurance for employees	Internet / mobile settlement	Credit / debit card settlement	Internet / mobile inquiry service
Input importer	0%	0%	0%	0%	0%	0%	0%	0%	0%
Input maker	0%	17%	17%	17%	17%	0%	0%	0%	0%
Input retailer	0%	0%	0%	0%	0%	0%	0%	0%	0%
Farmer	1%	1%	2%	2%	2%	2%	2%	1%	0%
Agricultural Cooperative	8%	0%	0%	8%	25%	17%	17%	0%	8%
Processor	0%	10%	0%	0%	10%	0%	0%	0%	0%
Intermediary	3%	0%	0%	0%	3%	3%	3%	0%	0%
Retailer	0%	0%	6%	0%	18%	0%	18%	6%	6%
Restaurant	0%	14%	0%	0%	0%	0%	14%	14%	0%

Legend  More than 10%

The needs for other types of financial services that are not in Table 3-33 are also confirmed. Some of the input retailers borrowed money not from formal financial institutions but from their suppliers, so they needed to know more suppliers that would be able to lend money. Processors needed to use machinery (possibly by leasing service). Other processors and intermediaries needed partners that would be able to support the sales and distribution of their products. Agricultural cooperatives needed a loan with contract farming and subsidies.

2) Changes in business practices

Table 3-34 summarizes the percentage of FVC actors who increased ICT-based business practices under the COVID-19 pandemic in each category. Retailers and processors increased online business matching opportunities. Retailers increased the use of SNS for marketing. Input importers, input makers, processors, and retailers increased the use of SMS, which implies that SMS is now common for FVC actors at any phase of the FVC as an effective and easy marketing tool. Input makers, processors, and retailers increased the use of digital money. Very few FVC actors used IC tags. Retailers seem to have promoted the use of online tools most proactively under the COVID-19 pandemic.

Table 3-35 summarizes the changes in business practices in 2021 (no answers from product importer and input importer). There are now few FVC actors who use SMS for online marketing, which was a popular practice in 2020, whereas online business talk and business matching are now more frequently utilized by FVC actors.

Table 3-34 Madagascar: Changes in ICT-based business practices after the outbreak of COVID-19 in 2020

	Online business talk	Use of SNS for online marketing	Use of SMS for online marketing	Use of digital money	Online sales and purchase / business matching	Use of IC tags
Input importer	0%	0%	100%	0%	0%	0%
Input maker	17%	17%	50%	33%	0%	0%
Input retailer	5%	0%	5%	5%	0%	0%
Farmer	1%	1%	11%	1%	0%	0%
Agricultural cooperative	17%	17%	25%	8%	0%	0%
Processor	30%	10%	30%	30%	0%	0%
Intermediary	0%	3%	7%	0%	0%	0%
Retailer	50%	50%	25%	33%	25%	8%
Restaurant	14%	14%	0%	14%	0%	0%

Legend		50%以上
		25%～50%

Table 3-35 Madagascar: Changes in ICT-based business practices after the outbreak of COVID-19 in 2021

	Online business talk	Use of SNS for online marketing	Use of SMS for online marketing	Use of digital money	Online sales and purchase / business matching	Use of IC tags
Input maker	28%	11%	6%	11%	22%	0%
Input retailer	31%	15%	8%	31%	46%	0%
Farmer	14%	5%	1%	13%	3%	1%
Agricultural Cooperative	56%	22%	11%	11%	44%	0%
Processor	58%	8%	8%	42%	42%	0%
Intermediary	21%	14%	2%	5%	7%	0%
Retailer	17%	17%	17%	50%	0%	0%

Legend		More than 50%
		25%～50%

3.4. Malawi

3.4.1. Socio-economic overview focusing on the agricultural sector

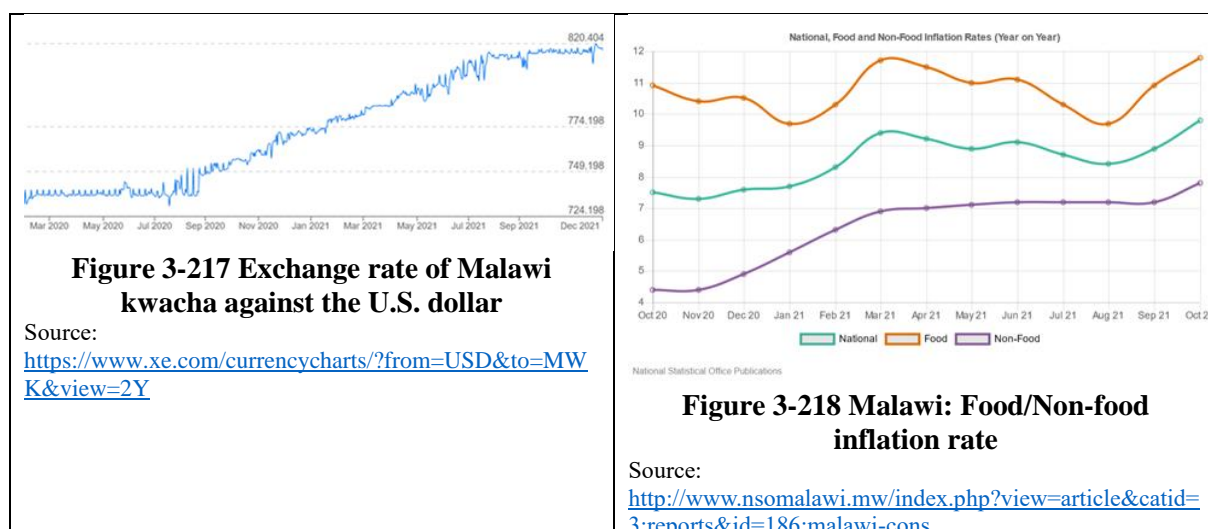
Population statistics in Malawi are shown in Table 3-36. The population of Malawi is 17.5 million and its population growth ratio is as high as 2.9%. The land area is about one third of the size of Japan (118 thousand square kilometers), with a population density of 186 people per square kilometer and making it a highly densely populated African country. Poverty reduction is an important issue since both the Poverty Development Index and Gini Coefficient show high values that have hardly improved since the 2000s.

Figure 3-217 shows the fluctuations in exchange rates against the US since 2019. The Malawi kwacha (MWK) generally continued to be flat, around MWK 730 to 740 from August 2019 to August 2020, but the rate has been declining since September 2020. The decline in the exchange rate is also affecting the rise in the prices of imported products such as agricultural inputs and petroleum products. Information in Figure 3-218 shows changes in the inflation rate of food and non-food stuff. Food inflation was above 14% when first COVID-19 infections appeared in April 2020 but has been declining since then and it has remained at 10-12%. This is attributed to the decline in demand for consumer goods due to the risk and uncertainty caused by the COVID-19⁴⁷.

Table 3-36 Malawi: Population and economic statistics

Population, growth rate (2018)	1.75 million people, 2.9%	Source: Population growth rate: 2018 Malawi Population and Housing Census Population density: 2018 Malawi Population and Housing Census GDP per capita: https://databank.worldbank.org/source/world-development-indicators/Type/TABLE/preview/on# Poverty rate: https://data.worldbank.org/indicator/SI.POV.NAHC?locations=MW Gini Index: https://data.worldbank.org/indicator/SI.POV.GINI?locations=MW Life expectancy at birth: https://databank.worldbank.org/source/population-estimates-and-projections/Type/TABLE/preview/on
Population density (2018)	186 people/km2	
GDP per capita	USD 411.6	
Poverty rate (2019)	51.5%	
Gini Index (2018)	0.45	
Life expectancy (2016)	64.3 old	

⁴⁷ November Economic review, Malawi Confederation of Chambers of Commerce & Industry (MCCCI) <file:///C:/Users/0595/AppData/Local/Temp/mccci%20november%202020%20economic%20review.pdf>



The information as shown in Table 3-37 (left), the agricultural sector in Malawi accounts for one fourth of the total GDP and is a key industry that accounts for about 80% of foreign currency acquisition⁴⁸. The ratio of agricultural population to the labor force is high at 76%⁴⁹, and most of the population earns a living from agriculture (Table 3-37: right). It is not as rich in resources as neighboring countries and the ratio of the mining and industrial sector to GDP is low, unlike Zambia and Zimbabwe.

Table 3-37 Malawi: Sectoral composition of GDP and employment population in Malawi

Sectoral composition of GDP (2019)	
Sector	GDP (%)
Agriculture	25.5
Industry	12.9
Services	54.4

Source : World Development Indicators, WB

Employment population (2019)	
Sector	Employment population (%)
Agriculture	76.36
Industry	5.37
Services	18.27

Source : World Development Indicators, WB

The information in Table 3-38 shows the Top 10 agricultural products in quantity. The most produced crops in Malawi are maize (the staple food), sweet potato, cassava, and sugar cane, which is a cash crop. In addition, there is a large amount of Irish potato production. In terms of agricultural exports, tobacco has the highest export value, followed by sugar (raw material), tea, and raspberry (Table 3-39). As for the imported agricultural products shown in Table 3-40, wheat has the highest import value, followed by tobacco (unprocessed) and edible oils such as oil palm (oil) and soybean (oil).

⁴⁸ THE MALAWI GROWTH AND DEVELOPMENT STRATEGY (MDGS)III (2017-2022)

⁴⁹ World Development Indicators, WB

Table 3-38 Malawi: Top 10 agricultural products in quantity (2019)

Agricultural products	Production(ton)
Sweet potatoes	5,908,989
Cassava	5,667,887
Sugar cane	3,136,918
Maize	3,030,000
Mangoes, mangosteens, guavas	2,083,471
Potatoes	1,219,366
Tomatoes	628,191
Pigeon peas	464,787
Bananas	433,517
Plantains and others	404,098

Table 3-39 Malawi: Top 10 agricultural exports in value (2019)

Agricultural products	Value ('000 USD)
Tobacco, unmanufactured	498,383
Sugar raw centrifugal	84,258
Tea	80,083
Groundnuts, shelled	39,504
Nuts nes	31,162
Peas, dry	24,234
Cake, soybeans	21,779
Soybeans	17,365
Cotton lint	4,503
Rubber natural dry	3,921

Table 3-40 Malawi: Top 10 agricultural imports in value (2019)

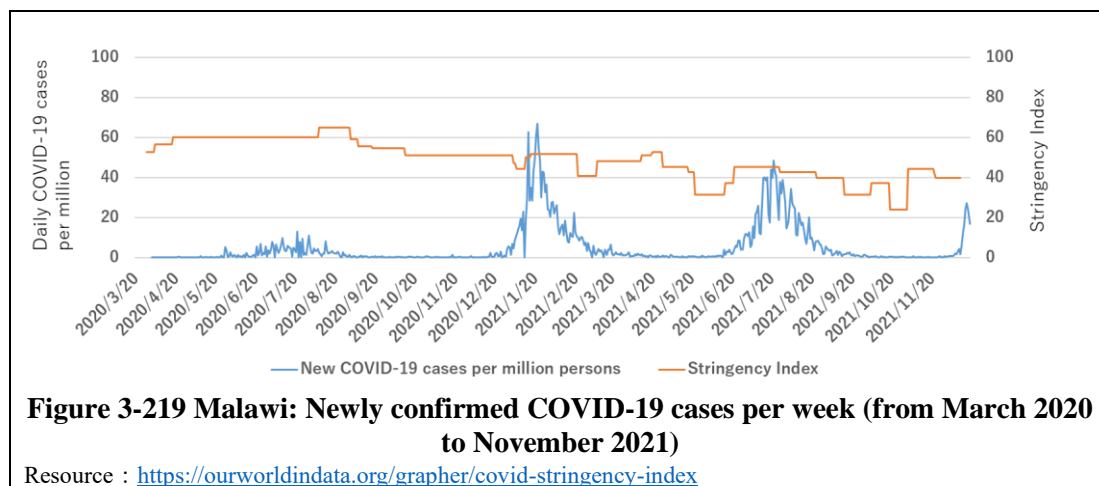
Agricultural products	Value ('000 USD)
Wheat	45,360
Tobacco, unmanufactured	42,322
Oil, palm	40,128
Food prep nes	31,339
Oil, soybean	17,951
Fatty acids	11,328
Sugar confectionery	10,565
Rice, paddy (rice milled equivalent)	8,720
Beverages, non alcoholic	7,688
Margarine, short	5,251

Source : FAOSTAT

3.4.2. COVID-19 situation, relevant measures, and policies and responses by development partners

(1) COVID-19 situation and regulations against COVID-19 in Malawi

The trend of newly confirmed COVID-19 cases is shown in Figure 3-219. The confirmed COVID-19 cases in Malawi were 63,408 persons and 2,311 dead (as of 17th December 2021). The first wave of the disease spread occurred between June and August 2020, followed by a second wave between December 2020 and February 2021, and then the third wave between June and August 2021. After that, the number of cases stopped falling. They began to rise again in December 2021. Restrictive measures by the government to prevent the spread of COVID-19 were announced in April 2020 although there was some confusion about the nationwide lockdown, which was canceled due to public demonstrations against it. The major restrictions imposed in the first wave included 1) restrictions on the border and air entry, 2) quarantine reinforcement, 3) bans on business and government attendance, 4) bans on attendance at educational institutions, 5) restrictions on the number of people allowed to gather (no more than 50 indoors, no more than 100 outdoors), 6) suspension of business at restaurants and retail shops, 7) restrictions on the number of people allowed to travel on public transport and 8) infection control measures. After the end of the first wave, measures such as the suspension of work and business by companies, the opening of schools, and the closure of restaurants and retail shops were relaxed. Since then, regulations have been tightened after each outbreak and relaxed after the end of the wave. As of this writing, the fourth wave is beginning and regulations have been tightened again.



(2) Measures against COVID-10 by the Government of Malawi in the agricultural sector

The Government of Malawi formulated the National COVID-19 Preparedness and Response Plan (July-December 2020) as a measure against COVID-19 (Table 3-41). There are 15 operational clusters in the plan namely: Health, Inter-cluster Coordination, Protection and Social Support, Water, Sanitation and Hygiene (WaSH), Education, Food Security, Transport and Logistics, Nutrition, Agriculture, Shelter and Camp Management, Public Communication, Economic Empowerment, Security and Enforcement, Local Governance, Employment and Labor Force Protection. The cluster members oversee these clusters. Regarding the agricultural cluster, the activity plans which are shown in Table 3-41 are formulated to achieve these purposes. The activities consist of 2 stages, (1) activities to prevent the spread of infection and (2) activities for early recovery after COVID-19. In (1), there are plans for a survey on the impact of COVID-19, information provision of COVID-19 and sensitization activities, delivery of extension service to farmers, and training for extension workers to avoid the risk of COVID-19 infection. In (2), plans include analyzing urban food supply systems, strengthening extension workers' skills, and supporting rural livestock and inputs for subsistence crops. Funding for these activities will be allocated from the budget of the Ministry of Agriculture, but it is also envisaged that the activities will be funded through inclusion in major programs implemented by development partners, acquisition of new development partners, and in collaboration with the private sector.

Table 3-41 Malawi: National COVID-19 Preparedness and Response Plan (agricultural cluster)

1	Provide timely and reliable information on the impact of COVID-19 on the national food system.
2	Maintain essential supply chains, protect food value chain actors and their working conditions, and educate extension workers, farmers, and VC actors on COVID-19 infection control.
3	Conduct a comprehensive risk and vulnerability assessment of all VC actors to identify the risks and vulnerabilities identified in the COVID-19 outbreak and develop mitigation and prevention measures.
4	Stabilize and increase availability and access to diverse and nutritious foods by increasing and diversifying production, scaling up good practices, supporting rural incomes, and preserving ongoing critical livelihood assistance to vulnerable households.
5	Maintain a basic operational structure in the field that facilitates the provision of relevant

	information about COVID-19.
6	Coordinate and monitor implementation of agriculture COVID-19 interventions for the agricultural sector.
7	Develop effective approaches for highly vulnerable groups such as farmers, VC actors, women, men, young people, and the elderly.

(3) Responses against COVID-19 by development partners in the agricultural sector in Malawi

The major development partners providing support to the agricultural sector in Malawi are the World Bank, FAO, IFAD, USAID, WFP, AfDB, and JICA. As for COVID-19 related support, FAO and IFAD distributed sets of masks, hand washing buckets, soap, disinfectants, etc. to extension workers and farmers for infection control in their ongoing projects. In addition, educational materials were distributed to inform and educate rural communities on proper infection prevention. WFP has changed its existing face-to-face food distribution and school feeding programs to take infection prevention into consideration and is also conducting a survey on the impact of COVID-19 on households in terms of food security. In the ongoing project, Project for Market-Oriented Smallholder Horticulture Empowerment and Promotion (MA-SHEP), JICA distributed tablets and computers to extension workers and district offices so that ICT-based extension activities can be promoted in the future in view of the difficulty of face-to-face training and extension activities due to the COVID-19 disaster.

The World Bank is currently implementing three projects that have distributed materials on COVID-19 prevention measures. Each project continues to follow the guidelines for COVID-19 infection control, but face-to-face training and extension activities have been affected. FAO has been conducting ICT-based extension activities for farmers to implement projects in the COVID-19. It has also conducted a socio-economic impact study on agriculture and food security in the Corona disaster. In addition, the Emergency Agriculture Food Security Surveillance System (EmA-FSS) has been established within the Planning Department of the Ministry of Agriculture to enable quick decision making in emergency situations.

3.4.3. Impact of COVID-19 on the value chain of the target products

(1) Characteristics of the impact of COVID-19 on FVC in Malawi

The information in Table 3-42 shows that the overall selling price tends to increase during the period from input to retail, but the extent of the impact differs depending on the stage of the VC. This is attributed to the increase in various costs such as input materials, distribution costs, and store operating costs at each stage of VC. Sales volume also showed a downward trend in processing and retail, probably because higher producer prices were reflected in raw material and retail prices.

Table 3-42 Malawi: Characteristics of the impact of COVID-19 on FVC in Malawi

	VC	Input	Production	Processing	Distribution	Retail	Consumption
2020	Results	Sales price is on an increasing trend. Sales volume of other than agricultural chemicals is on an increasing trend.	Both production volume and sales volume had different trends depending on the crop. Both production and sales of maize showed a downward trend. Production and sales of potatoes were both on the increase.	Processing volume is on a decreasing trend. Sales volume (1 company response) decreased and sales price increased.	(Rice) There was no impact on purchasing volume. Sales of paddy are on the increase, while sales of milled rice are unchanged.	Sales prices were on an increasing trend, but sales volume was on a decreasing trend. (1 company responded)	Consumption of maize flour has increased significantly, and rice consumption has decreased.
	Factors	Purchase prices and transportation costs soared due to the decline in the exchange rate. A certain sales volume of cereals, including maize, was ensured by the government's subsidy program.	Worsening access to fertilizers and pesticides, and unfavorable weather conditions in vegetables and rice. Yield increased due to expansion of cultivated area and favorable weather. Sales volume also increased due to higher yields and	Due to difficulty in obtaining raw materials and voluntary operations stoppage due to infection control measures. The increase in sales price is due to the increase in production cost.	This is due to increased demand for paddy and as a substitute.	Due to a decrease in the number of customers and customer needs due to movement and sales restrictions caused by COVID-19 measures. The increase in sales price is due to the increasing trend of farm gate price.	The increase in the selling price of maize flour was small and the supply was stable in the market.
2021	Results	Unit sales prices of each input were on the uptrend. Fertiliser importers were severely affected by the sharp hike in raw material prices.	Perishable crops showed a downward trend in terms of cultivated area, yields and sales volumes. The selling prices of maize and soya upwards trended.	A downward trend in both purchasing and sales volumes. Selling prices were on the upward trend.	The number of purchase transactions has increased, but the volume of purchases is on a downward trend. Sales volumes are on a downward trend. Stock volume increased for cereals and decreased for tomatoes, onions and potatoes.	Purchasing and sales volumes are on a downward trend. Selling prices have also fallen. Declining stock volumes.	The number of the consumers buying tomato sauce and processed potato products decreased. There were no other changes in consumption.
	Factors	The depreciation of currency rates led to further increases in purchase prices and transport costs. In particular, importers' sales volumes of fertilisers fell as a result of higher import prices.	Lack of funds for purchases has worsened access to agricultural inputs, especially pesticides.	Production volumes remained on a downward trend, affected by reduced supplies of raw materials and higher raw material prices. Selling prices were affected by higher production costs, tax effects and price raises to increase profits.	An increase in the number of transactions due to the relaxation of regulations on the prevention of infection. On contrast, each customer was affected by a decrease in the volume of demand and the number of customers.	The impact of the reduction in the number of customers and the volume of purchases due to travel and business restrictions caused by the COVID-19 measures.	The reluctance to buy due to lower incomes, higher commodity prices and movement restrictions has continued since the COVID-19.

(2) Agricultural inputs

1) Highlight

As for input retailers, unit sales prices are increasing overall, but sales volume is also increasing. By sales item, the decrease in sales volume exceeded the increase only for agricultural chemicals. Regarding this situation, the Government of Malawi continues to implement the Affordable Inputs Programme (AIP), which is a subsidy policy for maize fertilizer and cereal seeds targeted at

small-scale farmers, and a certain sales volume of fertilizer and seeds has been secured.

2) Change in sales

According to Figure 3-220, more retailers answered that their seed and fertilizer sales in 2020 were higher than in 2019. The reasons for the increase were increased customer demand, increased number of customers, and change in marketing methods. In the fertilizer and seed sectors, sales volumes may have been on an upward trend due to government subsidy schemes for farmers. As for pesticides, more retailers indicated decreased sales. Other reasons for the decline in sales include delays in transportation due to tighter border controls, shortages of commodities due to high purchase prices, and declining customer demand and customer numbers. Regarding the unit sales price of agricultural input shown in Figure 3-221, only respondents indicated an increase or no change. The reasons for the increase in unit sales prices were higher purchase prices, higher transportation costs, and exchange rate depreciation. Most agricultural inputs are dependent on imports, which may have been affected by the effects of COVID-19 from importing countries and restrictions of logistics at the border. Retailers sold inputs mostly to farmers' cooperatives and individual farmers, with a few retailers selling to the government and donors.

The sales volumes for 2021 are shown in Figure 3-222. All the respondents answered that the sales volume of inputs increased or had no change, except for fertilizer importers. The sales volume of fertilizer importers decreased significantly. The reasons given by the respondents were that they had refrained from selling fertilizer because they could not expect to make a profit at the unit selling price set by the government due to the high fertilizer prices, and that they would wait for the revision of the unit selling price before starting sales. There was also an increase in the number of respondents who said that fertilizer retailers had increased their sales, which suggests that they had responded to the increase in demand by releasing their stocks. In terms of unit sales prices, more respondents answered that they had increased in 2021 than in 2019.

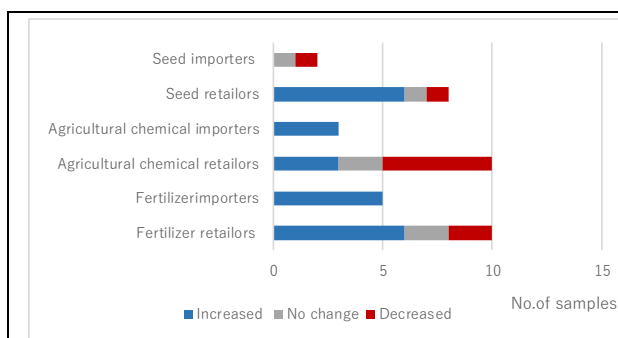


Figure 3-220 Malawi: Changes in agricultural input sales volume in 2020 (compared to 2019)

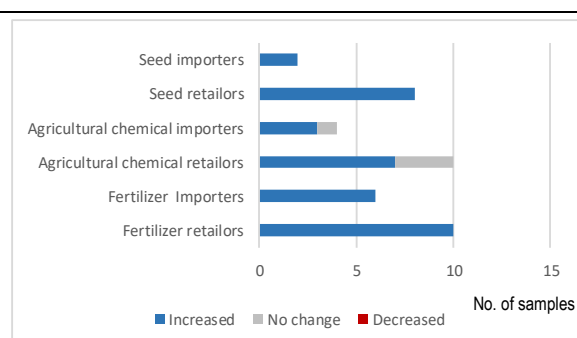


Figure 3-221 Malawi: Changes in sales price of agricultural inputs in 2020 (compared to 2019)

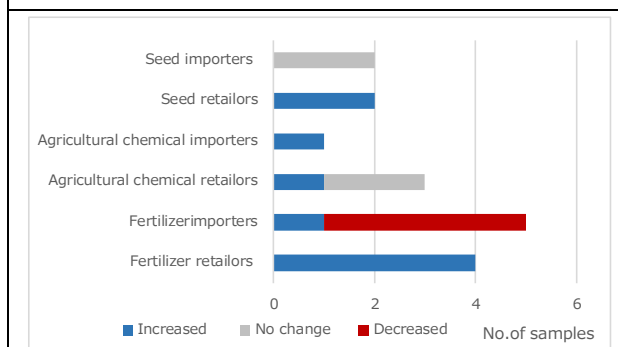


Figure 3-222 Malawi: Changes in agricultural input sales volume in 2021 (compared to 2019)

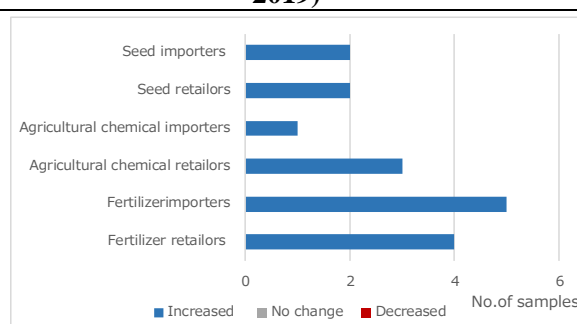


Figure 3-223 Malawi: Changes in sales price of agricultural inputs in 2021 (compared to 2019)

3) Response to COVID-19

Figure 3-224 shows how Agricultural input importers and distributors responded to changes in the business environment in the COVID-19 pandemic.

In general, importers have more flexible responses to changes in the business environment, changing and diversifying their product range, and using ICT for sales and payment. (Data is not available for 2021)

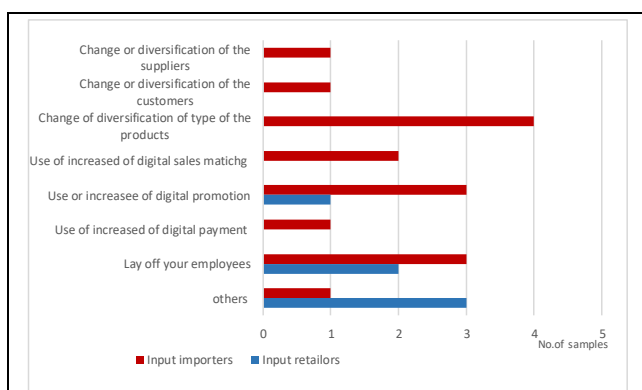


Figure 3-224 Malawi: Agricultural input importers and distributors' response to changes in the business environment in the COVID-19 pandemic

4) Changes in countries from which agricultural inputs are imported

The main origin countries for input import in 2019 were China, Kenya, UAE, Mauritius, India, South Africa, Japan (agrochemicals), and the Netherlands (seeds), with little change in 2020 (Data is not available for 2021).

(3) Production

1) Highlights

The situation differed from crop to crop, however, there was no significant change in the harvested area in 2020 compared to 2019. Yields, sales volumes, and sales prices showed a generally positive trend, while sales volumes and prices of maize and onions showed a negative trend.

In 2021, the situation recovered for some crops and worsened for others. The situation for tomatoes, a low storage crop, deteriorated in terms of the planted area, production, and sales, while maize, rice, and soybean production and sales were similar to or increased in 2020.

2) Change in harvested area

Figure 3-225 shows the change in harvested area in 2019 and 2020. The crops with similar rates of increase and decrease were maize and onion, with rice and soybean showing a higher rate of increase than decrease. The main reason for the increase was increased planned area and increased production for self-consumption. While for other crops, the increase was due to increased market demand, advice from research institutes and improved market prices compared to the previous year (Figure 3-227). In the case of maize and Irish potatoes, the respondents indicated decrease more often than increase. For maize, the most common reason given for the decrease was poor access to fertilizer, followed by lack of labor, and other reasons such as switching to other crops or undertaking crop rotation. For Irish potatoes, unfavorable weather was the most common reason given, followed by poor access to fertilizer and seeds, and worse results in the previous year (Figure 3-226, Table 3-43).

Figure 3-228 shows that the harvested area for tomatoes in 2021 was significantly lower than in 2019. There were no significant changes for the other crops. A number of reasons for the decline were mentioned, including poor access to fertilizers, pesticides, and seeds, and a lack of funds to purchase them (Figure 3-229).

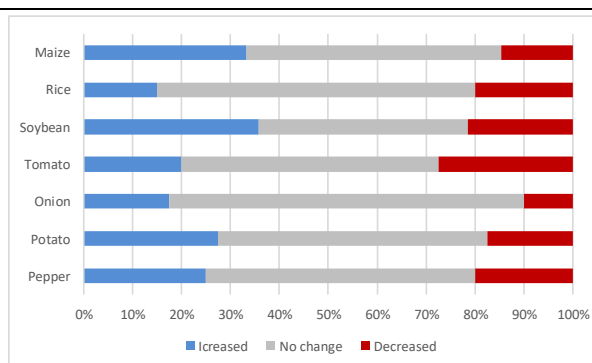


Figure 3-225 Malawi: Changes in harvested area of the target crops in 2020 (compared to 2019)

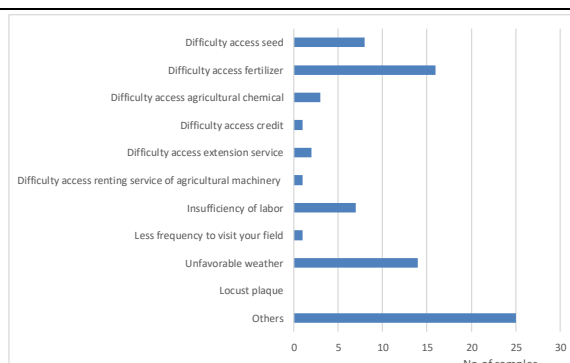


Figure 3-226 Malawi: Reasons for decrease in harvested area in 2020

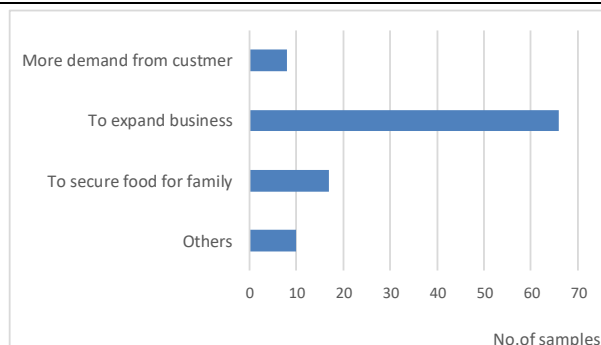


Figure 3-227 Malawi: Reasons for increase in harvested area in 2020

Table 3-43 Malawi: Reasons for decrease in yield in 2020

Reason for decrease in harvested area	No. of answers
Fallowing, crop rotation	1 (maize)
Previous crop was poor.	3 (Irish potatoes, soybeans)
Change to other crops	4 (maize, soybeans)
Pest	1 (onions)
Decline in sales price	1 (onions)

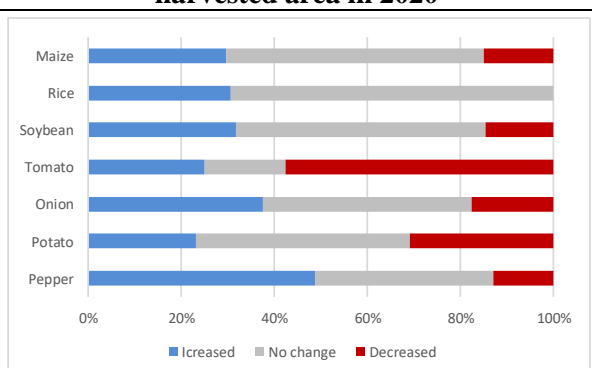


Figure 3-228 Malawi: Changes in harvested area of the target crops in 2021 (compared to 2019)

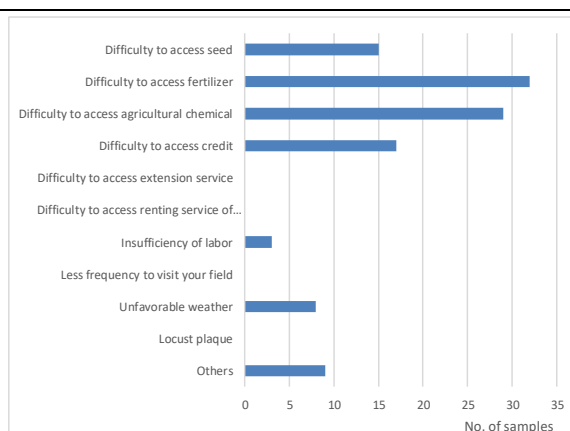


Figure 3-229 Malawi: Reasons for decrease in harvested area in 2021

3) Changes in production and yield⁵⁰

Figure 3-230 shows the change in production from 2019 to 2020. Pepper was the crop with the highest number of farmers increased production in 2020. Rice, soybeans, and onions had similar proportions of increased and decreased yields, while maize and tomatoes had higher proportions of decreased yields. Figure 3-231 shows the change in yield and indicates almost the same trend as the change in production. The most common reason given for the increase in yield was favorable weather, followed by better access to subsidy fertilizer and availability of labor (Figure 3-231). For crops other

⁵⁰ Yield is the total crop harvested in the year and yield is the total crop divided by the planted area (t/ha).

than maize and soybean, unfavorable weather was the most frequently reported reason for decreased yields (Figure 3-232). For maize, the most common answer was that access to fertilizer had worsened, and lack of funds was given as the reason. Maize has a subsidy system for fertilizer, but the amount of subsidy is fixed (4,495MWK/50kg), so the cost to farmers may be higher than usual when fertilizer prices increase. On the other hand, interviews with the Ministry of Agriculture officials and kick-off workshop indicated that farmers' difficulties in accessing extension services and lack of technical advice from extension workers also affected yields. However, responses to the panel survey indicated that worsening access to extension services was not as influential as other factors.

Comparing the change in yields in 2021 with 2019, there was an increasing trend for maize, rice, potatoes, and pepper the trend for yield increases and decreases was the same, but there was a slight increase in the number of respondents who said yields would remain the same. The reasons for the increase in yields were the same as in 2020. As for the reasons for the decrease in yields, there were more responses than in 2020 for lower access to agricultural inputs, especially pesticides (+30%) and seeds (+20%) (with a particularly high number of responses from tomato producers). In addition, a lack of working capital was the most common reason for the lower access to inputs. The trend for yield was the same as for production (Figure 3-234).

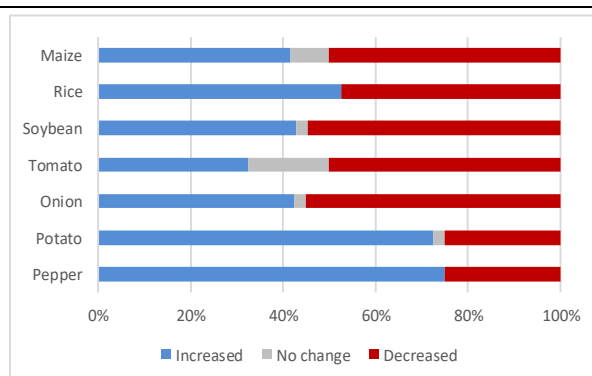


Figure 3-230 Malawi: Changes in production of the target crops in 2020 (compared to 2019)

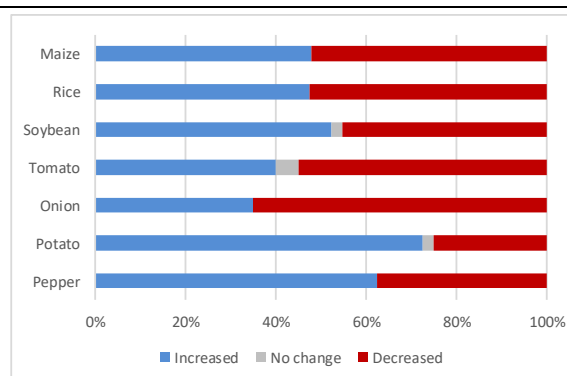


Figure 3-231 Malawi: Changes in yield of the target crops in 2020 (compared to 2019)

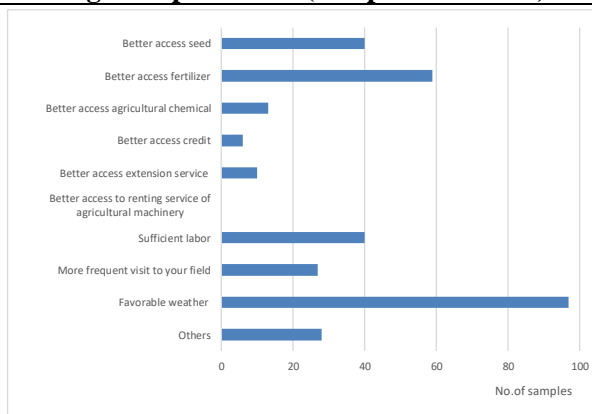


Figure 3-232 Malawi: Reasons for increase in yield in 2020

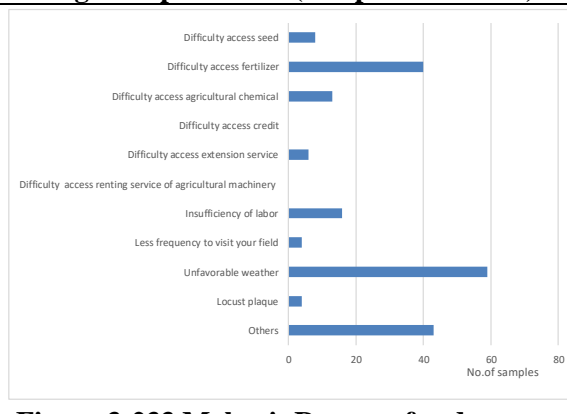


Figure 3-233 Malawi: Reasons for decrease in yield in 2020

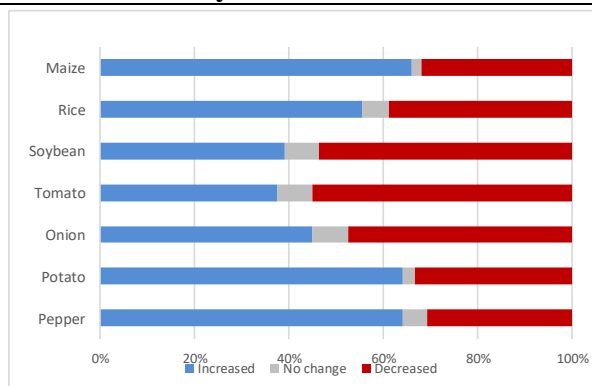


Figure 3-234 Malawi: Changes in production of the target crops in 2021 (compared to 2019)

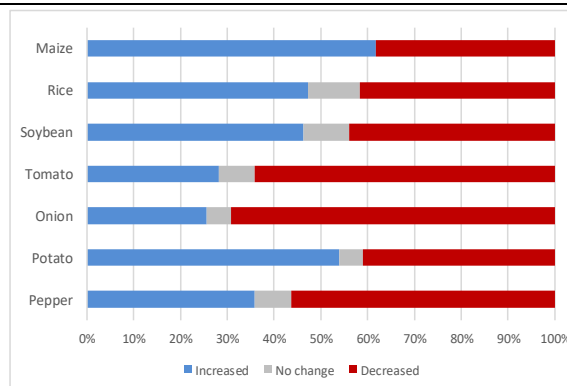


Figure 3-235 Malawi: Changes in yield of the target crops in 2021 (compared to 2019)

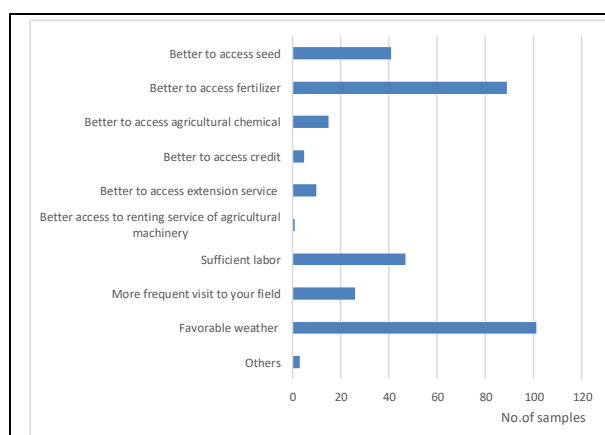


Figure 3-236 Malawi: Reasons for increase in yield in 2021

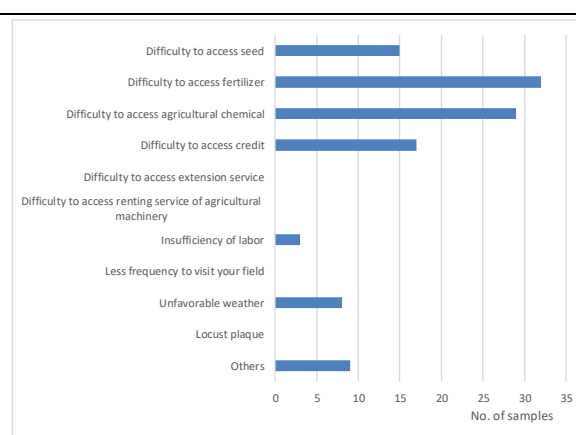


Figure 3-237 Malawi: Reasons for decrease in yield in 2021

4) Change in sales

The change in sales and the reasons for the decrease in sales volume are shown in Figure 3-234 and Figure 3-236. For soybeans, Irish potatoes, and tomatoes, the responses that the sales volume increased exceeded the responses that it decreased. For onions and rice, the number of responses indicating a decrease in sales volume slightly exceeded those indicating an increase. The most common reasons given for increased sales volume were improved yields and increased area. Reasons for the decrease in sales volume included lower yields and reduced cultivated area, as well as the impact of transportation and movement to market due to COVID-19.

The change in sales volume in 2021 is shown in Figure 3-235. Potatoes were the only crop for which respondents indicated an increase in sales volume compared to 2019 while soybeans, tomatoes, onions, and pepper saw a significant increase in the number of respondents reporting a decrease in sales volume compared to 2019. Reasons given for lower sales were difficulties in transporting to market due to COVID-19-related regulations and lower yields. Reasons for increased sales volumes were not changed from 2020. Compared to 2019, sales volumes of maize increased and decreased by around 10% each, with a significant increase in the number of respondents reporting no change in 2021.

As for the changes in farm gate prices shown in Figure 3-238, many respondents indicated that farm gate prices increased in 2020 for crops other than onions. As the reason for this, many respondents indicated that there was an increase in demand and a decrease in supply to the market, which was affected by the restriction on domestic movement of people and goods due to COVID-19 (Figure 3-236). The reasons for the decrease in unit sales price were the increase in supply to the market and the decrease in demand (Figure 3-240). For maize, as shown in Figure 3-230, the harvest volume was on a decreasing trend, so the decrease in supply to the market was thought to have been a factor in the increase in selling prices. On the other hand, the Agricultural Development and Marketing Corporation (ADMARC) has been raising the issue of excess maize stocks, suggesting that the market was saturated in some areas⁵¹.

⁵¹ We heard from the Ministry of Agriculture that 2019/2020 was a bumper crop for maize due to favorable weather conditions. In addition, grain industry groups (such as ADMARC and its exporters) have asked the government to lift the embargo on maize because it is oversupplied, including its stocks. Lifting the ban would allow the export of maize to neighboring countries, which is expected to reduce domestic stocks and excess supply to the market, thereby increasing the

The sales prices in 2021 compared to 2019 are shown in Figure 3-239. All respondents indicated that sales prices for maize and soybean would be higher than in 2019. For the other crops, the trend was similar to 2019. The reasons for the increases were also similar to those in 2020.

As for the sales destination in 2020 (Figure 3-246), many respondents answered that producers themselves sold their products at the market and that sales to intermediaries decreased. In the kick-off workshop, some respondents said that they were affected by the restrictions on movement and the closure of the market by COVID-19, as they were affected by moving and the frequency of purchases by middlemen decreased.

Figure 3-247 shows the change in the number of customers in 2021 compared to 2019. The decline in sales volumes is improving, however, the number of respondents who said they did not sell increased. A positive trend in sales volumes was observed for intermediaries and market sales, which are recovering to the same level as in 2019.

falling price of maize.
<https://www.mwnation.com/ministry-set-to-lift-maize-export-ban/> The Nation Online

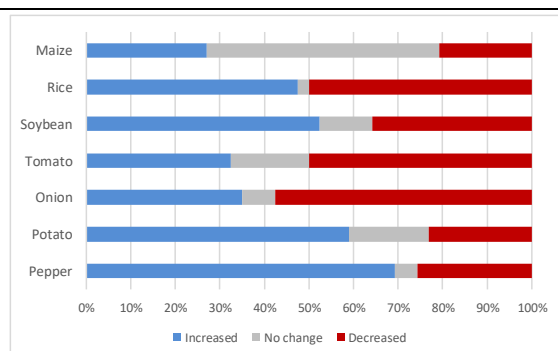


Figure 3-238 Malawi: Changes in sales volume of the target crops by farmers in 2020 (compared to 2019)

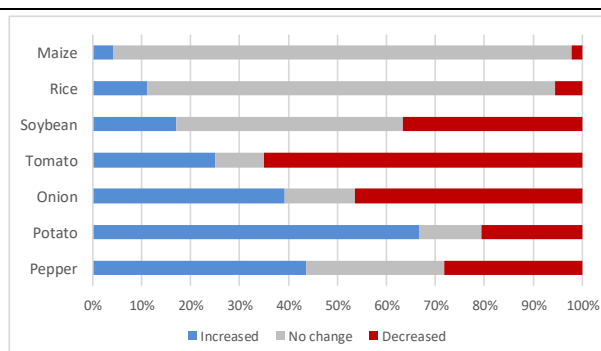


Figure 3-239 Malawi: Changes in sales volume of the target crops by farmers in 2021 (compared to 2019)

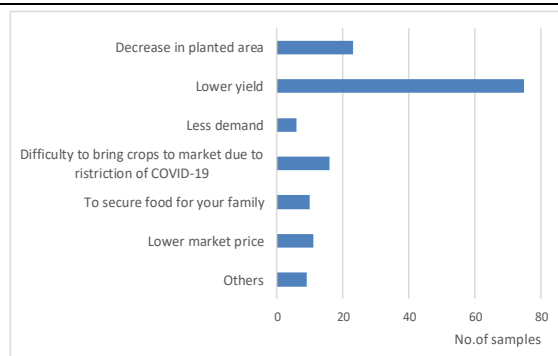


Figure 3-240 Malawi: Reasons for decrease in sales of the target crops in 2020

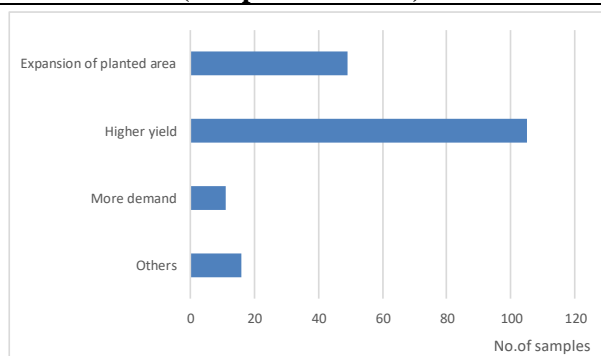


Figure 3-241 Malawi: Reasons for increase in sales of the target crops in 2020

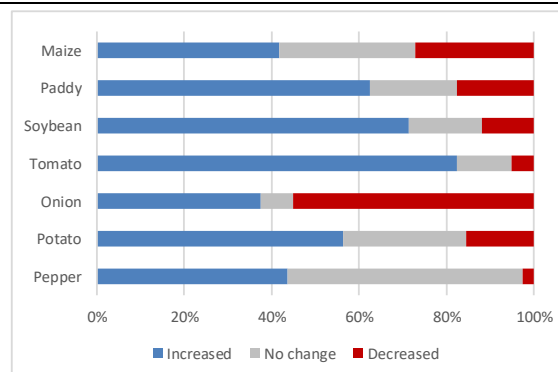


Figure 3-242 Malawi: Changes in farm gate prices of the target crops in 2020 (compared to 2019)

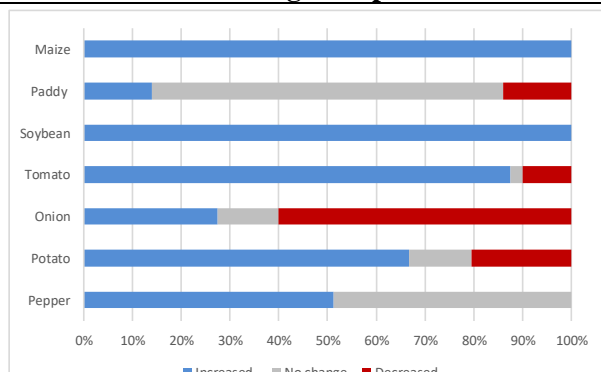


Figure 3-243 Malawi: Changes in farm gate prices of the target crops in 2021 (compared to 2019)

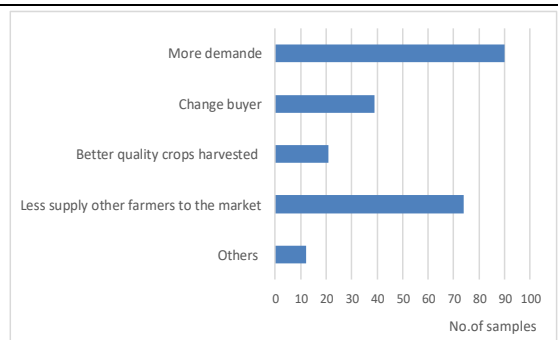


Figure 3-244 Malawi: Reasons for increase in farm gate prices in 2020

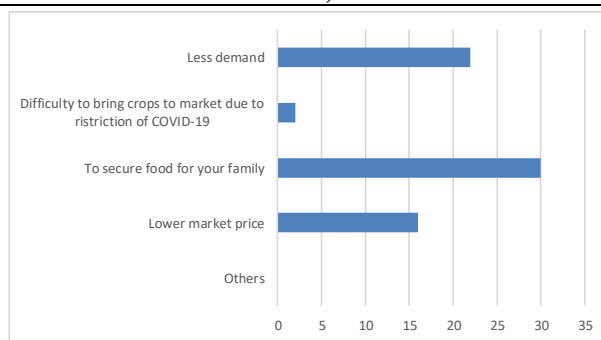
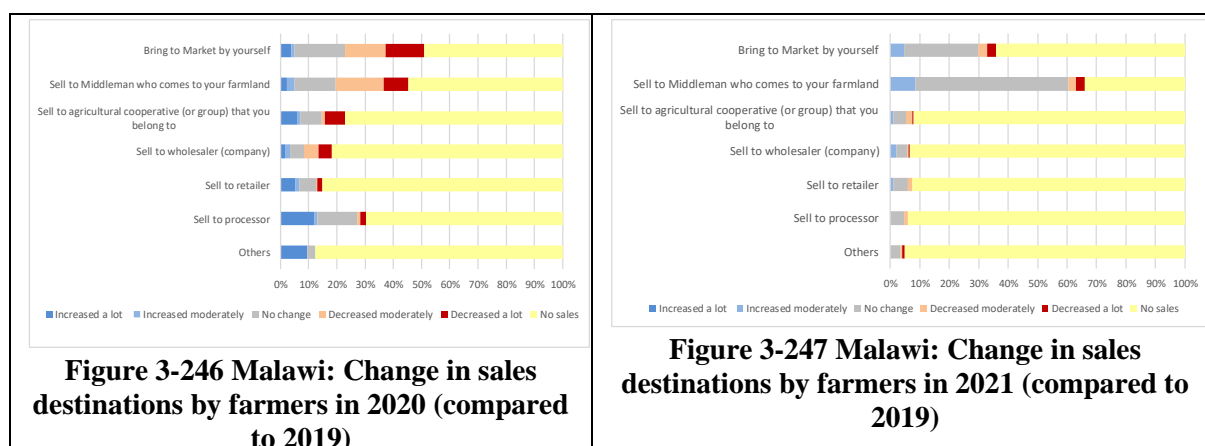


Figure 3-245 Malawi: Reasons for decrease in farm gate prices in 2020



5) Change in use of subsidized agricultural inputs

The subsidy scheme for agricultural inputs in Malawi is targeted at smallholder farmers and provides subsidies for the purchase of fertilizer for maize and seeds for cereals (improved maize, rice, and sorghum) and seeds for pulses (beans, groundnuts, chickpeas, soybean, and cowpeas) (until the 2019/2020 cropping season)⁵². The subsidies were revised in 2020, and the number of beneficiaries increased significantly⁵³. As pesticides are not covered by the subsidy, there was no use of these materials in 2019-2021. In terms of fertilizer use, more respondents answered that they used fertilizer in 2020 than in 2019 for maize, rice, soybean, and potatoes. For seed use, there was a slight increase in the number of respondents who said they used more seed in 2020 than in 2019. Only maize farmers indicated that they used subsidized materials in 2021 for fertilizer and seed, although the number of responses was lower than in 2019.

6) Contract farming

The surveyed farmers were also asked about contract farming. Responses showed there was little contract farming for the target crops and no significant change before and after COVID-19. This makes sense because contract farming in Malawi was mainly introduced for cash crops such as tobacco, tea, sugarcane, and coffee.

There was little to no change in the implementation of contract farming in 2021 compared to 2019.

7) Impact on the activities of agricultural cooperatives

Figure 3-248 shows the changes in the services provided by agricultural cooperatives in 2020 (compared to 2019). Of the agricultural cooperatives surveyed, 20% were not engaged in any activity at all, while the others were engaged in some activity such as joint sales. Joint sales of crops took place in

⁵² The Farm Input Subsidy Programme (FISP), launched in 2005, provides subsidies for the purchase of fertilizer for maize, a staple food, and seeds of cereals (maize, rice, sorghum) or legumes (beans, groundnut, chickpeas, soybean, cowpea). The program aims to increase the income of smallholder farmers through improved productivity of maize and pulses, which will help them secure subsistence food and increase their income through their sales.

⁵³ The Affordable Inputs Programme (AIP) has replaced the FISP for the 2020/2021 cropping season. The AIP will cover the procurement of fertiliser for maize and seeds of maize, sorghum and rice, whereas the FISP also covered legume seeds. The AIP also covers a broader range of beneficiaries than the FISP.

the maize, rice, and potato agricultural cooperatives. Reasons for the increase in sales volume were given as follows: increased production by cooperative farmers, increased demand from customers, development of new sales channels, and the opportunity to purchase agricultural inputs with the proceeds from the sale of produce. Reasons for the decrease were a reduction in the number of customers due to travel restrictions caused by COVID-19, reduced demand, and lower production. During the interviews with agricultural cooperatives, we heard that their funds for activities had decreased because of the reduction in the financial amount of contributions due to the decrease in the income of each farmer. They wanted to expand their sales channels but could not buy the farmers' produce because of the low funds of the cooperatives.

The changes in services provided by agricultural cooperatives in 2021 are shown in Figure 3-249. In 2021, the number of agricultural cooperatives providing services was significantly decreased compared to 2019.

(4) Processing

1) Highlights

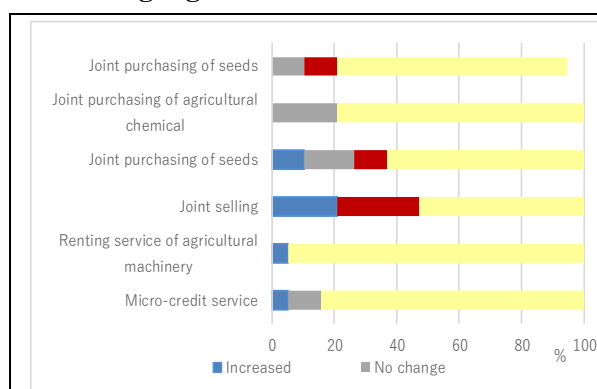


Figure 3-248 Malawi: Changes in services provided by agricultural cooperatives in 2020 (compared to 2019)

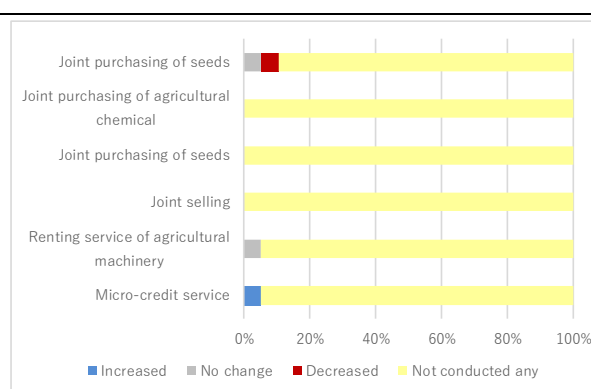


Figure 3-249 Malawi: Changes in services provided by agricultural cooperatives in 2021 (compared to 2019)

Many respondents answered that the processing volume in 2020 decreased compared to 2019. The decrease was attributed to factors like lower demand for exports, temporary shutdown of operations due to COVID-19 measures, fuel and transportation services, and inadequate raw material procurement compared to 2019. The participants of the kick-off workshops indicated that they were not able to procure and stock enough raw materials because of the movement restrictions imposed during the harvest season.

2) Change in raw material procurement

Figure 3-250 shows the change in the quality of processed raw materials in 2020 compared to 2019. In 2021, there was no change in the quality of processed raw materials compared to 2019 and there was no impact of COVID-19 on the quality of processed raw materials.

Figure 3-252 shows the change in the volume of procurement by suppliers in 2020. The main suppliers are small-scale farmers, intermediaries, and large- and medium-scale farmers. Among these

suppliers, the number of respondents who answered that the volume of procurement from intermediaries had decreased had increased, while the number of respondents who answered that the volume of procurement from small-scale farmers and large- and medium-scale farmers had increased and decreased was about the same amount. The degree of increase or decrease in procurement varied according to the crop, but rice was the most common crop for which respondents answered that there had been a decrease in the volume of rice procurement.

Figure 3-251 shows the change in the volume of target crops procured by processors in 2021. Overall, the transactions themselves were lower in 2021 than in 2020. There was an increase in the number of respondents who answered that the volume of procurement had decreased compared to 2019. There were no transactions with importers or other processors. The decrease in the volume of procurement from small-scale farmers is consistent with the change in the volume of producers' sales to processors.

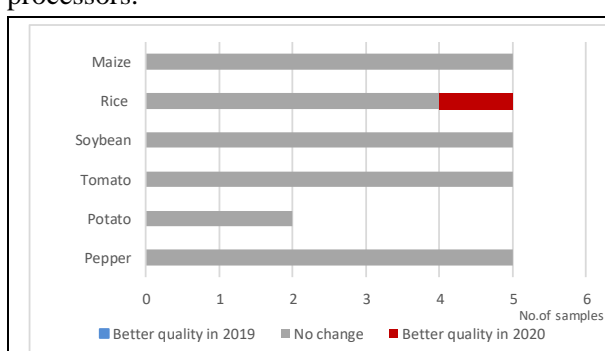


Figure 3-250 Malawi: Changes in quality of the target crops as raw materials in 2020 (compared to 2019)

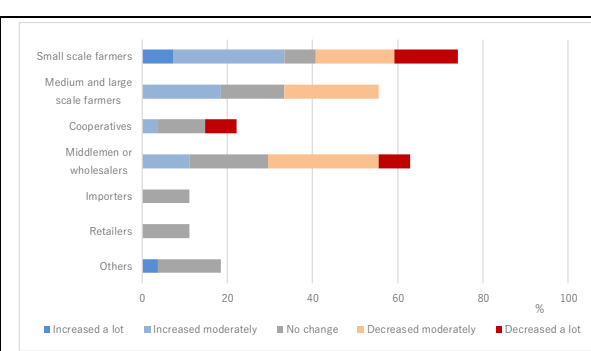


Figure 3-251 Malawi: Changes in volume of the target crops by processors in 2020 (compared to 2019)

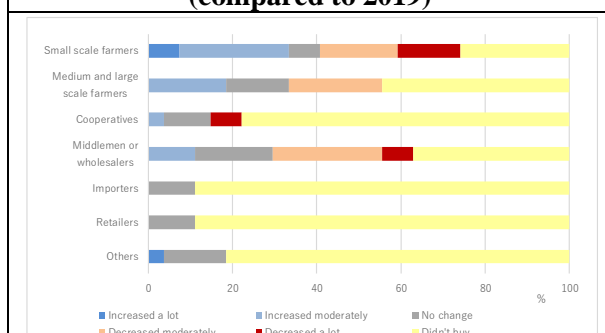


Figure 3-252 Malawi: Changes in volume of the target crops procured by processors in 2020 (by supplier, compared to 2019)

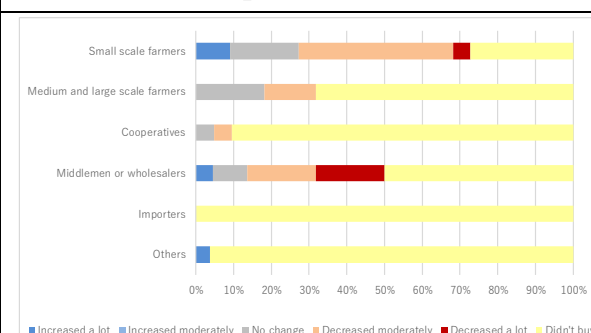


Figure 3-253 Malawi: Changes in volume of the target crops procured by processors in 2021 (by supplier, compared to 2019)

3) Changes in sales

The destinations of processed products in 2020 compared to 2019 are shown in Figure 3-254. The main destination is intermediaries, with other sales to retailers and processors. 60% of the respondents indicated that the sales volume to intermediaries increased compared to 2019, while 40% of respondents answered that the sales volume decreased. The sales volume to retailers and processors had a negative trend. Figure 3-256 shows the changes in selling prices. Selling prices have been increasing for all processed products, and the reasons given for the increase were higher production

costs, such as maintenance costs for equipment, and higher tariffs on the import of equipment, as well as higher fuel and transport costs, higher purchase prices for raw materials, and the effect of higher prices due to increased domestic and export demand.

The change in the sales volume by destination in 2021 compared to 2019 is shown in Figure 3-255. Except for retailers, trade has decreased compared to 2019. The sales volume also decreased at a higher rate. Figure 3-257 shows the changes in sales prices. Sales prices have increased for all processed products, and the reasons given for this were higher production costs, such as higher fuel and transport costs, higher procurement costs for raw materials, etc., higher maintenance costs for equipment and higher tariffs on equipment imports, and the effect of higher prices due to increased domestic and export demand.

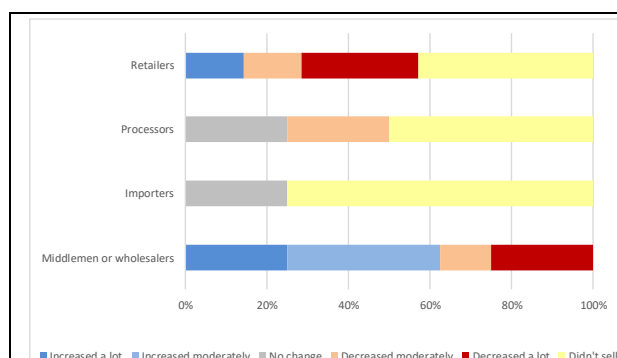


Figure 3-254 Malawi: Changes in sales volume of products made of the target crops in 2020 (by customer, compared to 2019)

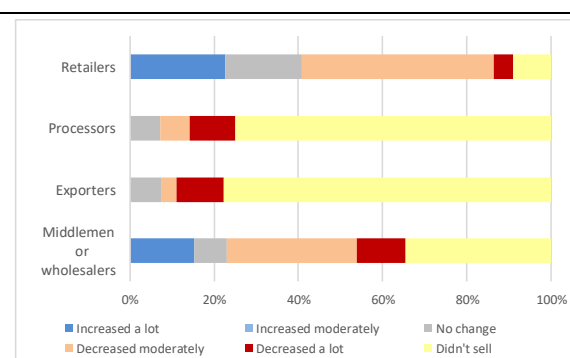


Figure 3-255 Malawi: Changes in sales volume of products made of the target crops in 2021 (by customer, compared to 2019)

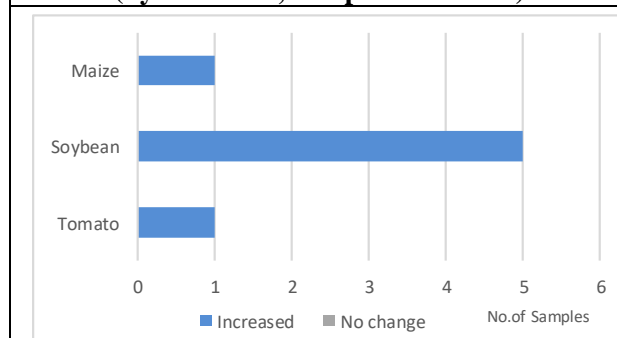


Figure 3-256 Malawi: Changes in selling price of processed products of the target crops in 2020 (by crop, compared to 2019)

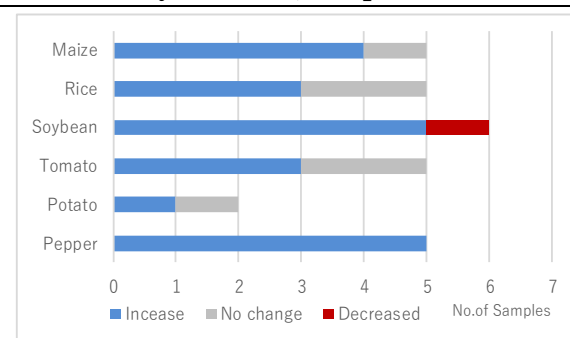


Figure 3-257 Malawi: Changes in selling price of processed products of the target crops in 2021 (by crop, compared to 2019)

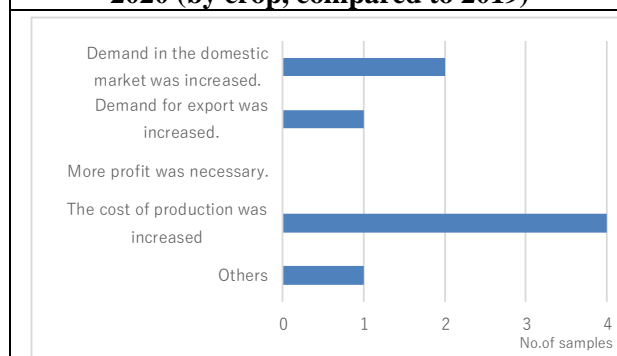


Figure 3-258 Malawi: Reasons for increase in selling price of processed products in 2020

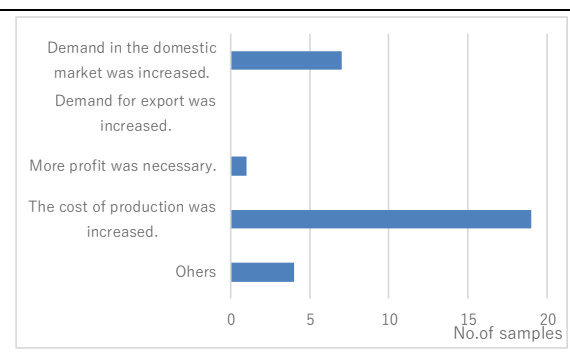


Figure 3-259 Malawi: Reasons for increase in selling price of processed products in 2021

4) Change in awareness of hygiene and safety

Figure 3-260 shows the change in awareness of hygiene and safety paid of raw materials when procuring the target crop in 2020. Except for rice processors, there was an increase in the number of respondents who said that their awareness of hygiene and safety had increased compared to 2019. Processed tomato producers increased their awareness of hygiene and safety. Figure 3-262 shows the change in awareness of hygiene and safety of processed products among processors' customers in 2020. More respondents answered that they were more aware of hygiene and safety with soybean products than with any other product in 2019.

Regarding the change in awareness of hygiene and safety of raw materials when purchasing in 2021, there was an increase in awareness for about half of them (Figure 3-261). In terms of changes in awareness of hygiene and safety of processed products among processors' customers in 2021, except for soybean products, awareness of hygiene and safety has increased compared to 2019 (Figure 3-268).

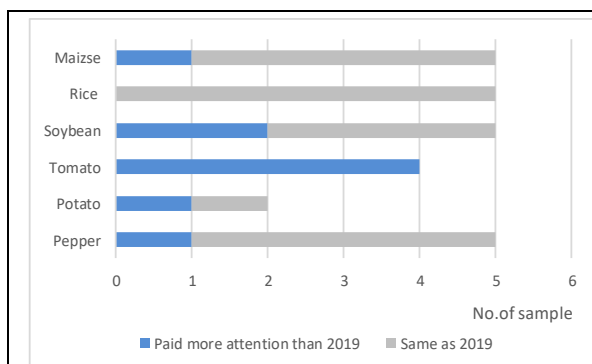


Figure 3-260 Malawi: Changes in processors' awareness of safety and hygiene when purchasing the target crops in 2020 (compared to 2019)

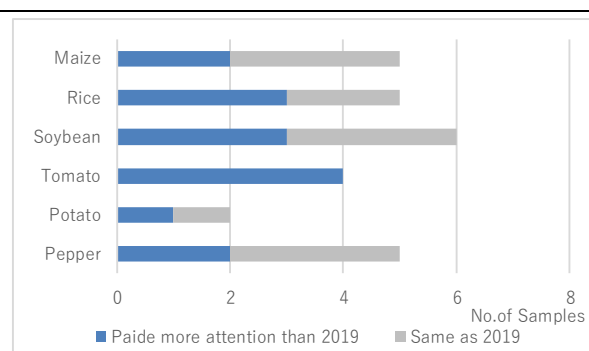


Figure 3-261 Malawi: Changes in processors' awareness of safety and hygiene when purchasing the target crops in 2021 (compared to 2019)

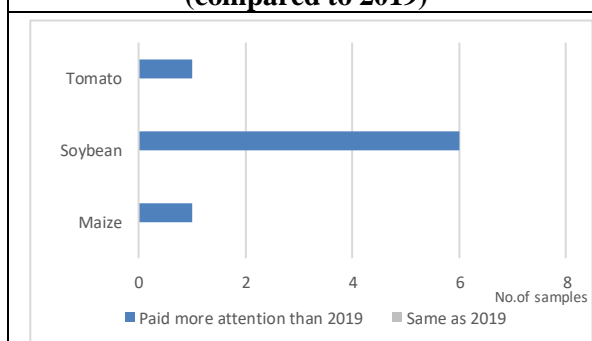


Figure 3-262 Malawi: Changes in awareness of safety and hygiene of processed products among processors' customers in 2020 (compared to 2019)

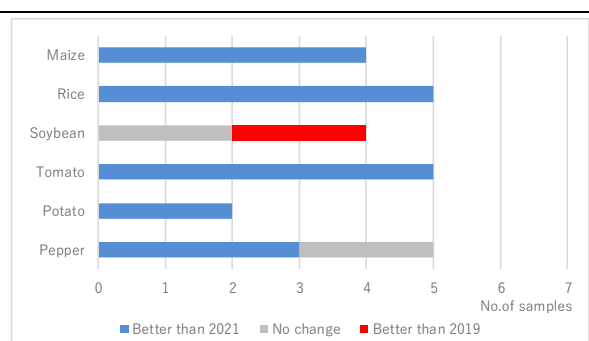


Figure 3-263 Malawi: Changes in awareness of safety and hygiene of processed products among processors' customers in 2021 (compared to 2019)

(5) Distribution

1) Intermediaries (wholesalers and middlemen)

a) Highlights

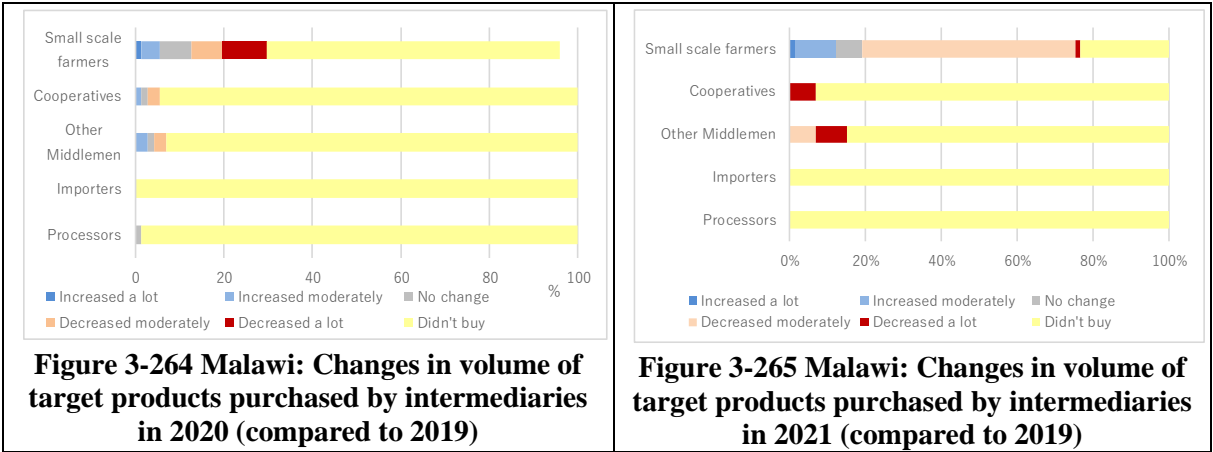
The main customers of intermediaries are farmers, agricultural cooperatives, and other intermediaries. The volume of procurement was similar in terms of increase and decrease, except for a

decrease in the volume of procurement from farmers. In terms of sales volume, there was an increase in the number of respondents who reported a decrease in maize, milled rice, and tomatoes. The decrease in sales volume was due to lower demand from customers, fewer customers, and the impact of travel and business restrictions due to COVID-19 control measures. The trend in the increase or decrease in the purchase and sales volumes of products handled by the respondents were similar, except for milled rice. The number of transactions increased in 2021 compared to 2020, however, the volume of procurement decreased, presumably due to adjustments to the volume of procurement and stocks considering the previous year's sales performance.

b) Change in the procurement of the target products

Figure 3-264 shows the change in the procurement volume of the target products by suppliers in 2020. The main suppliers were farmers, other intermediaries, and agricultural cooperatives. In terms of the change in procurement volume by source, both intermediaries, such as agricultural cooperatives, showed the same percentage of increase or decrease in procurement volume, while farmers were more likely to answer that their procurement volume had decreased. This may be because many of the intermediaries surveyed are small-scale producers of the target crop and therefore adjust their procurement as necessary.

Figure 3-265 shows the change in the volume of purchases of the target products by suppliers in 2021. More respondents answered that the number of transactions decreased compared to 2019, and no transactions were conducted with processors. On the other hand, the number of transactions with farmers has almost tripled. Although the number of transactions increased compared to 2019, the procurement volume showed a negative trend. This is probably because the number of suppliers has been diversifying in order to secure as much procurement volume as possible.



c) Change in Sales

Figure 3-266 and Figure 3-267 show the changes in selling price and sales volume and the reasons for the increase or decrease in sales volume. Regarding the change in the sales volume of the target products, most of the respondents answered that the sales volume of maize and milled rice decreased compared to 2019, while most of the respondents answered that the sales volume of other products increased. Reasons for the decrease in sales volumes were attributed to reduced demand from

customers, fewer customers, and business interruptions by customers, as well as travel and activity restrictions due to COVID-19. In other responses, lower yields were the most frequently given reason. As for sales prices, many respondents stated that they had increased compared to 2019 for almost all products.

Figure 3-268 shows the change in the sales volume of the target products in 2021 compared to 2019. For milled rice, soybean, and potatoes, the number of respondents indicated a decrease increased compared to 2019. In terms of the reasons for the decrease, the impact of lower demand of customers and fewer customers was significant, with fewer respondents giving reasons derived from COVID-19-related regulations such as movement restrictions than in 2020. Sales volumes of rice (paddy) and pepper were also on an upward trend compared to 2019. The increase was attributed to lower competition from other suppliers of paddy, and an increase in the number of customers and their purchases in pepper.

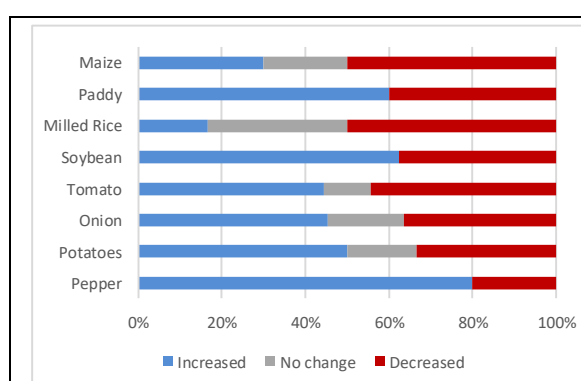


Figure 3-266 Malawi: Changes in sales volume of products by intermediaries in 2020 (by product, compared to 2019)

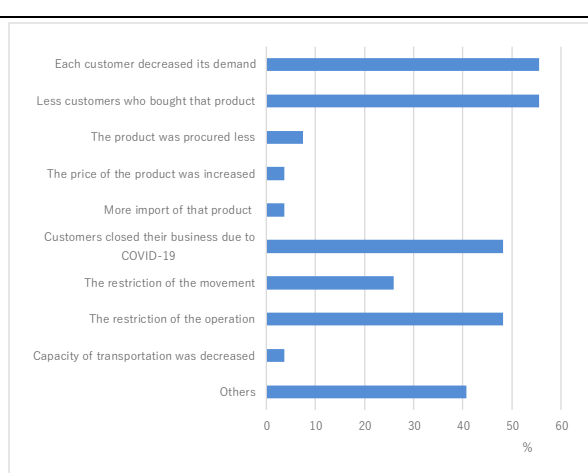


Figure 3-267 Malawi: Reasons for decrease in sales volume by intermediaries in 2020

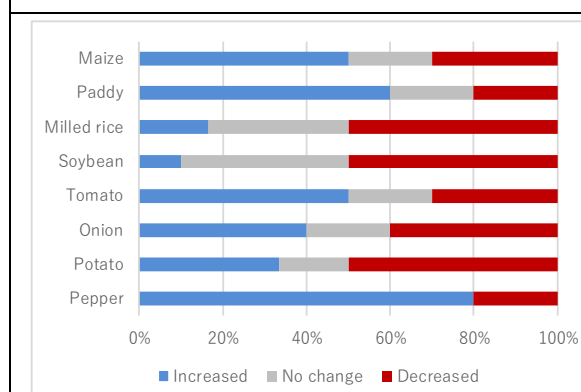


Figure 3-268 Malawi: Changes in sales volume of products by intermediaries in 2021 (by product, compared to 2019)

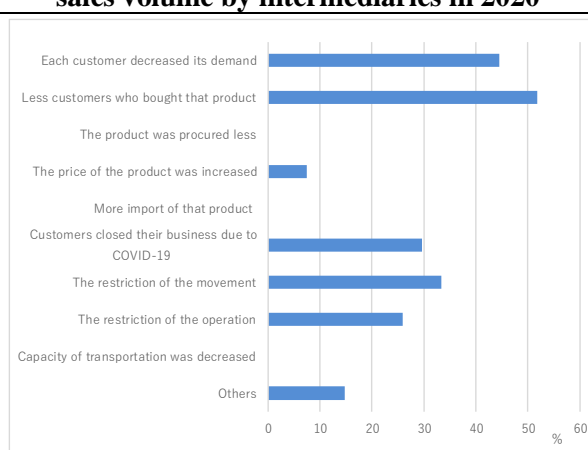


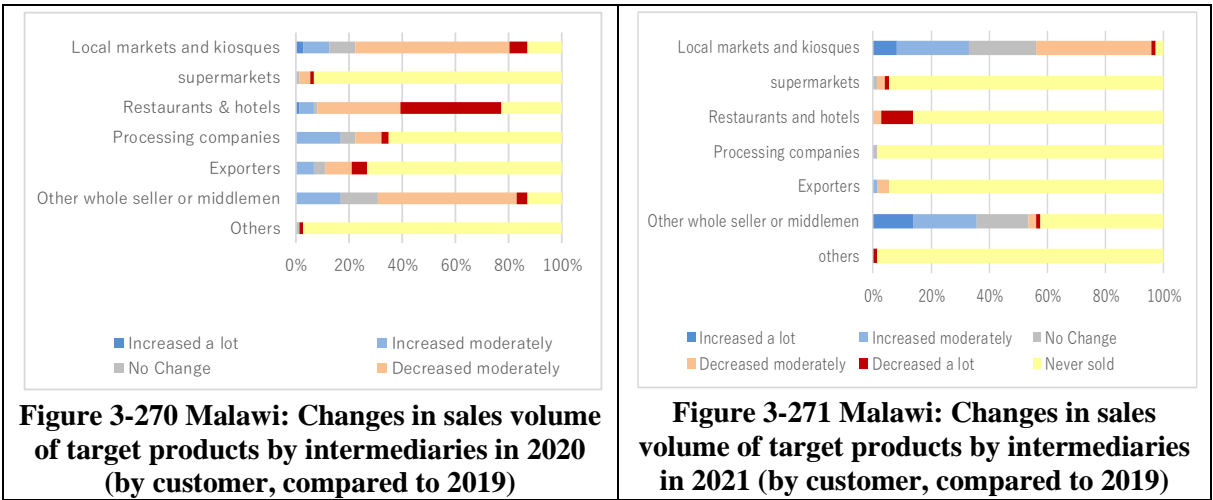
Figure 3-269 Malawi: Reasons for decrease in sales volume by intermediaries in 2021

d) Change of customers

Figure 3-270 shows the change in sales volumes by customers in 2020. The number of respondents who said that the sales volume increased to local markets and grocery shops, hotels and restaurants, and other wholesalers decreased to about 10% of the total in 2019, indicating that they were

significantly affected. Supermarkets and exporters, who do not do much business with the company, were also highly affected by the COVID-19 pandemic, as a high proportion of respondents indicated a decrease in their business. This can be attributed to the shortened opening hours and temporary closure of sales outlets due to the pandemic restrictions. However, the sales volume to processors showed a slight upward trend.

For 2021, Figure 3-271 shows that more respondents answered that they had no transactions than in 2019. There was an increase, however, in the number of respondents who answered that the sales volume to local markets, grocery shops, and other wholesalers increased compared to 2019. For supermarkets and hotels/restaurants, the number of respondents indicating a decrease in sales volume exceeded the increase. This is presumably because the products handled by these shops often have a higher unit price than those sold in markets and grocery shops, and consumers are less likely to eat out.



- e) **Change in stock volume**
- Figure 3-272 shows the change in stock volumes in 2020 compared to 2019. The number of responses indicating that stocks increased compared to 2019 was slightly higher than those indicating that stocks had decreased. The reasons given for the increase in stocks were an increase in the production of the products, the need to maintain stocks in case of procurement difficulties, to prepare for a recovery in demand, and lower-than-expected sales volumes, suggesting that stocks were increased in anticipation of uncertain market conditions. Among the reasons given for the decline in stocks were a fall in agricultural products and a decrease in the number of customers due to COVID-19 infection control measures. By product, stocks of paddy, soybean, potatoes, and pepper increased, with most respondents saying this was due to an increase in production. This was similar to the trend in producers' yields and sales volumes.
- The change in stock volumes in 2021 compared to 2019 is shown in Figure 3-273. For soybean, tomatoes, onions, and potatoes there was an increase in the number of respondents indicating a significant decrease in stock volume compared to 2019. This was attributed to higher-than-expected sales volumes and lower-than-expected procurement volumes. It can also be inferred that the decrease in the volume of transactions (sales) between farmers and intermediaries had an impact on the decrease in procurement volume. The increase in stocks of maize and paddy was attributed to the fact that supplies

were plentiful and sufficient quantities were available; for paddy, an additional reason was stocks being held in anticipation.

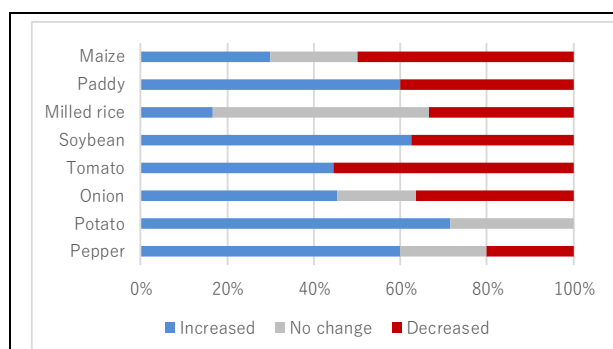


Figure 3-272 Malawi: Changes in stock volume of the target products in intermediaries in 2020 (compared to 2019)

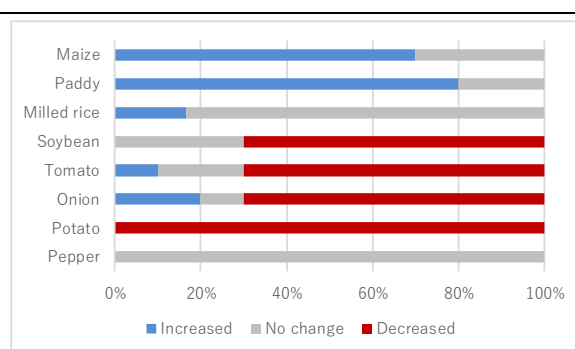


Figure 3-273 Malawi: Changes in stock volume of the target products in intermediaries in 2021 (compared to 2019)

2) Importers

a) Change in import volume

The survey received responses from importers and six supermarkets dealing with imports of the target products. Figure 3-274 shows the change in the import volume of the target products in 2020 compared to 2019. Although the imports volume varies depending on the product handled, overall, approximately 50% of respondents reported a decrease in imports compared to 2019, 40% reported no change and 20% reported an increase. Only three products - maize flour, pepper, and processed potatoes - saw an increase in imports. The reasons for the decrease were largely due to voluntary restrictions (including government regulations) to combat infection, and the depreciation of the currency, while distributional factors such as border closures and import restrictions may have had less of an impact (Figure 3-276).

The change in import volumes in 2021 compared to 2019 is shown in Figure 3-275. The import volumes of all products decreased. The reasons for this did not change significantly from 2020, but more respondents cited an increase in the time required to pass through customs than in 2019.

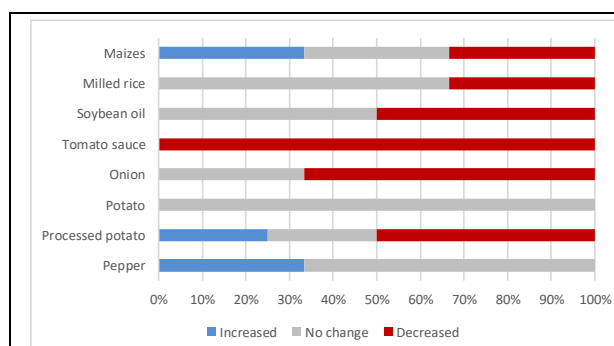


Figure 3-274 Malawi: Changes in import volume of the target products in 2020 (compared to 2019)

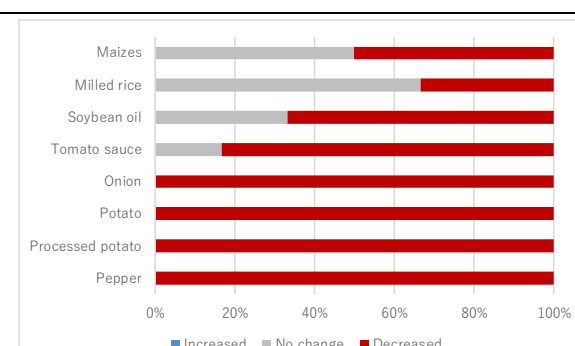


Figure 3-275 Malawi: Changes in import volume of the target products in 2021 (compared to 2019)

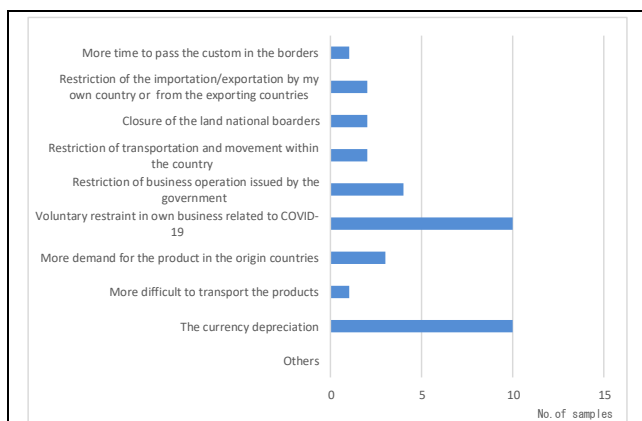


Figure 3-276 Malawi: Reasons for decrease in import volume in 2020 (compared to 2019)

b) Changes in countries from which the target products are imported

There was no change in the number of countries importing the target products in 2020 compared to 2019. South Africa is the largest importer of target products, importing maize flour, onions, peppers, processed potatoes, soybean oil, and tomato sauce. Other imports include milled rice, processed potatoes, peppers, and tomato sauce from Pakistan and the United Arab Emirates.

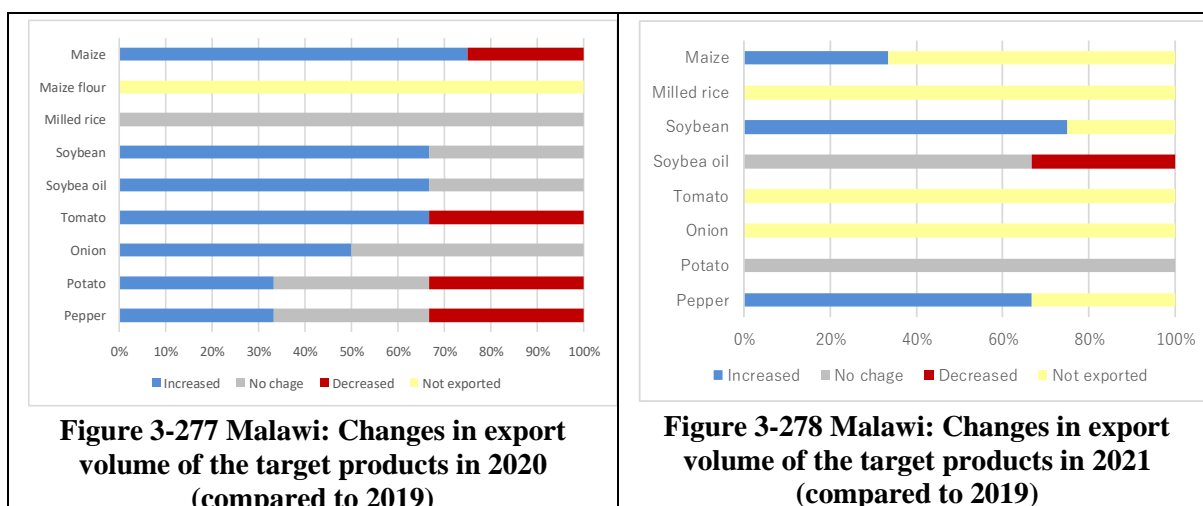
In 2021, compared to 2019, South Africa was the main importer of the products, but Egypt and Zambia were added to the list of countries importing some of the target products, which indicated that they increased the number of suppliers to secure their procurement.

3) Exporters

a) Change in export volume

Figure 3-277 shows the change in the export volumes of the target products in 2020. The total export volume showed an increasing trend compared to 2019. The reasons for the increase were an increase in the volume of procurement and an increase in demand within the exporting country. In contrast, the decline in export volumes of just under 20% was attributed to voluntary sales restrictions and lower demand in exporting countries, although the impact of COVID-19 was considered to be minor.

For 2021, these are shown in Figure 3-278. Rice, tomatoes, and onions, which were exported in 2019, were not exported in 2021. The reasons for stopping exports were increased time required at customs and import restrictions imposed by the exporting country. There was also an increase in the proportion of products that weren't being exported. The reasons for the decline in exports were increased time required to clear customs, restrictions on imports and exports, voluntary restrictions on business, reduced demand from exporters and currency depreciation. In addition, the number of respondents said that the export volume of maize, soybean, and chili increased compared to 2019, and the reasons given were increased procurement.



b) Changes in destination for export

In 2020, the two main exporting countries are Zambia and Mozambique; the others are Tanzania, Zimbabwe, Kenya, and South Africa. There was no change in the main exporting countries in 2019 and 2020. It also exports maize, pepper, and potatoes to Zambia and tomatoes, soybean oil, milled rice, and potatoes to Mozambique.

The main exporting countries in 2021 were not changed from 2019. However, the destinations for rice and onions changed from Zimbabwe and Mozambique to Zambia, and for onions and potatoes from Tanzania to Mozambique. In terms of other products, pepper added South Africa to its export destinations in addition to Zambia.

(6) Retailers

1) Highlight

The survey was carried out in supermarkets and local markets in urban areas and local markets in regional cities. For 2020, the general impact of the COVID-19 (restrictions on movement, sales, number of people, etc.) resulted in lower procurement, sales, and stock volume than in 2019. In 2021, there was a further negative trend compared to 2019 in terms of both procurement and sales volumes.

2) Change in procurement

Figure 3-279 shows the change in procurement volumes by retailers in 2020. The main suppliers are intermediaries, individual farmers, and agricultural cooperatives. Most retailers have reduced their procurement volumes.

Figure 3-280 shows the change in the procurement volume by suppliers in 2021. None of the respondents answered that the procurement volume had increased, and all retailers answered that the procurement volume had decreased compared to 2019. In addition, a higher proportion of respondents answered that there had been a significant decrease compared to 2019.

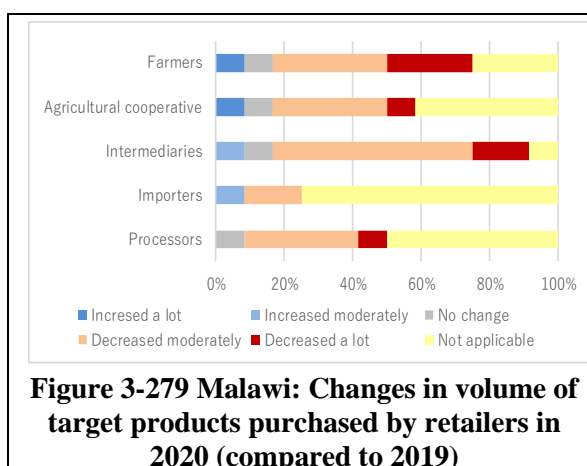


Figure 3-279 Malawi: Changes in volume of target products purchased by retailers in 2020 (compared to 2019)

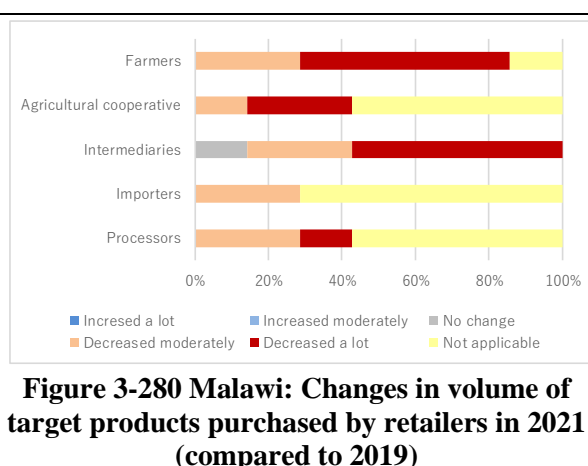


Figure 3-280 Malawi: Changes in volume of target products purchased by retailers in 2021 (compared to 2019)

3) Change in sales

Figure 3-281 shows the change in the sales volume of each of the target products in 2020. The overall trend is downwards in the number of respondents indicating a decrease in sales volume. In particular, the proportion of respondents who answered that sales of tomatoes and onions had decreased significantly was higher than for other products. It can be inferred that the reasons for the decrease in sales volume were largely due to government restrictions on movements and sales, and these restrictions affected the number of customers and the volume of procurement (Figure 3-282). In addition, Figure 3-285 shows the sales prices of the target products in 2020. The number of respondents who answered that the sales prices of maize, rice, and soybean products had decreased compared to 2019, while those of tomatoes, onions, and potatoes had increased.

As shown in Figure 3-283, the number of respondents who answered that the sales volume in 2021 would be lower or much lower than in 2019 increased for all products. The proportion of the number of products handled remained almost unchanged.

The reason for the decrease was due to an increase in the number of respondents who answered that their customers purchased less and that the number of customers decreased compared to 2020. Other factors, such as lack of funds for procurement and shortage of products, also had an impact. In addition, as shown in Figure 3-285, the number of respondents who answered that sales prices had decreased significantly compared to 2019 had also increased. The reasons for the decrease are lower demand from customers and fewer sales to customers, and these reasons have increased compared to 2019, inferring that consumers have continued to refrain from purchasing since the establishment of the COVID-19-related regulations.

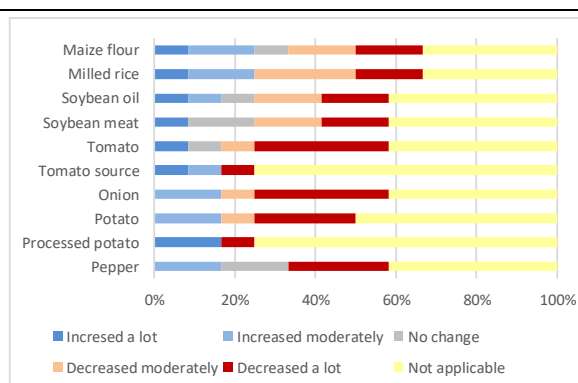


Figure 3-281 Malawi: Changes in sales volume of target product in 2020 (by product, compared to 2019)

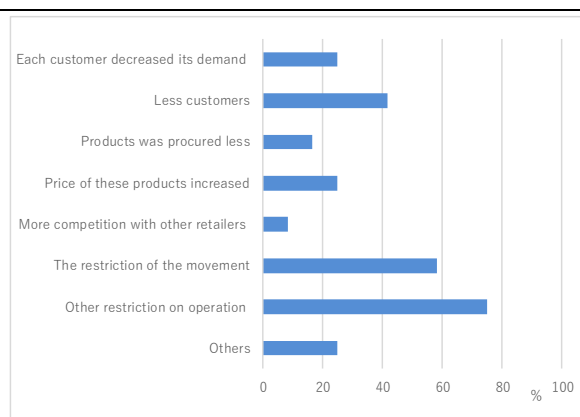


Figure 3-282 Malawi: Reasons for decrease in sales volume by retailers in 2020

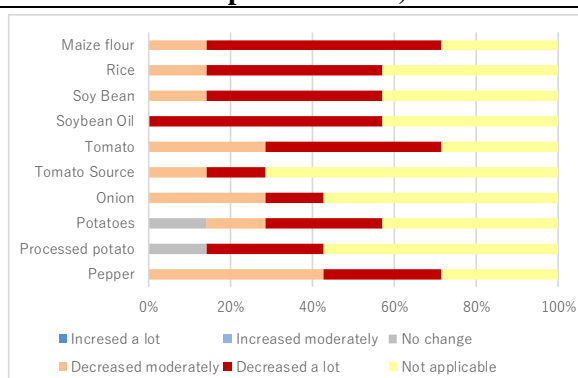


Figure 3-283 Malawi: Changes in sales volume of target products in 2021 (by product, compared to 2019)

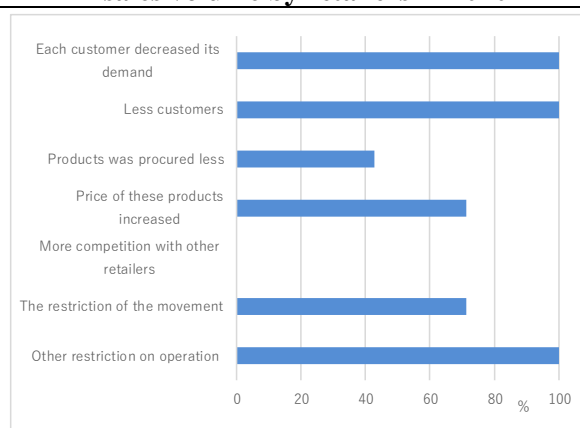


Figure 3-284 Malawi: Reasons for decrease in sales volume by retailers in 2021

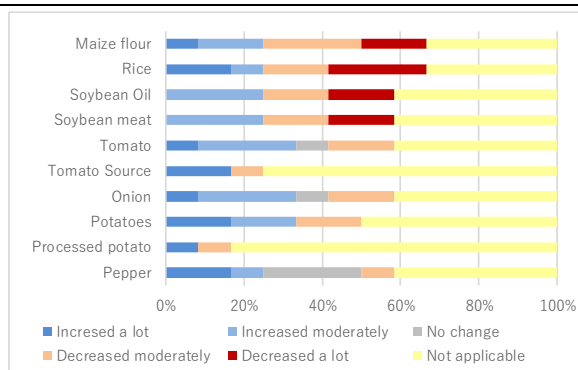


Figure 3-285 Malawi: Changes in retail price of the target products in 2020 (by product, compared to 2019)

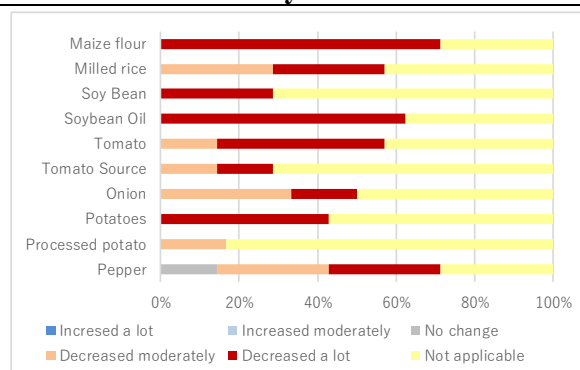


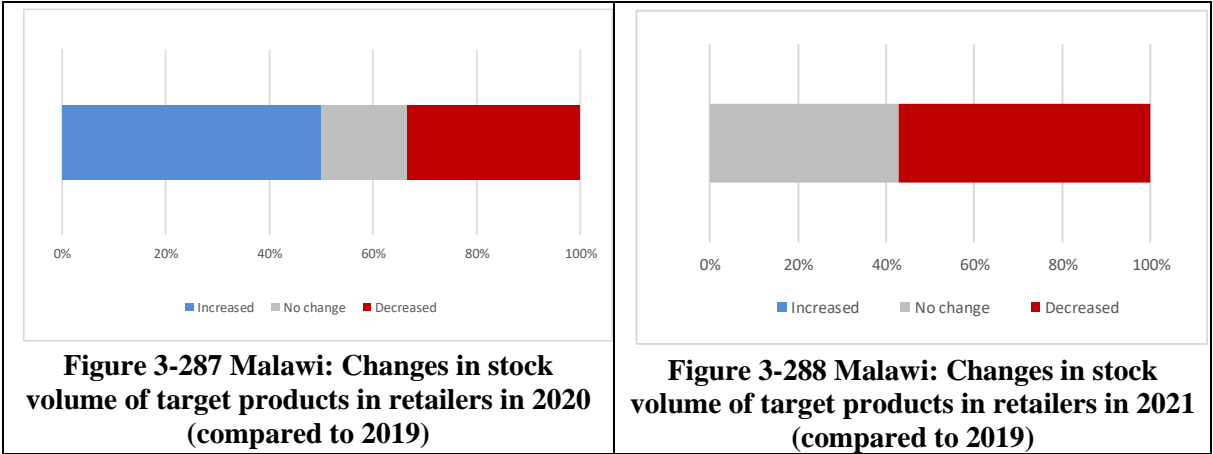
Figure 3-286 Malawi: Changes in retail price of the target products in 2021 (by product, compared to 2019)

4) Change in stock volume

Figure 3-287 shows the change in stock volumes of the target products in 2020. About half of the respondents indicated that their stock volumes had increased compared to 2019. For agricultural products, the reason for the increase was an increase in production compared to the previous year. And the most common reason given for the decrease was a decrease in production. Other reasons mentioned were lower procurement volumes than initially planned and stock reduction due to the expected

shrinking demand in the future. The workshops also heard that the lack of cold storage facilities meant that fresh produce had to be disposed of during periods when the market was closed.

The change in stock volumes in 2021 is shown in Figure 3-288. No respondents indicated that stock volumes had increased compared to 2019, with the most prevalent response being that they had decreased. The reasons for the decrease in stock volume included not being able to go to procurement due to restrictions on movement caused by COVID-19 infection control and other factors, and not being able to procure as much as planned.



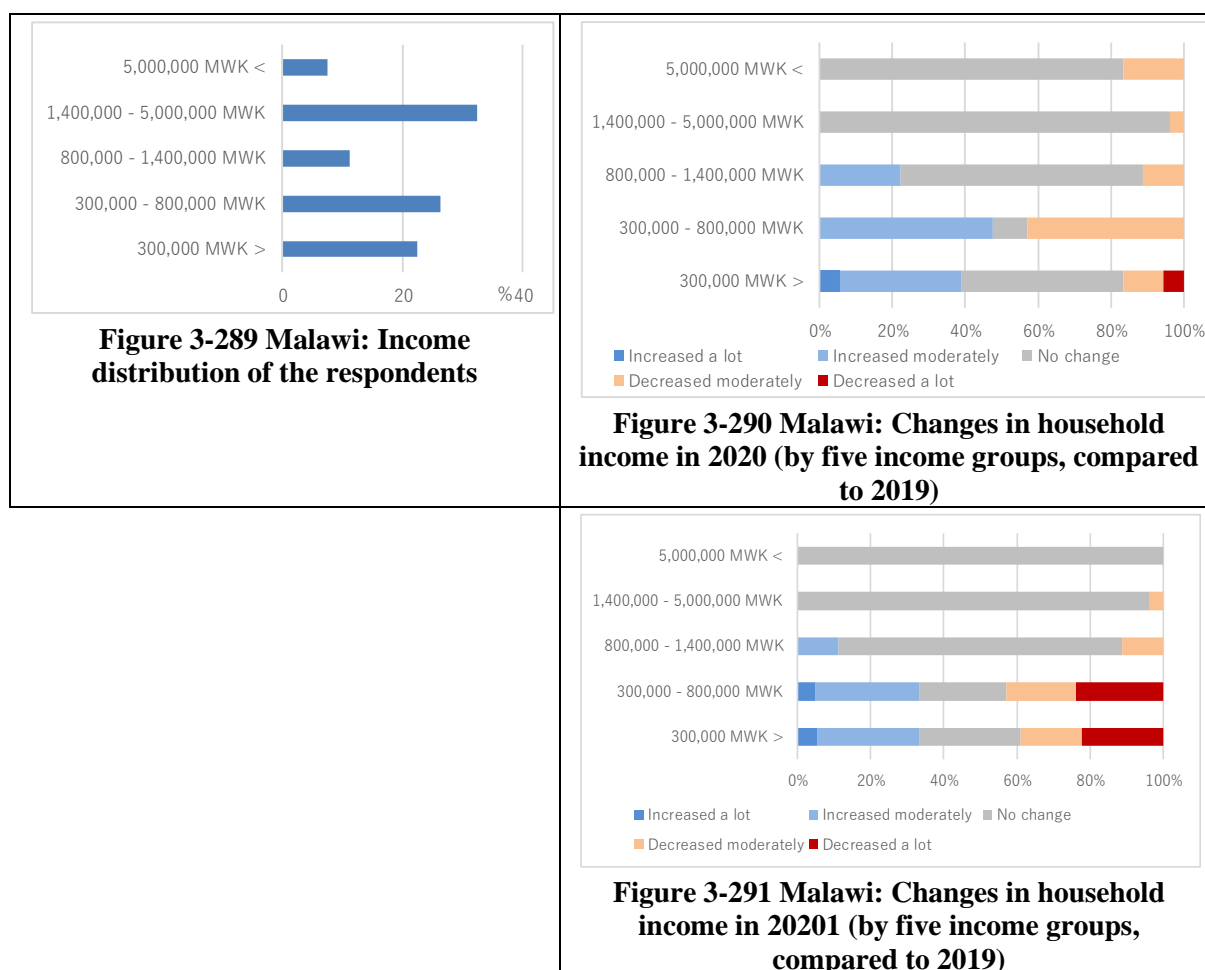
(7) Consumption

1) General consumers

a) Change in household income

As shown in Figure 3-289 about half of the households had an annual income of less than 300,000 MWK (about USD 370) to 800,000 MWK (about USD 1,000). Figure 3-290, which shows the change in annual household income by income distribution⁵⁴, shows that the change in annual income is smaller as household income increases, with households with incomes between 300,000 MWK and 800,000 MWK having similar proportions of income increase and decrease. Figure 3-291 shows the change in income by household income in 2021. Many households in the two lowest income groups indicated that their annual household income had changed. There was an increase of around 20% in the number of respondents who answered that their income had decreased significantly.

⁵⁴ Based on the income distribution in Malawi as shown in the “Index Mundi” (2014) and the average number of households in 2019 calculated from information provided by the World Bank, the JICA survey team has classified the income distribution into five levels.



b) Change in consumption of the target products

The information in Figure 3-292 shows the change in consumption of the target products comparing 2019 and 2020. Among the staple foods, many respondents answered that the consumption of maize flour increased significantly, while others answered that the consumption of rice has decreased significantly. The price of milled rice is around 700 MWK/kg, which is more than three times as expensive as maize and may have caused people to refrain from buying rice. For maize, market prices were more stable than for other agricultural products in 2019/2020, which is inferred to have increased consumption⁵⁵. Slightly more respondents answered that consumption of soybean oil had increased. More respondents answered that consumption of soybean meat had decreased. For vegetables, tomatoes and pepper were slightly more likely to have increased, while the number of responses for onions was evenly balanced between increase and decrease. Potatoes were slightly more likely to have decreased. However, the largest number of respondents answered that there was no change in consumption for any of the crops. Processed products were purchased by fewer people and do not appear to be consumed in general. There was no change in consumption of either tomato sauce or processed potato from 2019. Figure 3-294 shows the reasons for decreases in consumption. The most frequently indicated reasons

⁵⁵ Price per kg: Maize: about MWK200, Rice: about MWK730, as of December 2020
<https://reliefweb.int/sites/reliefweb.int/files/resources/EmA-FSS%20January%202021%20Highlights%20Infographic.pdf>

were an increase in market prices, a decrease in income, and the fact that the respondents had started producing their products, causing a decrease in the amount of purchased food. The reasons for increased consumption, shown in Figure 3-295, were the opposite of those for decreased consumption, including lower prices, increased income, and increased family size, suggesting that the same products were priced differently and were available in different shops. Compared to rice and potatoes, the increase in the price of maize sold by farmers was smaller and the volume of maize sold was more stable, as shown in Figure 3-238, which may have contributed to the increase in consumption.

The change in consumption in 2021 compared to 2019 is shown in Figure 3-293. Overall, the most common response was no change, which is similar to the trend in 2020. There was an increase in the number of respondents indicating an increase in consumption of soybean meat, tomatoes, and onions, but an increase in the number of respondents indicating a decrease in consumption of rice, soybean oil, and potatoes. The reasons for the decrease were lower incomes and higher prices, but none of the respondents had started their production (to reduce the purchasing volume) (Figure 3-296). The reasons for the increase were an increase in the number of families (fewer respondents than in 2020), and the other reasons were an increase in income, a decrease in prices, and an increase in distribution (Figure 3-297). The reasons for the increase and decrease in consumption, as well as the changes in purchasing behavior described below, suggest that consumers will continue to be reluctant to go out and buy products in 2021 due to the continued restrictions on infection control following the COVID-19 in 2020.

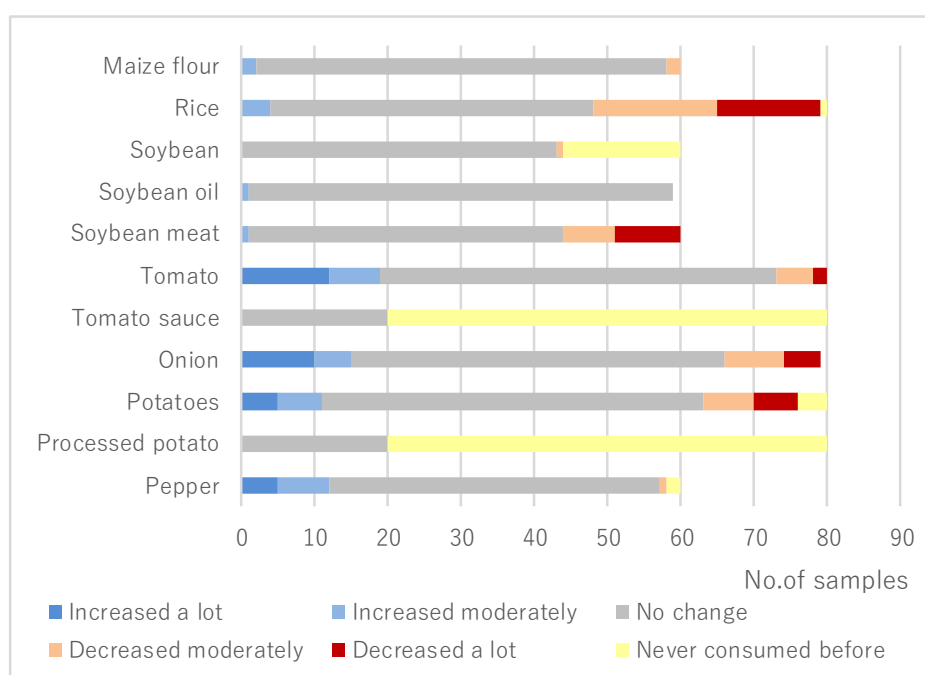


Figure 3-292 Malawi: Changes in consumption of target products in 2020 (compared to 2019)

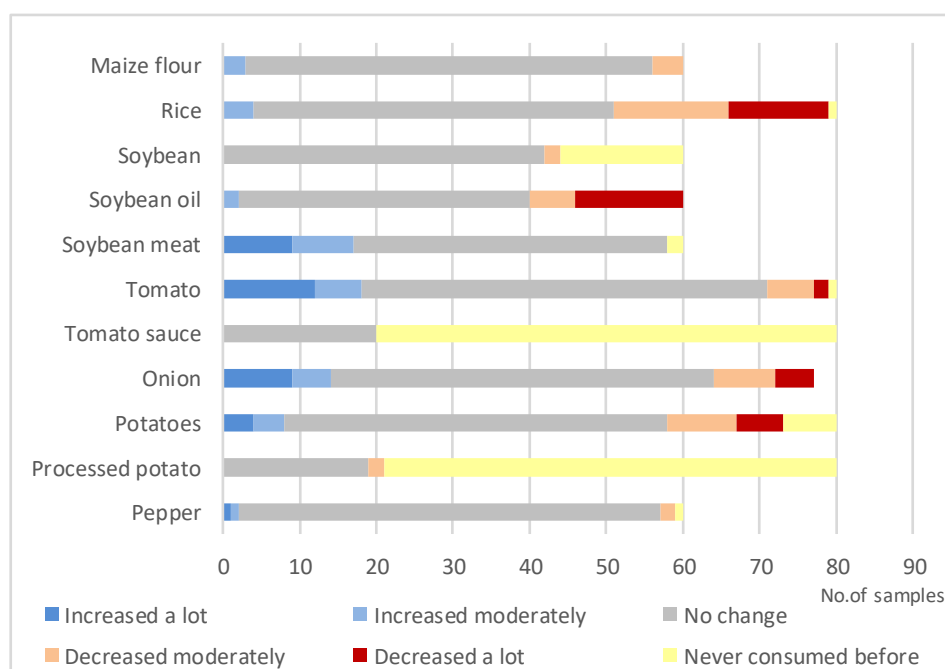


Figure 3-293 Malawi: Changes in consumption of target products in 2021 (compared to 2019)

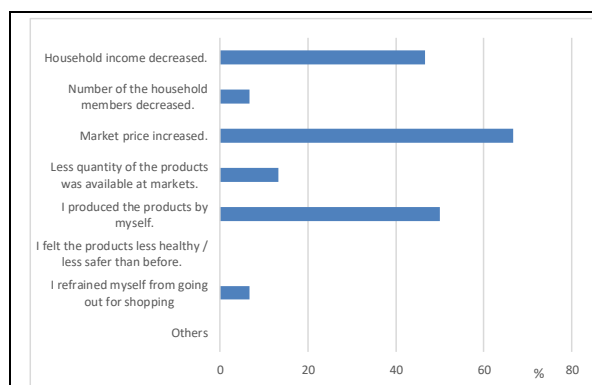


Figure 3-294 Malawi: Reasons for decrease in consumption in 2020

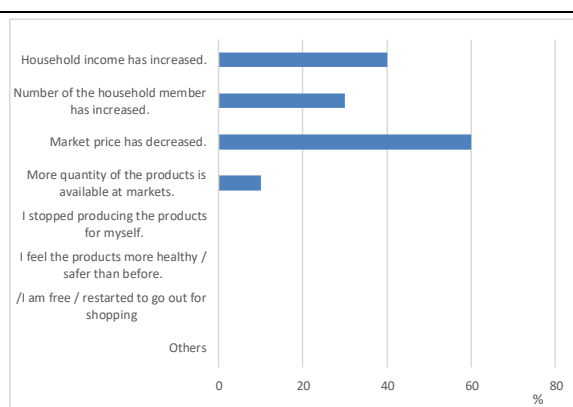


Figure 3-295 Malawi: Reasons for increase in consumption in 2020



Figure 3-296 Malawi: Reasons for decrease in consumption in 2021

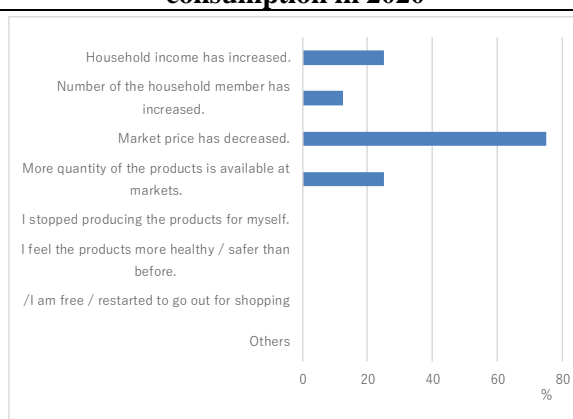
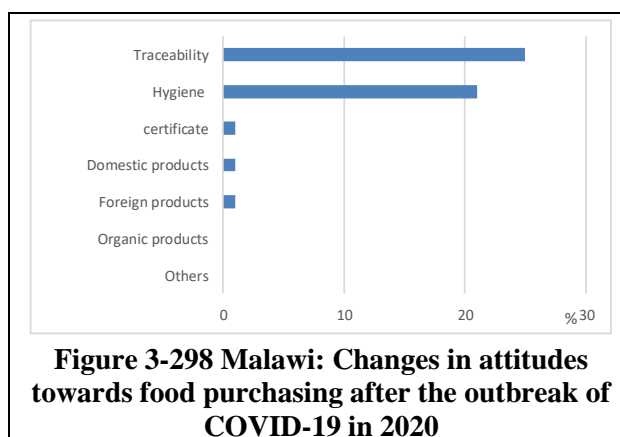


Figure 3-297 Malawi: Reasons for increase in consumption in 2021

c) Change in attitude toward food purchasing

Figure 3-298 shows the change in attitudes towards food purchasing in 2020 compared to 2019. Consumers were more concerned about food hygiene and traceability, but less concerned about the other aspects. At the workshop, some consumers said that the COVID-19 had made them more aware of hygiene issues such as hand washing and disinfection, which suggests that they may also be more concerned about food hygiene.

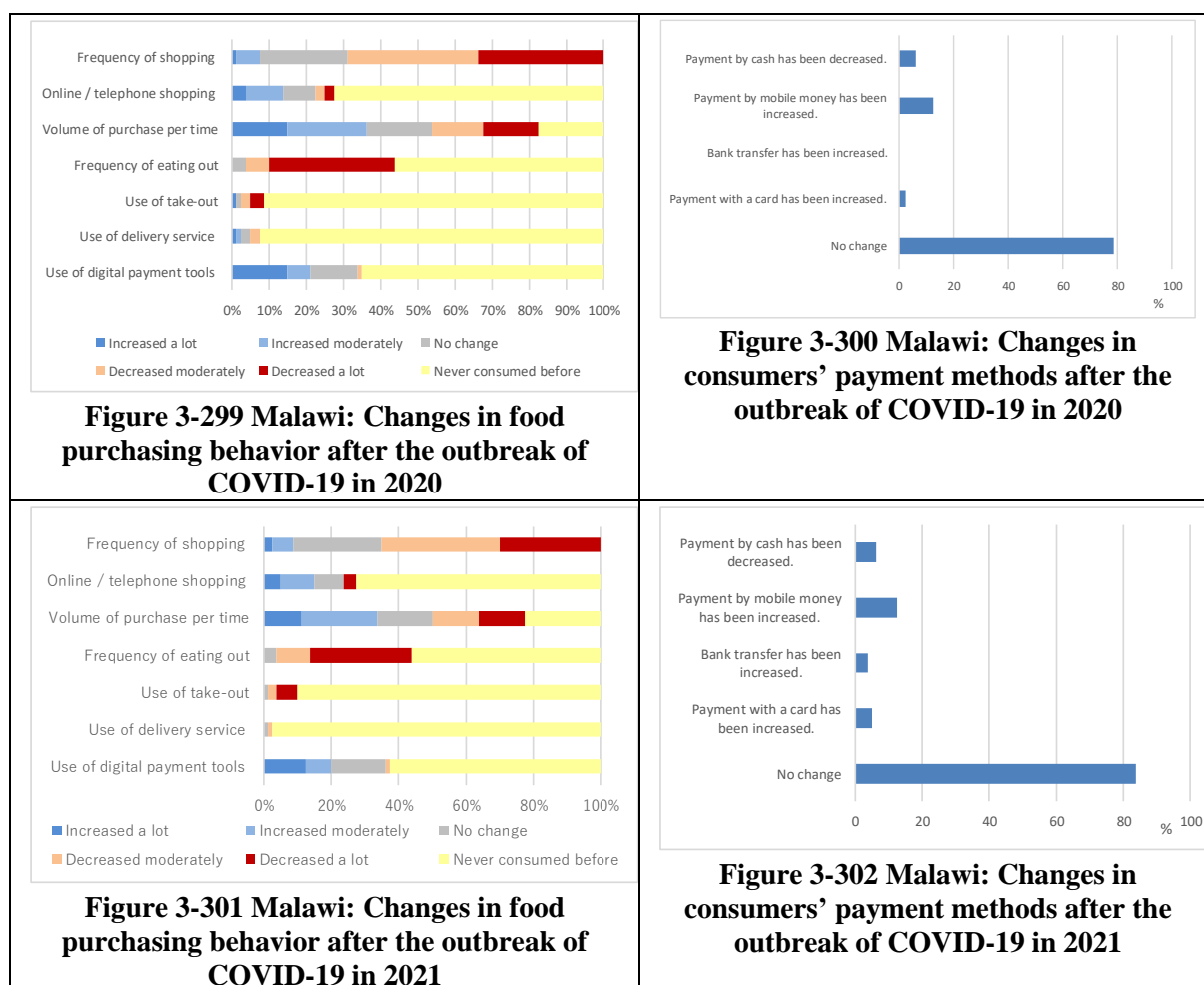


In terms of changes in attitudes towards food purchasing in 2021 compared to 2019, the trend is similar to the figure for 2020. There was an increase in the number of respondents who said they were more concerned about traceability than in 2019, but a decrease in the number of respondents who said they were more concerned about other issues.

d) Change in food purchasing behavior

Figure 3-299 shows the change in food purchasing behavior in 2020 compared to 2019 following the COVID-19. More respondents indicated that the frequency of shopping, eating out, and using take out had decreased compared to 2019, regardless of household income. The use of delivery services and online shopping is not yet common, but there is a slight increase among those with a household income of 300,000 MWK and above, suggesting that consumers in urban areas have avoided going out to prevent infections or are unable to do so due to restrictions. Figure 3-300 shows the change in payment methods in 2020 compared to 2019. The highest number of respondents indicated that there would be no change from 2019, with few non-contact payments such as mobile payments or card payments being made.

For 2021, as shown in Figure 3-301 and Figure 3-302, there has been a decrease in the use of contactless or non-face-to-face payments such as mobile payments and bank transfers compared to 2019, and a decrease in the number of respondents indicating that cash payments have decreased. Furthermore, there was an increase in the number of respondents who answered that there had been no change since 2019, suggesting that the situation is returning to how it was before COVID-19 and that the use of digital payments was less affected by COVID-19.



2) Restaurants

a) Change in sales and number of customers

The survey was conducted in eight shops. Regarding the number of customers in 2020, six shops answered that the number of customers had decreased, while one shop stated that there had been no change and another stated that there had been an increase. The most common reasons given for the decline in the number of customers were reduced opening hours or closures and curfews due to the government's COVID-19 control measures (four shops). Restaurants that reported an increase in customers indicated lower food prices and extended opening hours as reasons for the increase.

In 2021, five restaurants were surveyed. In terms of the number of customers changing in 2019, two shops answered that the number of customers had increased, two shops answered that the number of customers had decreased, and one shop answered that the number of customers had decreased significantly. Respondents mentioned the continuing government restrictions for infection control as in 2020, and customers refraining from eating out due to reduced income as reasons for the decrease. Reasons for the increase included longer opening hours, infection control measures, and government deregulation. The change in the number of customers is broadly in accord with the change in consumer behavior.

b) Change in procurement

Figure 3-303 shows the change in the volume of procurement of the target products in 2020. There was an increase in the number of respondents who answered that the volume of procurement in 2020 had decreased compared to 2019. The reasons given for the decrease were lower sales (due to restrictions on business and movement caused by COVID-19 restrictions) and higher market prices. The reasons given for the decrease were lower sales (due to restrictions on business and movement caused by COVID-19 restrictions) and higher market prices for commodities. The volume of procurement of maize flour and rice, which are staple foods, soybean oil, tomatoes, and potatoes, which are necessary for cooking, decreased significantly (70-80%) in 2019. Changes in procurement behavior are also shown in Figure 3-304. There was an increase in the frequency of procurement, the amount of food procured per visit, and a decrease in the amount of food stock. This can be related to the decrease in procurement volume mentioned above. On the other hand, 10% of the respondents answered that the use of digital payments had not changed since 2019, but most of the restaurants did not offer this service.

The figures for 2021 are shown in Figure 3-305. The procurement volume is on an upward trend compared to 2020, but overall, there is a decrease compared to 2019. The percentage of respondents who answered that the procurement volume had decreased compared to 2019 was still high.

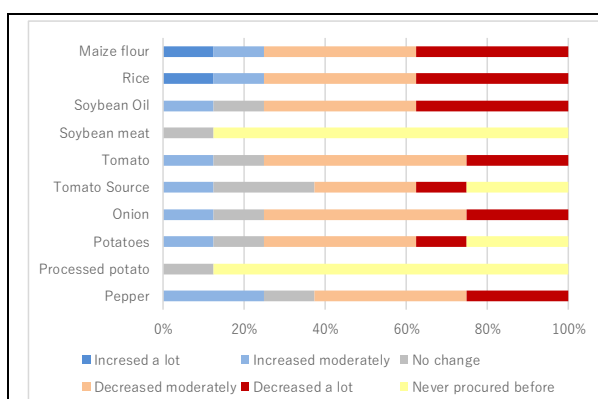


Figure 3-303 Malawi: Changes in volume of the target products purchased by restaurants in 2020 (compared to 2019)

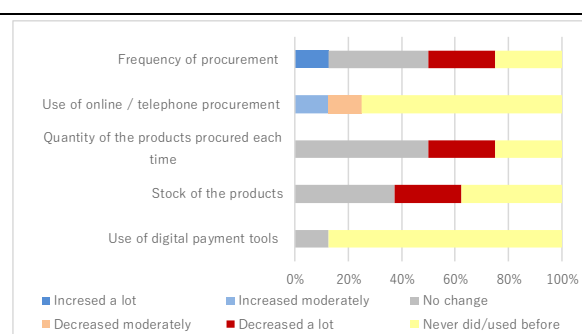


Figure 3-304 Malawi: Changes in purchasing behavior of restaurants in 2020 (compared to 2019)

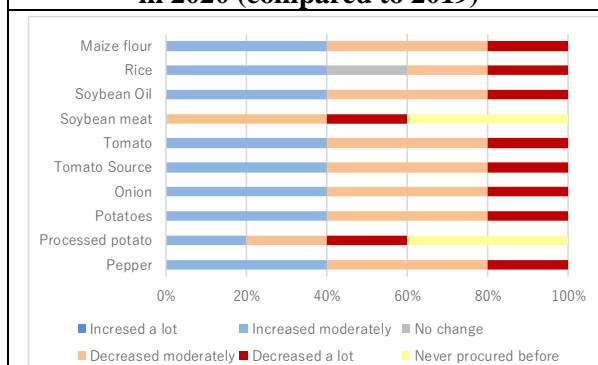


Figure 3-305 Malawi: Changes in volume of the target products purchased by restaurants in 2021 (compared to 2019)

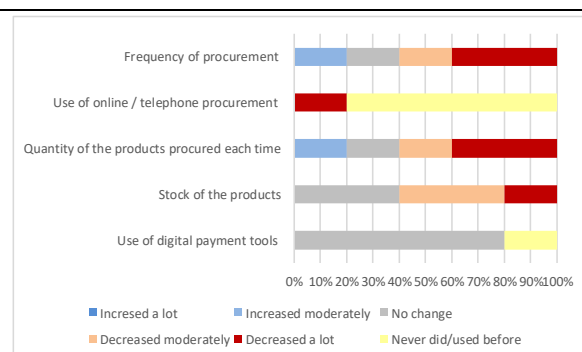


Figure 3-306 Malawi: Changes in purchasing behavior of restaurants in 2021 (compared to 2019)

c) Changes in restaurants' preference on ingredients

Figure 3-307 shows the changes in preferences for ingredients used in restaurants in 2020. Many respondents were more aware of the hygiene and traceability of the ingredients they use than in 2019. On the other hand, there were no responses about organic food and certification, indicating that this is still not generally recognized.

In 2021, awareness of traceability increased to 80% and hygiene to 60% compared to 2019. There were no responses for the other categories and awareness of organic food and certification has not changed since the previous survey.

(8) **Financial institutions**

The survey of financial institutions was conducted with two microfinance institutions (MFIs) and one governmental bank, and a summary is described below.

1) **Microfinance institutions**

The first MFI targets the rural and peri-urban population and is involved in financial as well as livelihood improvement projects. The number and volume of customers increased in 2019-2020 but decreased after March 2021.

Features	A microfinance institution owned by a saving and investment cooperative. They offer loans and savings to small-scale farmers and small-scale entrepreneurs.						
Year	2019	2020	2021	Year	2019	2020	2021
Number of customers	3199	3148	1357	Agricultural Loan Performance (MWK)	152 million	178.5 million	62 million
Total loan amount (MWK)	151 million	293 million	62 million	PAR30	2	3	3
Total number of loans	3199	3148	46	ROA	0	0	-
Increase/decrease in the number of customers and reasons	Decreased. Customers refrained from borrowing for fear of defaulting on repayments.						
Increase/decrease of PAR30 and its reasons	Decreased. The lending rate was lowered.						
Change in loan conditions	Partially tightened.						
Financial services offered	Working capital and capital investment in agriculture.						
Financial services desired by customers	Nothing, or there was no change in other services.						

2) **Government microfinance institutions**

The second MFI is government-run and has nationwide coverage. It deals with loans for small- and medium-sized start-ups, loans for the procurement of agricultural inputs, and capital investment. The number of customers and the amount of agricultural loans increased until 2020 but decreased in

2021.

Features	Branches across the country offer loans to women, young people, and farmers for business and working capital for agriculture.						
Year	2019	2020	2021	Year	2019	2020	2021
Number of customers	10,000	58,900	17,800	Agricultural Loan Performance (MWK)	-	-	950 million
Total loan amount (MWK)	100 million	293 million	2,000 million	PAR30	13.1	3.5	3
Total number of loans	-	-	100,000	ROA	3.9	2.1	-
Increase/decrease in the number of customers and reasons	The number of customers decreased due to a lack of funds.						
Increase/decrease of PAR30 and its reasons	There was a significant decrease due to a significant increase in payments.						
Change in loan conditions	Slightly relaxed.						
Financial services offered	Working capital and capital investment in agriculture.						
Financial services desired by customers	Working capital, nothing						

(9) Cross-cutting issues

1) Financial services

a) Financial needs

As shown in Figure 3-308, input retailers, farmers, agricultural cooperatives, and processors answered that they had received loans during the first half of 2020, when COVID-19 infections began to spread. Input retailers, farmers, agricultural cooperatives, and retailers responded that they needed new loans after COVID-19 (since June 2020, when COVID-19 outbreaks spread), but none of them had actually received loans. As shown in Figure 3-309, the reasons for not receiving loans were that they did not know of any institutions that could provide loans, or that they had no way of repaying the loans even if they did receive them. These results indicated that access to information about loans was limited and that the prospects for management due to COVID-19 were not clear. Individual interviews also indicated that farmers and other small entrepreneurs have limited access to loans, with sole traders, processors, intermediaries, and retailers stating that they were unable to obtain loans or information on loans for start-ups and entrepreneurs.

The financing needs before and after COVID-19 in 2021 are shown in Figure 3-309. The number of indebted industry sectors decreased compared to 2019, but the number of sectors with new financing needs increased. The financing needs were higher for farmers and intermediaries, which are relatively small businesses, and for exporters. The reasons for lack of access to finance, shown in Figure 3-310, have not changed significantly since 2020. In the closing workshop conducted for this study, there was a strong need for loans for the purchase of agricultural inputs by small-scale farmers and for

agro-processing by small-scale entrepreneurs.

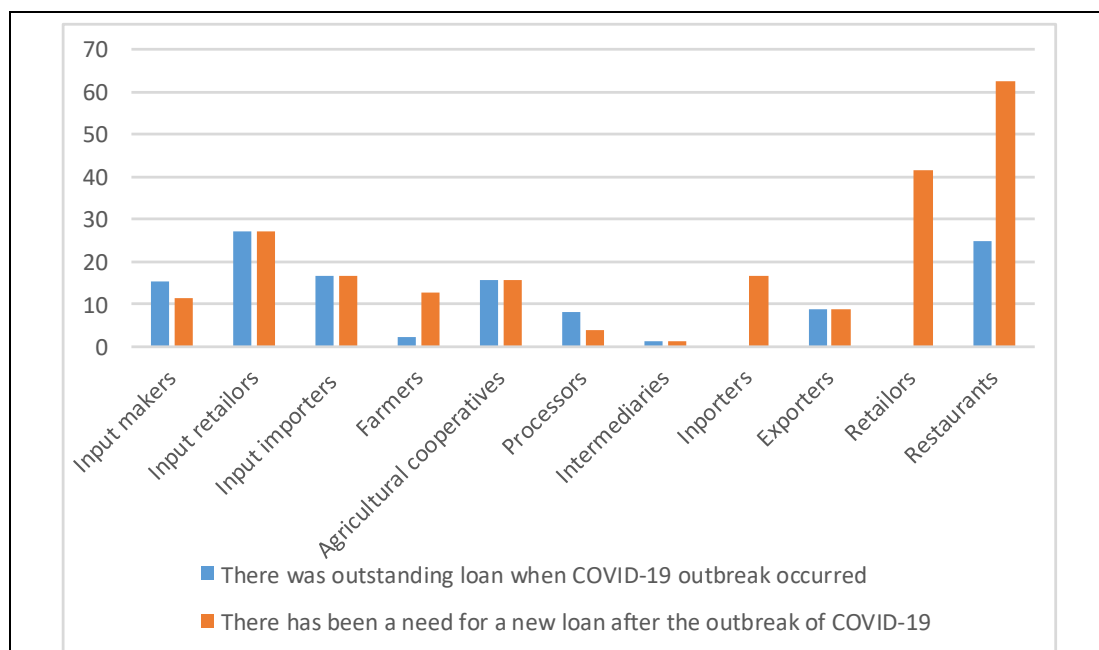


Figure 3-307 Malawi: Borrowing as of the outbreak of COVID-19 and needs for new loans afterward in 2020

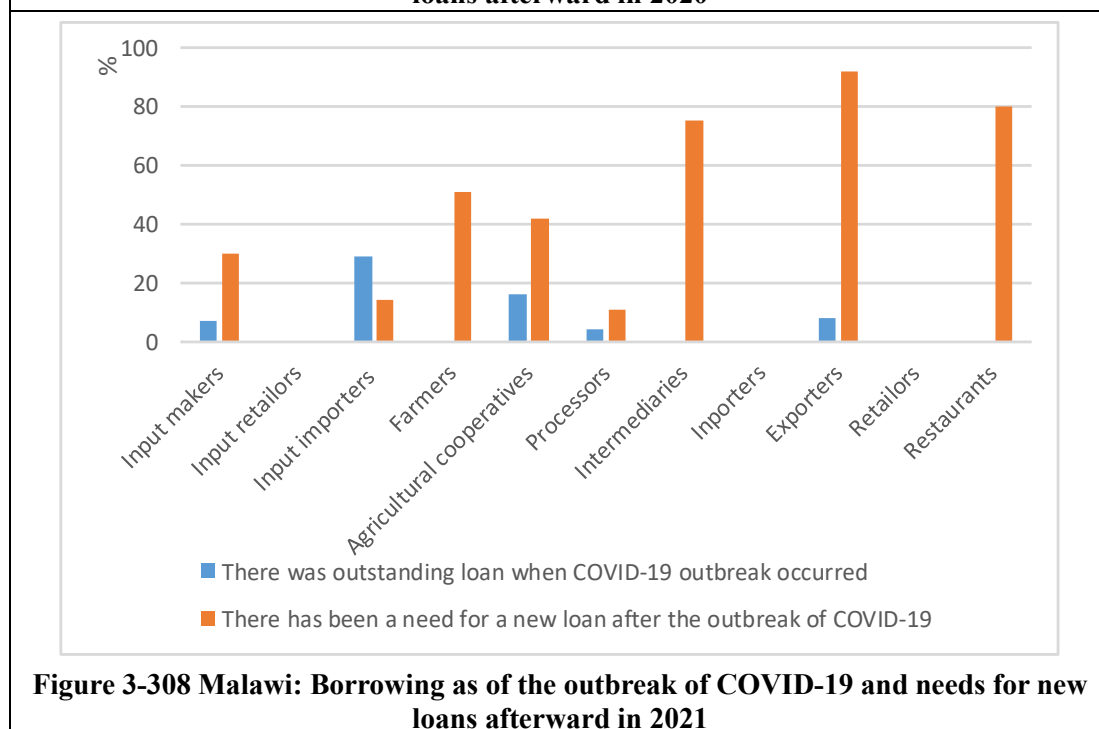


Figure 3-308 Malawi: Borrowing as of the outbreak of COVID-19 and needs for new loans afterward in 2021

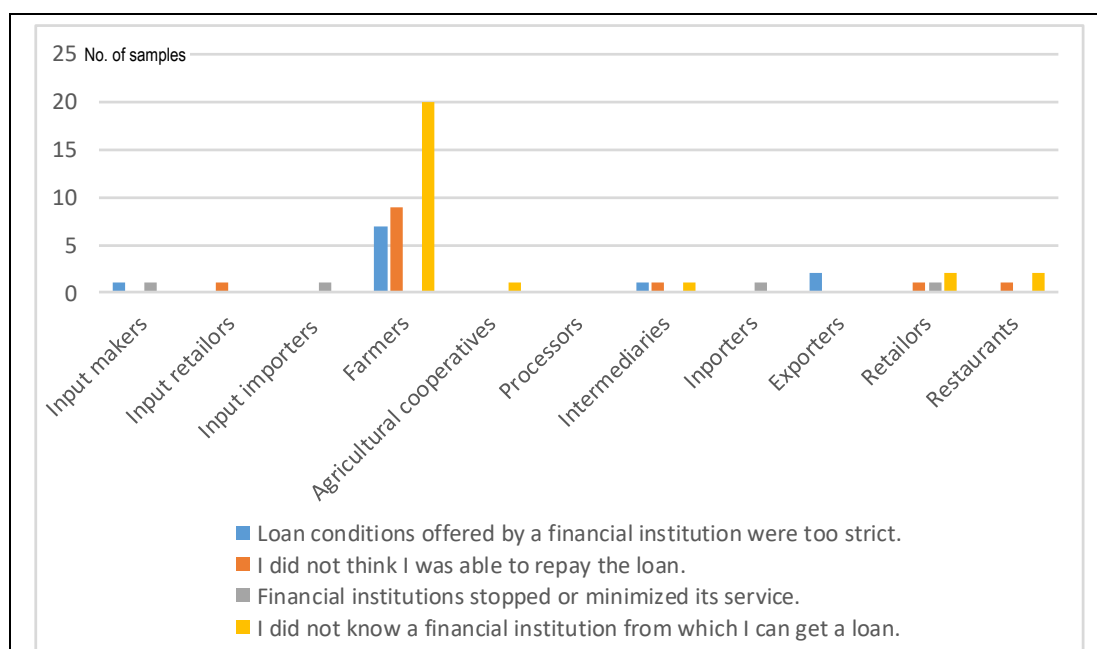


Figure 3-309 Malawi: Reasons for not obtaining loans in 2020

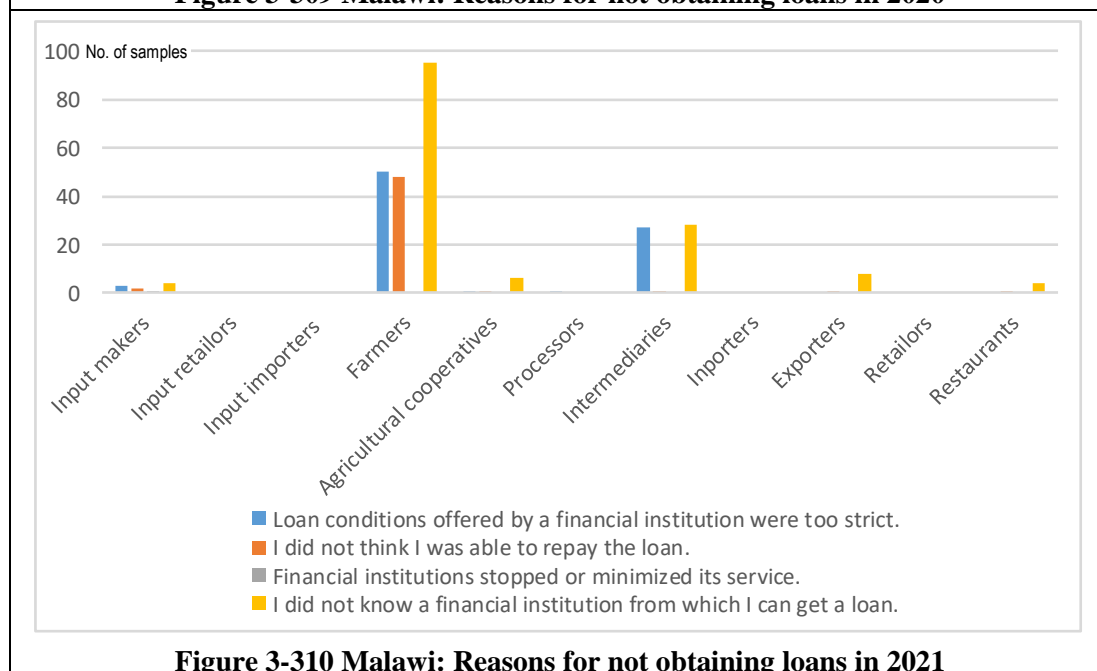


Figure 3-310 Malawi: Reasons for not obtaining loans in 2021

b) Needs for financial products other than loans

Regarding the need for financial products other than loans in 2020, many respondents indicated that they do not need or do not have a specific need for such products (Table 3-44). This may be due to a lack of interest in loans and financial products due to lack of promotion and awareness, or it may be because they already have access to some products. Some producers and intermediaries answered about loans for agricultural inputs, agricultural insurance, and loans available in case of a business downturn.

In 2021, the need for these products was still low in most sectors.

Table 3-44 Malawi: Financial needs other than loans after the outbreak of COVID-19

Financial products	Fixed Term deposit	Non-fixed term saving account	Current account for payment	International transfer	Business or disaster insurance	Life or health insurance for employees	Internet or mobile payment	Credit or debit card payment	Internet or mobile inquiry service
Input makers	0%	0%	0%	4%	0%	0%	0%	0%	0%
Input Importers	0%	0%	0%	0%	0%	0%	0%	0%	9%
Input retailers	0%	0%	0%	0%	0%	0%	0%	0%	17%
Farmers	3%	4%	0%	0%	4%	0%	1%	0%	0%
Agricultural Cooperatives	0%	0%	5%	0%	0%	0%	0%	0%	0%
Processors	0%	0%	0%	0%	0%	4%	4%	4%	4%
Intermediaries	0%	0%	0%	0%	0%	0%	0%	0%	0%
Importers	0%	0%	0%	0%	0%	17%	0%	0%	0%
Exporters	0%	0%	0%	9%	0%	0%	0%	0%	0%
Retailers	8%	33%	0%	0%	17%	8%	0%	0%	0%
Restaurants	13%	0%	0%	0%	50%	0%	0%	0%	0%

Legend

> 10%

> 20%

2) Change in business practices

As the movement of people and goods is severely restricted due to the COVID-19, it was shown that business practices were also gradually changing. Table 3-45 shows the changes in ICT in surveyed businesses in 2020 compared to 2019. The utilization of ICT has increased except for input retailers, intermediaries, and retailers (no response). The use of online, social networking, and SMS has become more widespread as face-to-face transactions have been avoided due to infection control measures caused by COVID-19. Other changes mentioned were the diversification of suppliers, customers and products handled, the introduction of infection control measures (retail), and the layoff of employees.

In 2021, input imports and importers have a higher proportion of online transactions. In general, importers are more advanced in their use of ICT than other sectors. For farmers and intermediaries (small-scale and individual intermediaries), there has been little change since 2019. This may be partly because farmers and small-scale businesses cannot afford to own tools such as smartphones and tablets due to the high cost of purchasing and paying for their use, which is one of the reasons why ICT in business is not as widespread as it could be.

Table 3-45 Malawi: Changes in ICT-based business practices after the outbreak of COVID-19 in 2020

	Frequency of online business talk	Face to face business talk	Use of SNS for online marketing	Use of SMS for online marketing	Use of digital money for paying and receiving money	Online buying, selling and business matching	Introduction of ICE tag
Input Importors	63%	13%	50%	50%	50%	13%	13%
Input makers	38%	6%	25%	34%	25%	19%	0%
Input retailers	9%	9%	0%	9%	9%	0%	0%
Farmers	1%	1%	0%	0%	1%	0%	0%
Agricultural	11%	5%	0%	5%	16%	5%	0%
Processors	26%	7%	11%	15%	22%	11%	4%
Intermediaries	0%	0%	0%	0%	0%	0%	0%
Inporters	8%	8%	8%	8%	8%	8%	0%
Exporters	67%	33%	50%	17%	50%	67%	0%
Retailors	33%	0%	0%	17%	9%	4%	0%
Restaurants	25%	13%	0%	13%	38%	13%	0%

Legend

	30-50%
	51-70%

3.5. Mozambique

3.5.1. Socio-economic overview focusing on the agricultural sector

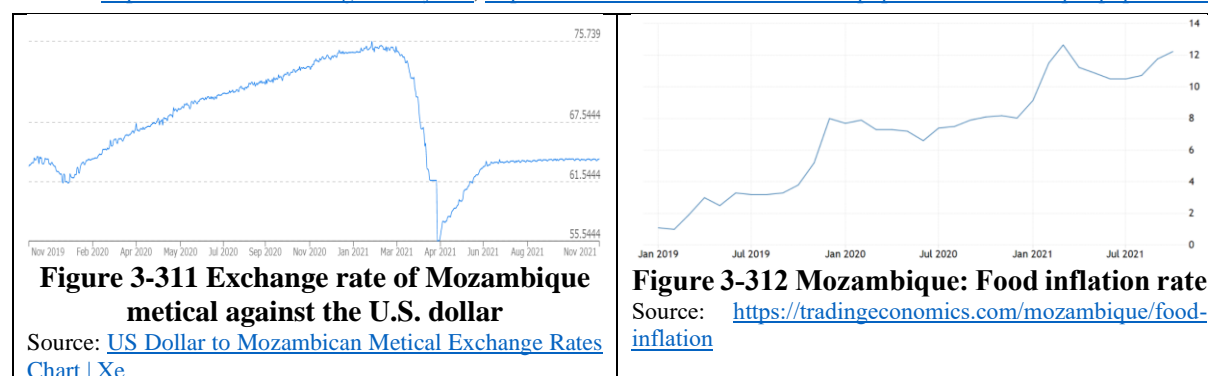
As summarized in Table 3-46, Mozambique has a population of about 31.25 million people and a high population growth rate of about 2.9%, but due to the size of the country, the population density is low at only 37.51 people/km². This creates a situation where there is still room for improvement in the use of agricultural land. The poverty rate is 63.7% and the Gini coefficient is 0.54, both of which are high.

As shown in Figure 3-311, the exchange rate of Mozambique metical (MZN) against the US dollar has been continuously declining from January 2020 until March 2021, with a maximum depreciation of about 20% against the dollar. Then, due to government intervention for the policy interest rate, there was a sharp rise in the value of the currency from March to April 2021. Since May 2021, the exchange rate has been stable (at approximately the same level as the average of the past five years). The food inflation rate shown in Figure 3-312 stayed as high as 7-8% from late 2019 to 2020, and the inflation rate in 2021 continues to be about 10-12% higher than the same months of 2020.

Table 3-46 Mozambique: Population and economic statistics

Population (2020)	31,255 thousand	GDP per capita (2019)	USD 448.6
Annual population increase (2020)	2.93%	Agricultural Area (2015)	52.7%
Rural population (2020)	62.9%	Poverty rate: less than USD 1.90 / day (2014)	63.7%
Surface Area (2018)	799,380 km ²	Gini Index (2014)	0.54
Population Density (2018)	37.51 people / km ²	Life Expectancy (2019)	60.9

Sources: <https://data.worldbank.org/country/Mz>, <https://www.worldometers.info/world-population/mozambique-population/>



As shown in Table 3-47, agriculture accounts for 26.0% of GDP, which is more than that of industry, but only about two-thirds of the service sector. On the other hand, its share of the working population is very high at 72.1%, indicating that a large part of the Mozambican population depends on agriculture for their livelihood.

Table 3-47 Mozambique: Sectoral composition of GDP and employment population

	Agriculture	Industry	Service
GDP per industry (2019)	26.0%	22.9%	39.9%
Share of population by industry (2019)	72.1%	7.7%	20.1%

Source 1: <https://data.worldbank.org/country/Mz>, Source 2: <https://ilostat.ilo.org/data/country-profiles/>

Table 3-48 shows that more cassava and maize are produced than rice in Mozambique, as these are both staple grains in the area. As for vegetables, tomatoes, potatoes, and onions are produced in large quantities. Sesame, sugar products, and cashew nuts are representative as food exports, and rice is a particularly large import (Table 3-49, Table 3-50).

Table 3-48 Mozambique: Top 10 agricultural products in quantity (2019)

Items	Quantity: Ton
Sugar cane	4,106,873
Cassava	3,987,446
Maize	2,085,000
Bananas	724,966
Tomatoes	708,467
Sweet potatoes	451,204
Rice, paddy	341,000
Sorghum	325,000
Potatoes	297,812
Vegetables, fresh	233,649
Onions, dry	233,298
Coconuts	232,771

Source: FAOSTAT

Table 3-49 Mozambique: Top 10 agricultural exports in value (2019)

Items	Value: Thousand USD
Rice (paddy + milled)	433,313
Palm oil	158,779
Wheat	126,203
Soybean oil	97,432
Food prep nes	77,595
Sugar refined	67,727
Tobacco, unmanufactured	65,890
Maize	42,148
Chicken meat	37,303
Maize flour	34,476

Table 3-50 Mozambique: Top 10 agricultural imports in value (2019)

Items	Value: Thousand USD
Tobacco, unmanufactured	258,735
Sesame seed	152,376
Sugar raw centrifugal	89,151
Cashew nuts (shelled + with shell)	65,149
Bananas	29,595
Sugar refined	27,439
Cotton lint	27,341
Dry beans	22,451
Sunflower oil	21,813
Rice (paddy + milled)	25,970

3.5.2. COVID-19 situation, relevant measures and policies, and responses by development partners

(1) COVID-19 situation and regulations against COVID-19 in Mozambique

As Figure 3-313 shows, the number of COVID-19 infections in Mozambique reached a large peak between December 2020 and March 2021, but the number of infections was kept relatively low between April and May in 2021 due to the strengthening of infectious disease control measures that had been applied from January 2021. With the expansion of the number of COVID-19 cases in South Africa, between June and August 2021, Mozambique experienced the third wave of COVID-19 with the highest number of infections and deaths. Following stringent infection control measures by the government, the infection rate slowed in mid-August, and the number of infected people and deaths was kept at a very low level from October to November 2020.

Since the State of Emergency (SOE) was announced on March 30, 2020, various restrictions have been put in place by government agencies to prevent the spread of COVID-19. The SOE has been extended twice, and then transitioned to the Situation of Public Calamity (SOPC) on September 4, 2020, with no fixed deadline. On January 13, 2021, the regulations for infectious disease control were strengthened, and the ninth extension of the SOPC was announced on June 24, 2021. As of early December 2021, the number of infected people had been kept low. Therefore, the restrictions by the government on the movement and economic activities were kept relaxed. The fourth wave arrived in mid-December due to a new variant discovered in South Africa in November 2021, and as of this writing there are concerns that it will have a significant impact on the health of the people and economy of the Southern African region, including Mozambique.

Infection control regulations and codes of conduct prescribed by the SOE and the SOPC have been tightened and relaxed as the infection situation expanded or shrank. The major regulations that may have affected the VCs include:

- Compliance with COVID-19 infection control measures
- Shortened hours for fresh food markets (as of April 2020, they could only be open from 6 am to 5 pm)
- Limited opening hours for restaurants, closure of bars, etc.
- Nighttime curfew (e.g., prohibited from going out from 9 pm to 4 am)
- Closure of borders, except for major airports and seaports
- Limitation on the number of people at gatherings (maximum of 20 people in time with strict restrictions, also applied to agricultural work and agricultural technology extension services)
- Restriction on the number of on-site staff in a company or factory (e.g., no more than 1/3, rotating duty teams every 15 days)
- Limitation on the number of passengers on public transportation (initially limited to 1/3 or less)

No bans or restrictions on the import or export of agricultural products or agricultural inputs have been identified. On the other hand, the suspension or reduction of international flights has affected the movement of goods and people that need to be transported by air. In addition, when COVID-19 cases were confirmed at the border with South Africa, a temporary border blockade was implemented on the South African side.

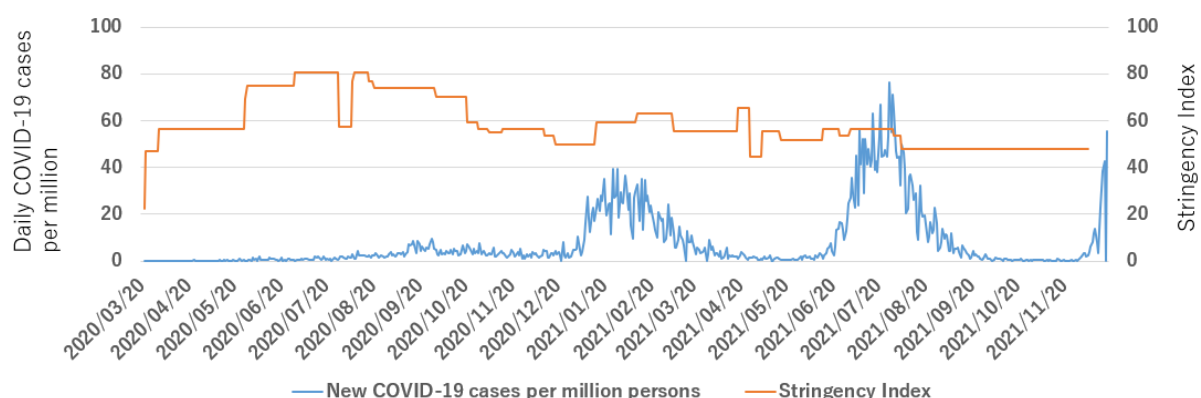


Figure 3-313 Mozambique: Newly confirmed COVID-19 cases per week (from March 2020 to Mid-Dec 2021)

Source: <https://ourworldindata.org/grapher/covid-stringency-index>

(2) Measures against COVID-19 by the Mozambican government in the agricultural sector

The Ministry of Agriculture and Rural Development (MADER) has issued guidelines for implementing COVID-19 measures in the agricultural sector, including the implementation of farming activities based on infectious disease control. The following measures have been adopted to ensure agricultural extension and support to farmers after the COVID-19 disaster. Much of this support has come from Sustenta, a government-sponsored program funded by the World Bank to support family farming that has been in full effect from 2020. However, as a result, it is considered to have functioned

as a supportive measure for farmers under COVID-19.

- 2,158 additional agricultural extension workers have been hired.
- Procurement of motor bikes for 40% of the extension workers and provision of full equipment including fuel and tablets to be used for extension services.
- Sustenta aims to develop leader farmers in each region and spread technology through them.
- As the frequency of extension activities decreased to avoid infection of COVID-19, more attention was paid to promoting technology transfer and information transfer through leaders.
- To secure food and income for the farmers under COVID-19, growing crops with a short harvest time, such as green beans, has been recommended.
- Vietnam, one of the largest exporters of rice, implemented a temporary restriction on rice exports due to COVID-19. Therefore, measures were taken to further promote domestic rice production through Sustenta.

In an interview with the Provincial Direction of Agriculture (DPA) and District Services of Economic Affairs (SDAE)⁵⁶ in Gaza Province in May 2021, it was reported that the number of people benefiting from agricultural extension services has been reduced by about half to comply with the government restriction on gatherings and to prevent COVID-19 infection.

Sustenta is the family farming support program promoted by the government of Mozambique that started in 2020.⁵⁷ It aims to integrate rural family farmers into the food value chain and to develop sustainable agriculture and improve farmers' quality of life. The program provides farmers with input loans, agricultural technology extension services, and assistance in marketing their products. The program has started to be implemented in all provinces to promote the cultivation of products that are suitable for each area. The target products are about 40 items in total, including grains, vegetables, fruits, and livestock. The government of Mozambique expects public and private investment in the program to be about 145.5 billion Mozambique Metical (about US\$2.3 billion) from 2020 to 2024. Although the program was not originally designed to address COVID-19, it is expected to function as a support to farmers affected by COVID-19.,

As for other government measures related to FVC, it was decided in November 2020 that sugar, soap, and cooking oil would be exempted from VAT until December 2023⁵⁸. In addition, COVID-19 mitigation measures were adopted for all sectors, including FVC stakeholders, such as an extension of payment deadlines for income and corporate taxes and loan repayment deadlines.

(3) Responses against COVID-19 by development partners in the agricultural sector in Mozambique

From interviews with donors and government agencies, and from website information, the following COVID-19-related supports have been identified for the FVC sector.

In October 2020, the World Bank decided to provide US\$100 million to the Government of

⁵⁶ SDAE offers agricultural technology extension services.

⁵⁷ For example, the harvest started from 2021 in the case of rice since the planting was in 2020.

⁵⁸ [Mozambique: VAT exemption on sugar, soap, oil to be extended for three years | Club of Mozambique](#)

Mozambique to mitigate the impact of COVID-19⁵⁹. The fund is intended to be used to strengthen access to safety nets during the COVID-19 pandemic, to provide loans to SMEs for economic revitalization, and to ensure the country's financial stability. In a related effort, World Bank provided working capital support to agribusinesses through the FNDS. This package is called Sustenta Emergency Assistance, which provides low-interest loans to help agribusinesses retain 80 percent of their employment.

Under the UN Global Covid-19 Humanitarian Response Plan, the FAO Mozambique office has been investigating the impact of COVID-19 on the agricultural sector and food security, as well as providing support to farmers. The survey by FAO was implemented from May 2020 to April 2021, and the results will be published when the internal review is completed. In parallel with the survey, FAO planned to deliver \$20 million worth of emergency assistance to 110,000 households, but as of May 2021, only about 10% of the funds have been raised, and the assistance realized has been limited. FAO will continue to provide support depending on the availability of funding. FAO's support includes assistance to the Mozambique government for information collection and analysis, provision of agricultural inputs to farmers across the country, promotion of livelihood diversification and improved nutrition, reduction of food losses through improved post-harvest crop management practices, and so on.

IFAD has been continuously supporting Mozambique in developing its value chain and is currently implementing several projects and programs such as the Rural Enterprise Finance Project, Inclusive Agri-food Value Chain Development Programme, and Rural Markets Promotion Programme. Recognizing the importance of these projects in promoting resilient agriculture and agribusiness, IFAD provided emergency assistance to their beneficiaries after the outbreak of COVID-19 so that the projects would not be negatively impacted. IFAD also conducted a COVID-19 impact survey of approximately 2000 farmers in four provinces between December 2020 and January 2021. As a result of the survey, the following impacts were identified: (1) difficulties for farmers to work together due to restrictions on gatherings, (2) lowered access to agricultural inputs due to movement restrictions, etc., (3) reduced purchasing power and access to food due to lower incomes, etc., (4) reduced marketing opportunities due to weakened markets (reduced exports, reduced number of consumers due to movement restrictions, cancellation of agricultural fairs, etc.), and (5) increased pest damage and difficulties in proper farm management due to reduced access to agricultural extension services.

USAID decided to provide a US\$16.5 million loan to Absa Bank Mozambique for 10 years to facilitate financing for SMEs in the agriculture and FVC sectors⁶⁰. The support is not directly related to relief from COVID-19. However, in Mozambique, the provision of loans to the FVC sector is limited, and this support contributes to the continuation and development of SMEs in the agricultural value chain sector, as their management has been exhausted by COVID-19. It has been agreed that more than 70% of the loans will be provided to the agricultural value chain and more than 15% to women-owned enterprises.

⁵⁹ [World Bank Helps Mozambique Mitigate Impact of Covid-19 with a New \\$100 Million Grant](#)

⁶⁰ [USAID Partnership with Absa Bank to Increase Access to Financing in the Agricultural Sector | U.S. Agency for International Development](#)

3.5.3. Impact of COVID-19 on the value chain of the target products

(1) Characteristics of the impact of COVID-19 on FVC in Mozambique

Table 3-51 summarizes the impact of COVID-19 on each VC in Mozambique in 2020. Although each VC received a variety of the impact from COVID-19. The overall trend was as follows.

For the agricultural input sector, the government's restrictions on movement and other factors caused input procurement costs to soar, but there was no major impact at the input retailers level due to strong demand from producers.

For the production to consumption sectors, the impact of COVID-19 was small for maize and rice since there was limited impact on domestic demand for these crops. For all other crops, the trend was generally negative, mainly due to logistical disruptions caused by government regulations (movement and business restrictions) under COVID-19. For crops consumed domestically, the decline in consumer purchasing power had a negative impact, and for export crops, the decline in overseas demand had a negative influence.

In 2021, there was a recovery in consumer income, and sales volume was on the rise in distribution and retail. While production improved for crops with improved access to inputs, production of maize declined significantly due to adverse weather conditions and poor access to inputs. Export crops, namely sesame and cashew nuts, continue to be affected by stagnant international demand and disruptions in international transportation.

Table 3-51 Mozambique: Impact of COVID-19 in each value chain (compared to 2019)

VC	2020		2021	
	Effect	Cause	Effect	Cause
Inputs	A downward trend in imports & manufacturing. An upward trend in retail.	Input importers / manufacturers experienced a downward trend in production and sales volume due to the impact of regulations on transportation. Input retailers have experienced an increase in sales volume due to demand from producers.	Sales volume was lower except for seed manufacturers. Sales prices rose.	Soaring procurement costs drove up selling prices and led to lower demand.
Production	Farmers' yields and sales are on the decline, except for rice and maize.	Weather was a major reason for both the increase and decrease in production. Sales volume of tomatoes, onions, cashew nuts, and sesame tended to decline due to reduced demand. There was also a tendency of not being able to secure labor due to the congregation and movement restrictions.	Yields of maize & sesame decreased. Upward trend for the other crops, especially oranges.	Yields in maize and sesame declined due to adverse weather conditions. For maize, access to inputs deteriorated. For the crops that were produced well, improved access to inputs and farm machinery and favorable weather were the reasons for the increase.
Processing	Upward trend in rice & maize processing. Downward trend in cashew nuts & sesame	For rice and maize, processing and sales volumes increased due to increased domestic demand. For rice, the supply of imported rice decreased and the demand for domestic rice rose. For export crops, the downward trend in sales volume and price was due to a decline in international demand. Government	Decreased processing volume for all target crops.	The reasons for the decline in processing volume were difficulty in procuring raw materials for rice, lower demand for maize, and continued stagnation in export demand for cashew nuts and sesame.

		regulations on factory operations affected production capacity.		
Distribution	Downward trend in sales volume, especially of imported & export crops	The main reason for the increase in sales volume was the decrease in domestic demand in the case of tomatoes and onions, and the decrease in demand in overseas markets in the case of cashew nuts. As for imported products, a rise in procurement and sales prices due to higher transportation costs affected the decline in sales volume.	Orange sales volume increased, while rice sales volume decreased.	Sales volume of oranges increased due to strong production and demand. Rice sales volume declined due to decreased demand. Sales of sesame and cashew nuts continued to be weak due to the continuous decrease in international demand.
Retailing	Regional differences reported in the impact on the increase or decrease	Sales in Nampula Province and Gaza Province showed an increasing trend, while sales in Maputo City and Manica Province showed a decreasing trend. Customers' purchasing power decreased, especially in urban areas, and affected the retail sector.	Overall, unit sales prices rose, although there were regional differences in the increase and decrease in sales volume.	Sales volume in Nampula clearly increased but declined in the other surveyed provinces.
Consumption	Consumption of target crops on the decline	Income decreased, especially among low-income groups. Not only the consumption of the target crops, but also the frequency of shopping, the volume of purchases, and the frequency of eating out and take-out decreased.	Overall, consumption of target crops increased.	Household income of consumers increased, resulting in an overall increase in consumption. Frequency of shopping, the volume of purchases, eating out, and takeout increased.

(2) Agricultural inputs

1) Highlights

Overall, in 2020, it can be said that input importers and input manufacturers were affected, while the impact of COVID-19 was small at the level of input retailers. In 2021, the sales volume of input materials remained weak, except for a few manufacturers. The selling prices of inputs increased in 2021 for importers, manufacturers, and retailers alike, mainly due to higher procurement costs.

2) Changes in sales

Figure 3-314 shows the changes in sales volume in 2020 compared to 2019, and Figure 3-316 shows the changes in sales price.

Regarding the sales volume of fertilizers, pesticides, and seeds among importers in 2020, all companies reported a decrease. The reasons for the decrease in fertilizer sales were reduced demand, higher procurement costs including transportation costs, and restrictions on imports. As a result of these factors, sales prices increased leading to a decrease in sales volume. In fact, no import restrictions were imposed by COVID-19, which indicates that it has taken more time for the import to pass through customs, etc. An additional interview with the Mozambique Association for the Promotion of Fertilizer Use (AMOFERT) revealed that nighttime curfews and restrictions on the number of people who can gather at one time or use public transportation have caused delays in operations at ports and other

facilities, which probably have affected imports. The two companies that responded about seed importation were importers of maize seed located in Manica Province. The reasons cited for the decline in sales volume were lower imports and reduced demand for maize seed in the country.

A similar trend was observed among importers of agricultural inputs in 2021, with most importers reporting a decrease in sales volume compared to 2019. Similarly, higher selling prices due to higher procurement costs and decreased demand are cited as reasons for the decline.

Regarding manufacturers, in 2020, many of the fertilizer and pesticide manufacturers responded that their sales had decreased. The reasons pointed out for the decrease were the increase in the cost of transportation and procurement and the decline in the value of the local currency, resulting in an increase in selling prices. For seed manufacturers, there was a noticeable increase in sales volume. The increase in demand was the most common reason for the increase in sales. For tomato and sesame seeds, many respondents reported an increase in sales volume, and none reported a decrease. For orange, many respondents also answered an increase in the sales volume of seeds/seedlings. On the other hand, regarding rice seeds, three out of the five companies showed a decrease in sales. The reasons given for the decline in rice seed sales included a lack of funds and labor, which forced the farmers to reduce the area of seed production. For maize seed, two of the three companies reported an increase in sales volume, while one company reported a decrease in sales volume. Increased demand was cited as the reason for the increase in sales volume. Regarding the unit price of seeds sold by seed manufacturers, there was no significant change in 2020 as a whole, but many respondents mentioned that the price of tomatoes seeds had increased, and respondents also showed the tendency that the unit price of seeds and seedlings for oranges and sesame had increased.

In 2021, among the responding companies, agricultural chemical companies indicated an increase in sales volume, especially for seeds. The main reason was an increase in demand. For many of the seed companies that produce rice seeds, the floods have reduced seed production (Figure 3-315). Many retailers of agricultural inputs reported that their sales of fertilizers, pesticides, and seeds had increased in 2020. The most common reason for the increase was an increased demand from customers. On the other hand, in 2021, more respondents indicated a decrease in sales volume, reporting lower demand and the difficulty in procuring the expected volume as reasons why. In 2020, no significant increase was reported in unit selling prices at retail stores, but in 2021, all respondents reported an increase, which was attributed to higher procurement costs (Figure 3-317).

According to AMOFERT, although there was a depreciation of the currency in 2020, the impact on the selling price seems to have been relatively small at the retail level because most of the pesticides and fertilizers manufactured and sold in 2020 were imported before the outbreak of COVID-19. On the other hand, AMOFERT indicated that the prices of input goods may rise in 2021 due to the decline in the value of the country's currency that lasted until early 2021 and due to the increase in import costs associated with COVID-19. An individual interview with a major importer/seller of agricultural inputs indicated that although they were affected by COVID-19, the impact of COVID-19 on their sales was mitigated by procurement of agricultural inputs related to the government's Sustenta program, and procurement by NGOs for natural disaster response.

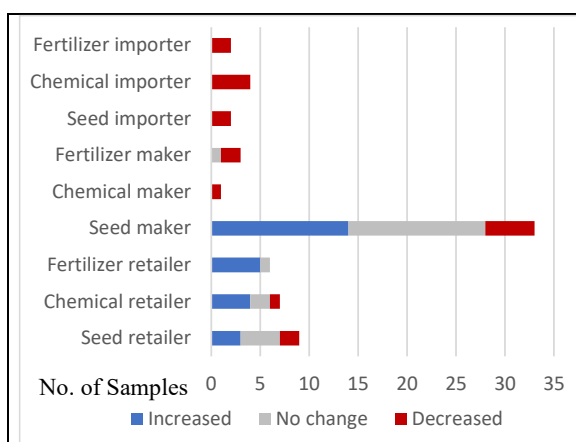


Figure 3-314 Mozambique: Changes in agricultural input sales volume in 2020 (compared to 2019)

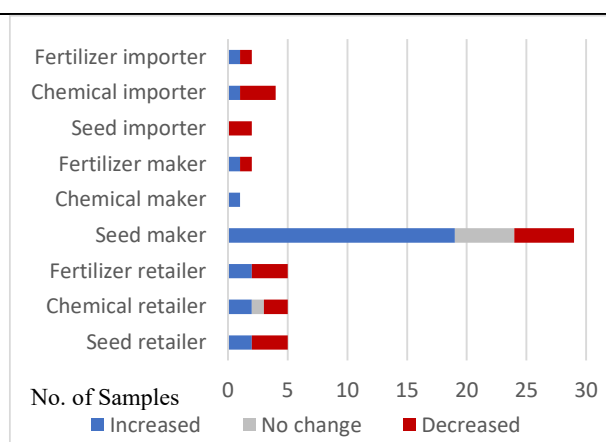


Figure 3-315 Mozambique: Changes in agricultural input sales volume in 2021 (compared to 2019)

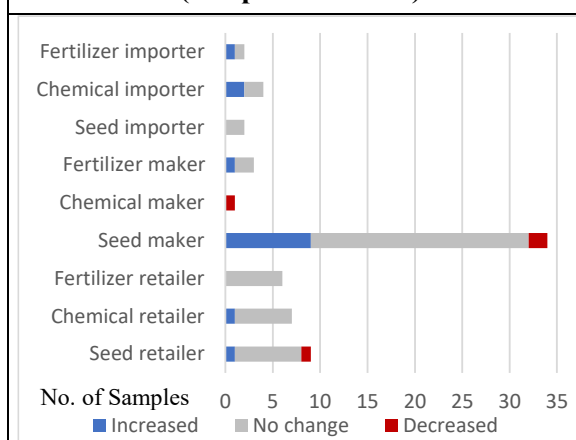


Figure 3-316 Mozambique: Changes in sales price of agricultural inputs in 2020 (compared to 2019)

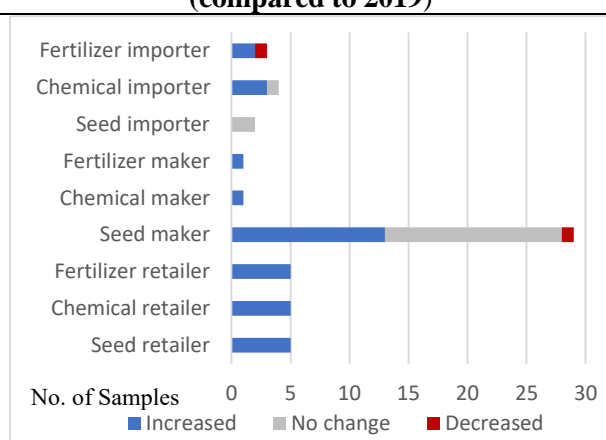


Figure 3-317 Mozambique: Changes in sales price of agricultural inputs in 2021 (compared to 2019)

3) Changes in countries from which agricultural inputs are imported

The responses by seed importers were all from Manica Province, the area surveyed for information about maize, and the importers were from South Africa and Zimbabwe. The company that imported from Zimbabwe in 2019 switched its main imports to South Africa in 2020 and 2021. Responses by importers of pesticides came from companies based in Nampula and Manica provinces. The countries of origin were South Africa, Tanzania, and Zimbabwe, with no significant changes from 2019 to 2021.

Responses by fertilizer importers from Nampula and Manica provinces were similar, with the main country of origin remaining unchanged from 2019 to 2021 being China, followed by South Africa. According to AMOFERT, 90% of the fertilizer is imported from Beira Port in Sofala Province, and the remaining 10% is from Maputo City Port in the capital city, where it is manufactured and marketed within Mozambique and to landlocked countries such as Malawi.

(3) Production

1) Highlights

Regarding the questionnaire about 2020, 312 producers responded, with 40-50 respondents for

each crop. Of these, 283 responded to the second survey regarding the changes that occurred in 2021. Only maize showed an increasing trend in both yield and sales. For rice and maize, the unit selling price was favorable for farmers. Many respondents, mainly producers of tomatoes, onions, and cashew nuts, reported a decrease in sales volume. Among the responses from producers of sesame and oranges, there was an equal proportion of increase and decrease in both sales volume and sales unit price. In 2021, many respondents reported that both production and sales were good overall but declined in maize and sesame. For rice, both production and sales were affected by natural disasters such as flooding, and the results of production and sales were sharply divided between farmers who were affected by the disaster and those who were not.

2) Changes in harvested area

Figure 3-318 shows the changes in the harvested area from 2019 to 2020. Overall, 24% of the respondents increased their harvested area, 32% decreased their area, and over 40% had no change. Among producers of tomatoes, onions, and cashew nuts, only 10-20% of the respondents reported that they have increased their harvested area while 35%-50% have reduced their area. In the case of sesame producers, there is a clear split between increase and decrease.

The most common reason for the decrease in the harvested area was unfavorable weather conditions with 41 responses, mostly by producers of cashew nuts, sesame, and maize (Figure 3-320). In the case of producers of maize, onions, and tomatoes, worsening access to seeds was cited as the main reason for the decline in harvested area. In the case of tomatoes and onions, the increase in the unit price of inputs, including seeds, was often answered, which suggests that deterioration in access to inputs occurred through both physical access and financial circumstances. Orange growers indicated that the lack of access to financing services was a major reason for their failure. For rice, more than half of the producers reported that unfavorable weather conditions such as excessive rainfall and insufficient including flood affected the reduction in harvested area. (Table 3-52 and Table 3-53).

In the case of rice, most reasons for the increase in the harvested area were planned area expansion due to increased demand (Figure 3-322). Regarding maize, most responses for increased harvested area were for self-consumption. For tomatoes and onions, the most common response was increased demand. From interviews with the market participants in the capital city, it is assumed that this was a temporary increase in demand while imports of South African crops were affected by COVID-19. For cashew nuts and sesame, increased demand was given as the main reason for expanding the harvested area. Figure 3-319 shows the changes in the harvested area from 2019 to 2021. Overall, in 2021, similar percentages of respondents indicated an increase, a decrease, and no change in harvested area. Unlike maize and sesame in 2020, many farmers reduced their harvested area for rice. For tomatoes, cashews, and oranges, however, farmers who increased their harvested area greatly outnumbered those who decreased it. The main reasons for the decrease in the harvested area of maize were unfavorable weather conditions and fewer visits to the field (Figure 3-321). As for the response of others, many responses from maize producers indicated a lack of funds (Table 3-53), which naturally also caused difficulty in securing the necessary inputs and labor for planting, even though these were not directly mentioned. Flooding was the main reason cited for the decline in the rice harvest area, and lack of water

and poor access to pesticides and financing were also given as reasons. Pest damage was the main reason for the decrease in the sesame harvest area. Interviews with the association of sesame producers and agricultural extension offices in Nampula Province also pointed out the seriousness of the pest problem in sesame production. For orange, the majority of respondents increased their harvested areas, and indicated that it was for their own consumption, and over 30% stated that it was due to increased demand and business expansion (Figure 3-323). The main reason for the expansion of the tomato and cashew harvest area was the increase in demand. Cashew nuts require multiple years for harvest and are therefore an investment for the future.

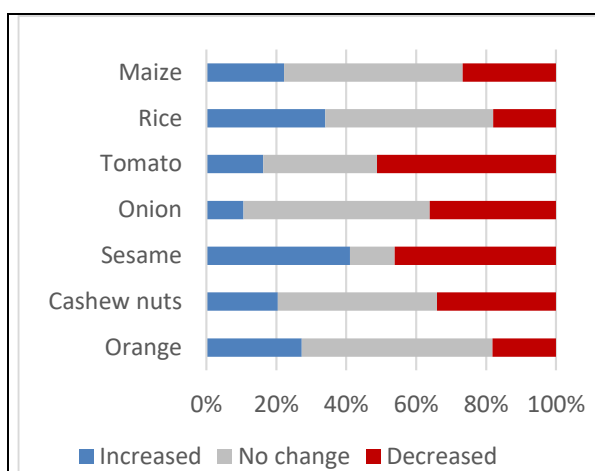


Figure 3-318 Mozambique: Changes in harvested area of the target crops in 2020 (compared to 2019)

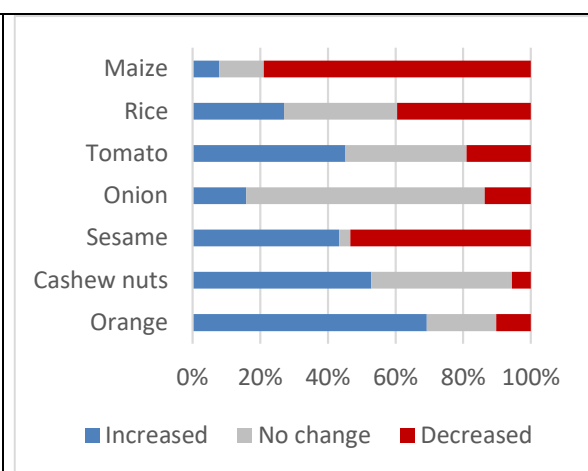


Figure 3-319 Mozambique: Changes in harvested area of the target crops in 2021 (compared to 2019)

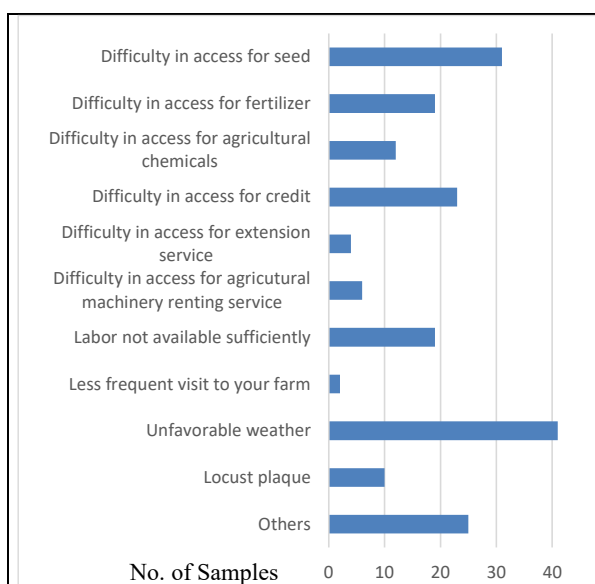


Figure 3-320 Mozambique: Reasons for decrease in harvested area in 2020

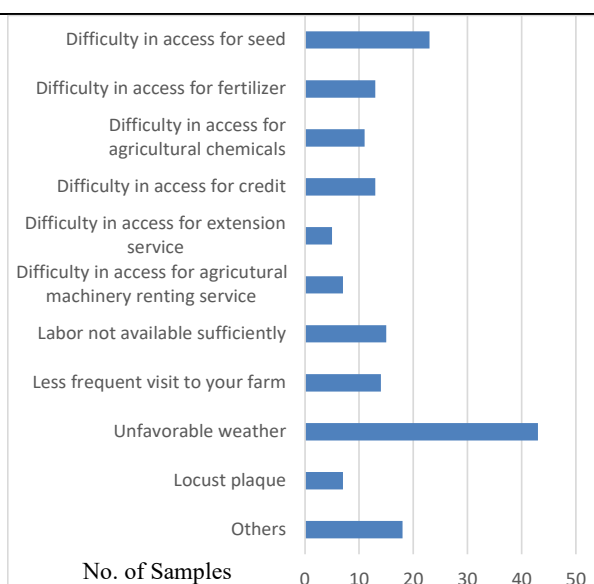


Figure 3-321 Mozambique: Reasons for decrease in harvested area in 2021

Table 3-52 Mozambique: Reasons for decrease in harvested area in 2020: Others

Damage by pest	9 (tomato, onion)
Lack of water	9 (mainly rice & sesame)
Lack of working capital	2 (sesame)

Table 3-53 Mozambique: Reasons for decrease in harvested area in 2021: Others

Flood	5 (rice)
Lack of working capital	2
Damage by pest	7 (mainly sesame)
Irregular weather	1
Age	1
Lack of water	2
Low demand	1

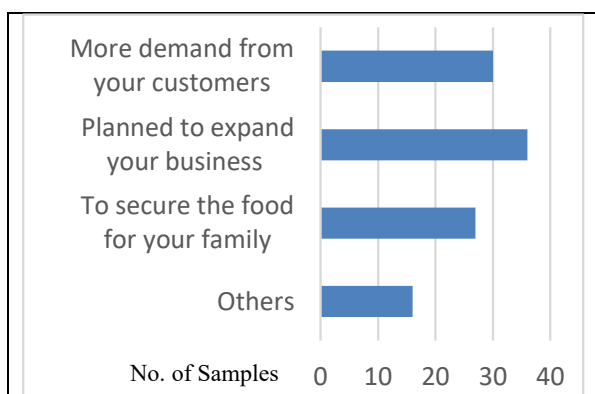


Figure 3-322 Mozambique: Reasons for increase in harvested area in 2020

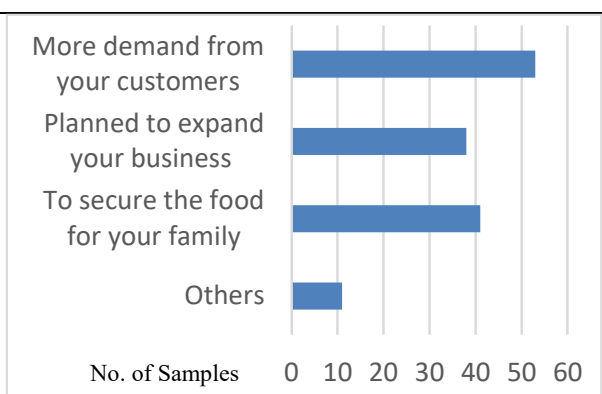


Figure 3-323 Mozambique: Reasons for increase in harvested area in 2021

3) Changes in production and yield

Figure 3-324 shows the changes in yield in 2020 compared to 2019. Overall, 48% of respondents reported a decrease in crop yields, much higher than the 32% who reported an increase. For rice and oranges, almost the same proportion of respondents reported an increase and decrease in harvest, while for tomatoes, onions, sesame, and cashew nuts, more respondents reported a decrease in harvest. As for maize, more growers increased their yields, accounting for 40% of the respondents.

In 2020, the most common reason for the decline in yields was poor weather conditions, such as lack of rainfall, for all crops except tomatoes (Figure 3-328). In the case of rice, excessive rainfall due to hurricanes and other factors was cited as the reason for the low harvest. For tomatoes and onions, worsening access to seeds and fertilizers led to reduced harvested area. Labor shortage was also cited, especially for maize and onion. Among the reasons for increased yields, improved access to seeds was a frequent response for sesame, maize, and rice (Figure 3-326). Respondents indicated that the favorable weather conditions led to increased yields, mainly with oranges and maize.

In 2021, production was stronger than in 2019 and 2020, with 52% of respondents saying it increased overall, much higher than the 38% who said it decreased (Figure 3-325). For tomato, onion, cashew nut, and orange, most respondents reported an increase in yield. As for cashew nuts, the harvest was in progress in November 2021 when this survey was conducted, so the answer to the harvest volume was an estimation by the respondents. For tomatoes, improved access to inputs and farm machinery along with favorable weather conditions were the main reasons for improved yields, while for onion, improved access to good quality seeds was the main reason for improved yields (Figure 3-327). The main reasons for the increase in cashew yield were better access to agricultural machinery and favorable weather for oranges. For cashew nuts and oranges, improved access to extension services was also given as a major reason, which confirms the importance of extension services. On the contrary, all the respondents about maize production reported that the yield has worsened. Poor weather was the primary reason for the decline in maize production, but about half of the respondents also indicated worsening access to seed and fertilizer and less frequent visits to their plots as reasons for the decline in yield (Figure 3-329). In the case of sesame, unseasonable weather and pests were the main reasons for the decrease in yield; 57% of respondents reported a decrease. In the case of rice, the question of whether the harvest increased or decreased was split, with over 40% responding each way. The main reasons for the increase in rice yields were improved access to seeds and fertilizers, while the reasons for the decrease were unfavorable weather conditions, including flooding.

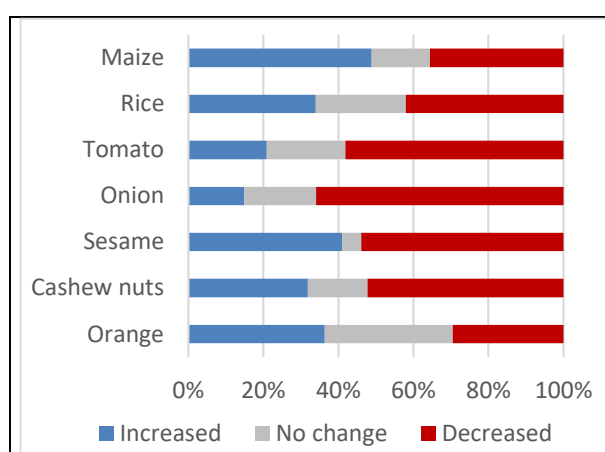


Figure 3-324 Mozambique: Changes in yield of the target crops in 2020 (compared to 2019)

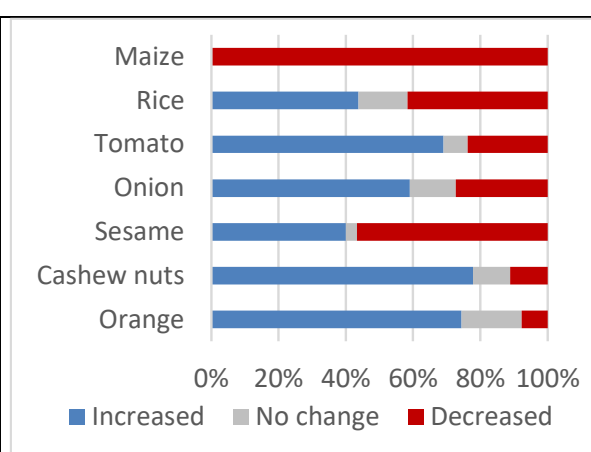


Figure 3-325 Mozambique: Changes in yield of the target crops in 2021 (compared to 2019)

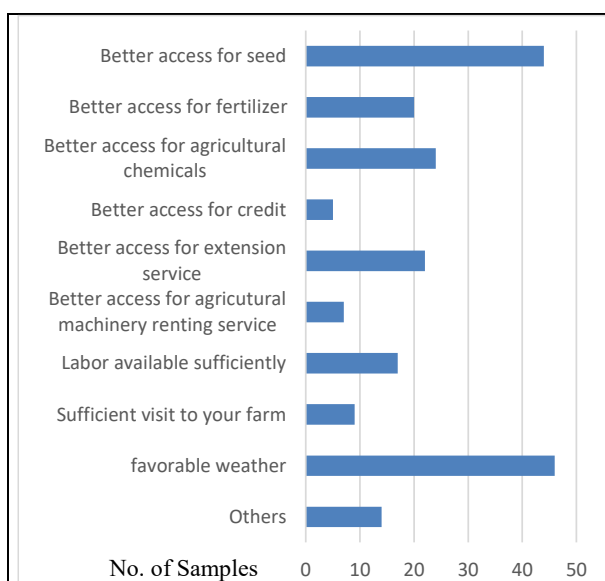


Figure 3-326 Mozambique: Reasons for increase in yield in 2020

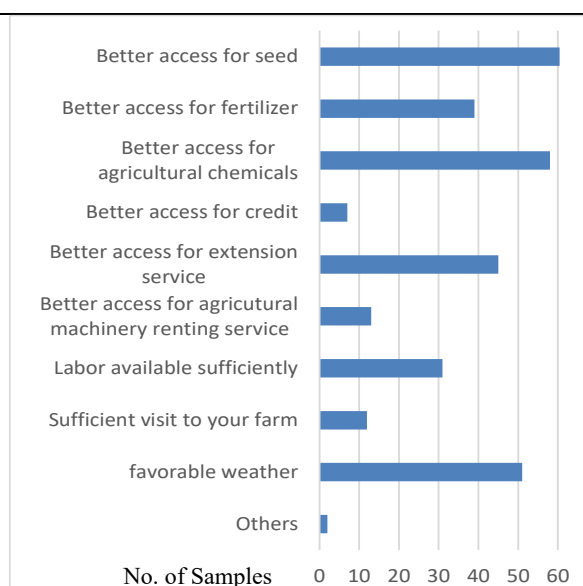


Figure 3-327 Mozambique: Reasons for increase in yield in 2021

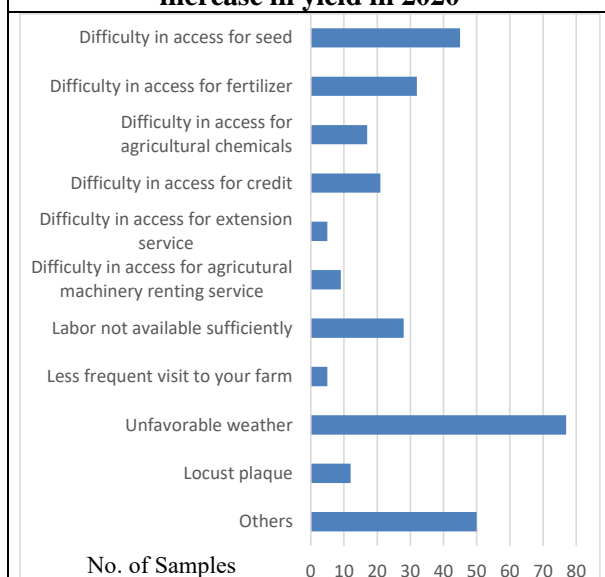


Figure 3-328 Mozambique: Reasons for decrease in yield in 2020

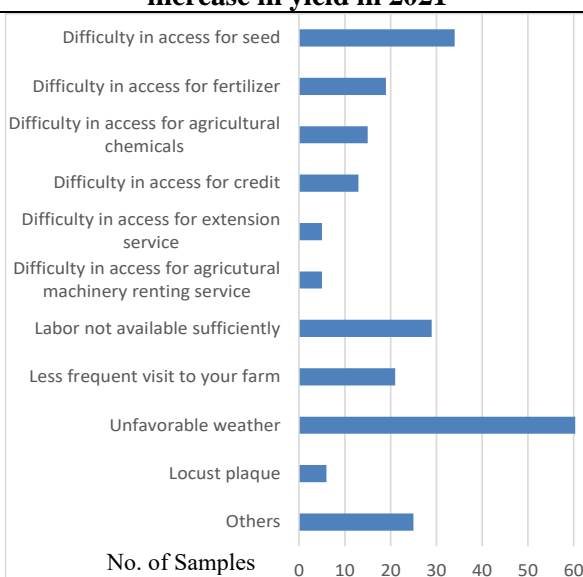


Figure 3-329 Mozambique: Reasons for decrease in yield in 2021

4) Changes in sales

The volume of sales by respondents in 2020 relative to 2019 was on a downward trend for all crops except maize (Figure 3-330). In particular, there was a significant decrease in the sales volume by producers of sesame in Nampula Province and producers of tomatoes and onions in Gaza Province. Regarding the sales volume of sesame, half of the respondents indicated that the volume had decreased, but a similar percentage of producers indicated an increase in their sales volume.

In 2020, the main reason for the increase in sales volume was the increase in yield for maize and rice, and the expansion of the cultivated area in sesame (Figure 3-332). The main reason for the decline in sales volume was lower yields for tomatoes, onions, cashew nuts, and sesame seeds (Figure 3-334). As for the drop in sales volume of oranges, onions, and tomatoes, the most common reason was that government regulations related to COVID-19 made it difficult to transport the produces to the

market.

As for the selling price in 2020, as shown in Figure 3-336, more than half of the maize and rice producers reported the increase. For sesame, cashew nuts, tomatoes, and oranges, the proportions of responses for increases and decreases in selling prices were similar. In the case of maize, the main reason given for the increase in price was a decrease in the volume of supply in the market, while increases for rice occurred because of an increase in demand (Figure 3-338). Rice is mainly grown under irrigation in Gaza Province, and rice millers mostly buy rice directly from farmers. Additional interviews with MADER and others have clarified that temporary rice export restrictions by Vietnam reduced rice imports to Mozambique in 2020, leading to a rise in demand for domestic rice.

For cashew nuts, high demand was given as the main reason for the increase in selling price by producers but decrease in demand is also given as the reason for the decreased selling price of cashew nuts (Figure 3-340). In the case of cashew nuts, the sales channels and methods may have been different among producers and the demand and selling price may have been different for each circumstance. For example, in the questionnaire for cashew nut processors in the next session, regarding the unit procurement price, some major companies responded that the unit price for procurement increased. As the reason for the increase in the selling price of sesame, many respondents answered that there was an increase in demand. For the decline, however, many answered that they could not find buyers or that export demand decreased. Regarding sesame, differences in production areas and sales channels may have also affected the selling price. As additional information, as will be discussed in the session of processors, one major processor and exporter of sesame reported a slight decrease in the unit procurement price.

For onions, most of the respondents indicated oversupply from farmers as the main reason for the decline in selling price. As mentioned previously, difficulty in securing transportation was also given as a reason for the decline in onion sales. Since producers in Gaza Province had difficulty in supplying their onions to the capital, they would seek to sell their products within Gaza Province. According to wholesalers and the market manager in Gaza, as a result, the supply exceeded the demand in the province's market and the selling price fell.

Sales volume in 2021 increased for crops with increased production and decreased for crops with poor production (Figure 3-331, Figure 3-335). For tomatoes, onions, and oranges, both sales volume and sales price increased, and demand was also on the rise. Regarding rice, farmers who increased their production also increased their sales volume, while those who decreased their production also decreased their sales volume. Meanwhile, unit sales prices at the producer level rose due to increased demand from markets and rice milling companies. Since the production of maize was poor, about 80% of the respondents reduced the sales volume and the product was mainly consumed at home. The main reason for the decline in sesame sales was a decrease in production due to pests and other factors. Regarding sesame, in the individual interview with a union composed of several cooperatives in a major production area, the union confirmed that they were holding inventories due to stagnant international demand. In the case of cashew nuts, the sales volume and sales price are estimations, as they were mid-harvest in November 2021 when the survey was conducted. The government provides reference prices every year, and the fact that the reference prices in 2021 are higher than in previous

years has raised expectations for an increase in profits, but the actual trends in sales volume and sales prices are unpredictable due to declining demand in the international market.

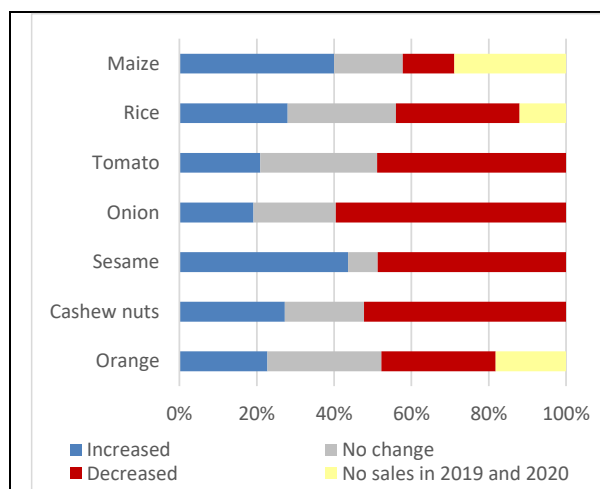


Figure 3-330 Mozambique: Changes in sales volume of the target crops by farmers in 2020 (compared to 2019)

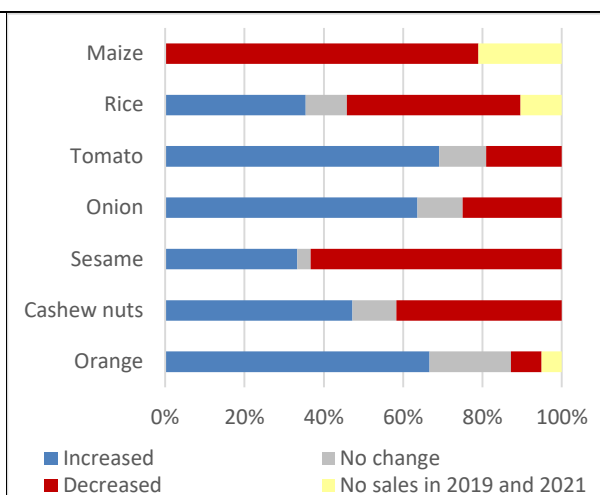


Figure 3-331 Mozambique: Changes in sales volume of the target crops by farmers in 2021 (compared to 2019)

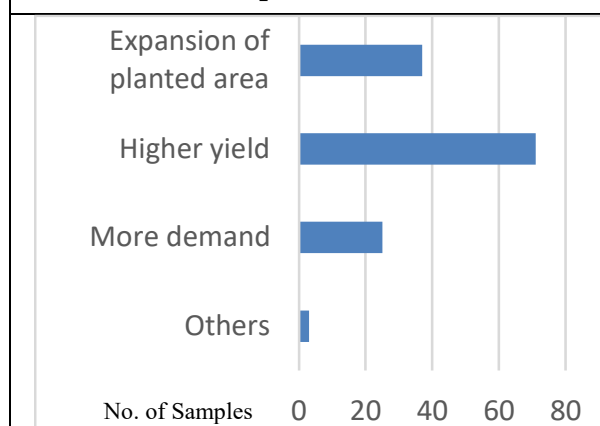


Figure 3-332 Mozambique: Reasons for increase in sales of the target crops in 2020

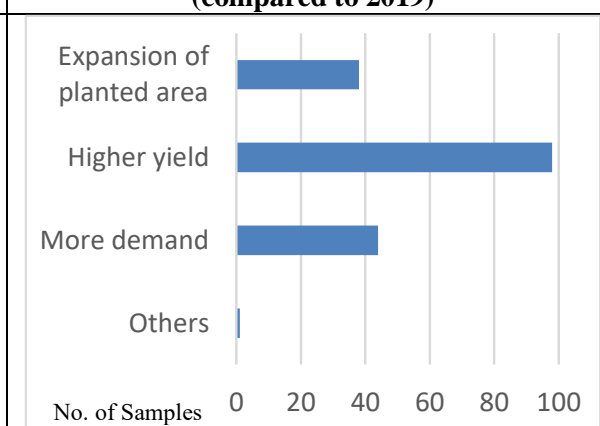


Figure 3-333 Mozambique: Reasons for increase in sales of the target crops in 2021

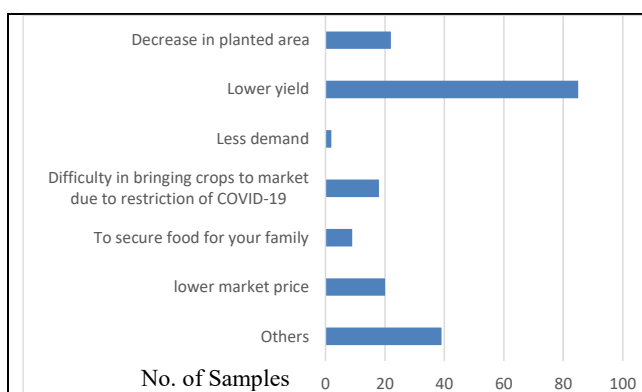


Figure 3-334 Mozambique: Reasons for decrease in sales of the target crops in 2020

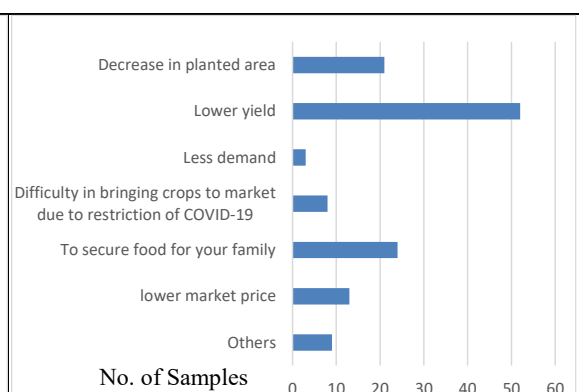


Figure 3-335 Mozambique: Reasons for decrease in sales of the target crops in 2021

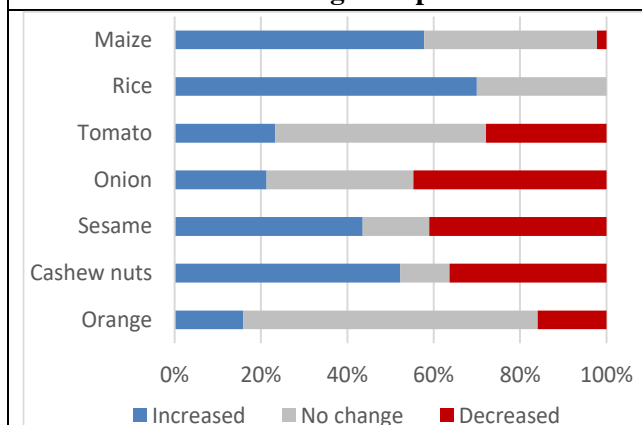


Figure 3-336 Mozambique: Changes in farm gate prices of the target crops in 2020 (compared to 2019)

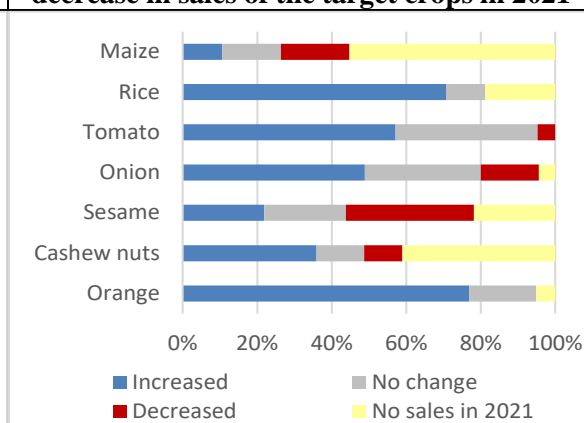


Figure 3-337 Mozambique: Changes in farm gate prices of the target crops in 2021 (compared to 2019)

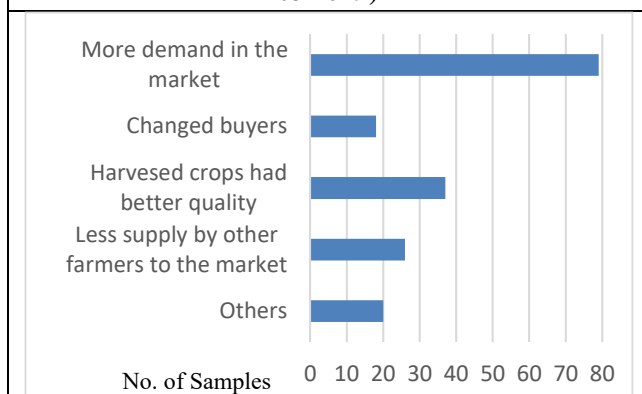


Figure 3-338 Mozambique: Reasons for increase in farm gate prices in 2020

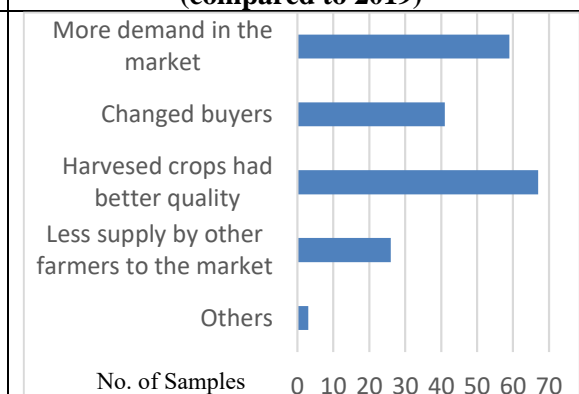


Figure 3-339 Mozambique: Reasons for increase in farm gate prices in 2021

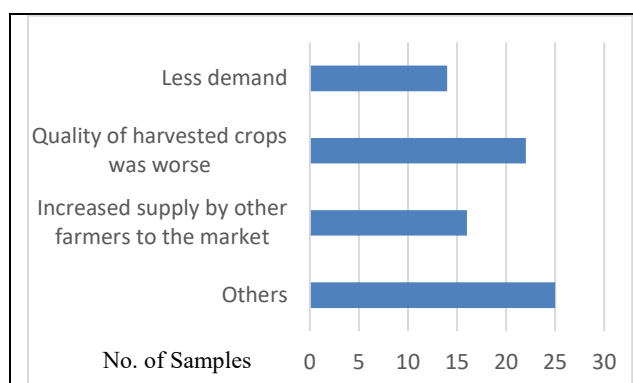


Figure 3-340 Mozambique: Reasons for decrease in farm gate price in 2020

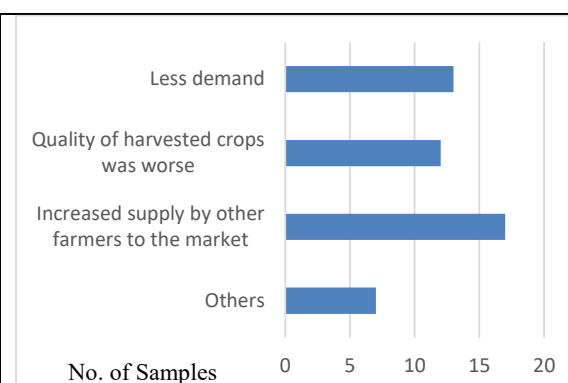


Figure 3-341 Mozambique: Reasons for decrease in farm gate price in 2021

5) Changes in the use of subsidized agricultural inputs

Table 3-54 shows the results of the questions on the percentage of subsidized material use in 2019, 2020, and 2021. Overall, the use rate of subsidized materials did not change significantly before and after COVID-19. Some crops showed different trends for the percentage of subsidized materials received in 2021 than in 2019 and 2020. The utilization of subsidized materials for maize seeds, fertilizers, pesticides, and tomato seeds has decreased, while for rice, sesame, and cashew nuts, the utilization of subsidized materials increased. For crops with increased utilization of subsidized materials, it is assumed that farmers are benefiting from their participation in the government's agricultural program, Sustenta. The nationwide launch of Sustenta started in the 2020 planting season. In the case of rice, the harvest from the 2020 planting season was in 2021, which is consistent with the increased utilization of subsidized materials.

Table 3-54 Mozambique: the % of using subsidized agricultural inputs between 2019 and 2021

	Fertilizer			Chemical			Seeds		
	2019	2020	2021	2019	2020	2021	2019	2020	2021
Overall	23%	21%	23%	26%	27%	30%	33%	33%	31%
Maize	2%	4%	0%	2%	2%	0%	37%	36%	5%
Rice	38%	30%	44%	30%	33%	50%	36%	38%	54%
Tomato	58%	45%	29%	44%	42%	29%	47%	44%	29%
Onion	36%	33%	33%	36%	37%	31%	36%	36%	36%
Sesame	3%	8%	34%	3%	8%	38%	10%	13%	34%
Cashew nuts	11%	11%	21%	55%	57%	62%	48%	43%	56%
Orange	2%	0%	3%	0%	0%	0%	5%	3%	0%

6) Impact on the activities of agricultural cooperatives

The survey was also conducted for agricultural cooperatives, and 28 responses were received about the changes in 2020, and 25 cooperatives responded about the situation in 2021. Figure 3-342 shows the changes in the implementation of six types of activities as agricultural cooperatives in 2020 compared to 2019. Overall, around 20% of the cooperatives had been providing their members with financial services, agricultural rental services, and joint purchase of pesticides and fertilizers before the COVID-19 outbreak. About 40% of the cooperatives responded that they were engaged in joint seed

purchasing, which was mainly from the sesame and cashew nut producers' cooperatives in Nampula. Joint sales had been conducted by 80% of the cooperatives surveyed.

In 2020, most respondents reported an increase in the implementation of joint purchasing of fertilizers and pesticides, agricultural rental services, and financial services among these. At the same time, a large proportion of respondents reported a decrease in the joint purchase of seeds and the joint sale of produce. This was due to restrictions on going out, shortages at input retailers selling sesame and cashew seeds/seedlings, and reduced hours and days of operation at input retailers. In the case of sesame and cashew nuts cooperatives, the main reasons for the decrease in the volume of joint sales were the decrease in production and sales volume, and the impact of movement restrictions. The direct interviews showed that restrictions on the number of people in public transportation and other services affected the movement of people and the transportation of produce. Farmers' cooperatives in the suburbs of the capital city also commented that they had stopped joint sales due to declining market demand.

In 2021, the majority of responding agricultural cooperatives indicated that they increased their joint purchases of pesticides and seeds (Figure 3-343). In particular, all the responding cooperatives producing cashew nuts and sesame seeds increased the volume of their joint purchases. As for joint sales, the cooperatives of onion and sesame producers are reducing their sales due to declining production and market demand. The cooperatives of cashew nut, sesame, and onion producers also indicated that the unit selling price decreased. The decline in the selling prices of cashew nuts and sesame seeds seems to have been affected by the decrease in demand from processors and importers. In individual interviews, sesame producer cooperatives in Nampula Province reported that they were carrying inventories of sesame due to declining demand.

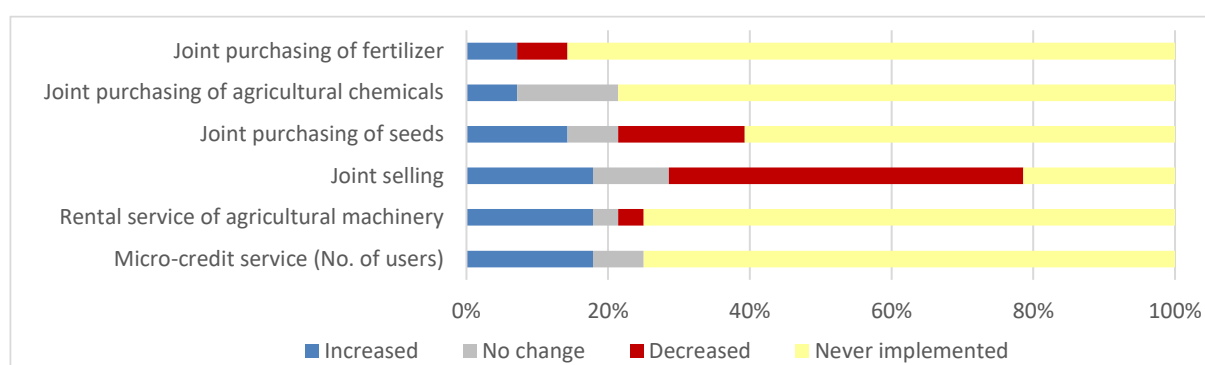


Figure 3-342 Mozambique: Changes in services provided by agricultural cooperatives in 2020 (compared to 2019)

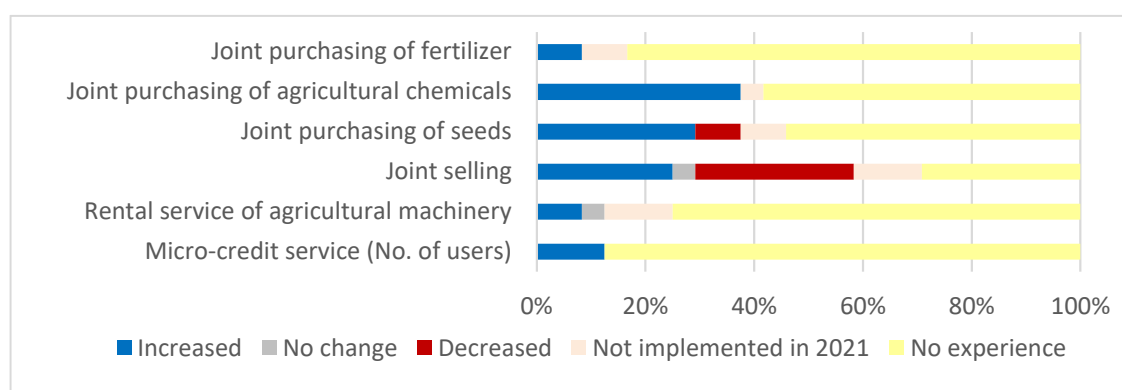


Figure 3-343 Mozambique: Changes in services provided by agricultural cooperatives in 2021 (compared to 2019)

(4) Processing

1) Highlights

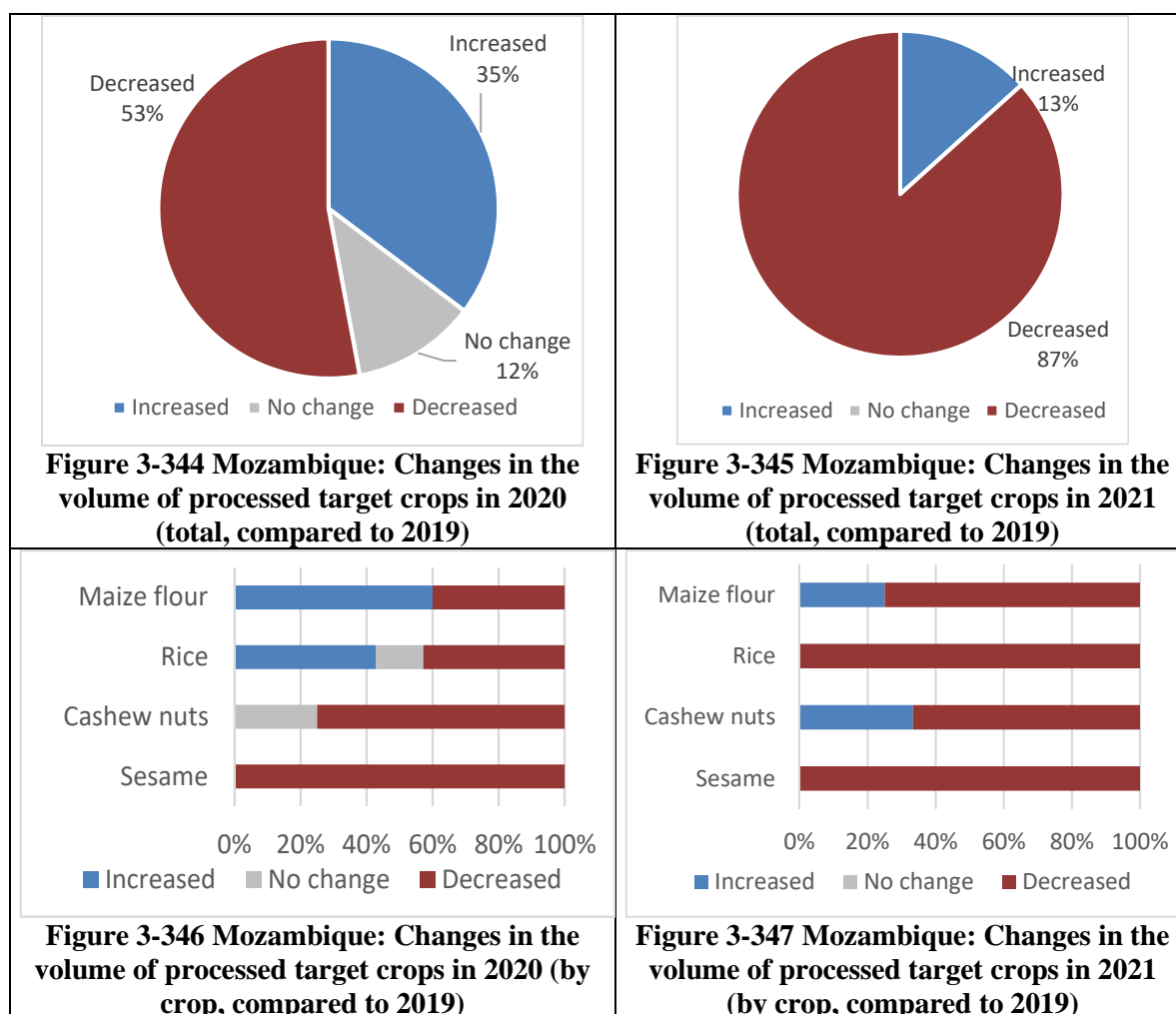
As shown in Figure 3-344, 53% of the respondents indicated that the overall processing volume of the target crops in 2020 was lower than that in 2019. However, as Figure 3-346 shows, 60% of the maize processors reported an increase in the amount of processing, and 40% of the rice producers who responded also reported an increase in the amount of rice processed. Reasons for the increase in processing of maize flour and rice included increased demand, expanded processing capacity, and increased procurement volume (Figure 3-348). It should be noted that the surveys for and interviews with agricultural cooperatives indicate that, in 2020, there were a certain number of farmers who are either increasing or decreasing their production in rice and maize, which implies that the situation differs among producers.

In 2020, a variety of reasons were given for the decrease in processing volume (Figure 3-350). These included the decrease in cashew nut processing volume, including decreased demand, reduction, and closure of factory operations due to COVID-19 control measures, and difficulty in procuring raw materials. The only company that responded about sesame processing attributed the decrease in demand and rise in procurement costs as the reasons for the decrease in processing volume⁶¹. For maize, both of the companies that reduced their processing volume pointed out that they were unable to procure sufficient raw materials. The two rice processors that decreased the amount of rice processed indicated that they closed their plants or reduced the scale of production due to COVID-19 measures. In direct interviews with another rice processor, it was reported that their factory was temporarily closed due to financial difficulties after the factory had reduced the operation to prevent the spread of COVID-19, and that when the factory reopened, the producers had already sold the rice to other processors, which led to a decrease in the amount of rice processed.

In 2021, almost all firms decreased their processing volume compared to 2019 (Figure 3-345). For cashew nuts, the interview with the Association of Cashew Nut Processing Companies (AICAJU) and the report issued in June 2020 by the Mozambique Nut Agency (IAM) indicated the stagnation of

⁶¹ A major processing company that is also an exporter and importer

demand in China and India due to the COVID-19 pandemic⁶². In addition, processing companies are in a constant competitive relationship with foreign companies that export unprocessed cashews to procure cashews, and which makes it difficult to maintain a profitable price in the international context. As a result, it has been observed that many processing companies have closed their factories since 2019. According to the IAM report, as of June 2020, only 11 out of 26 factories were operational. According to AICAJU, that number had decreased to four by November 2021. It would be difficult for many factories to restart operations until the balance between both the procurement price of raw materials and international prices reaches a certain level and international demand recovers.



⁶² IAM (INCAJU), 2020, Competitividade da indústria de castanha de caju em Moçambique

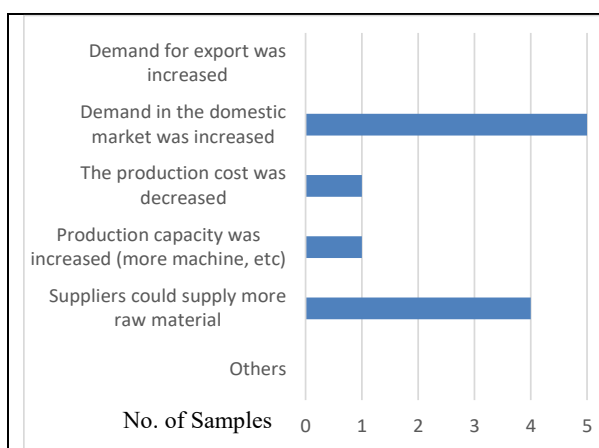


Figure 3-348 Mozambique: Reasons for increase in processing volume in 2020

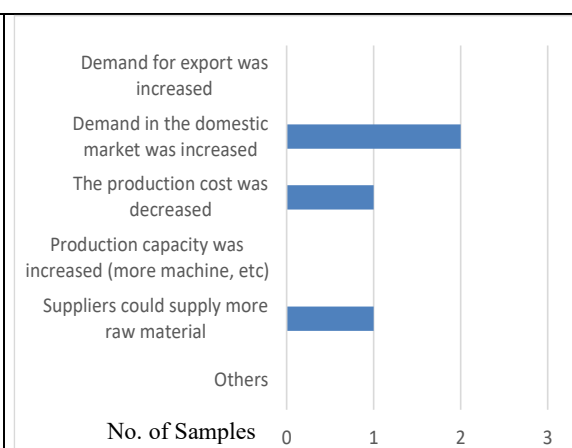


Figure 3-349 Mozambique: Reasons for increase in processing volume in 2021

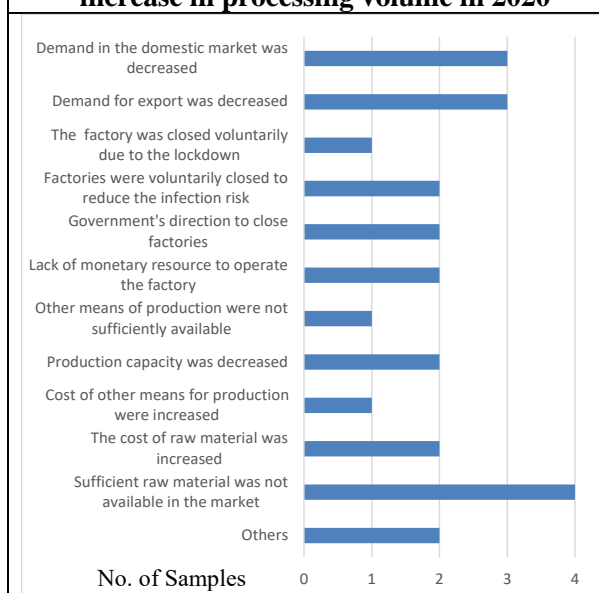


Figure 3-350 Mozambique: Reasons for decrease in processing volume in 2020

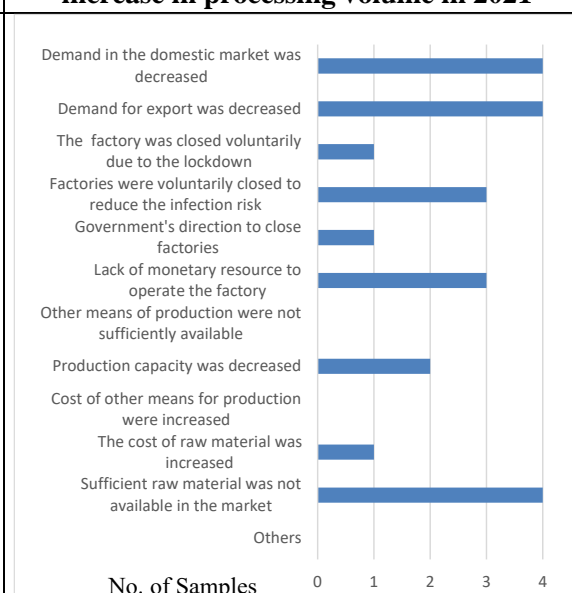


Figure 3-351 Mozambique: Reasons for decrease in processing volume in 2021

2) Changes in raw material procurement

As shown in Figure 3-352, there was no change in the quality of sesame raw materials in 2020 compared to 2019. Regarding the raw material of maize, most respondents said there was no change in the quality in 2020, though one company indicated that the quality was better in 2019. For rice, most respondents indicated that the quality in 2019 was better. For cashew nuts, one company responded that it was better in 2020, but the other companies reported no change in the quality. In 2021, half (two) of the maize processors indicated that the quality of their raw materials was better in 2021, while one company indicated that it was better in 2019 (Figure 3-353). Regarding rice, two companies said that the quality was better in 2021, while another said that it was better in 2019, but this may have been affected by the flooding and other factors.

Regarding the price of raw materials, as shown in Figure 3-354, many respondents reported that procurement prices increased for raw materials for maize, rice, and cashew nuts in 2020. The unit cost for procuring sesame raw materials dropped in 2020. In 2021, half of the respondents reported a decrease in prices for maize and cashews compared to 2019. In the case of rice, there were an equal

number of respondents who said the price of the raw material increased and decreased. For sesame, the only sesame processor reported an increase in the procurement unit price in 2021 (Figure 3-355).

Figure 3-356 and Figure 3-357 compare the changes in purchase volume by suppliers for processors in 2020 and 2021 compared to 2019. There were more respondents who reported a decrease than those who reported an increase in 2020, except for a slight upward trend in procurement from importers and retailers. In 2021, there was an overall downward trend in the procured amount from all the sources. However, in 2021, more respondents reported an increase in the procured amount from agricultural cooperatives compared to 2020. This was due to an increase in the procurement of rice from agricultural cooperatives by rice processors in 2021. On the other hand, some rice processors have reduced their procurement from agricultural cooperatives, indicating differences among companies.

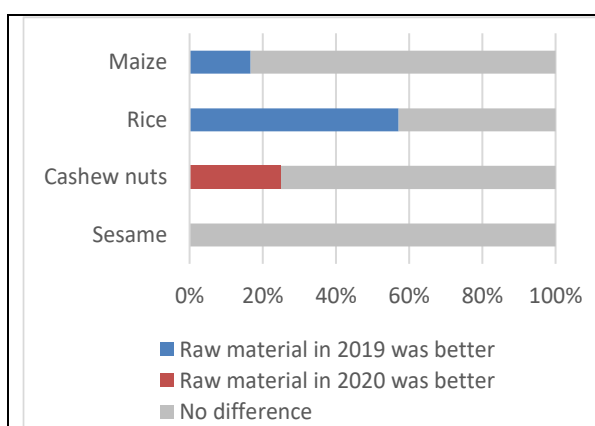


Figure 3-352 Mozambique: Changes in quality of the target crops as raw materials in 2020 (compared to 2019)

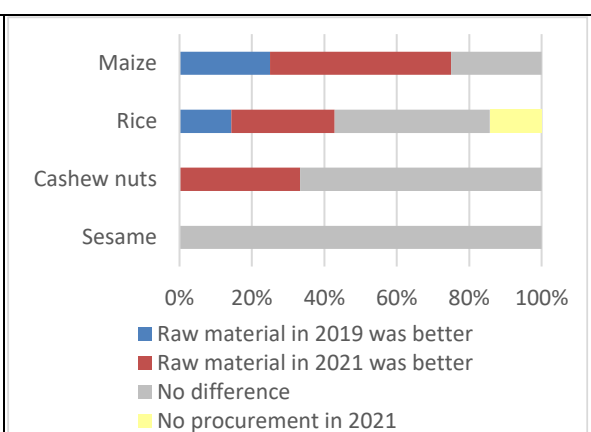


Figure 3-353 Mozambique: Changes in quality of the target crops as raw materials in 2021 (compared to 2019)

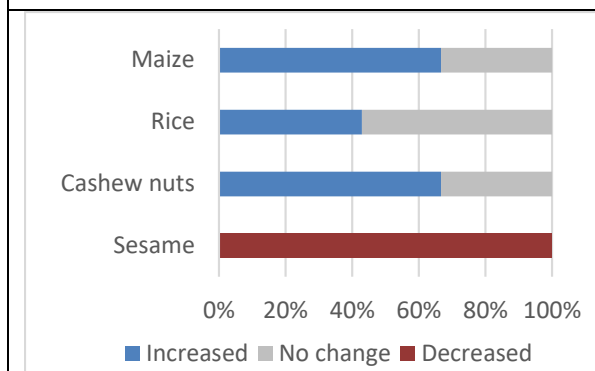


Figure 3-354 Mozambique: Changes in purchase price of the target crops by processors in 2020 (compared to 2019)

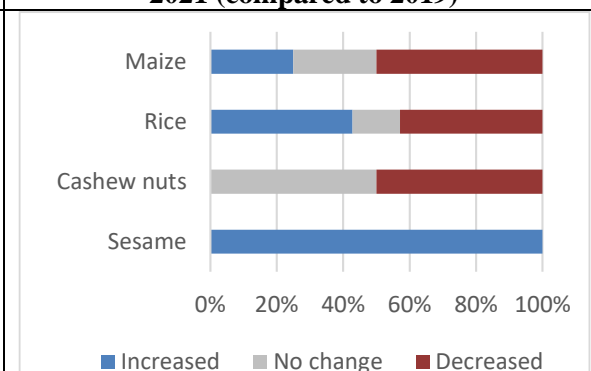
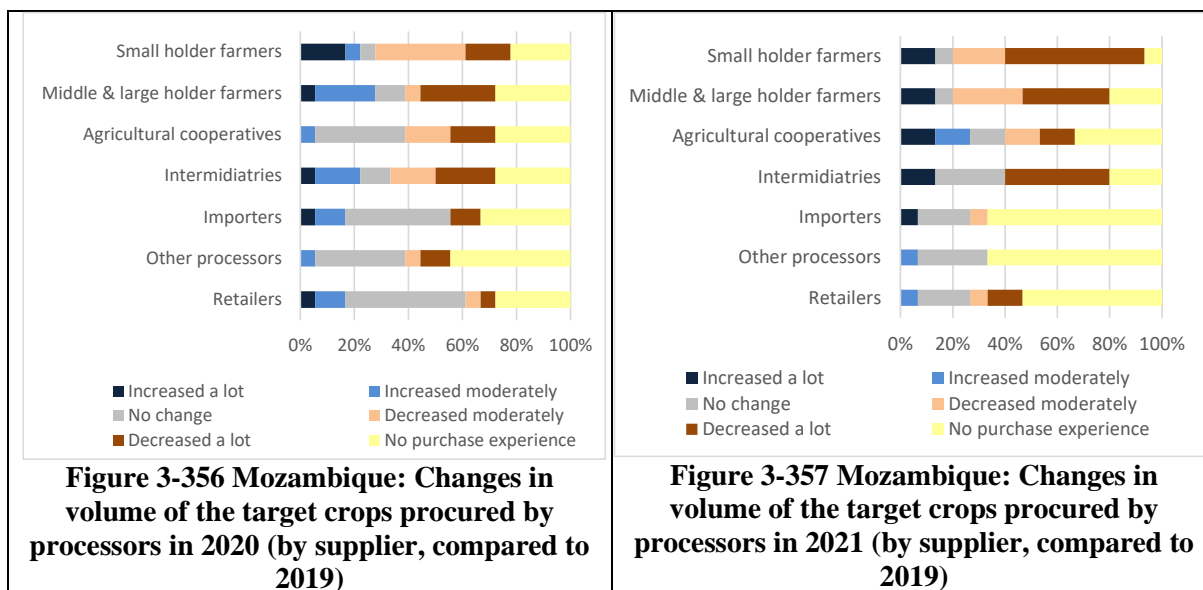


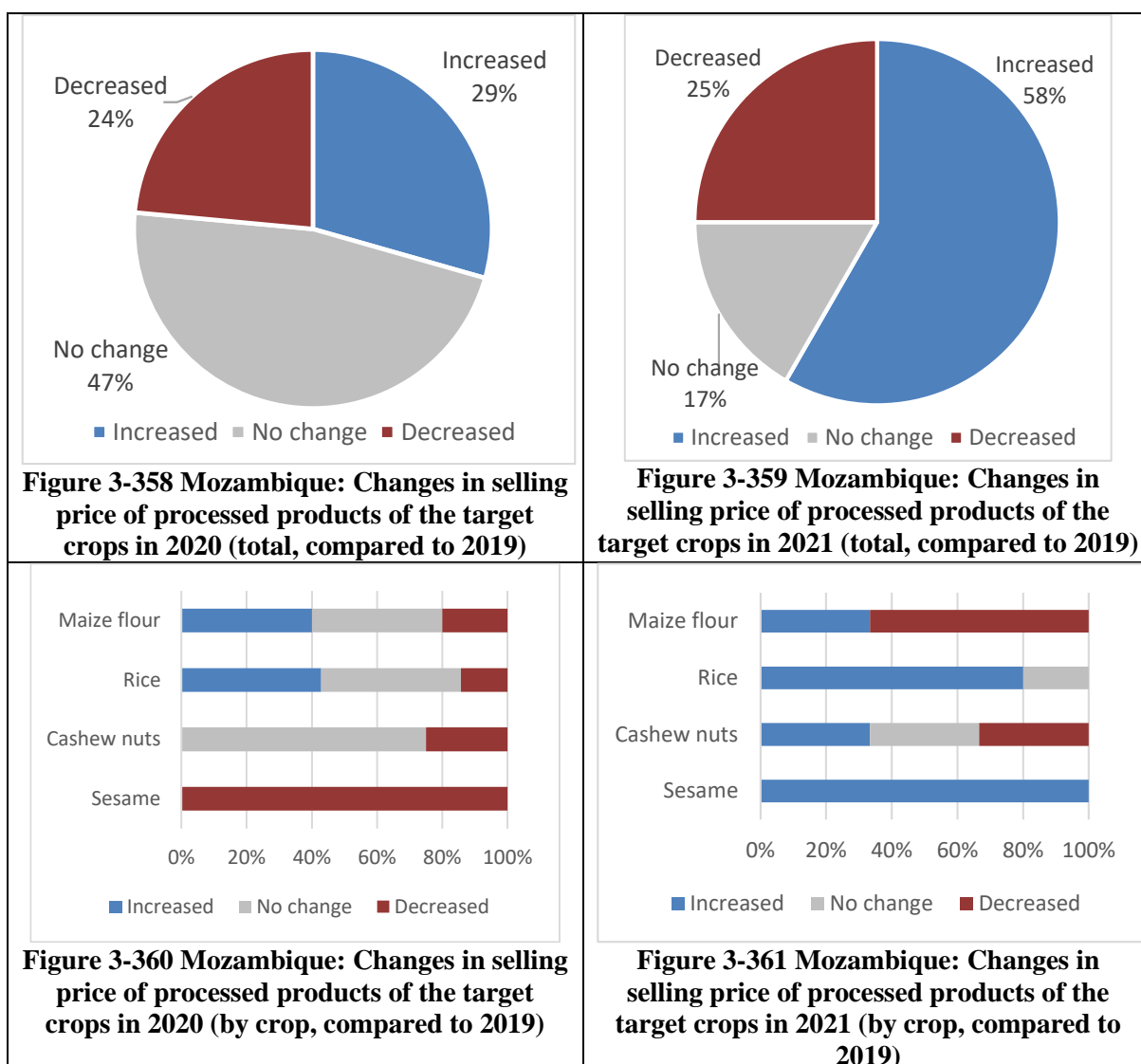
Figure 3-355 Mozambique: Changes in purchase price of the target crops by processors in 2021 (compared to 2019)



3) Changes in selling price

As for the selling price by processing companies in 2020, as shown in Figure 3-358, around half of the respondents answered that there was no change, but as Figure 3-360 shows, the situation differs by product. Only one company responded regarding sesame, and the selling price decreased. The company processes and exports sesame seeds, suggesting that the demand from the exporting countries has decreased, which caused the decline in the price. Similarly, respondents reported a decrease in the selling price of cashew nuts, which is mainly for export. On the contrary, the selling price of rice and maize rose, which is mainly consumed domestically. As background, some countries adopted temporary embargoes on rice exportation, and the amount of rice imported to Mozambique decreased as mentioned previously. As a result, according to individual interviews, rice producers in Gaza Province have increased their bargaining power in determining selling prices to processors, which caused the rise in the selling price of processed rice from processors as a result.

In 2021, 58% of the responding companies indicated that unit sales prices had increased (Figure 3-359). In the case of rice, unit sales prices increased for most companies because of an increase in procurement and processing costs. The sesame processor also attributed the increase in processing cost as the reason for the rise in unit sales price. The results of the direct inquiry to the sesame processing company confirmed the increase in domestic and international transportation costs. In the case of maize, most of the companies reduced their prices, and the reason was lower demand.



4) Changes in awareness of hygiene and safety

As shown in Figure 3-362 and Figure 3-363, after the spread of COVID-19, the majority of processors reported that they became more aware of raw material hygiene and infection control. Results also showed that the level of awareness about the importance of hygiene and safety has increased further in 2021.

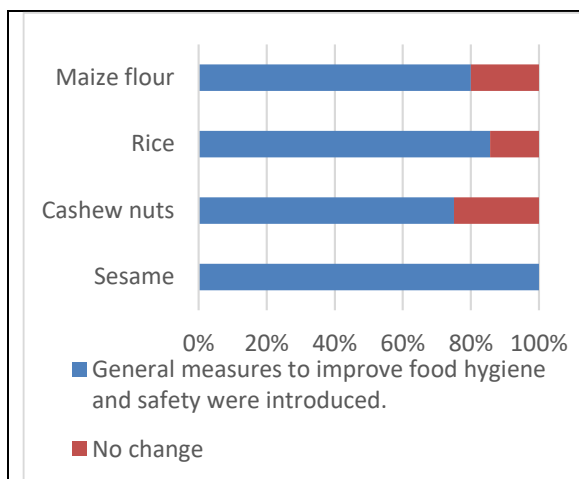


Figure 3-362 Mozambique: Changes in processors' awareness of safety and hygiene when purchasing the target crops in 2020 (compared to 2019)

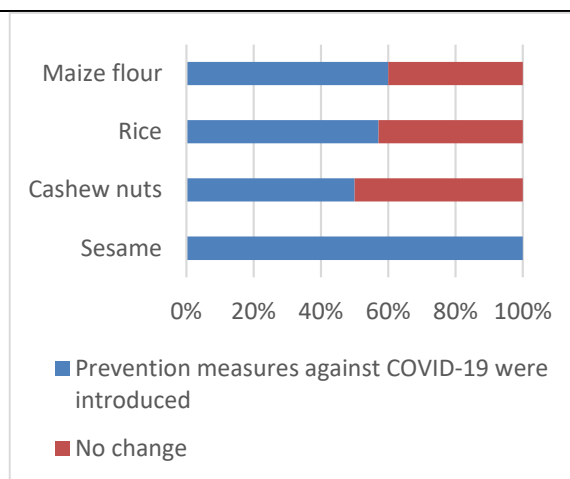


Figure 3-363 Mozambique: Changes in awareness of safety and hygiene of processed products among processors' customers in 2020 (compared to 2019)

(5) Distribution

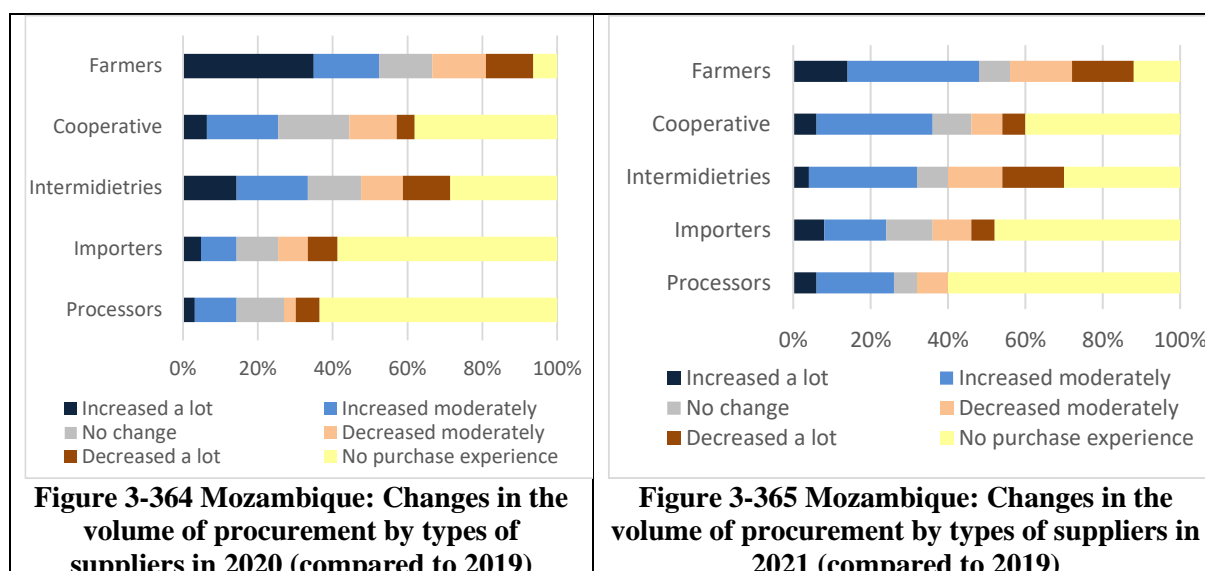
1) Intermediaries (wholesalers and middlemen)

a) Highlights

Responses were obtained from around 10 wholesalers and brokers for each of the target products. Overall, there was a noticeable decline in sales volume in tomatoes, onions, and cashew nuts, mainly due to lower demand. Regarding rice, only one response was obtained since in Mozambique few rice intermediaries exist and processors purchase rice directly from farmers. In 2021, sales of tomatoes and onions were on a recovery trend, and orange sales were very strong. On the other hand, rice sales declined.

b) Changes in the procurement of the target products

As shown in Figure 3-364, individual farmers were the main suppliers for intermediaries, followed by other intermediaries (wholesalers and brokers) and agricultural cooperatives. Overall, in 2020, the proportion of respondents who answered "increase" and "decrease" was close, but the volume of purchases from individual farmers and intermediaries was on the increase. The trend for suppliers in 2021 was similar to that in 2020 (Figure 3-365).



c) Changes in sales

The change in sales volume in 2020 compared to 2019 is shown in Figure 3-366. For sales of maize, tomatoes, onions, and cashew nuts, around half of the respondents reported a decrease, far exceeding the increase. The only company that responded about rice indicated that its sales volume had increased.

The most common reasons given for the increase were an increase in the number of customers and an increase in demand (Figure 3-368). There were no significant differences among the crops on this.

As the reasons for the decrease in sales volume (Figure 3-370), in the case of tomatoes, onions, and cashew nuts, the decrease in the number of customers was accounted for most of the responses. In the direct interviews at the largest wholesale market in Maputo City, most of the interviewees said that the primary reason for the decline in sales was the decrease in demand from retailers (local markets and stores), with many comments that the reason behind this was the decline in purchasing power of consumers. In addition, for tomatoes and onions, it was reported that the number of dealers decreased due to reduced demand and higher procurement prices. For maize and cashew nuts, a decrease in the procurement volume was cited as the main reason for the decrease in sales. As background reasons, the low supply volume and financial difficulties of intermediaries were cited (Figure 3-372).

The changes in sales volume in 2021 are shown in Figure 3-367. In 2021, sales of oranges were strong, with 90% of respondents reporting an increase in sales. In addition, sales of tomatoes and onions recovered. At the same time, sales of rice and sesame were weak, in contrast to the previous year. The reason for the increase in orange sales in 2021 was the increased demand from customers (Figure 3-369). As mentioned earlier, production and sales of oranges were also strong, suggesting that there was sufficient supply. The reason for the decline in rice sales volume was a decrease in both demand from customers and in procurement volume. The reasons for the decrease in sales volume in sesame and cashew nuts were similar: decreased demand, government regulations related to COVID-19, and their customers going out of business (Figure 3-371).

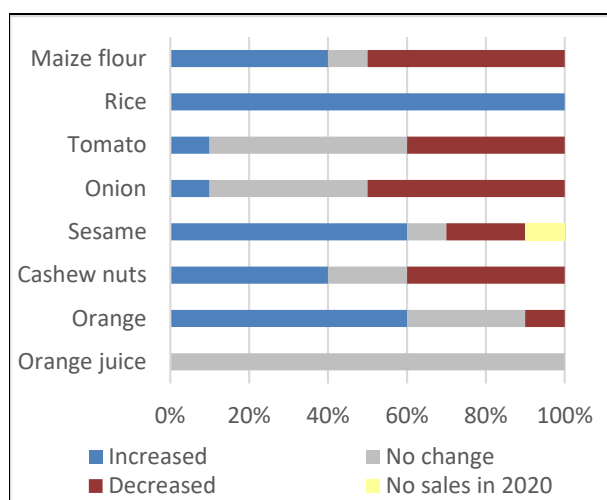


Figure 3-366 Mozambique: Changes in volume of target products sold by intermediaries in 2020 (compared to 2019)

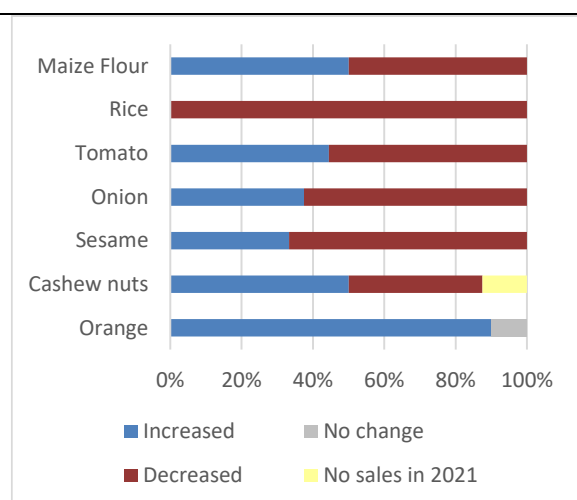


Figure 3-367 Mozambique: Changes in volume of target products sold by intermediaries in 2021 (compared to 2019)

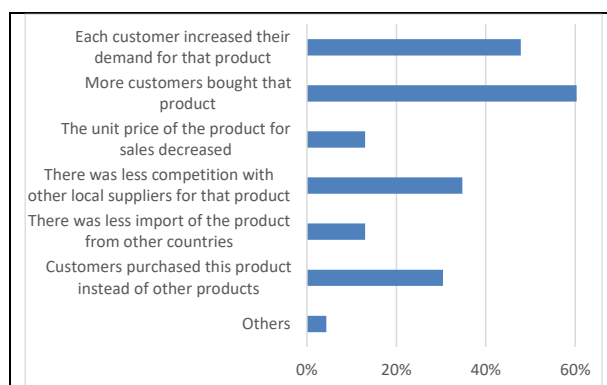


Figure 3-368 Mozambique: Reasons for increase in sales volume by intermediaries in 2020

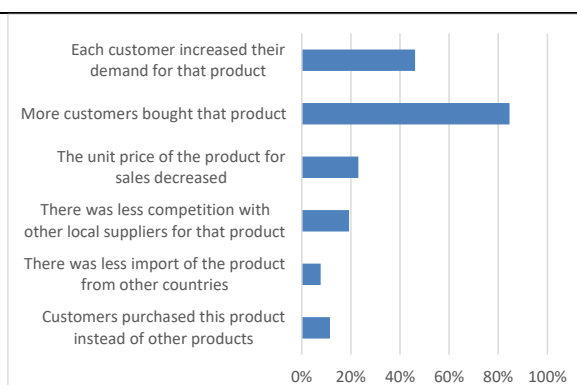


Figure 3-369 Mozambique: Reasons for increase in sales volume by intermediaries in 2021

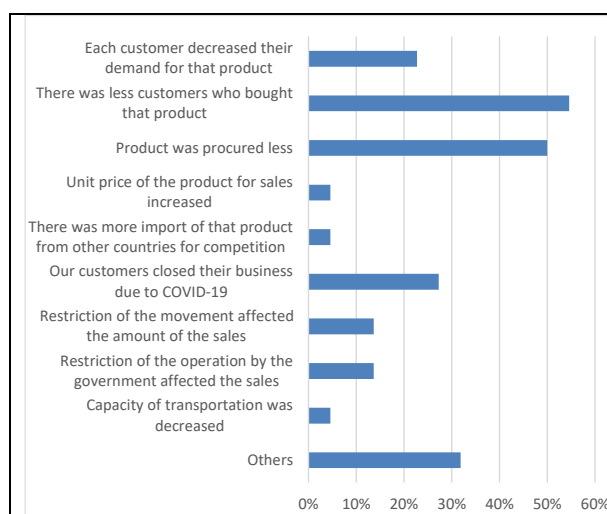


Figure 3-370 Mozambique: Reasons for decrease in sales volume by intermediaries in 2020

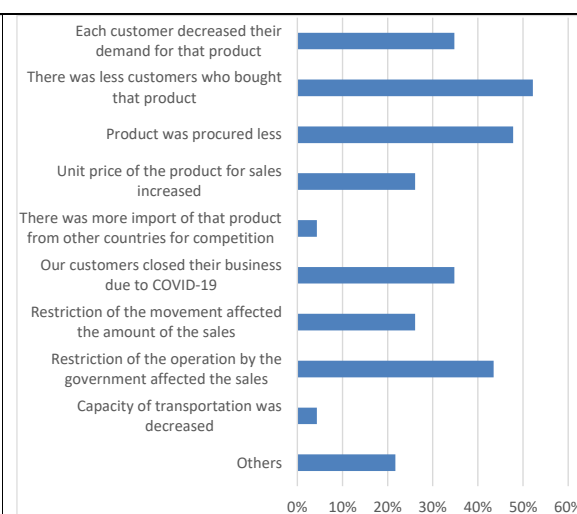
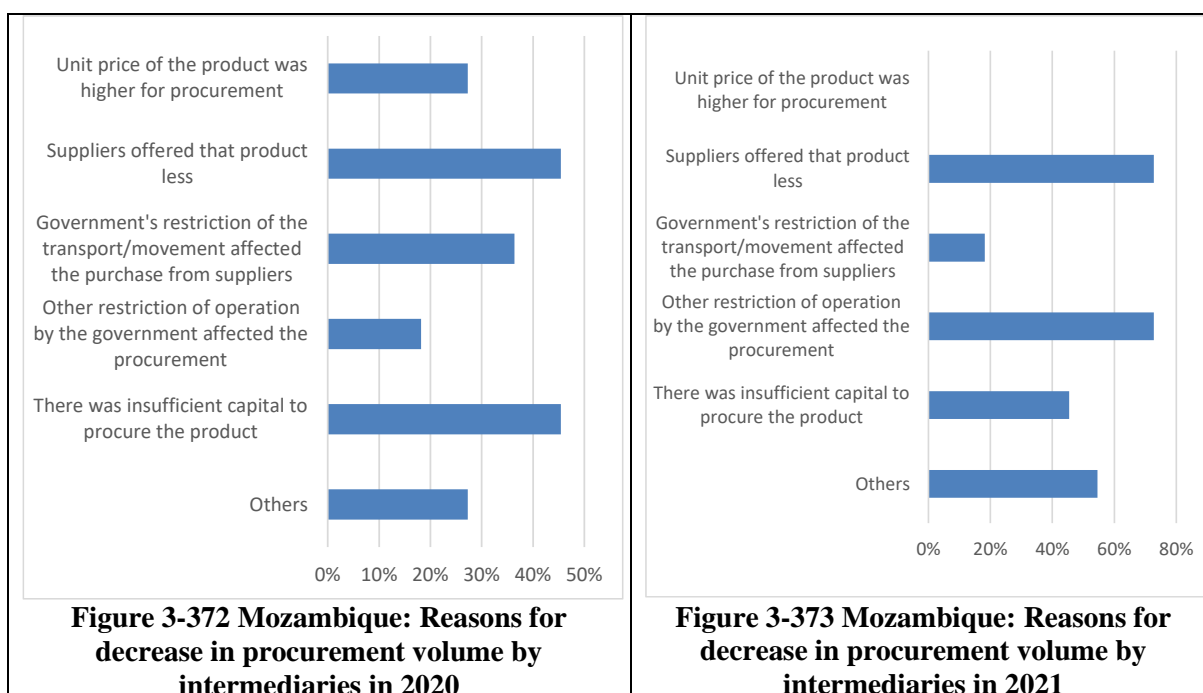


Figure 3-371 Mozambique: Reasons for decrease in sales volume by intermediaries in 2021

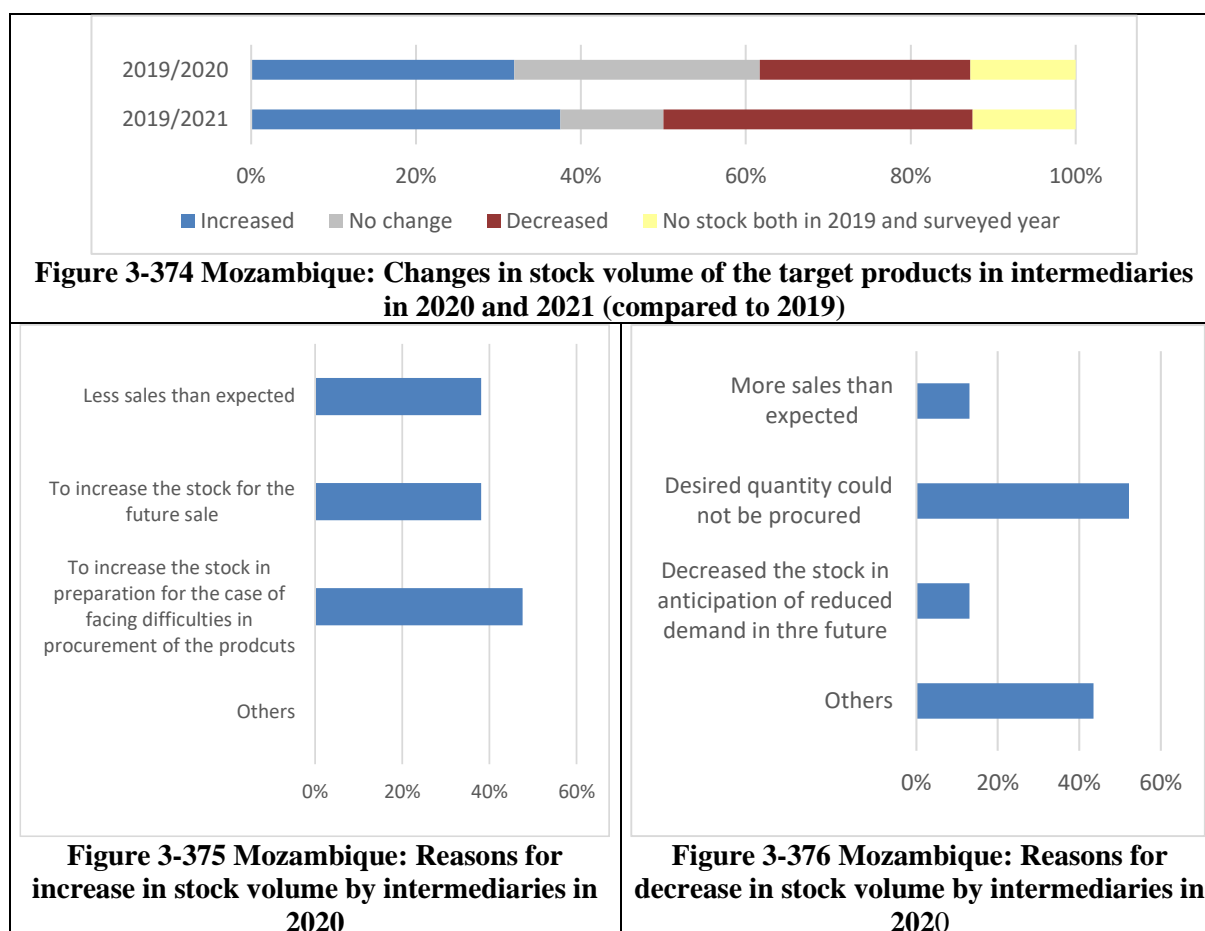


d) Changes in stock volume

Figure 3-374 to Figure 3-376 show the changes in stock volume in 2020 and 2021 compared to 2019 and the reasons for the changes. Regarding the amount of stock in 2020, approximately 30% of the respondents increased, about 30% did not change, and about 20% decreased. Regarding the amount, a similar percentage of respondents answered that it increased, remained the same, or decreased. For tomatoes and oranges, the number of respondents whose inventory increased was particularly large. Among the reasons for the increase in stock volume, the most common was purchasing in anticipation of future procurement difficulties. The decrease in tomatoes and onions and the increase in orange stocks were mostly caused by lower sales volume than expected. The main reason for the decrease in stock volume was that the expected volume could not be procured.

The results of direct interviews showed that for tomatoes, onions, and oranges, it took much more time than usual to procure them from South Africa. It was also reported that the quality of the products often deteriorated during transportation.

In 2021, the number of respondents who reported an increase was about the same as in 2020, but nearly 40% of the respondents decreased their stock. For onions, which have a long storage life, and oranges, which are selling well, many respondents indicated an increase in inventory to procure for future sales. The main reason for the decline in stocks was that the expected quantities could not be procured mainly for onions, tomatoes, and cashew nuts.



e) Changes in sales price

Responses to the changes in selling prices from 2019 to 2020 are summarized in Figure 3-377. For all the targeted products, more respondents reported an increase in sale price than did not. In particular, many respondents indicated that the sales price increased for onions, sesame, and oranges. For rice, no information on the selling price was obtained in the survey.

In interviews conducted in May 2021 at wholesale markets in the capital, it was widely reported that lower demand and higher procurement costs for tomatoes and onions led to higher selling prices due to the disruption in transportation by the influence of COVID-19 for both domestic and imported products. Regarding tomatoes, respondents answered that it took a long time for procured tomatoes to be sold, and that it was common for them to sell tomatoes at a lower quality and at a lower price. As a background to this, they commented that the price of imported products had soared, and when the quality and price dropped, the price range finally became affordable for customers.

In 2021, the selling price of oranges increased (Figure 3-378). Prices for maize and onion also showed a downward trend.

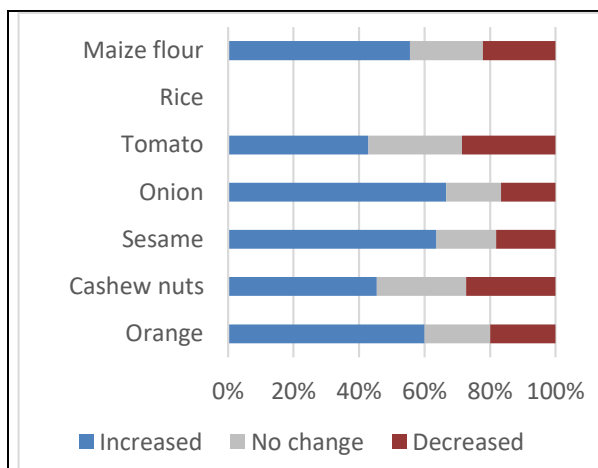


Figure 3-377 Mozambique: Changes in selling price of the target products in intermediaries in 2020 (compared to 2019)

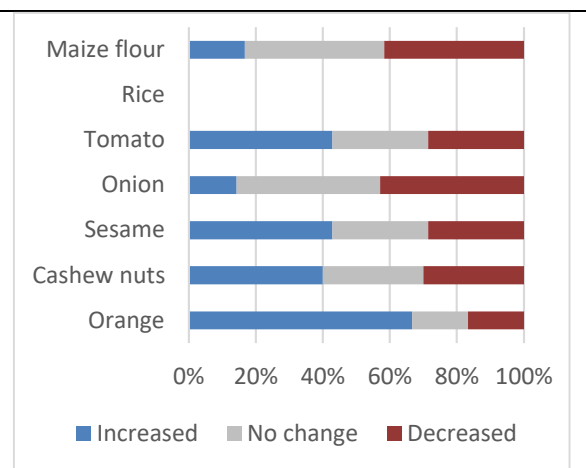


Figure 3-378 Mozambique: Changes in selling price of the target products in intermediaries in 2021 (compared to 2019)

f) Changes of customers

As shown in Figure 3-379, in 2020, there was a large increase in sales to processors and other intermediaries. Sales to restaurants and hotels were more likely to have decreased than to have increased.

For sales to the other types of customers, the percentage of respondents who answered "increased" and "decreased" was approximately the same. Respondents who reported increased sales were mostly from onion and maize intermediaries selling to local markets and retailers. The reason for the increase in the onion sales to local markets/retailers may be due to the fact that most of the responses by onion intermediaries were from Gaza province where a large amount of onions are produced. Since the majority of respondents reported a decrease in onion sales, it can be assumed that the supply from South Africa was affected, which led to an increase in procurement from local farmers.

In 2021, sales to supermarkets and hotels/restaurants showed an upward trend, but there were no major changes in other sales destinations (Figure 3-380). As will be discussed later in the section on consumption, the spending of consumers for food items and eating out are recovering in 2021, and supply by intermediaries is thought to have increased in a way that satisfies these demands.

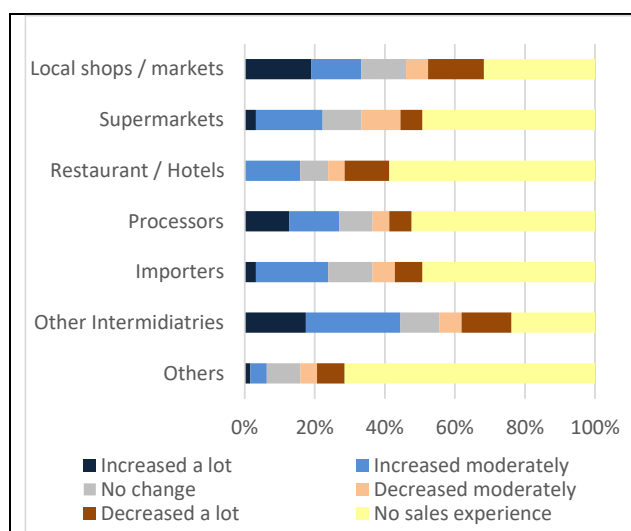


Figure 3-379 Mozambique: Changes in sales volume of target products by intermediaries in 2020 (by customer, compared to 2019)

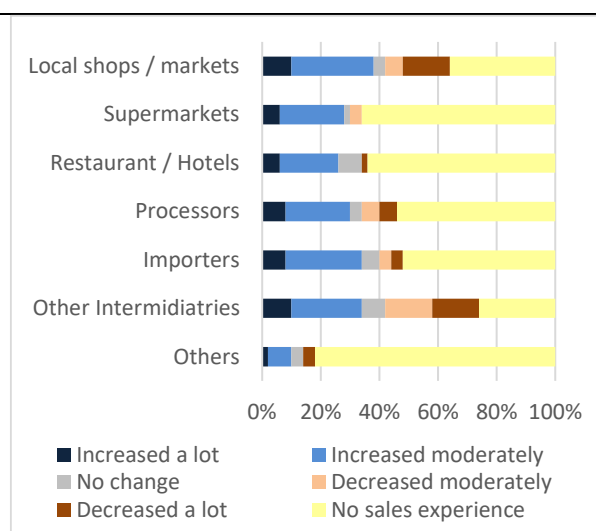


Figure 3-380 Mozambique: Changes in sales volume of target products by intermediaries in 2021 (by customer, compared to 2019)

2) Importers

For the survey on the situation in 2020, 21 valid responses were received from 16 companies (Figure 3-381) and 24 valid responses were received from 16 companies in 2021 (Figure 3-382). There are several importers of rice and maize in Mozambique, but due to the protection of confidential company information, the answer was obtained only from one company.

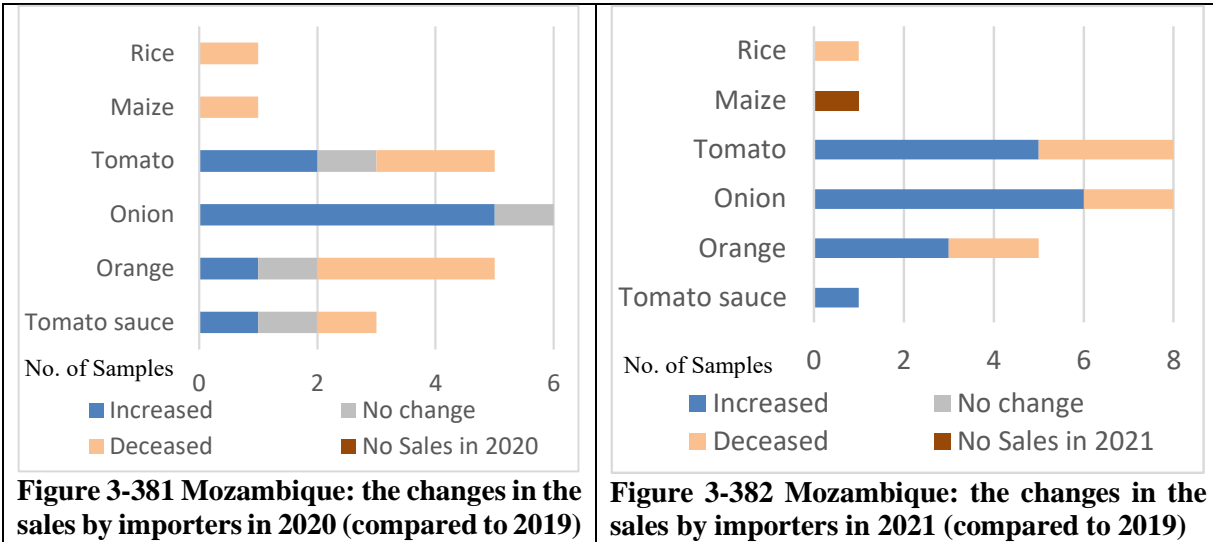
The increase in imports in 2020 was mainly from onion importers. The reason for this was that the domestic demand for onion increased. Given that the survey to producers conducted in Gaza Province shows that most onion producers decreased their yields in 2020, it is likely that onions were imported to compensate for the reduced supply of domestic onions.

The main declines in imports in 2020 were in oranges, rice, maize, and tomatoes among the surveyed products. In the case of tomatoes, the company indicated that the reason for the decline in imports was the impact of restrictions on domestic movement. Regarding maize and rice, multiple reasons were cited, including the depreciation of the local currency, difficulties in securing transportation, and domestic business regulations related to COVID-19. As for business regulations, it is likely that regulations regarding the number of workers allowed in the workplace and curfews had affected their operation. As for maize, the reason cited was the difficulty in obtaining imports from South Africa, the country of origin. As for rice, it was answered that some regulations affected imports. However, since Mozambique has not issued any regulations on rice imports, the country of origin may have issued export regulations. It was confirmed that rice exports were temporarily restricted in Vietnam. As mentioned earlier, interviews in the wholesale market confirm that the number of importers of vegetables and fruits has declined due to declining demand and increasing procurement costs.

In terms of unit selling prices of imported products in 2020, most of the respondents from tomato and orange importers indicated that the prices increased significantly. The prices of maize and rice also increased. In 2021, the import volume of tomatoes, onions, and oranges was on the rise compared to 2019. The main reasons for this were increased domestic demand and strong production in

South Africa from which these products are imported. Selling prices of imported tomatoes and oranges were higher than in 2019, while onions were at the same level as in 2019. The importer who responded about importing maize did not import it in 2021 because domestic production was sufficient. The survey of producers conducted in Manica province revealed that the yield of maize producers in Manica province declined in 2021, which suggests that there were large regional differences in the yields of maize production.

Individual interviews with the president of the importer's association in the capital's largest wholesale market showed that up to May 2021, when the interviews were conducted, the prices of tomatoes and onions imported from South Africa continued to rise from 2020 to 2021. The reason for this was the increase in transportation costs: the duration of stay in South Africa was often longer due to COVID-19, and additional accommodation and labor costs were required. South Africa has been the country of origin for the imports of tomatoes and onions from 2019 to 2021. As for maize, 100% of imports in 2019 came from South Africa, while all imports in 2020 came from Argentina. As mentioned earlier, the reason was that the supply of maize from South Africa became difficult. As for rice, only one company responded to this survey imported from Pakistan between 2019 and 2020.



3) Exporters

Valid responses from exporters were received from one rice, one sesame, and one cashew nut company. The responses on cashew nut and sesame export are from the same company in Nampula, which is also the same as the rice and maize importer mentioned in the section about importers⁶³.

Rice exports in 2020 decreased, with the main destination being South Africa. Reasons for the decline included the impact of COVID-19-related sales restrictions, domestic movement restrictions, and increased time for customs clearance at the border. As for unit sales prices, they were approximately the same in 2019 and 2020. The company indicated that its sales continued to decline in 2021 and attributed the decline to transportation difficulties and the resulting higher transportation costs, as well

⁶³ The company is almost the only company in Mozambique that processes and exports sesame seeds.

as lower demand in export markets. Regarding the export volume, sesame and cashew nuts have decreased by 20% and 40% respectively in 2020. The unit sales price decreased by about 10% for both. In 2021, the sales volume of sesame and cashew nuts continued to decline compared to prior to the COVID-19, however, there was a relative recovery in sales compared to 2020. For both crops, the reasons for the decline in sales volume in 2020 and 2021 were the drop in demand in the destination countries, disruption in transportation, and the increase in transportation costs. Since both unit sales price and sales volume have declined, the export value has also inevitably reduced. The export destination for these crops was India from 2019 to the present.

According to individual interviews with the Association of Cashew Processing Companies (AICAJU) and a report issued in June 2020 by the Mozambique Nut Agency (IAM), the demand in the major markets such as India and China have slowed down due to COVID-19, leading to stagnation in cashew exports. In particular, China has stopped importing cashews from Mozambique after the COVID-19 outbreak according to AICAJU.

(6) Retailing

1) Highlights

For the survey about changes in 2020, 52 retailers from the capital city and from three regional provinces responded, 50 of those retailers responded in the second survey about changes in 2021. Overall, most respondents reported an increase in sales volume in 2020 compared to 2019, for rice, maize flour, tomatoes, and cashew nuts. However, there were large regional differences in the increase and decrease in retail sales volume. Selling prices at retail showed an overall upward trend. In 2021, unit sales prices increased for almost all the target products, but regional differences in sales volume were as significant as in 2020.

2) Changes in procurement

Figure 3-383 shows the changes in purchase volume by different types of suppliers from 2019 to 2020. Since the outbreak of COVID-19, the overall volume of purchases from agricultural cooperatives, importers, and processors has been declining. There was a certain percentage of retailers who had increased their purchases from farmers and middlemen. However, 60% of the respondents who saw increases were sesame and cashew nut retailers in Nampula. In other provinces and the capital city, purchases from farmers and intermediaries have decreased. This was especially true for retailers selling vegetables in the markets of Gaza Province and maize in the markets of Manica Province. As for the decrease in purchases from importers and processors, most of the decrease was observed from Manica Province. Half of the retailers who indicated the experience of procurement from agricultural cooperatives were from Manica Province, and all the producers from that province indicated a decrease in procurement from cooperatives.

The results in 2021 showed similar trends to the responses in 2020.

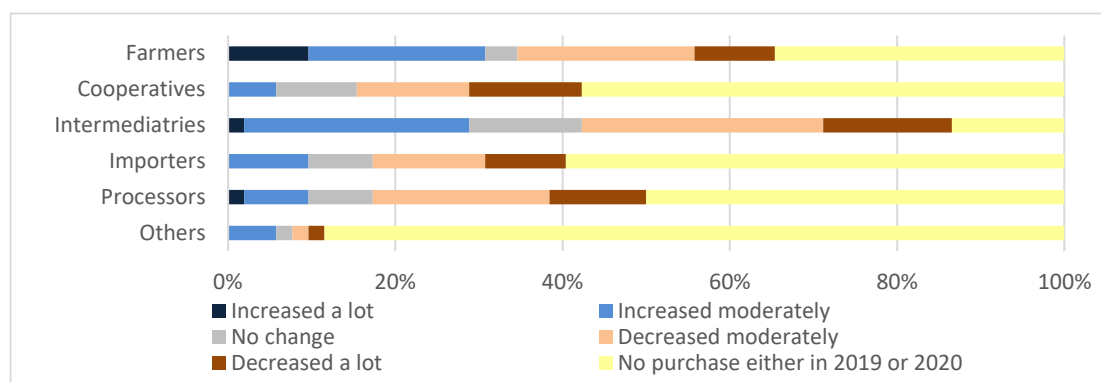


Figure 3-383 Mozambique: Changes in volume of target products purchased by retailers in 2020 (compared to 2019)

3) Changes in sales volume

As presented in Figure 3-384, approximately 50% of the retailers reported an increase in sales of the targeted staple food and vegetables in 2020 compared to 2019. In addition, sales of sesame and cashew nuts, which are mainly for exports, and tomato sauce have also increased at about 50% of the retailers. On the other hand, there was a noticeable decrease in orange sales.

Even for foods that showed a tendency to increase in sales volume in 2020, there was a certain percentage of responses indicating a decrease in sales volume, and regional differences in responses were also observed. Nampula Province showed an increase in sales volume from all the respondents for most of the target products, while Manica Province showed an overall decrease in sales volume. In Gaza Province, where tomatoes and onions are produced, sales of these crops were on the rise. It can be assumed that there are regional differences in the implementation of telecommuting and the occurrence of unemployment, especially among informal workers during the COVID-19 pandemic, which created regional differences in the increase or decrease in demand. As will be discussed in the section on consumer surveys, the results also show that lower income groups reduced their consumption.

As shown in Figure 3-386, increased demand was the main reason given for the increase in sales volume while Figure 3-388 shows that the main reason for the decrease in sales volume was a decrease in demand, and many other responses included restrictions on going out, movement, and operating hours. These responses suggest that COVID-19 may have resulted in different changes in human flows and demand in each province and district.

In 2021, as shown in Figure 3-385, the number of responses for increase and decrease was similar for some crops⁶⁴. The reason for this was that most respondents in Nampula Province reported an increase in sales volume for all products following 2020, while most respondents in other provinces reported a decrease in sales volume. In Maputo City and Gaza Province, sales of tomatoes and onions declined significantly in 2021, and the sales of maize declined in all maize flour dealers in Manica Province, the surveyed area for maize. In 2020, curfews and travel restrictions were the main reasons

⁶⁴ In 2020, questions were asked about the unit price of processed rice, and in 2021, the unit price of unhulled rice. Although the answers are asymmetrical, they are presented as reference information.

for the decline in sales. In 2021, the decline in sales due to these reasons was lower, suggesting that the impact of curfews and other restrictions was greater in 2020 when COVID-19 first occurred in Mozambique.

In Malanga Market and Maputo City Municipal Market, which are the main retail markets in Maputo City, interviews were conducted in May 2020 with the managers and several retailers who sell tomatoes, onions, oranges, and cashew nuts. The results showed that, in 2020, the number of customers in the market decreased by more than 50% and sales in retail stores decreased significantly due to the impact of COVID-19. The number of vendors in the market simultaneously decreased by 30-40%. According to the vegetable retailers in the market, the price surge in the wholesale market was directly reflected in the retail selling prices, especially for imported crops such as tomatoes. Retailers selling both domestic and imported citrus fruits, and cashew nut retailers who mainly targeted tourists, mentioned that their sales had dropped to less than one-fifth of the previous year. On the other hand, additional individual interviews showed that in October and November 2021, when the impact of COVID-19 was small, the number of vendors in the Malanga market had returned to the pre-COVID-19 levels and the number of customers had also recovered. In addition, before the COVID-19 pandemic, most of the retailers in the market had procured from the Zimpeto market, the largest wholesale market in the southern region, but after the COVID-19 pandemic, there has been a change in procurement behavior with an increasing number of retailers procuring directly from suburban farmers.

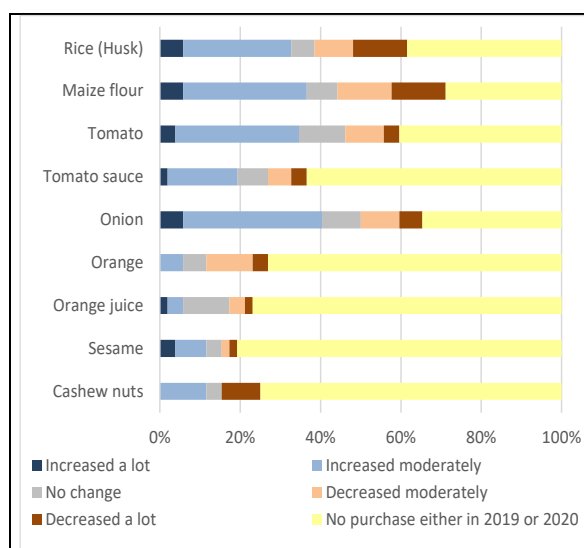


Figure 3-384 Mozambique: Changes in sales volume of target products by retailers in 2020 (by product, compared to 2019)

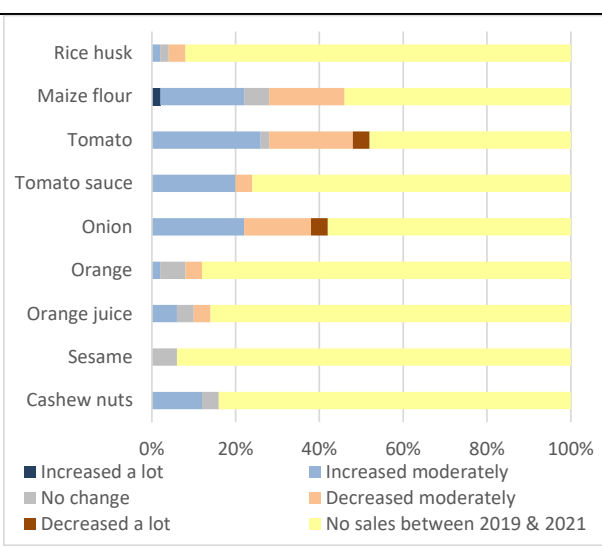


Figure 3-385 Mozambique: Changes in sales volume of target products by retailers in 2021 (by product, compared to 2019)

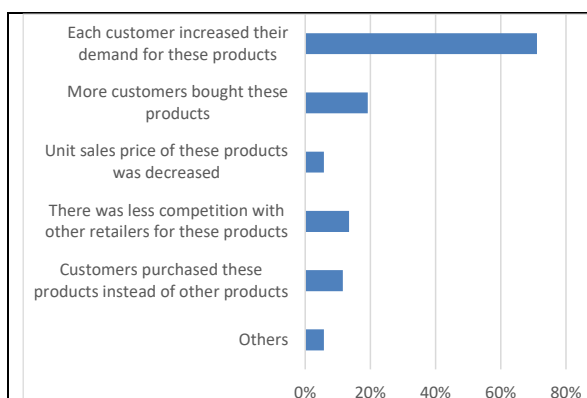


Figure 3-386 Mozambique: Reasons for increase in sales volume by retailers in 2020

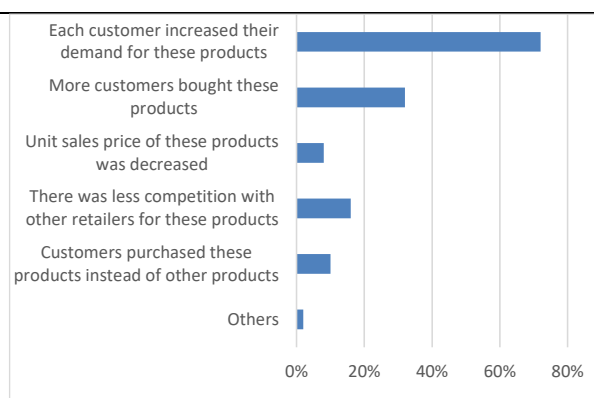


Figure 3-387 Mozambique: Reasons for increase in sales volume by retailers in 2021

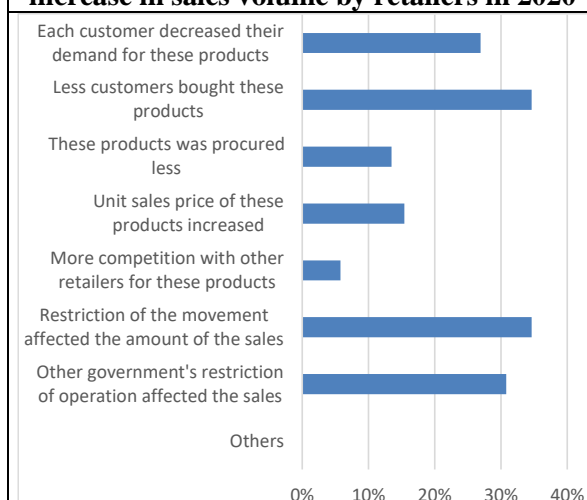


Figure 3-388 Mozambique: Reasons for decrease in sales volume by retailers in 2020

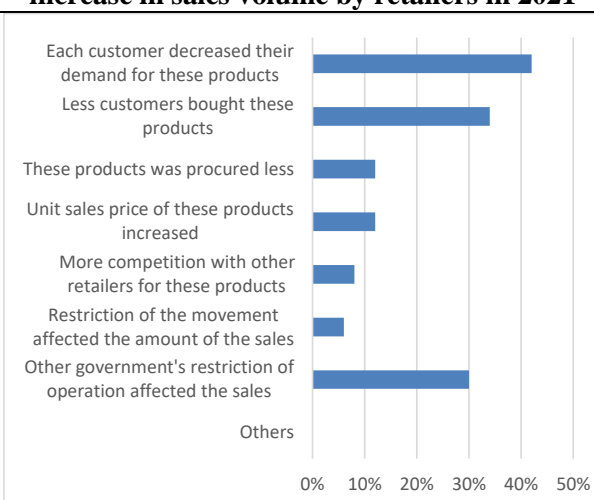


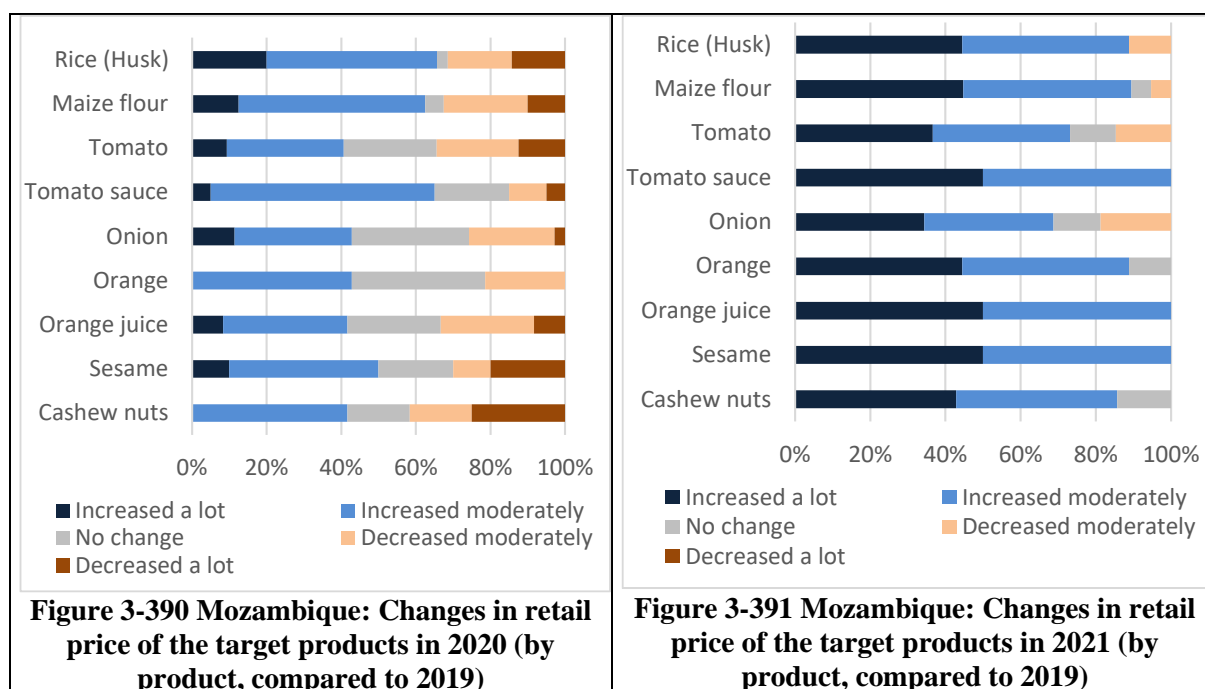
Figure 3-389 Mozambique: Reasons for decrease in sales volume by retailers in 2021

4) Changes in sales price

Figure 3-390 presents the changes in unit sales of crops at retail in 2020 compared to 2019⁶⁵. More than 60% of the respondents reported that the prices of rice, maize flour, and tomato sauce increased. For the other products, 40 to 50% of the respondents indicated an increase in price, and the percentage of respondents reporting an increase in prices greatly exceeded the decrease, except for cashew nuts. For cashew nuts and sesame seeds, which are mainly sold for export or to tourists, more than 20% of the respondents reported that their prices had decreased significantly. In 2021, unit sales prices at most retailers have increased for all targeted products, as shown in Figure 3-391⁶⁶. This was because the increase in procurement cost was reflected in the selling price.

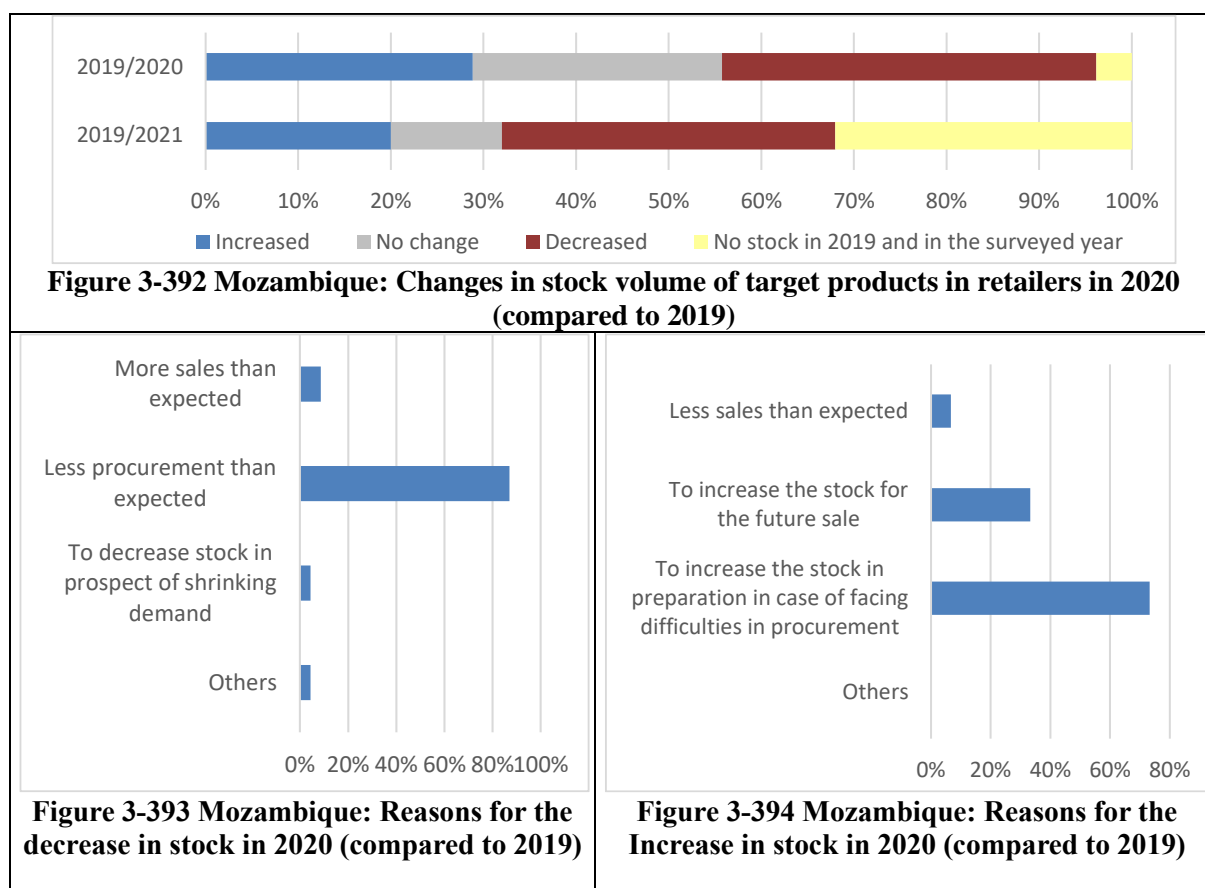
⁶⁵ Only responses from retailers that handle the surveyed products were reflected.

⁶⁶ In 2020, questions were asked about the unit price of processed rice, and in 2021, the unit price of unhulled rice. Although the answers are asymmetrical, they are presented as reference information.



5) Changes in stock volume

Figure 3-392 shows changes in the amount of stock from 2019 to 2020 and 2021. Of all respondents, 40% reported that the stock has decreased in 2020, while 29% indicated an increase. There was a noticeable decrease in inventory in Maputo City and Manica Province. The main reason for the decrease in stock in 2020 was that they could not procure the desired volume (Figure 3-393). In Maputo City, many products are normally imported, which is considered to have led to a decrease in stock. Most of the reasons for the increase in the amount in 2020 were to secure stock in anticipation of facing procurement difficulties from the impact of COVID-19 (Figure 3-394). In 2021, the number of retailers with inventory was found to have decreased; the reasons for the increase or decrease in inventory in 2021 showed a similar trend to the responses in 2020.



(7) Consumption

1) General Consumers

a) Highlights

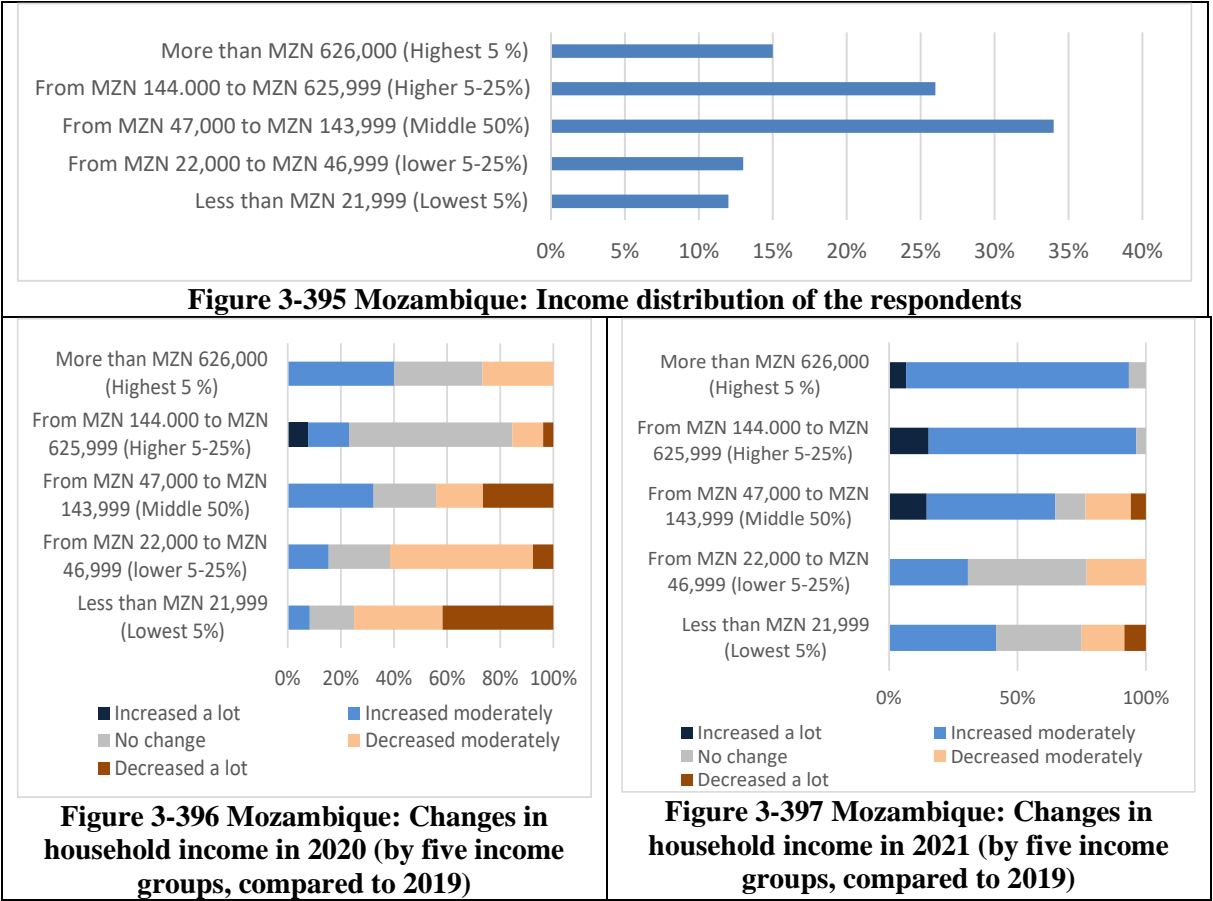
Responses were received from 100 individual consumers in the capital city and cities from the provinces of Manica, Gaza, and Nampula. From the responses about the changes in 2020, it was found that the household income of the respondents decreased as did the frequency of shopping and the amount (either money spent or amount of purchases per visit. Many respondents had recovered their incomes in 2021 and their consumption improved, especially for staple food crops and vegetables.

b) Changes in household income

Figure 3-395 shows the annual household income distribution of the surveyed individual consumers. Figure 3-396 shows the increase or decrease in annual income between 2019 and 2020 for each household income group⁶⁷. The result indicates that the lower the income group, the more the household income decreased under COVID-19. In 2021, a high percentage of respondents, especially those in the middle and upper classes, reported an increase in their household income compared to 2019 (Figure 3-397). Even among the low-income group, 30% to 40% of respondents reported that their

⁶⁷ Based on the income distribution in Mozambique shown in "Index Mundi" (2014) and the average number of households in 2019 calculated from the information by the World Bank, income distribution was divided into five levels; the highest is top 5%, the 2nd is 5-25%, the 3rd is 25-75%, 4th is lower 5-25% and the last is lowest 5%.

household income has increased in 2021. By region, respondents in Gaza province reported stagnant household incomes in both 2020 and 2021, while household incomes in all other provinces began to recover in 2021.



c) Changes in consumption volume of the target products

Figure 3-398 shows the changes in consumption of the surveyed products by individual consumers in 2020 compared to 2019. In 2020, most respondents answered that there had been no change in consumption of staple foods, vegetables, and oranges. For rice and maize, the impact was particularly small, with about 40% of respondents stating that they increased their consumption. For vegetables and oranges, 30% increased their consumption. On the other hand, consumption of highly palatable products such as cashew nuts, orange juice, and sesame seeds showed a downward trend. There were no major differences in trends by income group in terms of changes in consumption, but there were regional differences, with strong consumption in Nampula Province. On the other hand, a relatively large number of respondents in the capital city reported a decrease in consumption. In interviews conducted at the Malanga market in the capital city, where retail stores are concentrated, it was pointed out that many customers shifted to purchasing low-priced rice and maize flour products, even if they do not reduce their purchase of these staple foods. In addition, individual interviews revealed that selling prices increased, especially for vegetables and fruits, and sales decreased significantly due to restrictions on going out and the stagnant customer economy, which is consistent with the trend of decreasing

purchases by urban consumers in the capital. As reasons for the decrease in consumption of the target products in 2020, more than half of the respondents indicated an increase in market prices, followed by a decrease in their household income, as shown in Figure 3-400. Increased availability in the market and increased income were indicated as reasons for the increase in consumption, mainly by respondents from Nampula province (Figure 3-402). While it was relatively easy to obtain products in regional cities close to production areas, it was difficult to obtain products in the capital city, which relied on supplies from other provinces and other countries.

In 2021, consumption as a whole was on a recovery trend, as shown in Figure 3-399. Approximately 80% of respondents reported an increase in consumption of staple food crops and 50% to 60% reported an increase in consumption of vegetables and oranges. The main reasons for the increase in consumption were the increased income of respondents and increased sales volume in the market.

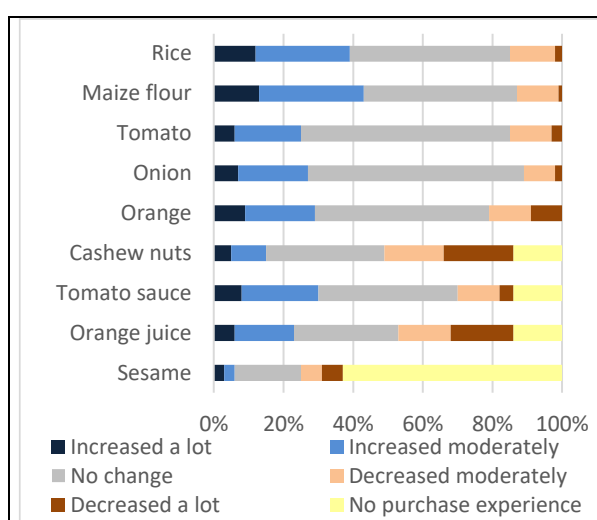


Figure 3-398 Mozambique: Changes in consumption of target products in 2020 (compared to 2019)

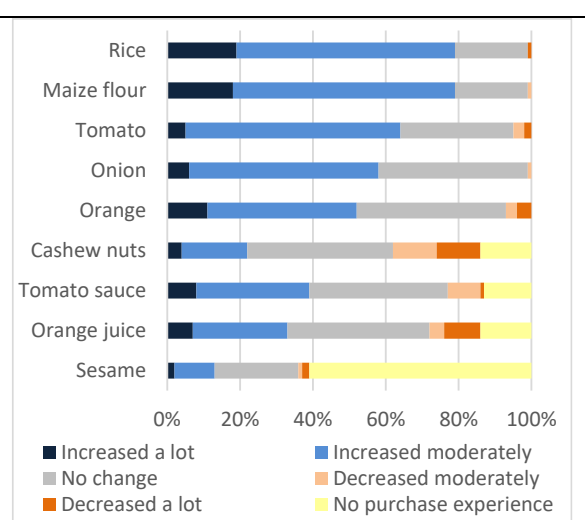


Figure 3-399 Mozambique: Changes in consumption of target products in 2021 (compared to 2019)

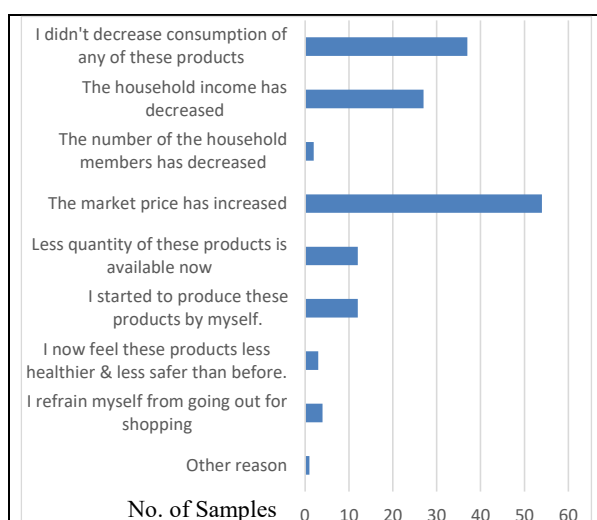


Figure 3-400 Mozambique: Reasons for decrease in consumption in 2020

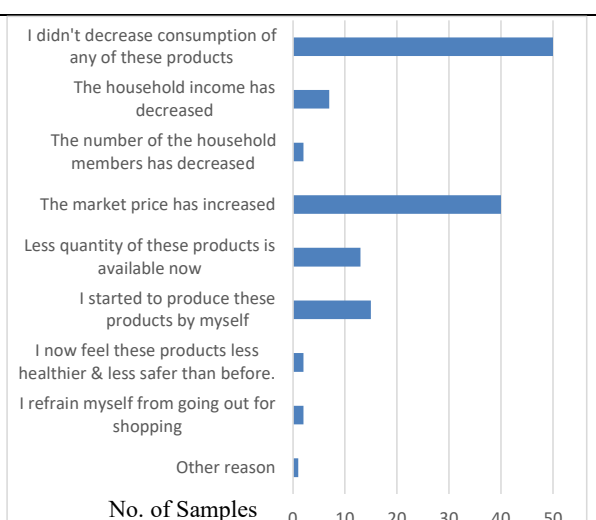


Figure 3-401 Mozambique: Reasons for decrease in consumption in 2021

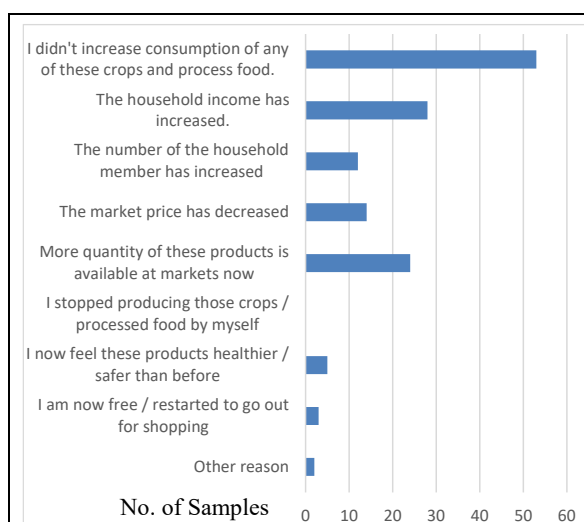


Figure 3-402 Mozambique: Reasons for increase in consumption in 2020

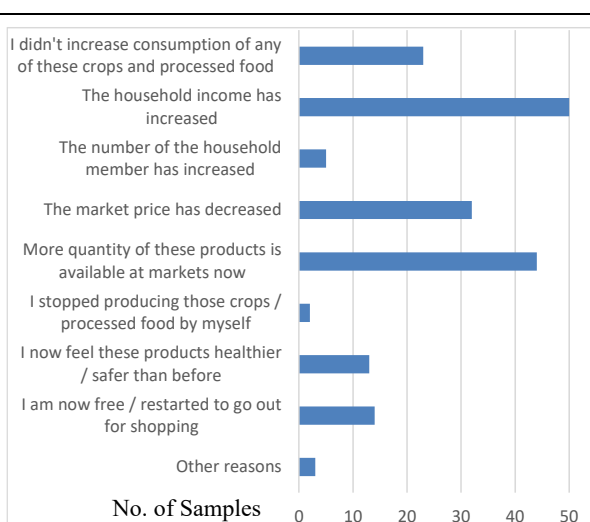
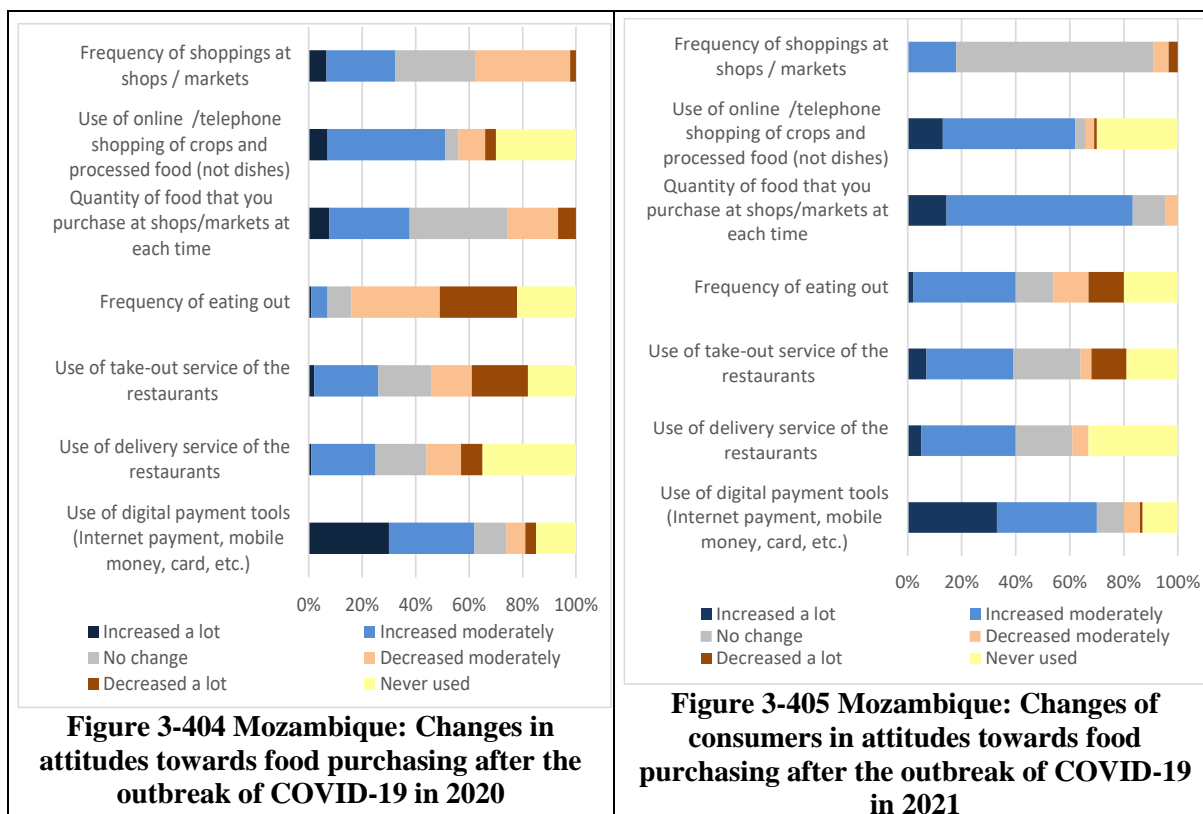


Figure 3-403 Mozambique: Reasons for increase in consumption in 2021

d) Changes in attitude toward food purchasing

Figure 3-404 summarizes the changes in certain behaviors of individual consumers before and after the occurrence of COVID-19. In 2020, the frequency of shopping, the amount of shopping per visit, the frequency of eating out, and the use of take-out and delivery decreased due to the decline in household income and mobility restrictions, especially among middle- and low-income groups. On the other hand, the negative impact on consumption behavior was smaller among those with higher income levels, and takeout, delivery, and online ordering also tended to increase.

Figure 3-405 shows the changes in the behavior of individual consumers in 2021. The negative impact of COVID-19 on consumption has also been relatively mitigated, indicating that consumption behavior has become more active, including among low-income groups. Delivery and online ordering patterns also increased across the respondents and the frequency of payments through digital payment tools continued to rise. While more respondents from low-income groups in the capital had no experience using digital tools, those from low-income groups in Gaza Province increased the frequency of their use.



About 80% of respondents have changed their means of payment in 2020 compared to before COVID-19 (Figure 3-406). In 2020, more than 70% of respondents reduced their cash payments and more than 60% increased their mobile money payments. Among the bottom 25% of household income groups, about 50% of respondents reported a decrease in cash payments, while only less than 30% of respondents from the same categories increased their use of electronic money. In the middle-income group and above, the frequency of mobile money as well as other cashless payment methods increased. For payment methods, it was confirmed that the changes that occurred in 2020 are continuing in 2021.

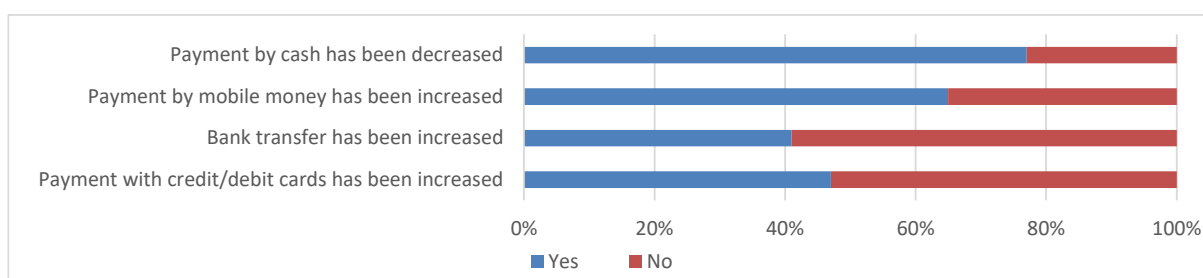


Figure 3-406 Mozambique: Changes of consumers in payment methods after the outbreak of COVID-19 in 2020

2) Restaurants

a) Highlights

A total of five restaurants responded to the questionnaire about the changes in 2020. Three of

them were from the capital city, and one each from Manica Province and Nampula Province. As mentioned previously in 1), the number of customers and sales in restaurants declined overall in 2020 due to the reduced incomes of individual consumers and the significant decrease in the number of tourists. In the survey on changes in 2021, four out of five companies responded that the consumption in restaurants was on a recovery trend in 2021.

b) Changes in sales

Table 3-55 shows the annual sales in 2020 and 2021 compared to 2019 as reported by the responding restaurants. In 2020, Two restaurants reported a decrease in sales, while another restaurant indicated an increase. For the reasons for the decline in sales, four out of the five restaurants answered that the curfew and business hour restrictions caused a decrease in the number of customers. Two restaurants responded on their sales in 2021, and one with a slight decrease and the other with a slight increase compared to 2019. In both cases, sales have improved significantly compared to 2020.

Table 3-55 Mozambique: Changes in sales at restaurants in 2020 and 2021 (compared to 2019)

	2019/2020	2019/2021
Restaurant A in Maputo	Decreased by 54%	Decreased by 8%
Restaurant B in Maputo	N/A	N/A
Restaurant C in Maputo	N/A	N/A
Restaurant D in a rural city	Decreased by 74%	N/A
Restaurant E in a rural city	Increased by 71%	Increased by 14%

c) Changes in the number of customers

In 2020, compared to 2019, the number of customers decreased in two restaurants, remained unchanged in two restaurants, and increased in one restaurant (Figure 3-407). The main reasons for the decline in the number of customers were government regulations on restaurant hours of operation and the government's request for people to refrain from going out and eating out. The one restaurant that showed an increase in the number of customers cited the implementation of thorough infection control measures as the reason for the increase.

In 2021, all the four restaurants that responded to the survey reported an increase in the number of customers compared to 2019 (Figure 3-408). The main reasons for the increase in the number of customers were the extension of business hours due to the relaxation of regulations (4 restaurants), the implementation of infection control measures against COVID-19 (4 restaurants), and the reduction of the price per unit on menus (2 restaurants).

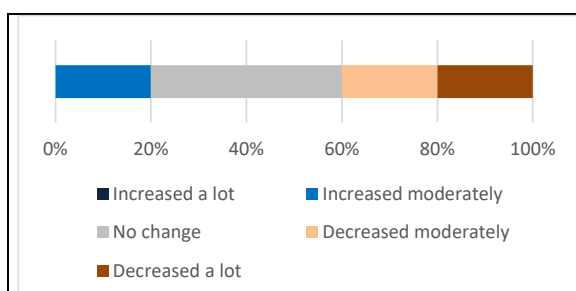


Figure 3-407 Mozambique: Changes in number of customers in restaurants in 2020 (compared to 2019)

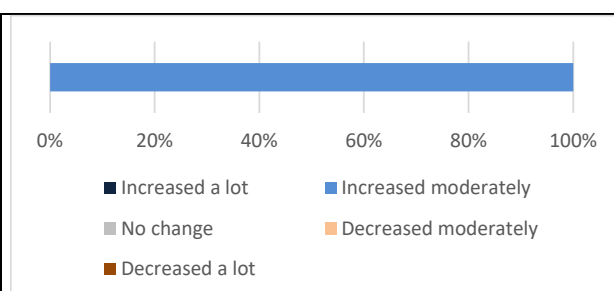


Figure 3-408 Mozambique: Changes in number of customers in restaurants in 2021 (compared to 2019)

d) Changes in procurement volume

Figure 3-409 and Figure 3-410 show the changes in the purchase volume of the surveyed products in 2020 and 2021 compared to 2019 by the restaurants. Except for restaurant E mentioned above, which reported an increase in sales, the amount of each food item procured was on a downward trend.

In 2021, most of the respondents indicated an increase in procurement volume compared to 2019. In particular, the procurement of rice, tomatoes, onions, oranges, and orange juice increased. The reasons for the increase were the recovery in the number of customers and the relatively low cost of procurement.

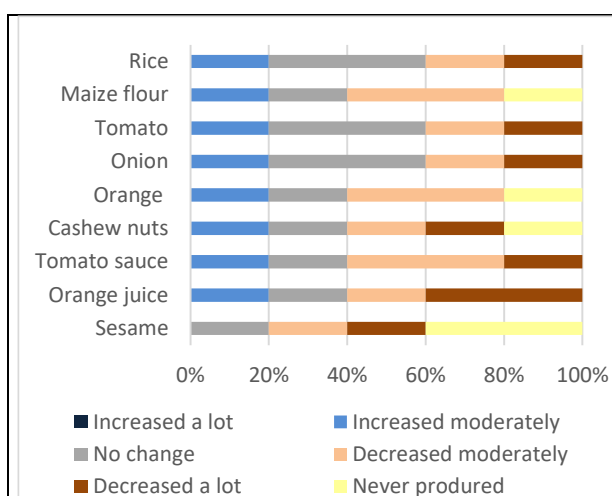


Figure 3-409 Mozambique: Changes in volume of the target products purchased by restaurants in 2020 (compared to 2019)

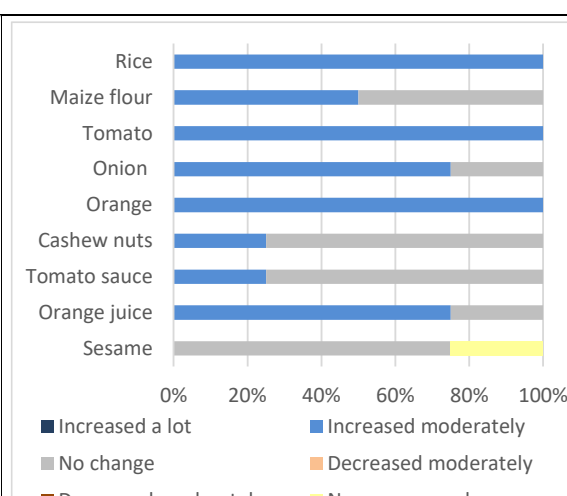


Figure 3-410 Mozambique: Changes in volume of the target products purchased by restaurants in 2021 (compared to 2019)

e) Changes in procurement behavior

Figure 3-411 and Figure 3-412 show the changes in behavior regarding procurement between 2019 and 2021 in the surveyed restaurants. Increases and decreases in procurement volume and frequency are mostly linked to increases and decreases in the sales volume of each restaurant. Due to the impact of COVID-19, four out of the five restaurants have increased their use of digital payment tools in 2020.

In 2021, the number of customers has been recovering, which has led to an increase in the frequency and volume of purchases, etc. In addition, the use of digital payment tools and online/telephone orders has been increasing in all stores in 2021, indicating that change is continuing after the outbreak of COVID-19.

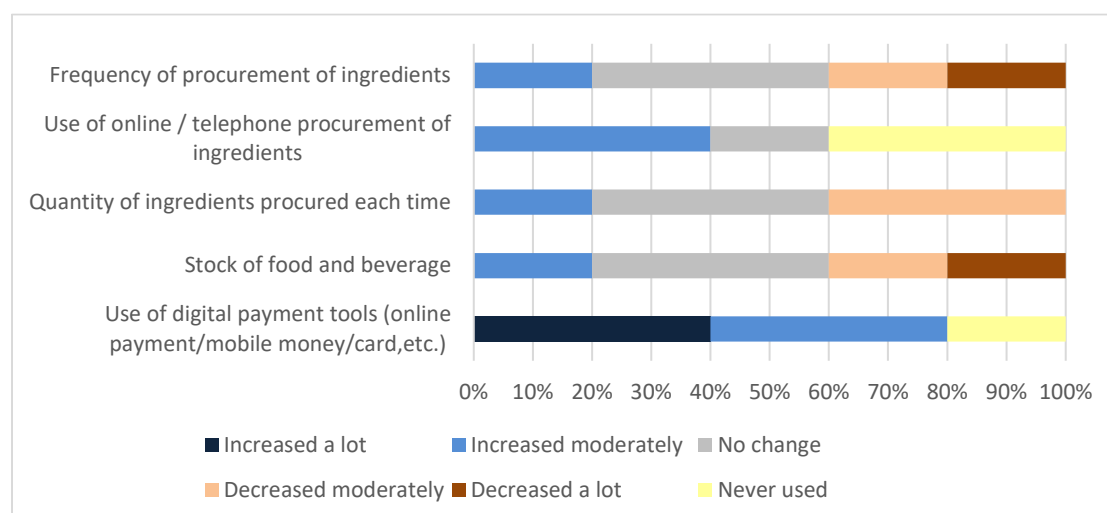


Figure 3-411 Mozambique: Changes in procurement behavior of restaurants in 2020 (compared to 2019)

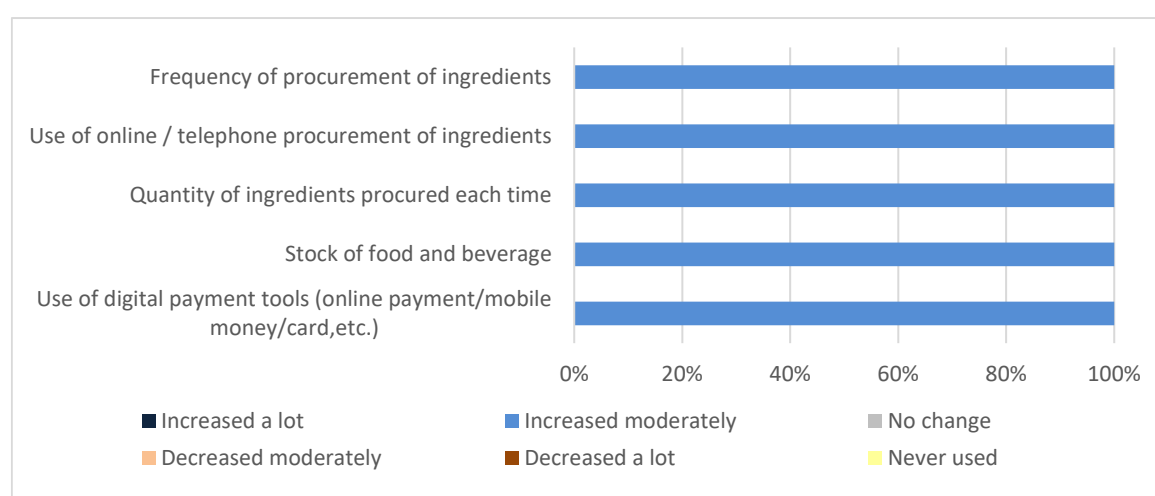


Figure 3-412 Mozambique: Changes in procurement behavior of restaurants in 2021 (compared to 2019)

(8) Financial Institution

The panel survey was conducted among financial institutions that have provided agriculture-related loans in 2019 and onwards, and responses were received from two MFIs from the surveyed provinces⁶⁸. Table 3-56 and Table 3-57 summarize the information obtained from them.

⁶⁸ Information could not be obtained from commercial banks and other financial institutions due to the institutions'

Neither of the MFIs tightened the conditions for providing loans after the outbreak of COVID-19. One of them reduced the overall number of loans, not just agriculture-related loans in 2020, due to the influence of COVID-19 including uncertain economic trends. On the other hand, in 2021, both institutions indicated that the number and total amount of loans, including for agriculture, have been robust as of September, as their clients' businesses have been recovering and/or growing. As for PAR>30⁶⁹ of agriculture-related loans, it became slightly higher than the percentage before the COVID-19 pandemic, but both institutions have maintained the rate below 5%, indicating that there is not yet a clear risk. Regarding government support for financial institutions, the government has provided low-interest credit lines to financial institutions to mitigate the impact of COVID-19 on loan customers' businesses, and both institutions utilized these special loans.

In addition to the panel survey, an individual interview conducted with a major microfinance institution also confirmed that the institution had applied measures to reduce the burden of loan repayment, such as extending the repayment period. During the COVID-19 pandemic, the government restrictions on movement and the number of people who can gather at one time have reduced the agency's ability to provide training and advice directly to clients. They also provided remote customer service and consultation but answered that they were not able to respond effectively to some customers and could not provide appropriate advice to help them improve their business with online consultation.

Table 3-56 Mozambique: Situation of financial service provision by MFI under COVID-19 (1)

About the MFI	This MFI provides various services for the development of the local communities in Inhambane Province, which is the target province for the survey of oranges. The MFI also functions as an agricultural cooperative and has stores that sell agricultural inputs and materials. They also process and sell dried pineapple, mango, and banana. Thus, the MFI provides comprehensive support for the economic development of the local community by offering a series of services: selling agricultural materials, providing loans, and processing the products.						
Year	2019	2020	2021 (As of Sep)	Year	2019	2020	2021 (As of Sep)
No. of total loan customer	126	150	283	Total loan amount for agri-business (thousand MZN)	301.5	412.30	1,002.9
Total loan amount (thousand MZN)	1,152.8	1,897.1	1,987.5	PAR>30 for agri-business loans	2%	2%	4%
No. of agri-business loans	125	204	103	ROA	15%	12%	14%
Changes in no. of customers and the reasons for changes	The increase in the number and amount of agriculture-related loans in 2020 was due to a robust client business situation. In 2021, as of the end of September, the number of agriculture-related loans was 103, which on a full-year basis is expected to be higher than that in 2019. The reasons for the expected increase in the number of loans in 2021 were the same as in 2020.						
The reason for the increase or decrease of PAR>30 for agri-	PAR>30 was 2 percent in 2019 and 2020 for agriculture-related loans. In 2021, PAR>30 is 4% as of September, which is within the acceptable range. The increase in PAR>30 in 2021 was caused by lower sales and profits in some clients' businesses and lower cash flows. Looking at lending, PAR>30 remained low at 2% in 2019, 4% in 2020, and 3% in 2021,						

confidentiality policies. For MFIs, a limited number of institutions provided agriculture-related loans after 2019 in any of the four surveyed provinces.

⁶⁹ The % of repayments that are more than 30 days late.

business loans	suggesting that most customers had the ability to repay their loans and that the financial institution was managing loan repayments appropriately.
Changes in loan conditions under COVID-19	In both 2020 and 2021, loan conditions remained unchanged compared to prior to COVID-19.
Current financial services	Loans for agri-business and other purposes.
Loan demand by customers during COVID-19	With the occurrence of COVID-19, the demand for loans for agricultural production and working capital for agribusinesses increased in 2020 and 2021.
Support by the government	<ul style="list-style-type: none"> - As a special exception under COVID-19, a reduction or exemption on tax payments was applied. - Received low-interest funding from the government.

Table 3-57 Mozambique: Situation of financial service provision by MFI under COVID-19 (2)

About the MFI	This is an MFI that operates in Nampula Province, providing a wide range of financial products and services, including loans, deposits, and insurance. It is an MFI that aims for local development and financial and social inclusion of the segments of the population that have difficulty in accessing commercial banks and small and medium enterprises.						
Year	2019	2020	2021 (As of Sep)	Year	2019	2020	2021 (As of Sep)
No. of total loan customer	539	378	953	Total loan amount for agri-business (thousand MZN)	1,065	870	1,268.3
Total loan amount (thousand MZN)	10,700	8,640	10,256.3	PAR>30 for agri-business loans	4.5%	5%	5%
No. of agri-business loans	102	91	N/A	ROA	10.5%	9.5%	10%
Changes in No. of customers and the reasons for changes	In 2020, both the number of customers and the number of loans decreased. This was because the impact of COVID-19 made customers' business more uncertain, and the MFI became more cautious about providing loans. In 2021, the exact number was not available, but according to the answers, the number of agriculture-related loans increased. This was due to increased demand for loans for agricultural production and working capital for agribusinesses in 2020 and 2021 after the outbreak of COVID-19.						
The reason for the increase or decrease of PAR>30 for agri-business loans	It was stable between 4.5% and 5% from 2019 to 2021. The MFI recognizes that it has been able to improve PAR>30 in 2021, which is due to improved customer business conditions and good cash flow.						
Changes in loan conditions under COVID-19	In both 2020 and 2021, loan conditions remained unchanged compared to prior to COVID-19.						
Current Financial services	Individual loans, SME loans, personal loans with group guarantee, life insurance, term deposits, savings accounts, etc. Acceptance of payments through the Internet and mobile phones.						
Loan demand by customers under COVID-19	<ul style="list-style-type: none"> - The demand for financing for agriculture increased. - The demand for inquiry services via the Internet and mobile phones increased, avoiding face-to-face inquiries. 						
Support by the government	<ul style="list-style-type: none"> - As a special exception under COVID-19, a reduction or exemption on tax payments was applied. - Received low-interest funding from the government. 						

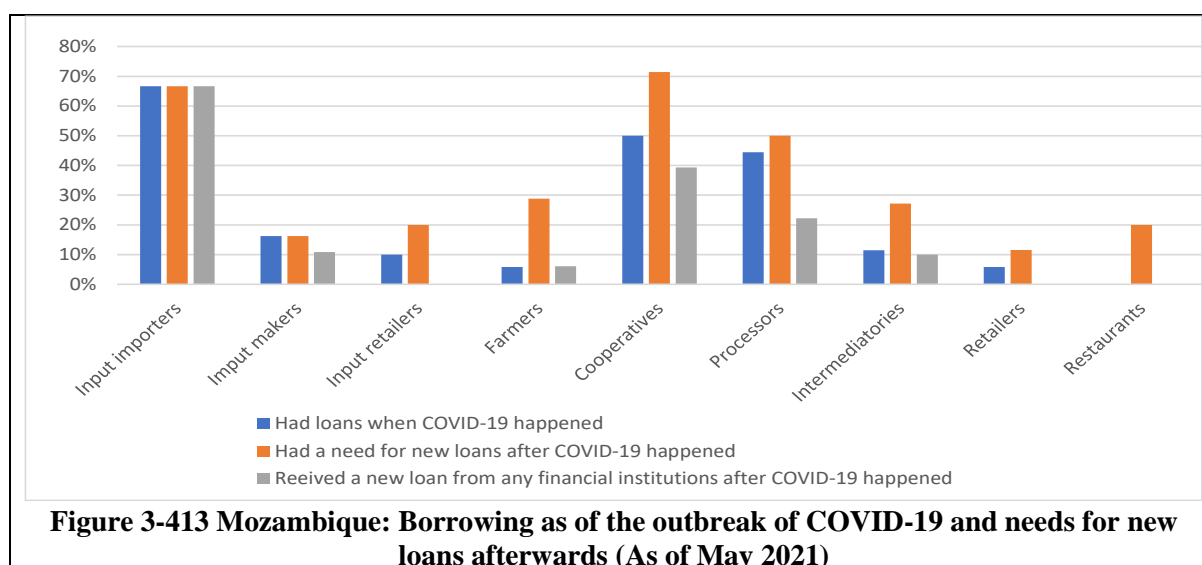
(9) Cross cutting issues

1) Financial Services

a) Financial needs

As shown in Figure 3-413, as of May 2021, a high percentage of agricultural input companies, agricultural cooperatives, processors, and importers had been using loans before COVID-19, but that of other businesses using loans was low. After the COVID-19 pandemic started, the need for financing increased regardless of the type of business. However, the percentage of businesses that took out loans was smaller than the percentage of businesses that wished for loans. In addition, businesses with a high percentage of access to loans before COVID-19 tended to have a high percentage of access to loans after COVID-19 started too, while businesses with a low percentage of access to loans before COVID-19 tended to have lower access to loans after COVID-19 as well. Thus, in general, access to loans does not seem to have changed significantly before and after the COVID-19 outbreak.

As for the main reasons for not receiving loans, many respondents confirmed that they do not know of any financial institutions that will provide them with loans and indicated that the loan conditions are too strict for their businesses. In the second survey conducted in October-November 2021, the trend was similar to the first survey conducted in May 2021



b) Needs for financial products other than loans

Table 3-58 shows the financial needs other than loans as of May 2021. Overall, the need for business/disaster insurance and life/health insurance for employees has increased after the onset of COVID-19. The importance of opening savings and checking accounts was also recognized by many FVC stakeholders. Input makers and input retailers, agricultural cooperatives, and intermediaries indicated higher needs for various financial services compared to the other business sectors. As of October 2021, there was no significant change compared to May 2021, but the need for savings accounts increased even more than in May 2021.

Table 3-58 Mozambique: Financial needs other than loans after the outbreak of COVID-19 (as of May 2021)

	Fixed term deposit	Non-Fixed term savings account	Current account for payment	International transfer	Business or disaster insurance	Life or health insurance for employees	Internet or mobile payment	Credit or debit card payment	Internet or mobile inquiry service
Input importers	0%	0%	0%	0%	0%	0%	0%	0%	0%
Input makers	11%	19%	17%	0%	17%	3%	3%	0%	0%
Input retailers	0%	10%	10%	0%	20%	30%	10%	10%	10%
Farmers	9%	13%	14%	1%	17%	6%	5%	4%	1%
Cooperatives	21%	39%	39%	14%	54%	43%	11%	11%	7%
Processors	11%	6%	17%	17%	28%	11%	11%	11%	28%
Intermediatories	13%	17%	19%	17%	14%	13%	4%	10%	4%
Retailers	10%	17%	2%	0%	29%	6%	4%	4%	2%
Restaurants	0%	0%	0%	20%	60%	60%	40%	20%	40%

	More than 30%	Legend
	From 15% to 29%	

2) Changes in business practices

The changes in business methods after the occurrence of COVID-19 surveyed in May 2021 are summarized in Table 3-59. The increase in online interactions and the decrease in face-to-face conversations are two sides of the same coin. The use of digital money, as represented by mobile money, is also on the rise overall, with even farmers increasing their use by more than a quarter. The use of SMS, represented by WhatsApp, in business is increasing overall, and the rate of its increase is higher than that of SNS represented by Facebook. This can be attributed to the low hurdle of using SMS and the fact that it is a tool that allows direct communication between customers and business partners.

The same questions were asked in October 2021, and there was no large difference from the results in May, but there was an increase in the use of digital money in October compared to May. It can be said that the changes in business methods that occurred after the outbreak of COVID-19 are continuing.

Table 3-59 Mozambique: Changes in ICT-based business practices after the outbreak of COVID-19 (as of May 2021)

	Frequency of online business talk: Increased	Frequency of face to face business talk: Decreased	Use of SNS for online marketing: Increased	Use of SMS for online marketing: Increased	Use of digital money for transaction of money: Increased	Online buying, selling & business matching: Increased	Introduction of IC tag: Increased
Input importers	100%	100%	33%	0%	33%	100%	0%
Input makers	11%	33%	8%	22%	33%	11%	28%
Input retailers	50%	30%	20%	30%	70%	50%	0%
Farmers	21%	18%	13%	24%	26%	16%	10%
Cooperatives	39%	43%	11%	32%	54%	36%	14%
Processors	72%	50%	17%	50%	33%	56%	0%
Intermediatories	29%	39%	19%	20%	27%	23%	4%
Retailers	31%	46%	19%	19%	35%	21%	4%
Restaurants	60%	60%	40%	60%	60%	80%	60%

	More than 50%	Legend
	From 25% to 49%	

Chapter 4. Cross-country analysis of the impact of COVID-19 on the food value chains

4.1. Trends and background of the impact of COVID-19 on inputs and consumption

4.1.1. Inputs

(1) Production and import/export of fertilizers in each country surveyed

Table 4-1 shows fertilizer-related statistical data for the countries surveyed. It should be pointed out that in all the target countries except Zimbabwe, there is no record of the production of fertilizer raw materials. In some countries, the fertilizer companies are dependent on imports for the raw materials needed to produce compound fertilizers. Zimbabwe can source its own ammonium nitrate and phosphate rock, but its production is insufficient to meet its own needs. The sources of fertilizer imports for each of the target countries vary but tend to be from countries such as China, the UAE, Saudi Arabia, South Africa, and Mauritius.

Table 4-1 Total production and imports of each fertilizer element in the countries surveyed (2017-2019)

Country	Nitrogen fertilizer			Phosphorus fertilizer			Potash fertilizer		
	Amount of fertilizer applied (tonnes)	Import volume (tonnes)	Production volume (tonnes)	Amount of fertilizer applied (tonnes)	Import volume (tonnes)	Production volume (tonnes)	Amount of fertilizer applied (tonnes)	Import volume (tonnes)	Production volume (tonnes)
Madagascar	84,287	48,026	0	14,563	14,571	0	13,773	13,775	0
Malawi	251,838	263,134	0	69,121	64,244	0	53,699	51,830	0
Mozambique	75,626	79,372	0	12,518	12,743	0	16,725	23,275	0
Zambia	526,316	537,418	0	123,522	124,585	0	80,291	80,667	0
Zimbabwe	165,200	316,278	38,700	133,000	140,501	25,700	113,800	118,822	0

Source: FAOSTAT

The amount of fertilizer used in each country also varies greatly. Figure 4-1 shows the amount of fertilizer applied per unit area of farmland in each country, with Zambia's input being the highest, followed by Malawi and Zimbabwe. Madagascar and Mozambique tend to have low inputs. It can be inferred that there are differences in the input subsidy policies of each government. For example, Zambia's input subsidy budget for 2020 is reported to be about 1.4 billion ZMK (\approx 84 million USD)⁷⁰, and Malawi's input subsidy budget for the same year is reported to be 48.5 million USD⁷¹. For Zimbabwe, the exact figures for the same year are not available, but for the period 2016-2018, the average subsidy budget for the promotion of maize production was 52.3 million USD⁷². Mozambique, on the other hand, has a limited subsidy budget, although exact data are not available. Reflecting this, the rate of chemical fertilizer application by the maize producers covered by this study was 100% in Malawi, Zambia, and Zimbabwe, while only 18% of the farmers in Mozambique applied chemical fertilizer⁷³. In other words, even though the countries are totally dependent on imports for fertilizer, their requirements differ in

⁷⁰ <https://www.pwc.com/zm/en/assets/pdf/zambia-budget-bulletin-2021.pdf>

⁷¹ <https://www.oaklandinstitute.org/blog/malawi-failure-input-subsidies-new-path-forward-fight-hunger>

⁷² World Bank, 2020, AGRICULTURE SUBSIDIES FOR BETTER OUTCOMES Options for Zimbabwe

⁷³ Note that the yield of maize covered by the input subsidy policy (2019) in each country is 1.9 t/ha in Malawi, 0.9 t/ha in Mozambique, 2.3 t/ha in Zambia, and 1.2 t/ha in Zimbabwe.

terms of quantity, which affects the importance of imported fertilizer in their agricultural production.

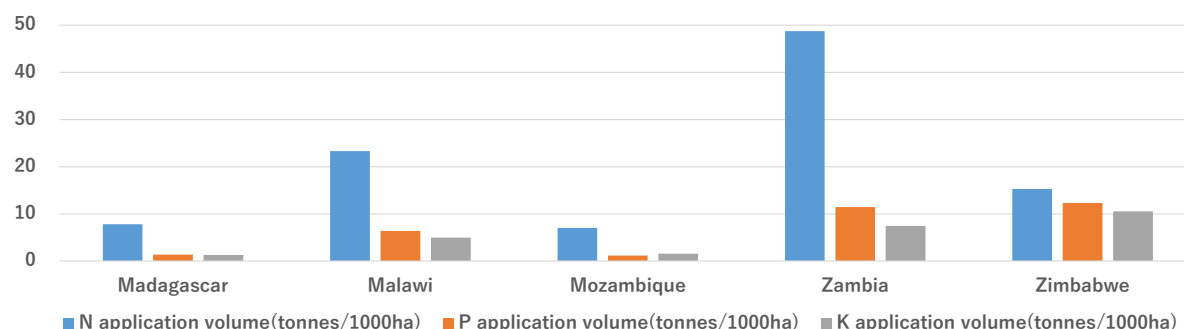


Figure 4-1 Amount of fertilizer applied per unit area for each fertilizer element in the countries surveyed

Source: Prepared by the research team based on FAOSTAT

(2) Changes in the business of input-related actors in each target country

Table 4-2 shows the changes in the volume of sales of products handled by input-related actors in each target country. The characteristics of each country are summarized as follows: 1) for Zambia, the sales volume of input-related products moderately decreased in 2020, but showed a recovery trend in 2021; 2) for Zimbabwe and Malawi, the sales volume generally increased in both 2020 and 2021; 3) for Madagascar and Mozambique, it was difficult to show a clear trend due to the limited sample size available. Of these, the trend in Zambia can be attributed to factors such as increased input procurement costs due to the sharp depreciation of the currency and higher selling prices in the domestic market. Although input-related actors in each country acknowledged the impact of COVID-19 (longer lead times for transporting inputs, higher logistic costs, and higher fuel costs), the impact on their business was considered to be limited. This may be because the demand for inputs is strong and that government subsidies for inputs are available in all countries, although the scale of these subsidies varies.

Table 4-2 Change in input sales by input-related actors in the countries surveyed (compared to 2019)

Category	2020					2021				
	Madagascar	Malawi	Mozambique	Zambia	Zimbabwe	Madagascar	Malawi	Mozambique	Zambia	Zimbabwe
Fertilizer importers	N/A	Increased	N/A	Moderately decreased	Moderately increased	N/A	Increased	N/A	Increased	Moderately increased
Fertilizer manufacturers	N/A	N/A	Moderately reduction	Moderately decreased	Moderately increased	No change	N/A	N/A	N/A	No change
Fertilizer retailers	No change	Moderately increased	Increased	Moderately decreased	Moderately decreased	Moderately decreased	Increased	Moderately decreased	Moderately increased	Moderately increased
Pesticide importers	N/A	Increased	Decreased	Moderately decreased	Moderately increased	N/A	Moderately decreased	Decreased	Increased	Increased
Pesticide manufacturers	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pesticide retailers	No change	Moderately decreased	Moderately increased	Moderately decreased	Moderately increased	Moderately increased	No change	No change	Moderately increased	Moderately increased
Seed importers	N/A	N/A	N/A	Increased	No change	N/A	N/A	N/A	Increased	No change
Seed manufacturers	Moderately decreased	No change	No change	Moderately increased	Moderately increased	Moderately decreased	No change	Moderately increased	Moderately increased	Moderately increased
Seed retailers	No change	Increased	No change	Moderately decreased	Decreased	No change	N/A	Moderately decreased	Moderately increased	No change

4.1.2. Consumption

The changes in consumer behavior that occurred in 2020 and 2021 compared with 2019 in the five target countries were analyzed based on the results of the panel survey.

Table 4-3 shows the changes in consumers' household income in each country in 2020 and 2021 compared to 2019. In 2020, there was a decrease in household income in all the countries except Malawi. In particular, a large percentage of respondents in Zimbabwe and Madagascar reported a decrease in their household income. In 2021, Madagascar was the only country with a higher percentage of respondents whose household income decreased compared to 2019. Respondents in Zimbabwe and Mozambique experienced a recovery in household income in 2021.

Table 4-3 Changes in household income in the five target countries (compared to 2019)⁷⁴

	Madagascar	Malawi	Mozambique	Zambia	Zimbabwe
2020	Decreased	No change	Moderately decreased	Moderately decreased	Decreased
2021	Moderately decreased	No change	Increased	No change	Moderately increased

Table 4-4 shows the changes in consumption behavior in each country. In 2020, due to reduced income and restrictions on going out, there was a downward trend in the frequency of shopping, the amount of foodstuff to buy per shopping, and the frequency of eating out. There were no significant changes in the frequency of take-out or delivery. In 2021, shopping and other consumption behaviors became more active in Zimbabwe and Mozambique, where household incomes were increasing. Particularly in Mozambique, there was an increase in consumption that included eating out, take-out, and delivery. However, even within Mozambique, there were regional differences in responses.

⁷⁴ (1) "Increased" if the increase is more than 50%, (2) "Slightly Increased" if the increase is more than 35% and 10% more than the decrease, (3) "Slightly Decreased" if the decrease is more than 35% and 10% more than the increase, (4) "Decreased" if the decrease is more than 50%, and (5) "No Change" for all other cases.

Regarding the frequency of using cashless payment tools such as electronic money and cards, consumers in all the countries except Madagascar increased their use of such tools in 2020, and the upward trend continued in 2021 in all countries except Madagascar. A large percentage of respondents in Madagascar reported that they had never used digital payment tools.

Table 4-4 Changes in the behavior of the consumers in the 5 target countries (compared to 2019)

Category	2020					2021				
	Madagascar	Malawi	Mozambique	Zambia	Zimbabwe	Madagascar	Malawi	Mozambique	Zambia	Zimbabwe
Frequency of shopping at shops / markets	Decreased	Decreased	No change	Decreased	Decreased	No change	Decreased	No change	Decreased	Moderately increased
Quantity of food that you purchase at shops / markets at each time	Decreased	No change	Moderately increased	Decreased	No change	Decreased	No change	Increased	Decreased	Increased
Frequency of eating out	No change	Decreased	Decreased	Decreased	Moderately decreased	No change	Decreased	Moderately increased	Decreased	Moderately decreased
Use of online / telephone shopping of crops and processed food (not dishes)	No change	No change	Increased	No change	No change	No change	Moderately increased	Increased	No change	No change
Use of take-out service of the restaurants	No change	No change	Moderately decreased	Moderately decreased	No change	No change	No change	Moderately increased	Moderately decreased	No change
Use of delivery service of the restaurants	No change	No change	No change	No change	No change	No change	No change	Increased	No change	No change
Use of digital payment tools (Internet payment, mobile money, card, etc.)	No change	Moderately increased	Increased	Increased	Increased	No change	Moderately increased	Increased	Increased	Increased

4.2. Trends and background to the effects of COVID-19 on the VCs of the common target crops in several target countries

4.2.1. Maize

(1) Maize in the countries surveyed

Table 4-5 shows statistical data on maize for the countries where maize is included as a survey crop. Maize is produced as a major cereal crop in all countries surveyed, and imports and exports of maize are low relative to production. Maize imports and exports are low relative to maize production. While maize production in each country varies widely depending on crop conditions, each country has a certain amount of maize stockpiled as a major grain. In 2019, the year before the COVID-19 outbreak, Zambia and Zimbabwe experienced crop failures due to poor weather conditions.

Table 4-5 Production, import, and export volume of maize in Malawi, Mozambique, Zambia, and Zimbabwe (2017-2019)

Category	Year	Malawi	Mozambique	Zambia	Zimbabwe
Production volume (tonnes)	2017	3,464,139	1,224,000	3,606,549	1,532,572
	2018	2,697,959	1,406,794	2,394,907	1,560,100
	2019	3,391,924	1,451,686	2,004,389	509,322
Import volume (tonnes)	2017	33,469	94,455	1,536	308,267
	2018	465	105,897	1,534	92,847
	2019	2,911	171,438	2,367	73,601
Export volume (tonnes)	2017	6,312	199	326,998	2,324
	2018	1,910	1,864	58,745	836
	2019	1,954	288	36,048	1,154

Source: FAOSTAT

(2) **Changes in the volume of maize and maize products handled by the relevant VC actors in each country**

Table 4-6 shows the changes in the sales volumes of maize-related actors in the countries surveyed. As mentioned above, the main grain, maize, has been stocked in certain quantities in each country, so no market disruption or extreme shortages occurred due to COVID-19. Thus, the impact of COVID-19 on maize VC in the countries covered by this survey is likely to be limited compared to other crops, while the sales volumes of each maize-related actor varied depending on the maize productivity and supply chain system in the country. For example, Zambia tended to see a decline in sales volumes at the input and retail/consumption stages, but an increase at the production, processing, and distribution stages. Reflecting the backdrop of a poor maize harvest in 2019 and a bumper harvest in 2020, the volume of maize distributed in the country itself seems to have increased after COVID-19. This trend continued until 2021. In Zimbabwe, where there was poor maize production in 2019 and poor to average maize production in 2020, the volume of maize distributed showed a downward trend. Many farmers in the country seem to have increased their household stock of maize, and strict COVID-19 restrictions on the movement of people and goods reduced the volume of maize in distribution. On the other hand, in 2021, the volume of maize in distribution was recovered to a similar level to what it was before COVID-19. In Mozambique, maize production and sales declined in 2021, but this was mainly due to poor weather conditions.

Table 4-6 Change in the volume handled by maize-related actors in Malawi, Mozambique, Zambia, and Zimbabwe (compared to 2019)

Category		2020				2021			
		Malawi	Mozambique	Zambia	Zimbabwe	Malawi	Mozambique	Zambia	Zimbabwe
Input	Seed sales volume (retail)	Moderately increased	No change	Moderately decreased	Moderately decreased	N/A	Moderately decreased	Decreased	No change
Production	Production volume	No change	No change	Moderately increased	Moderately decreased	No change	Decreased	Increased	Moderately increased
	Sales volume	Moderately increased	No change	Moderately increased	Moderately decreased	No change	Decreased	Increased	Moderately increased
Processing	Procurement volume of raw material	No change	No change	Increased	Decreased	No change	Decreased	Moderately increased	Moderately decreased
	Processed volume	N/A	Moderately increased	Increased	Moderately decreased	No change	No change	Moderately increased	No change
Wholesale	Sales volume (maize and all maize products)	Moderately decreased	Moderately decreased	Increased	No change	Moderately increased	No change	Increased	No change
Retail	Sales volume (maize and all maize products)	Moderately decreased	Moderately increased	Moderately decreased	Moderately decreased	N/A	Moderately increased	No change	Moderately increased
Export	Export volume	Increased	N/A	N/A	No change	No change	N/A	No change	N/A
Import	Import volume	No change	N/A	N/A	Decreased	N/A	N/A	N/A	Moderately decreased
Consumption	Consumption volume	No change	Moderately increased	Moderately decreased	No change	N/A	No change	No change	No change

N/A: Data is not available.

4.2.2. Rice

(1) Rice in the countries surveyed

Rice is a target crop in four countries: Zambia, Madagascar, Malawi, and Mozambique. The survey covered both paddy rice and milled rice, a processed product. Table 4-7 shows the production, exports, and imports of paddy rice (in milled rice equivalent). Rice is a staple food in Madagascar and Mozambique but is considered a cash crop in Malawi and Zambia. Madagascar is the largest rice producer, producing about ten times as much rice as Mozambique, the next largest producer. Malawi and Zambia produce much less than Mozambique.

Malawi imports only a small amount of rice compared to its production and is almost self-sufficient. Madagascar imports around 20% of its production, and Mozambique and Zambia import far more rice than they produce, so they are not achieving self-sufficiency. The main importing countries are: India, China, and Myanmar for Madagascar; Pakistan, Thailand, and India for Mozambique; India, China, and the United States for Malawi; and Mozambique, Pakistan, and India for Zambia. Exports from Madagascar and Malawi are very small, and those from Mozambique are also small compared to their production. Zambia, on the other hand, exports its production as well as some imported rice. The main importer is the Democratic Republic of Congo, and South Africa, Zimbabwe, and Botswana also import some rice from Zambia.

Table 4-7 Production, import, and export volumes of rice in Madagascar, Malawi, Mozambique, and Zambia (2017-2019)

Category	Year	Milled rice			
		Madagascar	Malawi	Mozambique	Zambia
Production volume (tonnes)	2017	2,401,534	80,760	92,046	956
	2018	2,688,010	74,913	275,471	1,001
	2019	2,822,174	88,711	227,447	1,041
Import volume (tonnes)	2017	595,476	1,019	665,806	20,031
	2018	606,184	3,720	510,476	25,521
	2019	406,995	6,203	946,109	31,253
Export volume (tonnes)	2017	162	161	7,298	2,851
	2018	7	124	18,083	4,357
	2019	16	84	4,184	6,819

Rice paddy (equivalent of milled rice)

Source: FAOSTAT

(2) Changes in the volume of rice handled by the relevant VC actors in each country

Table 4-8 shows the change in the volume of rice-related businesses in Madagascar, Malawi, Mozambique, and Zambia: compared to the VCs of the four countries, there is a trend towards no change or increase in 2020 for production, and no change or increase in 2021 for sales. In processing, Madagascar's procurement volume has recovered, while Mozambique, Malawi, and Zambia show a downward trend in procurement and sales volumes in 2021. In distribution, there is little change in the volume handled, although the small number of samples for each country does not allow for comparison. As for retail, the volume handled by Madagascar and Zambia increased in 2020, while the volume

handled by Malawi and Mozambique decreased in 2021. There is no significant change in consumption, with the exception of Zambia, where there is a decrease in both 2020 and 2021. In Madagascar, the change in the volume handled was small, and the volume handled generally increased in 2021. In the other countries, except for production, the volume handled was relatively decreasing, and the volume handled was lower in 2021 than in 2020. Many reasons for the decrease were identified, including higher procurement prices, a shortage of supply, and movement restrictions and regulations imposed by the government against COVID-19 measures. In addition, Mozambique and Zambia are large importers of rice, so they may be more affected than Madagascar and Malawi by rising import prices and shortages due to import and export restrictions and border controls.

Table 4-8 Changes in the volume of rice handled by the relevant VC actors in Madagascar, Malawi, Mozambique, and Zambia (compared to 2019)

Category		2020				2021			
		Madagascar	Malawi	Mozambique	Zambia	Madagascar	Malawi	Mozambique	Zambia
Input	Sales volume of seed (retail)	N/A	N/A	N/A	Decreased	N/A	N/A	N/A	No change
Production	Production volume	No change	No change	Increased	No change	Increased	Increased	Decreased	No change
	Sales volume	No change	Decreased	No change	Increased	Increased	No change	Increased	Increased
Processing	Procured volume of raw material	No change	Decreased	Increased	Decreased	Increased	Decreased	Decreased	Decreased
	Sales volume	N/A	N/A	Decreased	Moderately decreased	No change	Increased	Decreased	N/A
Export	Export volume	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Import	Import volume	N/A	No change	N/A	N/A	N/A	No change	N/A	Increased
Wholesale	Sales volume	N/A	Decreased	N/A	Decreased	Increased	Decreased	N/A	Moderately decreased
Retail	Sales volume (milled rice)	Increased	Decreased	Moderately increased	Decreased	N/A	Decreased	Moderately decreased	Moderately decreased
Consumption	Purchased volume (milled rice)	No change	No change	Moderately increased	Decreased	No change	No change	No change	Moderately decreased

N/A: Data is not available.

4.2.3. Soybean

(1) Soybean in the countries surveyed

Soybean is a target crop in Zambia and Malawi. The production, exports, and imports of soybean, soybean oil, and soybean cake are shown in Table 4-9, Table 4-10, and Table 4-11. Soybean is a major oilseed crop in Zambia and Malawi and is processed into soybean cake and soybean oil. A certain amount of unprocessed soybean and soybean cake is exported, while soybean oil is imported as it does not cover domestic consumption. As soybean is generally a rainfed crop in both countries, except for medium and large commercial farmers with irrigation facilities, poor weather conditions reduced production in 2019. In addition, domestic soybean prices are strongly influenced by not only production volume, but also international prices. When farmgate prices are high, smallholders tend to plant more soybean and less maize, which also influences production volume.

Table 4-9 Production, import, and export volumes of soybean in Zambia and Malawi (2017-2019)

Category	Year	Malawi	Zambia
Production volume (tonnes)	2017	208,556	351,416
	2018	175,475	302,720
	2019	170,000	281,389
Import volume (tonnes)	2017	606	32
	2018	105	301
	2019	194	354
Export volume (tonnes)	2017	54,044	83,748
	2018	25,714	9,841
	2019	35,476	9,443

Table 4-10 Production, import, and export volumes of soybean oil in Zambia and Malawi (2017-2019)

Category	Year	Malawi	Zambia
Production volume (tonnes)	2017	N/A	3,695
	2018	N/A	3,921
	2019	N/A	N/A
Import volume (tonnes)	2017	15,288	14,941
	2018	12,863	16,159
	2019	18,558	25,784
Export volume (tonnes)	2017	0	1,172
	2018	1,109	985
	2019	0	941

Table 4-11 Production, import, and export volumes of soybean cake in Zambia and Malawi (2017-2019)

Category	Year	Malawi	Zambia
Import volume (tonnes)	2017	371	1,504
	2018	N/A	943
	2019	90	343
Export volume (tonnes)	2017	37,953	129,045
	2018	52,391	184,325
	2019	44,362	80,931

Source: FAOSTAT
N/A: Data is not available.

(2) **Changes in the volume of soybean and soybean products handled by the relevant actors in each country**

Table 4-12 shows changes in the volumes handled by soybean-related actors in Zambia and Malawi. Apart from retail and consumption, the impact of COVID-19 on the VC was limited. Production did not decline in 2020 and 2021 compared to 2019 thanks to good rainfall. In processing and distribution (wholesale and exports), there was an upward trend, supported by demand in destination countries. Moreover, capacitated VC actors were able to deal with the logistical disruptions caused by COVID-19 to minimize the negative impact⁷⁵. On the other hand, retail sales and consumption of processed soybean products reduced in 2020 and 2021⁷⁶. This is due to higher retail prices and lower consumer incomes, and this trend was stronger in Zambia than in Malawi.

⁷⁵ A Zambian soybean processing company maintained a certain level of production by extending factory operating hours in response to government measures to restrict the number of workers in the factory.

⁷⁶ In Southern African countries, it is not common practice for consumers to buy unprocessed soybean for use in cooking.

**Table 4-12 Change in volumes handled by soybean-related VC actors in Malawi and Zambia
(compared to 2019)**

Category		2020		2021	
		Malawi	Zambia	Malawi	Zambia
Input	Sales volume of seed (retail)	N/A	Increased	N/A	No change
Production	Production volume	No change	No change	No change	Moderately increased
	Sales volume	Moderately increased	Moderately increased	No change	Moderately increased
Processing	Procurement volume of raw material	N/A	Moderately increased	Increased	Increased
	Processed volume	N/A	No change	Increased	Increased
Export	Export volume	Moderately increased	Increased	Moderately increased	Moderately increased
Import	Import volume	N/A	N/A	Moderately decreased	Increased
Wholesale	Sales volume (soybean and all soybean products)	Moderately increased	Moderately increased	Moderately decreased	Increased
Retail	Sales volume (soybean oil)	Moderately decreased	Moderately decreased	Decreased	Moderately decreased
	Sales volume (soybean meat)	Moderately decreased	Moderately decreased	N/A	Increased
Consumption	Sales volume (soybean oil)	No change	Decreased	No change	Moderately decreased
	Sales volume (soybean meat)	No change	Moderately decreased	No change	No change

N/A: Data is not available.

4.2.4. Sesame

(1) Sesame in the countries surveyed

Table 4-13 shows sesame statistics for Mozambique and Zimbabwe. Sesame is an export crop for both countries, with Zimbabwe exporting most of its domestic sesame production to Mozambique. Mozambique also exports sesame, including that imported from Zimbabwe to countries around the world, with the main destinations being 1) China, 2) Japan, and 3) Turkey. Mozambique has a well-equipped sesame processing plant, including a color-sorter, and is a major export hub for sesame with a wide range of sales channels, but is also Zimbabwe's only export market for sesame.

**Table 4-13 Production, import, and export volumes of sesame in Mozambique and Zimbabwe
(2017-2019)**

Category	Year	Mozambique	Zimbabwe
Production volume (tonnes)	2017	78,400	N/A
	2018	74,283	5,900
	2019	80,421	5,000
Import volume (tonnes)	2017	1,895	1
	2018	174	7
	2019	61	6
Export volume (tonnes)	2017	49,844	2,338
	2018	66,302	174

	2019	83,554	56
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Source: FAOSTAT (Data on sesame production in Zimbabwe is taken from CROP AND LIVESTOCK ASSESSMENT REPORT 2019/2020)

N/A: Data is not available.

(2) Changes in the volume of sesame seeds handled by relevant VC actors in each country

Table 4-14 shows the changes in sales volumes of sesame related actors in the countries surveyed, and shows that in both Mozambique and Zimbabwe, many of the actors in the sesame supply chain have reduced their traded volumes. This is probably because sesame is an export crop, and the tightening of domestic and destination country restrictions to prevent COVID-19 infection has had a strong impact on demand in the destination countries and on logistics. Mozambique is the only market for Zimbabwe, and the impact of the border closure between Mozambique and Zimbabwe, even if it was temporary, has had a negative impact on sesame farmers⁷⁷. In this context, the impact of COVID-19 on the sesame supply chain in both countries is considered to have been more significant than for the other target crops covered in this survey.

Table 4-14 Change in volume handled by sesame related actors in Mozambique and Zimbabwe (compared to 2019)

Category		2020		2021	
		Mozambique	Zimbabwe	Mozambique	Zimbabwe
Input	Seed sales volume (retail)	N/A	N/A	N/A	N/A
Production	Production volume	Moderately decreased	Moderately decreased	Moderately decreased	Moderately decreased
	Sales volume	Moderately decreased	Moderately decreased	Moderately decreased	Moderately decreased
Processing	Procurement volume of raw material	N/A	Moderately decreased	N/A	No change
	Processed volume	N/A	Decreased	N/A	Decreased
Wholesale	Sales volume (sesame and all sesame products)	Moderately increased	Moderately decreased	Moderately decreased	Decreased
Retail	Sales volume (sesame and all sesame products)	No change	Moderately decreased	No change	Moderately increased
Export	Export volume	N/A	N/A	N/A	N/A
Import	Import volume	N/A	N/A	N/A	N/A
Consumption	Consumption volume	Moderately decreased	Decrease	No change	No change

N/A: Data is not available.

4.2.5. Kidney bean

(1) Kidney beans in the countries surveyed

Kidney bean is a target crop for Zimbabwe and Madagascar. Jarred and canned kidney bean is a target processed product for kidney beans. Due to the unavailability of kidney bean-specific statistics, Table 4-15 shows the total production, export, and import volume of the bean, which includes those of kidney beans, in both countries. The total production of fresh beans in Zimbabwe is about 20% of the

⁷⁷ <https://allafrica.com/stories/202106240329.html>

production of dry beans by weight, while the same amount accounts for only 1% in Madagascar because almost all the production there is dry beans. According to the recent three years' statistics on dry bean production in both countries, the annual bean production in Madagascar varies from three to six times higher than that in Zimbabwe. Each year Madagascar exports about 50% of its domestic production of dry beans, and imports very little volume. Zimbabwe, by contrast, imports around 10-30% of its domestic production every year and exports very little volume. Thus, beans are completely differently positioned in both countries.

Table 4-15 Production, import, and export volumes of bean in Madagascar and Zimbabwe (2017-2019)

Category	Year	Bean, green (fresh)		Bean, dry	
		Madagascar	Zimbabwe	Madagascar	Zimbabwe
Production volume (tonnes)	2017	812	3,576	86,538	15,262
	2018	751	3,730	86,282	22,108
	2019	689	3,883	63,000	18,119
Import volume (tonnes)	2017	N/A	N/A	388	5,329
	2018	N/A	N/A	65	1,669
	2019	N/A	N/A	171	3,011
Export volume (tonnes)	2017	N/A	N/A	41,760	42
	2018	N/A	N/A	30,692	456
	2019	N/A	N/A	33,892	169

Source: FAOSTAT. N/A: Data is not available.

(2) Changes in volumes of kidney beans handled by the relevant VC actors in each country

Table 4-16 shows the changes in the volumes handled by kidney bean-related actors in Zimbabwe and Madagascar. There was no common trend between the kidney bean VCs in the two countries. In Zimbabwe, there was an overall slight decrease or downward trend in the handled volumes from the upstream to the downstream of the VC in both 2020 and 2021. The decline in production was attributed to unfavorable weather conditions as well as the difficulties in accessing agricultural inputs due to the Corona pandemic. In Madagascar, on the other hand, the weather was favorable in 2020 and the overall volumes increased slightly, but in 2021, production declined due to unfavorable weather conditions. It is likely that the impact of the weather was stronger than the impact of the COVID-19 pandemic, as the amount of chemical inputs used as well as the level of cultivation technology had been originally low.

Table 4-16 Changes in volumes handled by kidney beans-related VC actors in Madagascar and Zimbabwe (compared to 2019)

Category		2020		2021	
		Madagascar	Zimbabwe	Madagascar	Zimbabwe
Input	Sales volume of seed (retail)	N/A	N/A	Decreased	N/A
Production	Production volume	Moderately increased	Moderately decreased	Moderately decreased	Moderately decreased
	Sales volume	Moderately increased	Decreased	No change	Decreased
Processing	Procurement volume of raw material	N/A	Moderately decreased	Moderately increased	Decreased
	Processed volume	N/A	Moderately decreased	Increased	Moderately decreased
Export	Export volume	N/A	N/A	N/A	N/A
Import	Import volume	N/A	No change	N/A	N/A
Wholesale	Sales volume	No change	Moderately decreased	Moderately decreased	Moderately decreased
Retail	Sales volume (kidney bean)	Moderately increased	Decreased	N/A	Decreased
	Sales (jarred and canned kidney bean)	Moderately increased	N/A	N/A	No change
Consumption	Sales volume (kidney bean)	No change	No change	No change	Moderately increased
	Sales volume (jarred and canned kidney bean)	Moderately decreased	Decreased	No change	Moderately decreased

N/A: Data is not available.

4.2.6. Tomatoes

(1) Tomatoes in the countries surveyed

Tomato is a target crop in all five target countries. Table 4-17 and Table 4-18 show the production, exports, and imports of tomatoes and tomato paste. Tomato production varies widely from country to country, but in all countries imports and exports are very low, meaning it is a subsistence crop. Tomatoes are generally grown during the dry season under irrigation, although some varieties, which avoid fruit cracking, are grown in the rainy season. Malawi and Mozambique are the two countries with the highest tomato production among the five countries, and their production increased between 2017 and 2019. However, this is due to the expansion of the cultivated area, while yields have not changed significantly. In Zambia and Mozambique, Tuta absoluta has been widespread in recent years, and both the Ministry of Agriculture and farmers are trying to control it⁷⁸.

⁷⁸ <https://www.cabi.org/isc/tuta>

Table 4-17 Production, import, and export volumes of tomatoes in the five target countries (2017-2019)

Category	Year	Madagascar	Malawi	Mozambique	Zambia	Zimbabwe
Production volume (tonnes)	2017	41,407	533,606	550,100	26,044	26,738
	2018	41,768	583,177	625,603	26,076	27,386
	2019	42,129	628,191	708,467	26,108	28,034
Import volume (tonnes)	2017	0	78	17,859	53	1
	2018	0	42	11,084	174	N/A
	2019	0	50	1,306	6	N/A
Export volume (tonnes)	2017	66	1	1	32	N/A
	2018	16	1	12	N/A	39
	2019	25	N/A	3	N/A	157

Source: FAOSTAT

N/A: Data is not available.

Table 4-18 Import and export volumes of tomato paste in the five countries studied (2017-2019)

Category	Year	Madagascar	Malawi	Mozambique	Zambia	Zimbabwe
Import volume (tonnes)	2017	815	30	3,810	239	805
	2018	1,089	25	2,112	147	225
	2019	1,167	25	1,158	399	8
Export volume (tonnes)	2017	N/A	N/A	N/A	25	N/A
	2018	N/A	N/A	N/A	4	0
	2019	N/A	N/A	0	61	6

Source: FAOSTAT

N/A: Data is not available.

(2) Changes in the volume of tomatoes and tomato products handled by the relevant actors in each country

Table 4-19 shows the change in volumes handled by tomato-related actors in the five target countries. In 2020, the overall VC shrunk due to the impact of COVID-19, but in 2021, there was a recovery trend in Mozambique and Zimbabwe. Production and sales by farmers show a downward trend in most of the target countries. This is due to higher input prices and shortages caused by COVID-19. Processing of tomatoes is not much conducted in the five countries, although it has shown an increasing trend in Zambia. This might be due to a decline in consumer incomes and a rise in the price of processed tomatoes, resulting in an increased demand for lower quality but cheaper products produced by small-scale processors. There is not a lot of data on tomato exports, but all available data shows an increasing trend, suggesting that the decline in domestic demand might have been passed on to exports. Regarding retail and consumption, there is a clear downward trend in Zambia and Zimbabwe in 2020, although Zimbabwe appeared to be improving in 2021.

**Table 4-19 Change in volumes handled by tomato-related VC actors in the five target countries
(compared to 2019)**

Category		2020					2021				
		Madagascar	Malawi	Mozambique	Zambia	Zimbabwe	Madagascar	Malawi	Mozambique	Zambia	Zimbabwe
Input	Sales volume of seed (retail)	Moderately decreased	N/A	No change	Decreased	N/A	No change	N/A	Moderately decreased	Moderately decreased	N/A
Production	Production volume	Moderately decreased	Moderately decreased	Moderately decreased	Moderately decreased	Decreased	Moderately decreased	Moderately decreased	Moderately increased	Decreased	Moderately decreased
	Sales volume	Moderately decreased	Moderately decreased	Moderately decreased	Moderately decreased	Decreased	Moderately decreased	Moderately decreased	Moderately increased	Decreased	Moderately decreased
Processing	Procurement volume of raw material	N/A	N/A	N/A	Moderately increased	Decreased	N/A	Decreased	N/A	Increased	Moderately increased
	Processed volume	N/A	N/A	N/A	Increased	Decreased	N/A	Decreased	N/A	Increased	Increased
Export	Export volume	N/A	Moderately increased	N/A	Moderately increased	N/A	N/A	N/A	N/A	Increased	N/A
Import	Import volume	N/A	Decreased	No change	N/A	N/A	N/A	Decreased	Moderately increased	N/A	N/A
Wholesale	Sales volume (tomatoes and all tomato products)	N/A	No change	No change	Moderately increased	Decreased	N/A	Moderately increased	Moderately decreased	Moderately increased	No change
Retail	Sales volume (tomatoes)	Moderately increased	Moderately decreased	Moderately increased	Moderately decreased	Moderately decreased	No change	Decreased	Moderately increased	Moderately decreased	No change
	Sales volume (tomato source)	Moderately increased	Moderately increased	Moderately increased	Decreased	Moderately decreased	No change	Decreased	Increased	Decreased	No change
Consumption	Sales volume (tomatoes)	No change	No change	Moderately decreased	Moderately decreased	No change	No change	No change	Moderately increased	No change	No change
	Sales volume (tomato source)	No change	No change	No change	Moderately decreased	Moderately decreased	No change	No change	Moderately increased	Moderately decreased	Moderately decreased

N/A: Data is not available.

4.2.7. Onions

(1) Onions in the countries surveyed

Table 4-20 shows the statistical data of production, exports, and imports of onion in all five target countries. It can be said that onions are domestically produced and distributed in all five countries. Zambia and Mozambique also rely on imports from South Africa for some of their onions. In Mozambique, in some years nearly 40% of the onions distributed are imported. Madagascar exported a little less than 20% of its onion production, about two-thirds of which were exported to the Comoros, and the rest to neighboring island countries.

Table 4-20 Production, import, and export volumes of onions in the five target countries (2017-2019)

Category	Year	Madagascar	Malawi	Mozambique	Zambia	Zimbabwe
Production volume (tonnes)	2017	12,061	171,291	195,300	38,662	3,669
	2018	12,513	171,829	228,007	38,930	3,719
	2019	12,966	170,679	233,298	39,198	3,770
Import volume (tonnes)	2017	N/A	N/A	54,035	8,076	N/A
	2018	116	250	58,377	5,359	0
	2019	N/A	283	140,722	5,458	217
Export volume	2017	2,320	N/A	N/A	188	0
	2018	2,195	0	12	N/A	N/A

(tonnes)	2019	2,195	78	1	14	N/A
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Source: FAOSTAT * N/A: Not Available

(2) Changes in the volume of onions handled by relevant VC actors in each country

Table 4-21 shows the changes in onion production, sales by onion VC actors, and its consumption in the surveyed 5 countries. In 2020, onion production decreased in all the surveyed countries caused mainly by deteriorating access to inputs. In 2021, production tended to increase compared to 2019, except for Madagascar and Malawi, and distribution followed the same trend as production in each country in both 2020 and 2021. Regarding onion consumption, in both 2020 and 2021, it was stagnant in Zambia and robust in Zimbabwe and Mozambique according to the respondents.

Onion production was on a downward trend in all five countries in 2020. The main reason was worsening access to inputs such as seeds, fertilizers, and pesticides. In Mozambique, labor shortages due to restrictions on movement and activities caused by COVID-19 also contributed to the decline in production. In 2021, onion production increased in Zimbabwe, Zambia, and Mozambique. The main reason for the increase was favorable weather conditions, as well as improved access to good quality seed in Mozambique.

In terms of consumption, Zambia experienced a decline in both 2020 and 2021, due to lower incomes and higher unit sales prices. In 2021, most respondents in Zimbabwe, Malawi, and Mozambique reported an increase in onion consumption. In Mozambique and Zimbabwe, the increase in consumption was due to a recovery in income. Onion consumption in Madagascar increased in 2020 compared to 2019, indicating that crops that can be stored for a longer period were chosen to replace the consumption of non-storable crops such as fresh green beans and tomatoes.

Table 4-21 Change in volumes handled by onion-related VC actors in the five target countries (compared to 2019)

Category		2020					2021				
		Madagascar	Malawi	Mozambique	Zambia	Zimbabwe	Madagascar	Malawi	Mozambique	Zambia	Zimbabwe
Input	Sales volume of seed (retail)	N/A	N/A	N/A	Decreased	N/A	N/A	N/A	N/A	Increased	N/A
Production	Production volume	Moderately decreased	Moderately decreased	Moderately decreased	Moderately decreased	Decreased	Moderately decreased	No change	Moderately increased	Moderately increased	Moderately increased
	Sales volume	Moderately decreased	No change	Moderately decreased	No change	Decreased	Moderately decreased	Moderately decreased	Moderately increased	Moderately increased	Moderately increased
Processing	Procured volume of raw material	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Sales volume	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wholesale	Sales Volume	Decreased	Moderately increased	Moderately decreased	Moderately increased	Decreased	Decreased	No change	Moderately decreased	Moderately increased	Moderately increased
Retail	Sales Volume	Increased	Decreased	Moderately increased	Decreased	Moderately decreased	N/A	Decreased	Moderately increased	Moderately decreased	No change
Consumption	purchased volume	Moderately increased	No change	No change	Moderately decreased	Moderately increased	No change	Moderately increased	Moderately increased	Moderately decreased	Moderately increased

N/A: Data is not available.

4.2.8. Potato

(1) Potatoes in the counties surveyed

Potatoes are the target crop in Madagascar and Malawi. The survey covered both fresh and processed potatoes. Table 4-22 shows the production, exports, and imports of fresh and processed

potatoes.

Malawi is a high producer of potatoes due to the high altitude and cool weather in the country; it produces about five times as many potatoes as Madagascar. Regarding imports and exports, Malawi imports and exports potatoes (fresh), but the volume is very small compared to production. Madagascar does not import, and exports very little. Both countries handle a small amount of processed products, and Malawi does not export, probably because there are almost no potato processing companies in Malawi. Similarly, Madagascar exports little and there are few processing companies. This indicates that potatoes are produced for domestic consumption in both countries.

Table 4-22 Production, import, and export volumes of potatoes in Madagascar and Malawi (2017-2019)

Category	Year	Potatoes		Processed potatoes	
		Madagascar	Malawi	Madagascar	Malawi
Production volume (tonnes)	2017	250,160	1,226,603	N/A	N/A
	2018	257,379	1,125,874	N/A	N/A
	2019	250,000	1,219,366	N/A	N/A
Import volume (tonnes)	2017	N/A	708	52	39
	2018	N/A	633	34	174
	2019	N/A	1418	108	130
Export volume (tonnes)	2017	202	2	2	N/A
	2018	127	50	2	N/A
	2019	99	39	N/A	N/A

Source : FAOSTAT

N/A: Data is not available

(2) Changes in the volume of potatoes handled by the relevant VC actors in Madagascar and Malawi (compared 2019)

Table 4-23 shows the changes in the volume of potato-related actors handled in Madagascar and Malawi. The impact of COVID-19 on potato VC is similar in both countries. Production in 2020 and 2021 in both countries was stable, with increased yields due to good weather. Sales volumes were also on an upward trend, affected by the increase in production. Due to low export volumes and a lack of potato processing companies in both countries, most domestic potatoes are sold fresh. In terms of processing and exporting, there were no significant increases or decreases in either procurement or sales volumes in either country, partly due to small sample sizes. Regarding increases or decreases in consumption, the change in consumption of both fresh and processed potatoes was small, possibly due to their superiority over other vegetables in terms of preservation and their substitution for staple foods.

Table 4-23 Changes in the volume of potatoes handled by the relevant VC actors in Madagascar and Malawi (compared to 2019)

Category		2020		2021	
		Madagascar	Malawi	Madagascar	Malawi
Input	Sales volume of seed (retail)	N/A	N/A	N/A	N/A

Production	Production volume	No change	No change	No change	No change
	Sales volume	Increased	Increased	Increased	Increased
Processing	Procured volume of raw material	Decreased	N/A	N/A	N/A
	Sales volume	N/A	N/A	N/A	N/A
Export	Export volume	N/A	N/A	N/A	No change
Import	Import volume	N/A	N/A	N/A	N/A
Wholesale	Sales volume	Decreased	Decreased	Decreased	Decreased
Retail	Sale volume (potatoes)	Increased	Decreased	N/A	Decreased
	Sales volume (processed potato)	Increased	Increased	Increased	Decreased
Consumption	Purchased volume (potatoes)	No change	No change	No change	No change
	Purchased volume (processed potato)	Moderately decreased	No change	No change	No change

N/A: Data is not available.

4.2.9. Orange

(1) Oranges in the countries surveyed

Table 4-24 shows statistical data on production, imports, and exports of oranges for the three countries where oranges are included as a survey crop. In each of the targeted countries, the proportions of orange production, imports, and exports were constant between 2017 and 2019⁷⁹. Zimbabwe exports about half of its nationally produced oranges each year, and imports only a small amount. About 90% of the oranges exported from Zimbabwe are destined for South Africa, and some are also exported to Zambia.

Zambia imports approximately the same amount of oranges as produced in its own country, with the major import countries being 1) Zimbabwe and 2) South Africa. Half of these total imports are from Zimbabwe.

In Mozambique, in addition to its production, the country relies on imports for about 10% of its orange consumption. Most of the orange imports come from South Africa, which mainly supplies the southern region, including the capital city of Mozambique.

Table 4-24 Production, import, and export volumes of onion in Mozambique, Zambia, and Zimbabwe (2017-2019)

Category	Year	Mozambique	Zambia	Zimbabwe
Production volume (tonnes)	2017	67,600	3,899	97,057
	2018	66,000	3,910	97,532
	2019	66,505	3,922	980,07
Import Volume (tonnes)	2017	5,339	3,630	44
	2018	6,138	4,174	354
	2019	735	4,070	N/A

⁷⁹ In FAO Stat, Mozambique's orange imports in 2019 were 735 tons. On the other hand, South Africa's export data in FAO Stat shows that the country exported 6,597 tons to Mozambique in the same year, which suggests that in these 3 years, almost the same amount has been imported from South Africa to Mozambique.

Export	2017	258	N/A	45,095
Volume	2018	60	N/A	53,798
(tonnes)	2019	37	25	46,575

Source: FAOSTAT

* N/A: Not Available

(2) Changes in the volume of oranges handled by relevant VC actors in each country

Table 4-25 shows the changes in sales and consumption of orange VC actors in the three countries where orange was surveyed, in comparison to 2019. In 2020, there was no significant change in production, but there was a downward trend in retail and consumption in all three countries. In 2021, Zimbabwe and Mozambique showed an upward trend in the overall VC of Orange, while Zambia showed a downward trend in all VC processes.

In 2021, Orange production increased in Zimbabwe and Mozambique. The increase in production was attributed to improved access to irrigation water due to favorable rainfall in Zimbabwe, and favorable weather and improved access to extension services in Mozambique. On the other hand, in Zambia, orange production decreased due to deteriorating access to pesticides.

The volume of oranges sold at retail and purchased by consumers declined in Zambia and Zimbabwe in both 2020 and 2021. The reasons for this were decreased incomes and soaring selling prices. In Mozambique, consumption of oranges increased slightly despite higher prices, as consumers' income recovered and demand increased.

Table 4-25 Change in volumes handled by orange-related VC actors in Mozambique, Zambia, and Zimbabwe (compared to 2019)

Category		2020			2021		
		Mozambique	Zambia	Zimbabwe	Mozambique	Zambia	Zimbabwe
Input	Sales volume of seed (retail)	N/A	N/A	N/A	N/A	N/A	N/A
Production	Production volume	No change	No change	No change	Increased	Moderately decreased	Increased
	Sales volume	No change	No change	Moderately increased	Moderately increased	Moderately decreased	Moderately increased
Processing	Procured volume of raw material	N/A	N/A	No Change	N/A	N/A	No Change
	Sales volume	N/A	N/A	N/A	N/A	N/A	N/A
Wholesale	Sales volume	Moderately increased	Moderately increased	Moderately decreased	Increased	Moderately decreased	Moderately increased
Retail	Sales volume	Moderately decreased	Decreased	Decreased	No Change	Decreased	No Change
Consumption	Purchased volume	No Change	Decreased	Moderately decreased	Moderately increased	Decreased	Moderately decreased

N/A: Data is not available.

Chapter 5. Recommendations for resilient food value chains with or post COVID-19

5.1. Vulnerability of FVCs in Southern African countries and measures for building resilient FVCs

Based on the results of the survey, this survey summarizes that the vulnerabilities of FVCs were confirmed by the negative effects they experienced in Southern Africa during the COVID-19 pandemic. This survey also shows robust FVCs that should be aimed for and discusses both the measures to achieve them and the short-term measures that can be used to overcome the negative impact of COVID-19. Figure 5-1 shows a summary of these matters as they are discussed in this chapter as well as the vulnerabilities, resilient FVCs, and countermeasures are discussed in detail later.

	Vulnerability of FVC	Resilient FVC	Countermeasures		
(1) Input	1-1. Import-dependent agricultural inputs resulting in reduced access to the inputs	Stable supply of agricultural inputs	1-1-1. Use of organic farming and open pollinated varieties (OPVs) 1-1-2. Collective purchasing by agricultural cooperatives	1-1-4. Core VC companies and contract farming 1-1-3. Improve access to finance	1-1-5. Subsidies
(2) Production	2-1. Weak extension system resulting in insufficient information provision to farmers	Agriculture actively using information	2-1-1. ICT Agricultural extension and market information sharing		
	2-2. Underdeveloped mechanisation resulting in negative impact on the timing, quality and cost of farm work	Quality cultivation management and loss reduction	2-2-1. Promotion of agricultural machinery hiring services	2-2-2. Subsidies	
	2-3. Short shelf life due to inappropriate varieties and cultivation techniques	Agricultural produces with a long shelf life	2-3-1. Dissemination of appropriate varieties and cultivation techniques		
(3) Processing	3-1. Import-dependent processing materials and equipment resulting in reduced production	Stable production of processed agricultural products	3-1-1. Core VC companies and contract farming		
	3-2. Limited suppliers resulting in reduced production				
(4) Distribution	4-1. Inefficient customs procedures resulting in increased time to process, costs, and losses	Efficient customs clearance	4-1-1. Modernization of customs clearance		
	4-2. Underdeveloped logistics resulting in increased time to transport, costs, and losses	Efficient distribution network and cold chain	4-2-1. Warehouse operation by agricultural cooperatives 4-2-2. Development of logistics network by core VC companies	4-2-3. Warehouse receipt system	
(5) Retail	5-1. Import-dependent agricultural products resulting in food security risks	Improving food self-sufficiency	5-1-1. Promotion of crops with a goal of increasing self-sufficiency		
(6) Consumption	6-1. Vulnerable livelihoods to external shocks resulting in the vicious circle of poverty	Livelihoods able to cope with external shocks	6-1-1. Improve access to finance	6-1-2. Food aid	
(7) Overall VC	7-1. Poor financial knowledge resulting in irreversible downsizing the business	Use of financial services	7-1-1. Improve access to finance		
	7-2. Poor ICT knowledge resulting in lost business opportunities	Use of ict-based services	7-2-1. Improve ICT literacy		

Figure 5-1 Vulnerabilities in FVCs in Southern African countries, resilient FVCs should be, and countermeasures to address them

	Measures to strengthen FVCs in the medium and long term
	Short term measures to overcome the negative impact of COVID-19

5.1.1. Input

Impact of COVID-19 and vulnerability of FVC	Resilient FVC	Countermeasures
<p><u>1-1 Dependence on imports of inputs and reduced access to inputs</u></p> <p>Southern African countries are dependent on imports for most of their chemical fertilizers, agrochemicals, and horticultural seeds. There are several chemical fertilizer plants in each country,⁸⁰ but they are still highly dependent on imports of nitrogen, phosphorous, and potassium for blending and packaging. During COVID-19, price increases, delays, and shortages occurred due to events beyond the control of the importing countries: disruptions in international and domestic logistics, declining production in the producing countries, changes in export policies in the producing countries, and currency depreciation in the importing countries.</p>	<p>Even if external shocks occur, farmers can ensure that they have a minimum level of inputs, and the impact on production is minimized.</p>	<p><u>1-1-1 Use of organic farming methods and open pollinated varieties</u></p> <p>Promote the dissemination of techniques for organic farming using livestock manure and unused local resources and reduce the amount of chemical fertilizer used to a certain extent. To re-evaluate the characteristics of open pollinated varieties (e.g., low yielding but highly environmentally sustainable) and to select and promote varieties that meet the needs of producers.</p>
		<p><u>1-1-2 Collective purchase and storage by agricultural cooperatives</u></p> <p>Promote collective procurement and storage by agricultural cooperatives of inputs that are essential for agricultural production, to act as a buffer against shortages in the event of external shocks.</p>
		<p><u>1-1-3 Core VC companies and contract farming</u></p> <p>Promote contract farming with core VC companies, where the core companies procure the agricultural inputs needed for cultivation and provide them to the contract farmers.</p>
		<p><u>1-1-4 Improve access to finance</u></p> <p>Improve financial literacy through training for farmers and increase their access to financial services (e.g., agricultural input loans). Work with financial institutions to develop financial products in high demand by farmers where these are not available.</p>
		<p><u>(Short-term measures to overcome the impact of COVID-19) 1-1-5 Provision of subsidies</u></p> <p>Subsidies for agricultural inputs should be used for specific VCs and farmers. The subsidies should be sustained until the selling price of the crop reaches a level commensurate with the increase in the price of the inputs. This will avoid a reduction in production due to higher prices of agricultural inputs.</p>

⁸⁰ The nitrogen component is relatively easy to produce as the raw material is available in the air. There are factories in Zambia and Zimbabwe that produce nitrogen fertilizer.

5.1.2. Production

Impact of COVID-19 and vulnerability of FVC	Resilient FVC	Countermeasures
<p><u>2-1 Weak extension system resulting in inadequate information provision to farmers</u></p> <p>During the COVID-19 pandemic, people's movement was restricted to prevent the spread of infection. This led to a reduction in agricultural extension activities, but the results of this survey show that this change did not have a significant impact on production. Originally, the government's agricultural extension activities were hampered by the small number of extension workers compared to the number of farmers and the insufficient funds for their transport, travel, and training. As a result, farmers have had limited access to information on cultivation techniques and markets, preventing them from managing their farming based on appropriate information.</p>	<p>Farmers have access to up-to-date information on crop management and marketing which they can use for more efficient and effective farming.</p>	<p><u>2-1-1 ICT Agricultural extension and market information sharing</u></p> <p>One of the solutions to the regular challenges in agricultural extension, i.e., high extension worker: farmer ratios and low activity costs, is an information service based on mobile phones for farmers. If a database of farmers' locations, cultivating crops, acreage, and telephone numbers is developed, farmers can be provided with information on rainfall, temperature, pest and disease outbreaks, and sales-related information via SMS and social networking services. This system of providing information to farmers will be used not only by the Ministry of Agriculture in its extension activities, but also by the private sector. For example, input manufacturers could provide information on pest outbreaks along with product information, and agro-processing companies could provide information on purchase prices and locations. By charging for the use of the system by the private sector, funds can be obtained for its continued operation and development.</p>
<p><u>2-2 Underdeveloped mechanization resulting in a negative impact on the timing, quality, and cost of farm work</u></p> <p>In the countries surveyed, mechanization is slow in cereal, horticultural, and industrial crops, and a significant part of the field and post-harvest work is done manually. A certain number of agricultural laborers are usually brought together to work, especially during sowing and harvesting, but the restrictions on movement and gathering due to COVID-19 caused difficulties in this area. As a result, there were delays in sowing and harvesting, and in some cases, farmers were unable to cultivate crops.</p>	<p>Farmers, either individually or as a group, achieve timely cultivation, quality field management, and reduced crop losses by using agricultural machinery appropriate to their financial capacity.</p>	<p><u>2-2-1 Promotion of agricultural machinery hiring services</u></p> <p>Factors that hinder the promotion of agricultural mechanization include (1) insufficient funds for farmers, (2) a lack of suitable financial instruments for the purchase of agricultural machineries, such as asset loans, and (3) insufficient subsidies. A solution to both (1) and (2) is the leasing of agricultural machinery to farmers. The first step is to create a government-funded agricultural machinery leasing company that is financed by a government bank to purchase a certain number of agricultural machines. The company then leases the purchased farm machinery to agricultural machinery hiring service companies. ICT will be used to collect operational data, which will be shared among the parties involved (government bank, machinery hiring company, and farmer), so that income of the companies and payments by farmers can be clearly identified.</p>

Impact of COVID-19 and vulnerability of FVC	Resilient FVC	Countermeasures
		<p><u>(Short-term measures to overcome the impact of COVID-19) 2-2-2 Subsidies</u></p> <p>A system of subsidies for procuring agricultural machinery could encourage mechanization by increasing the rate of and budget for subsidies. If it is difficult to gather farm laborers for sowing and harvesting during the COVID-19 pandemic, subsidizing farm machinery for these tasks could be effective.</p>
<p><u>2-3 Short shelf life due to inappropriate varieties and cultivation techniques</u></p> <p>Due to the logistical disruptions under COVID-19, the loss of perishable vegetables such as tomatoes, which have a short shelf life, was noticeable. However, there were also many cases where varieties were not suitable for storage and transport, and cultivation techniques such as cultivation management and harvest timing, which can extend shelf life, were not practiced.</p>	<p>Varieties that extend the shelf life of crops such as fresh vegetables are selected and grown appropriately.</p>	<p><u>2-3-1 Dissemination of appropriate varieties and cultivation techniques</u></p> <p>The lack of a cold chain and the appropriate packaging materials in the countries surveyed means that the shelf life of fresh vegetables is short. However, some measures can be taken in terms of cultivation, such as the cultivation of varieties suitable for early harvesting and ripening, and cultivation methods that reduce the water content. Alternatively, the problem can be solved by attracting processing plants to the production area.</p>

5.1.3. Processing

Impact of COVID-19 and vulnerability of FVC	Resilient FVC	Countermeasures
<p><u>3-1 Import-dependent processing materials and equipment resulting in reduced production</u></p> <p>The processed agricultural products covered in this study include maize flour, milled rice, soybean oil and cake, tomato sauce, etc. Both large and small processing enterprises rely on imports for most of their materials, including processing equipment, catalysts, and packaging materials. Import materials face challenges that cannot be controlled by the importing country, as were mentioned in (1) Inputs above, leading to higher prices for</p>	<p>Even when external shocks occur, the production of processed agricultural products will be maintained at a certain level. In order to achieve this, processors will have a certain stock of raw materials and equipment, and diversify their supply sources.</p>	<p><u>3-1-1 Core VC companies and contract farming</u></p> <p>It is a good solution to develop and attract processing companies that have the capacity to become core FVCs in the country. These companies will be able to stockpile some raw materials, catalysts, and spare parts for processing equipment⁸¹. They may also have a good logistics network from the production site to the processing plant and even to the sales destination (including export destinations). These companies are able to cope with sudden logistical disruptions and the impact of bad weather on crops.</p>

⁸¹ A Zambian soybean processor always has enough stock to keep the factory running for three months.

Impact of COVID-19 and vulnerability of FVC	Resilient FVC	Countermeasures
processed products and reduced production capacity.		
<u>3-2 Limited suppliers resulting in reduced production</u> In the countries studied, with the exception of some processed products, the main raw materials for processed products are domestically produced. In some cases, the production of raw materials decreased under COVID-19, or processors were unable to procure sufficient raw materials due to disruptions in distribution. As a result, the production and sales of processed products decreased.		

5.1.4. Distribution

Impact of COVID-19 and vulnerability of FVC	Resilient FVC	Countermeasures
<u>4-1 Inefficient customs procedures resulting in increased time and costs, and losses</u> COVID-19 has increased the time and effort required to quarantine imported and exported goods. As a result, some perishable goods were discarded during customs clearance. It became clear that there was room for efficiency and technical improvements in the customs and quarantine procedures and analyses.	Customs clearance is faster and more efficient, and the impact of unavoidable external shocks, such as COVID-19, is minimized.	<u>4-1-1 Modernization of customs clearance</u> The introduction of a national single window to computerize and centralize trade-related procedures (including customs), the provision of the necessary equipment for customs analysis, and the improvement of analytical techniques to speed up customs clearance.
<u>4-2 Underdeveloped logistics resulting in increased time, costs, and losses</u> Due to the restrictions on movement and the precautionary measures taken during the COVID-19 pandemic, there was a period when the logistics	In terms of domestic logistics, transfer centers, distribution centers, and logistics centers will be set up at central and regional distribution centers to improve the	<u>4-2-1 Warehouse operation by agricultural cooperatives</u> The establishment and operation of warehouses by agricultural cooperatives is one way of collecting harvests in production areas. The warehouses could be financed and built by the members or provided by government agencies or development partners.

Impact of COVID-19 and vulnerability of FVC	Resilient FVC	Countermeasures
<p>didn't function properly. As a result, agricultural products were not transported smoothly from fields to markets and processing plants⁸², affecting market sales and the production of processed products. In addition, warehouses, which acted as a buffer for supply, were not sufficiently located at the logistics hubs, and the impact of COVID-19 on logistics quickly led to supply shortages at all stages of the VC.</p> <p>With the exception of some imported agricultural products (fresh fruits and vegetables), Southern African countries do not have an established cold chain. Due to the logistical disruption caused by COVID-19, fresh vegetables that could not be shipped were disposed of by farmers, and in some cases, fresh vegetables were discarded in markets and retail outlets where there were no buyers due to curfews and fears of COVID-19 infection.</p>	<p>efficiency and swiftness of distribution and to create a flexible distribution network. A cold chain will be set up to ensure that perishable products are supplied in a fresh state, with a longer storage period and less loss.</p>	<p><u>4-2-2 Development of logistics network by core VC companies</u> Large-scale processors and/or international agricultural trading companies, which act as a core of FVCs, often build their warehouses in logistics hubs, forming a logistics network to efficiently collect, store, and transport agricultural products to processing plants and sales destinations (including export destinations). In some cases, if the products are perishable, a cold chain is established.</p> <p><u>4-2-3 Warehouse receipt system</u> Warehouses, which are used for a warehouse receipts system, need to meet certain conditions to ensure that the quality of the produce stored does not change such as protection from rodents and pests. Increasing the number of such warehouses that meet these requirements, as part of the promotion of the use of warehouse receipts, will strengthen the storage capacity of FVCs.</p>

5.1.5. Retail

Impact of COVID-19 and vulnerability of FVC	Resilient FVC	Countermeasures
<p><u>5-1 Import-dependent agricultural products resulting in food security risks</u> All the countries covered by this survey are members of the Southern African Development Community (SADC), which is in the process of eliminating tariffs in the region. A large and diverse range of agricultural products and foodstuffs are exported to the survey countries from South Africa, whose entire industry, including agriculture, is more developed than other countries. Import products are subject to</p>	<p>High level of overall food self-sufficiency, with no significant change even in the event of external shocks, and no significant impact on consumers' diets.</p>	<p><u>5-1-1 Promoting crops with a goal of increasing self-sufficiency</u> The surveyed countries import a variety of agricultural products from South Africa and other neighboring countries, some of which are also produced domestically. In order to promote the production of such agricultural products to improve self-sufficiency, measures such as (1) temporary inclusion in the list of crops eligible for agricultural input subsidies, and (2) raising import tariffs/imposing embargoes for a certain period of time. For example, this would be effective in increasing the self-sufficiency rate of onions, the quality of which is not greatly different between countries. If the quality of domestic products is inferior to that of imported products, it is necessary to</p>

⁸² The larger processing companies had sufficient stocks of raw materials, so that temporary logistical disruptions did not lead to shortages.

Impact of COVID-19 and vulnerability of FVC	Resilient FVC	Countermeasures
challenges that cannot be controlled by the importing country, as discussed in (1) Inputs above, resulting in higher prices and shortages of imported agricultural and food products.		promote appropriate varieties and cultivation methods. For example, if the variety of imported oranges is different from the variety of domestically grown oranges, it may be possible to graft scions of imported orange varieties onto existing oranges, so that the same varieties as the imported oranges can be grown domestically.

5.1.6. Consumption

Impact of COVID-19 and vulnerability of FVC	Resilient FVC	Countermeasures
<p><u>6-1 Vulnerable livelihoods to external shocks resulting in the vicious circle of poverty</u></p> <p>As described in section 5.1.5, the price of agricultural and food products, particularly imported products, increased as a result of COVID-19. In addition, overall economic activity stagnated, and many peoples' income fell. As a result, some households responded by reducing the quantity and quantity of meals they ate. Undernutrition is detrimental to health and has a negative impact on livelihoods and therefore income. In some cases, to compensate for the reduction in income, households sell the means of production they need⁸³, increasing the risk of a spiral of poverty. Vulnerability of livelihoods to external shocks includes having insufficient financial knowledge and a lack of alternative sources of income.</p>	Consumers are able to cope with external shocks to their livelihoods by saving, using loans, or selling assets. They can also have multiple sources of income and a high degree of livelihood resilience.	<p><u>6-1-1 Improve access to finance</u></p> <p>Provide financial education to consumers to encourage them to open bank accounts, save money, use consumer loans, and use other financial services such as life and health insurance. Financial education will also guide consumers to develop business plans and asset building plans, so that they can acquire new sources of income and grow their assets, such as livestock and fruit trees.</p> <p>Where the financial products needed by consumers are not available, the government (led by the Ministry of Finance) helps financial institutions to design such financial products.</p> <p><u>(Measures to overcome the effects of COVID-19 in the short term)</u></p> <p><u>6-1-2 Food aid</u></p> <p>When food consumption declines due to rising food prices and falling incomes, the quickest and most reliable way to cope with the decline in food consumption is to provide food. However, as it takes some time to cope with external shocks and to rebuild livelihoods, it is desirable that food is provided continuously during this period. It would also help to support the rural economy if domestically produced products are provided.</p>

⁸³ Agricultural machinery, processing machinery, livestock, orchards, etc.

5.1.7. Overall FVC

Impact of COVID-19 and vulnerability of FVC	Resilient FVC	Countermeasures
<p><u>7-1 Poor financial knowledge resulting in irreversible downsizing of the business</u></p> <p>Overall, the impact of COVID-19 on FVCs in the countries surveyed was limited, although some experienced significant declines in production, processing, and sales. In some cases, this resulted in insufficient funds to continue business operations. The business then reduced its size or ceased activity entirely. However, insufficient working capital has been a problem even before COVID-19 and is particularly common among small businesses (small farmers, processors, and distributors). This is partly due to the lack of access to financial services and assets such as livestock and fruit trees. One of the root causes of the situation is low financial literacy.</p>	<p>By forming assets appropriate to the size of the business and using financial services to the extent that they can afford to repay, small businesses have the ability to continue and expand their business in a stable manner and to respond to external shocks.</p>	<p><u>7-1-1 Improve access to finance</u></p> <p>It is necessary to provide financial education to small businesses to encourage them to open bank accounts, save money, and use financial services such as agricultural/business loans, asset loans, and agricultural/life/health insurance. It will also teach them to develop business plans and asset building plans so that they can form their assets, such as farm machinery, livestock, and fruit trees, without difficulty.</p> <p>Where the necessary financial products are not available, the government (led by the Ministry of Finance) will provide financial institutions with assistance in designing financial products.</p>
<p><u>7-2 Poor ICT knowledge resulting in lost business opportunities</u></p> <p>To reduce the risk of COVID-19 infection, face-to-face contact is avoided, online communication is commonly used, and people increased their use of bank transfers and mobile money payments instead of cash. However, the adoption of such new technology among small businesses, particularly farmers, has been slow. As a result, sales opportunities were missed in some cases. In addition, agricultural extension, market information sharing, and business matching utilizing ICT have been slow to spread. This is due to low ITC literacy and low smartphone penetration among farmers.</p>	<p>In the countries surveyed, basic phone penetration is quite high among farmers. The farmers actively exchange market information and use mobile banking, both of which can be used with basic phones, so that they can keep up with fast-changing business practices.</p>	<p><u>7-2-1 Improve ICT literacy</u></p> <p>ICT is a tool to access information services. Therefore, when promoting a particular service, ICT should also be taught to farmers to improve ICT literacy, so that other ICT-based services can be smoothly used.</p> <p>For example, in promoting ICT-based agricultural extension services, farmers should be trained on how to use mobile phones to receive and disseminate information and how to use information. Once they are familiar with the ICT technology, the use of other ICT services, such as mobile/internet banking, will be relatively smooth.</p>

5.2. Project concepts for building resilient FVCs

This section presents project concepts for building resilient FVCs in each country, which have been developed based on both the medium- and long-term measures for building resilient FVCs described in 5.1 and the vulnerabilities of FVCs revealed through this survey. These projects are expected to be implemented by the governments of the countries surveyed in collaboration with development partners including JICA.

Table 5-1 Relationship between the project concepts for building resilient FVCs and the medium- to long-term measures for building resilient FVCs

Countries surveyed	Title of project concept	Medium to long term measures to build resilient FVCs														
		1-1-1 Use of organic farming and open pollinated varieties	1-1-2 Collective purchasing and storage by agricultural cooperatives	1-1-3 Improve access to finance (inputs)	1-1-4 Core VC companies and contract farming	2-1-1 ICT Agricultural extension and market information sharing	2-2-1 Promotion of agricultural machinery hiring services	2-3-1 Dissemination of appropriate varieties and cultivation techniques	3-1-1 Core VC companies and contract farming	4-1-1 Modernization of customs clearance	4-2-1 Warehouse operation by agricultural cooperatives	4-2-3 Warehouse receipt system	5-1-1 Promoting crops with a view to increasing self-sufficiency	6-1-1 Improve access to finance (consumption)	7-1-1 Improve access to finance (whole VC)	7-2-1 Improve ICT literacy
Zambia	Financial Inclusion Project			✓								✓		✓	✓	
Zambia	ICT Agricultural Extension Center Project					✓										✓
Zambia	Project on Improving Access to Agricultural Inputs	✓														
Zimbabwe	Master Plan Study Project to Develop Food Industry Cluster			✓	✓			✓	✓						✓	
Zimbabwe	Project for the Development and Implementation of a Crop Collection Center		✓	✓	✓						✓	✓				
Madagascar	Project for Improvement of the Organic Farming Technology and Certification	✓						✓								

	of Organic Products															
Madagascar	Project for Promoting Agricultural Mechanization						✓									
Madagascar	Project for Strengthening Food Reserve Capacity and Promoting Warehouse Receipt Financing Service							✓			✓	✓			✓	
Madagascar	Small-Scale Farmer Financial Inclusion Project														✓	✓
Malawi	Project for Improving Livelihoods through Financial Inclusion for Smallholder Farmers			✓		✓		✓				✓			✓	
Mozambique	Pilot Project to Enhance Food Value Chains with Resilience for Urban and Peri-Urban Areas in the Southern Region of Mozambique with a Market-Oriented Approach			✓				✓					✓		✓	
Mozambique	Pilot Project to Enhance the Food and		✓	✓										✓	✓	

	Nutrition Security in Rural Areas of Mozambique Through Financial Inclusion															
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5.2.1. Zambia

In Zambia, Table 5-2 to Table 5-4 show three project concepts: the Financial Inclusion Project, the ICT Extension Centre Project, and the Improving Access to Agricultural Inputs Project. In Zambia from 2020 to 2021, the value of the local currency, kwacha, has almost halved against the US dollar compared to 2018, and the impact of COVID-19 has caused late deliveries and shortages, worsening access to agricultural inputs, agricultural materials, and equipment that, with a few exceptions, are almost entirely dependent on imports. A COVID-19 restriction on face-to-face agricultural extension activities also caused severe limitations, but the low population density and high extension officer-farmers ratio have made conventional agricultural extension costly to implement, reaffirming the necessity for drastic improvement in the agricultural extension system. In addition, the Zambia Integrated Agriculture Management Information System (ZIAMIS), which incorporates a farmer database and SMS communication system, is already operational. It exposes the potential of a new extension model.

In Zambia, the identified priorities were: to improve access to agricultural inputs and equipment while financial inclusion, organic fertilizers, and open-pollinated varieties will be used as countermeasures making use of ICT to improve agricultural extension services.

Table 5-2 Project concept for Zambia: Financial Inclusion Project

Item	Contents
Project name	Financial Inclusion Project in Zambia
Target areas	6 provinces (Phase 1: 3 provinces, Phase 2: 3 provinces)
Project period	2023 - 2026 (4 years)
Target value chain	Horticultural crops
Target steps of the value chain	1. input, 2. production, 3. processing, 4. distribution, export, import, 5. retail, 6. consumption
Type of projects	1. financial cooperation, 2. technical cooperation, 3. investment finance, 4. business development
Background	<p>From 2020 to 2021, Zambia's currency, kwacha, has depreciated against the dollar since 2018, and the trend was spurred by COVID-19. The prices of imported agricultural inputs, farm machinery, and materials rose, putting a burden on farming. In addition, there were a number of cases where the decline in sales and the shrinkage of production scale due to COVID-19 led to the depletion of working capital, making it difficult for farmers to continue farming. Although small-scale farmers, processors, and distributors in Zambia have not always made much use of financial services, COVID-19 has reaffirmed the importance of finance as a means of coping with external shocks.</p> <p>Smallholder farmers, many of whom farm rainfed crops such as maize and soybean, do not have high access to financial services due to their fear of defaulting if they experience a poor harvest that results from unfavorable weather and their lack of collateral. Microfinance institutions such as Vision Fund and Agora Microfinance Zambia offer financial products that are accessible even to small-scale farmers, but farmers aren't familiar with them. There is also the fundamental challenge of farmers' lack of financial knowledge. Currently, the Zambian Ministry of Agriculture, together with GIZ, is implementing the promotion of agricultural finance for agri-based enterprises in rural areas until 2025 and working on financial education and improving access to finance for farmers. While some results have been achieved, there are only 4,700 beneficiaries (farmers and agro-based enterprises) in the central,</p>

	eastern, and southern provinces. The ministry is also working with WFP to revise the warehouse receipt system and plans to certify 40 warehouse operators by 2024 to improve access by farmers to warehouse receipts. The minimum storage capacity is 10 tonnes, which makes it difficult for small-scale farmers to take advantage of this system on an individual basis. A large part of the ministry's budget is spent on subsidies for inputs and machinery and on food reserves, so only very limited funds are allocated for improving financial access.
Beneficiaries	Small-scale horticultural farmers, small-scale processors, and small-scale distributors.
Objective(s)	Through the use of financial services, the businesses of the beneficiaries in the target areas are expanded and strengthened.
Outputs and activities	<p><u>Output 1: Financial training modules are developed.</u></p> <p>1-1 Select a financial institution and close an MOU for partnership. 1-2 Survey the financial knowledge and financial needs of the beneficiaries. 1-3 Develop training modules based on the survey results. 1-4 Revise the modules based on the results from Phase 1.</p> <p><u>Output 2: Organize beneficiaries and provide them with financial training.</u></p> <p>2-1 Form groups of around 10 beneficiaries by their sectors (farmers, processors, distributors). 2-2 Provide financial training to beneficiary groups.</p> <p><u>Output 3: Support the development and implementation of business plans.</u></p> <p>3-1 Assist beneficiaries in developing their business plans based on the guidance provided in the financial training. Financial services of partner financial institutions will also be actively used. 3-2 Provide the technical inputs (e.g., cultivation and marketing training) needed to implement the business plans. 3-3 Promote the implementation of the business plans using group dynamics of the beneficiaries such as peer learning, checking, etc. 3-4 Evaluate the results of the business plan implementation and reflect them in the plan for Phase 2.</p>
Organization(s) concerned	Implementing organization(s): Ministry of Agriculture Cooperating organizations(s): Ministry of Finance, Ministry of Commerce, Trade and Industry
Remarks	<ul style="list-style-type: none"> It is necessary to avoid overlapping with GIZ's Promotion of agricultural finance for Agri-based enterprises in rural areas. As GIZ works in the central, eastern, and southern provinces, other provinces should be the target areas. Moreover, the outputs of the project such as financial training materials, and lessons learned from the project should be used. It is effective to collaborate and/or overlap with other projects, whose interventions are mainly in the cultivation and marketing sectors without a financial component.

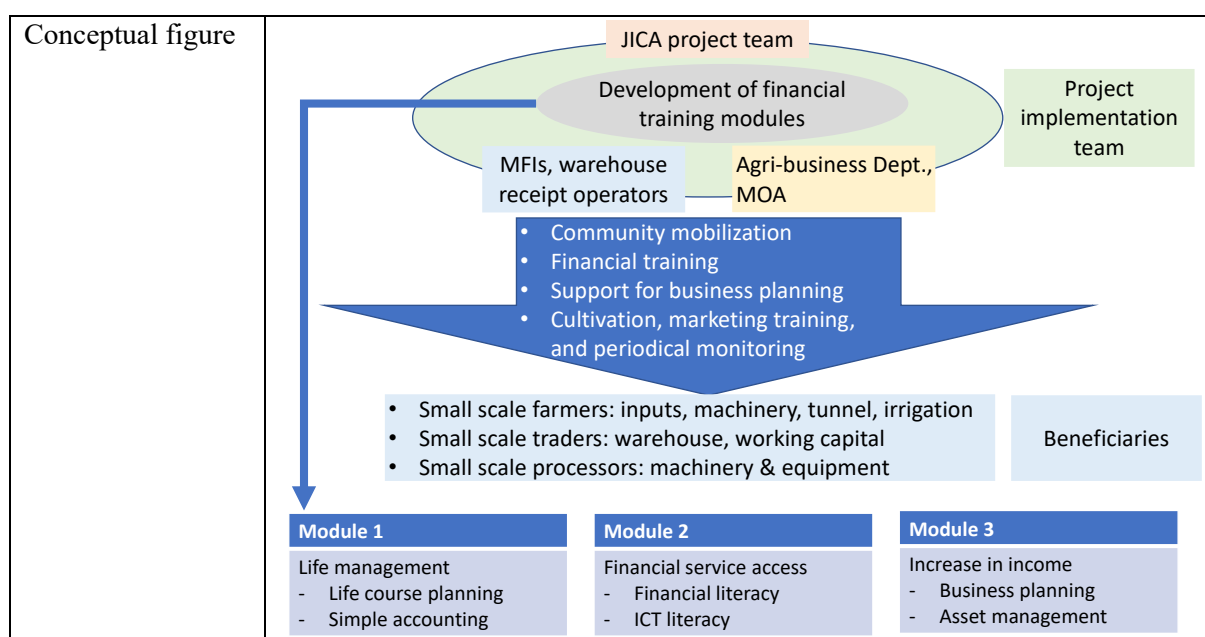


Table 5-3 Project concept for Zambia: ICT Agricultural Extension Center Project

Item	Contents
Project name	ICT Agricultural Extension Center Project in Zambia
Target areas	Throughout the country (Phase 1: 3 provinces, Phase 2: all remaining provinces)
Project period	2023 – 2026 (4 years)
Target value chain	All crops
Target steps of the value chain	1. input, 2. production, 3. processing, 4. distribution, export, import, 5. retail, 6. consumption
Type of projects	1. financial cooperation, 2. technical cooperation, 3. investment finance, 4. business development
Background	<p>During the COVID-19 pandemic, restrictions on movement, meetings, and voluntary avoidance of face-to-face contact to prevent infection made conventional face-to-face agricultural extension difficult and impossible in some cases. However, due to the large extension officer-to-farmer ratio and the low budget for extension activities, it was not possible to carry out sufficient extension activities even without COVID-19. In the light of the recent spread of mobile phones, the advancement of ICT technology, and the development of the Zambia Integrated Agriculture Management Information System (ZIAMIS), it is possible to use ICT to provide farmers with quick and timely information at a low cost.</p> <p>ZIAMIS, which was developed in collaboration with FAO, incorporates a database of about 2.9 million farmers. The system allows SMSs to be sent to farmers by selecting the areas where they live and the crops they grow. However, due to the lack of funds for sending SMS, it is difficult for the Ministry of Agriculture to send information to farmers. It is mainly used by external organizations (donors and private companies) at their expense to disseminate information to farmers. In addition, there is no function for farmers to send SMSs back to the Ministry, making two-way communication a challenge.</p>
Beneficiaries	All farmers registered with ZIAMIS
Objective(s)	ICT extension center is established to disseminate useful information to farmers for use to strengthen and expand their farming.
Outputs and activities	<p><u>Output 1: ICT agricultural extension center is established and able to disseminate information.</u></p> <p>1-1 Allocate staff to the ICT extension center.</p>

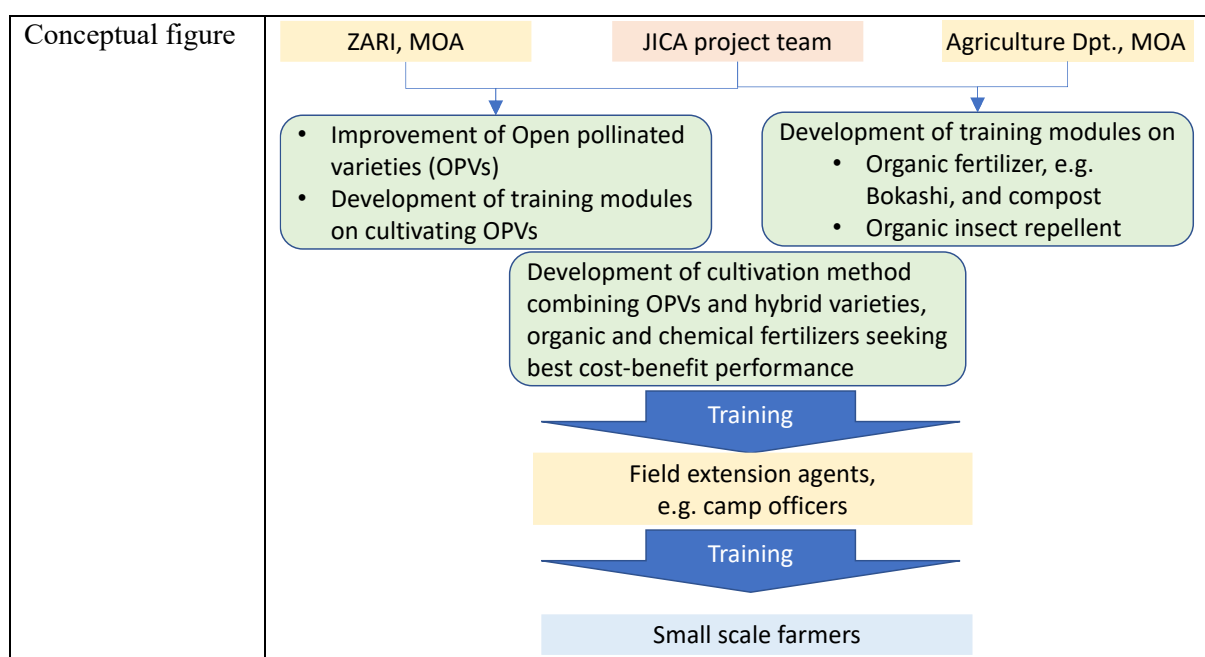
	<p>1-2 Provide equipment to the ICT extension center. 1-3 Prepare the information to be provided to farmers. 1-4 Establish a system for obtaining the information. 1-5 Develop guidelines for disseminating information on a fee basis. 1-6 Acquire customers who wish to disseminate information on a fee basis.</p> <p><u>Output 2: ICT agricultural extension system is established.</u> 2-1 Develop an operational manual setting out the role of each department in Lusaka, provincial, and district offices within the Ministry of Agriculture for ICT extension. 2-2 Organize seminars on the above manual for relevant persons in the Ministry of Agriculture.</p> <p><u>Output 3: Farmers are able to take advantage of ICT extension.</u> 3-1 Develop a manual for farmers on the use of ICT extension. 3-2 Hold seminars on the above manual for the selected target farmers. 3-3 Revise the manual based on the result of the above seminar. 3-4 Disseminate information on ICT extension and its use to farmers through various methods (farmer-to-farmer dissemination, radio, posters, etc.). 3-5 Increase the number of farmers registered with ZIAMIS.</p>
Organization(s) concerned	Implementing organization(s): Ministry of Agriculture
Remarks	<ul style="list-style-type: none"> It is important to make use of ZIAMIS, which was developed by FAO.
Conceptual figure	

Table 5-4 Project concept for Zambia: Project on Improving Access to Agricultural Inputs

Item	Contents
Project name	Project on Improving Access to Agricultural Inputs in Zambia
Target areas	6 provinces (Phase 1: 3 provinces, Phase 2: 3 provinces)
Project period	2023 - 2026 (4 years)
Target value chain	All crops
Target steps of the value chain	1. input, 2. production, 3. processing, 4. distribution, export, import, 5. retail, 6. consumption
Type of projects	1. financial cooperation, 2. technical cooperation, 3. investment finance, 4. business development
Background	The Zambian kwacha has depreciated against the US dollar since 2018, and this trend was worsened by COVID-19. The prices of imported agricultural inputs, farm machinery, and materials rose, putting more financial burden on farmers.

	<p>In addition, slash-and-burn and fallow is a commonly practiced traditional farming system in Zambia, but as the population increases, the fallow period is becoming shorter, and soil degradation has worsened. In this project, open-pollinated varieties (OPVs), organic fertilizers, and organic pest repellents will be introduced to reduce the cost of inputs and to create sustainable farming through soil improvement.</p> <p>The Ministry of Agriculture has implemented training on organic fertilizers as a part of the Expansion of Community-Based Smallholder Irrigation Development Project (E-COBSI), which is a cooperation project with JICA, and also in collaboration with Kasisi Agricultural Training Centre. However, there has been little progress in promoting their use among farmers. Resources such as rice husks can be used to produce organic fertilizer, but they are not readily available. Another barrier for farmers in using organic fertilizer is the need for large quantities since ordinary farmers cultivate field crops such as maize and soybean in relatively large areas.</p>
Beneficiaries	Small-scale farmers in the target area.
Objective(s)	To make small scale farmers resilient to the high cost of agricultural inputs and produce crops sustainably.
Outputs and activities	<p><u>Output 1: OPVs are developed that can produce a certain level of yield at low inputs.</u></p> <p>1-1 Improved existing OPVs. 1-2 Establish appropriate cultivation methods for improved OPVs and produce a manual. 1-3 Make improved OPVs' seeds available for target beneficiaries.</p> <p><u>Output 2: A method for the production of organic fertilizers and pest repellents using locally available unused resources is developed.</u></p> <p>2-1 Establish a method for the production of organic fertilizers using locally available unused resources and prepare a manual. 2-2 Establish a method for the production of organic pest repellents using locally available unused resources and prepare a manual.</p> <p><u>Output 3: A manual for low-cost, sustainable farm management guidance is developed, combining OPVs, organic fertilizers, and organic pest repellents with improved varieties, chemical fertilizers, and pesticides.</u></p> <p>3-1 Establish an appropriate combination of OPVs, organic fertilizers, organic repellents and improved varieties, chemical fertilizers, and pesticides. 3-2 Prepare a training manual on the combination of the above.</p> <p><u>Output 4: Beneficiary farmers in the target areas are able to implement farming practices based on the above manual.</u></p> <p>4-1 Organize farmers' groups in the target area. 4-2 Train the groups of farmers based on the manual developed in Output 3.s 4-3 Evaluate the results of the training and revise the above manual.</p>
Organization(s) concerned	Implementing organization(s): Ministry of Agriculture
Remarks	<ul style="list-style-type: none"> The Kasisi Agricultural Training Centre⁸⁴ knows about organic farming. Collaboration with the training center should be considered.

⁸⁴ An institute under a christian NGO



5.2.2. Zimbabwe

The results of the study in Zimbabwe indicate that the impact of COVID-19 on the local supply chain are: 1) The various restrictions aimed at preventing COVID-19 infections had a negative impact on the business of many FVC actors in 2020; 2) the government's restrictions on cross-border movements have had a significant impact on the logistics (domestic and export) of agricultural products; 3) the impact on actors related to tomatoes, sesame, etc. has been particularly significant; 4) the financial needs of actors are on the rise, while the access to finance for small-scale farmers is limited. In summary, COVID-19 has affected the businesses of all FVC actors to varying degrees, with the most significant logistical disruptions affecting crops such as fresh vegetables (e.g. tomatoes) and sesame for export. The limited access to finance for small-scale farmers, including producers of these commodities, has also resulted in a fragile business environment in terms of the means to recover quickly from external shocks. In order to improve this situation, high priority is given to stabilizing and expanding the sales channels of FVC actors by improving the distribution system and financial services among FVC actors, and taking the following measures: 1) strengthening the linkages among FVC actors, 2) promoting the distribution of agricultural products and food processing around the production areas, and 3) improving access to finance.

Table 5-5 Project concept for Zimbabwe: Master Plan Study Project to Develop Food Industry Cluster

Item	Contents
Project name	Master Plan Study Project to Develop Food Industry Cluster in Zimbabwe
Target areas	Zimbabwe / Entire region
Project period	2023 - 2025 (3 years)
Target value chain	Not specified (selected after the project started)
Target steps of the value chain	1. input, 2. production, 3. processing, 4. distribution, export, import, 5. retail, 6. consumption

Type of projects	1. financial cooperation, 2. technical cooperation, 3. investment finance, 4. business development
Background	After a small peak in the number of COVID-19 cases in Zimbabwe in June-August 2020, a larger peak occurred in January-February 2021. Against this backdrop, the various restrictive measures taken by the Zimbabwean government to prevent COVID-19 infection have severely disrupted crop distribution, leading to a regional imbalance in the supply and demand of some crops and instability in market prices. These vulnerabilities are thought to be due to 1) a distribution structure that is heavily reliant on informal traders, 2) a lack of coordination among food supply chain actors, and 3) the absence of financial services that can meet the financial needs of agricultural trade. There is a need to establish a food system to realize a more stable distribution of agricultural products. In this project, food industry clusters with high comparative advantages in each region (specific products, cooperation among companies, universities, financial institutions, and the government, geographical concentration, and cooperative system) will be established as pilot projects, and they will work on building a system to solve common issues including distribution and financial access. The project will also support the development of a national food industry cluster development plan based on the knowledge and lessons learned through the pilot projects.
Beneficiaries	VC actors for specific agricultural products.
Objective(s)	Developing food clusters as a basis for issue solving and promoting VC development.
Outputs and activities	<p><u>Output 1: Identification of areas of production and manufacturing of agricultural and food products with high comparative advantage.</u></p> <p>1-1 Based on the current state of the domestic and international food market and food manufacturing environment, work will be undertaken to identify areas in Zimbabwe where the production and manufacture of agricultural and food products can be given a comparative advantage.</p> <p>1-2 Provide training on "Cluster Approach to Industrial Development" to relevant persons (government officials, chambers of commerce and industry, etc.) in identified regions</p> <p>1-3 Invite interested parties from the regions that have attended the training to submit proposals for the establishment of food industry clusters, and select the regions with the best proposals as pilot projects.</p> <p><u>Output 2: Support for the establishment of food industry clusters at pilot sites</u></p> <p>2-1 Organize a preparatory committee for the establishment of a food industry cluster at the pilot site to identify common issues for those involved in the cluster, necessary tasks to be conducted towards resolving these issues, determine a vision for the future, and develop an action plan for the cluster.</p> <p>2-2 Implement necessary activities based on the action plan for each cluster developed in 2-1, and conduct periodic monitoring and review.</p> <p><u>Output 3: Based on the results of Activity 2, a 'Food Industry Cluster Development Plan' will be developed.</u></p> <p>3-1 Based on the findings and lessons learned through Outcome 1 and Outcome 2, support will be provided for the development of a Food Industry Cluster Development Plan, including the plan's implementation period, cooperating institutions, budgetary measures, and management structure.</p>
Organization(s) concerned	Implementing organization(s): Ministry of Agriculture Cooperating organization(s): Ministry of Commerce and Industry, Agricultural Marketing Authority, Zimtrade, Zimbabwe Farmers Union, Chamber of

	Commerce, etc.
Remarks	<ul style="list-style-type: none"> IFAD will implement the Smallholder Agriculture Cluster Project (2021-2026). This project should be implemented in conjunction with the IFAD Project, which will provide low-interest loans to large and small enterprises and organizations in each cluster.

Conceptual figure

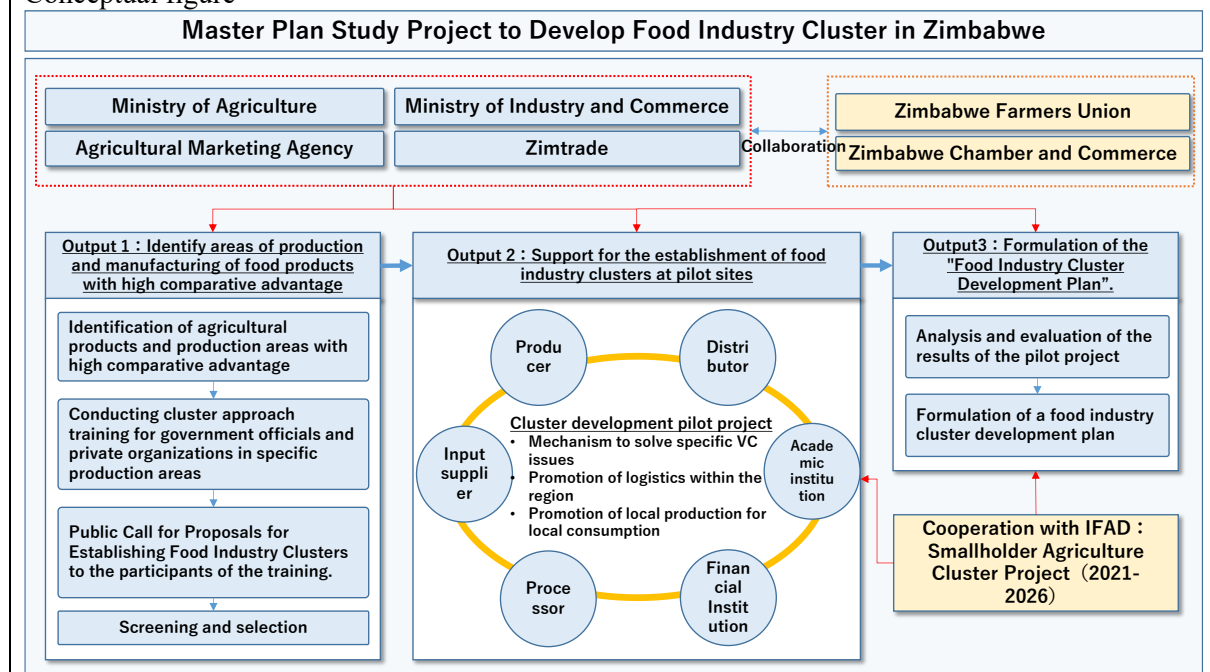
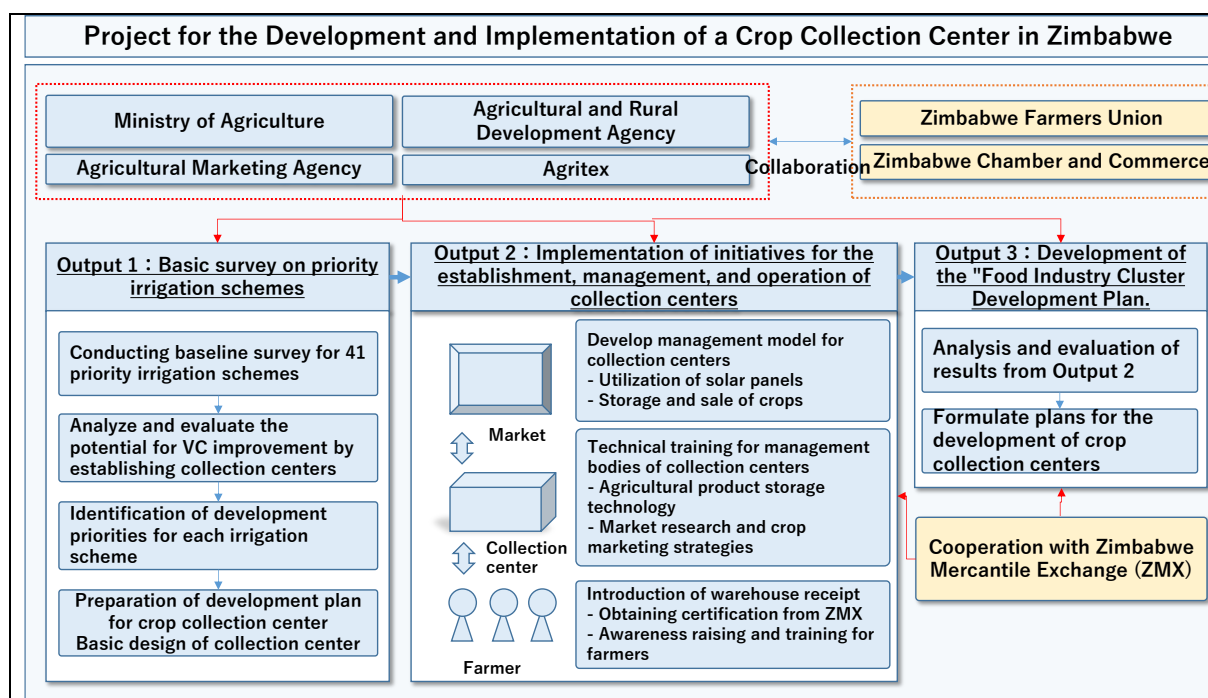


Table 5-6 Project concept for Zimbabwe: Project for the Development and Implementation of a Crop Collection Center

Item	Contents
Project name	Project for the Development and Implementation of a Crop Collection Center in Zimbabwe
Target areas	Zimbabwe / Entire region
Project period	2023 - 2026 (4 years)
Target value chain	Not specified (selected after the project started)
Target steps of the value chain	1. input, 2. production, 3. processing, 4. distribution, export, import, 5. retail, 6. consumption
Type of projects	1. financial cooperation, 2. technical cooperation, 3. investment finance, 4. business development
Background	In Zimbabwe, restrictions on movement within the country (including a night-time travel ban) were issued as a precautionary measure against COVID-19 infection have highlighted challenges, particularly in the distribution of agricultural products (especially for the perishable fresh vegetables and export crops). Improvements to agricultural distribution systems, including cold chains, could make a significant contribution to the resilience of existing fragile supply chains. However, for the system to function, economic rationality must be ensured, which requires 1) the selection of agricultural products and production areas with high-market potential, 2) the formulation of a development plan for new warehouses, and 3) the training of human resources involved in the management and operation of warehouses. From the above point of view, this project will analyze and evaluate the potential of 41 priority irrigation schemes designated by the Agricultural Marketing Agency for the development of

	crop collection centers, and formulate its development plan in Zimbabwe. In addition, as a pilot project, small-scale collection centers will be set up and their management and operation will be carried out on a trial basis. The knowledge and lessons learned through these activities will be used as the basis for the formulation of a Crop Collection Centre Development Plan.
Beneficiaries	Actors involved in the production, processing, and distribution of horticultural crops.
Objective(s)	Develop a Crop Collection Centre Development Plan to build a strong horticultural supply chain.
Outputs and activities	<p><u>Output 1: Basic studies for each irrigation scheme</u></p> <p>1-1 Survey of the natural environment, number of farmers, farmers' organizations, and agricultural companies engaged in agricultural production in the existing irrigation schemes, as well as production commodities, production volume, target markets, and capacity of farmers' organizations.</p> <p>1-2 Based on the results of 1-1, pilot sites will be selected after analyzing and evaluating the VC improvement potential of establishing collection centers and setting priorities.</p> <p><u>Output 2: Pilot initiative for the establishment, management, and operation of a small-scale collection center at a pilot site.</u></p> <p>2-1 A small-scale collection center will be set up at the pilot site. The necessary warehouse specifications and power supply (including solar power) will be considered according to the products to be handled.</p> <p>2-2 Training will be provided to the farmers' associations (irrigation scheme management associations) responsible for the management and operation of the small-scale collection centers set up in 2-1.</p> <p>2-3 Provide support for the management and operation of small-scale collection centers. Obtain certification from ZMX for applying the warehouse receipt system, together with the necessary training to promote their use by farmers under the scheme. Monitor the operation of the centers to assess their business viability.</p> <p><u>Output 3: Crop Collection Centre Development Plan is developed based on the results of Outcomes 1 and 2</u></p> <p>3-1 Based on the knowledge and lessons learned through Outcome 1 and Outcome 2, support will be provided for the development of a Crop Collection Centre Development Plan, including the implementation period of the plan, cooperating organizations, budgetary measures, and management structure.</p>
Organization(s) concerned	Implementing organization(s): Ministry of Agriculture Cooperating organization(s): Agricultural Marketing Authority, Agriculture and Rural Development Agency, Agritex, Zimbabwe Farmers Union, Zimbabwe Mercantile Exchange (ZMX), etc.
Remarks	<ul style="list-style-type: none"> The warehouse specifications and management system of the collection center shall be in accordance with the standards for warehouse receipt provided by ZMX
Conceptual figure	



5.2.3. Madagascar

The survey in Madagascar has revealed that the main impacts of the COVID-19 pandemic on the FVCs can be summarized as follows: 1) The price of imported agricultural inputs (e.g., chemicals, fertilizers) led to farmers' returning to less productive traditional organic farming methods; 2) People's interest in safe crops increased among people from middle- and high-income groups; 3) Procurement of agricultural workers became difficult because of behavioral restrictions and because workers wanted to avoid infection; 4) Farmers threw away unsold agricultural products because there were no places for stock; and 5) Household decreased their income and had less money for expenditures and investment for agricultural activities. In terms of the vulnerability of FVCs, these attributed to, for 1), low levels of organic farming technology, for 3), low levels of agricultural mechanization, for 4), lack of stockpiling and processing capacity in domestic FVCs, and for 5), lack of financial services that meet the needs of farmers and other FVC actors. To minimize the impact of a similar crisis on Madagascar's FVCs in the future, support is needed to overcome vulnerabilities in these four areas. A total of four project proposals addressing each of these areas are proposed below. As Madagascar is currently implementing *le Projet d'Appui pour l'Amélioration de la Productivité et de l'Industrialisation du Secteur Riz* (the Project for Promotion of Productivity Improvement and Industrialization of the Rice Sector (PAPRIZ3), it is also suggested that some of the ideas from the proposals be incorporated into this project.

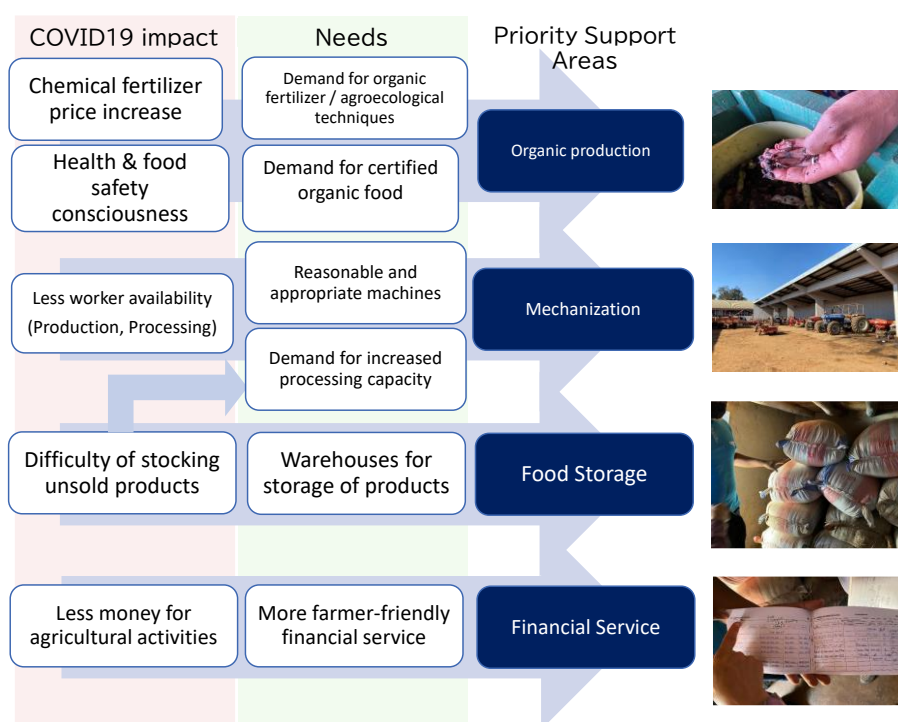


Figure 5-2 Major COVID-19 impacts on FVCs in Madagascar and the corresponding four potential areas of support

Table 5-7 Project concept for Madagascar: Project for Improvement of the Organic Farming Technology and Certification of Organic Products

Item	Contents
Project name	Project for Improvement of the Organic Farming Technology and Certification of Organic Products in Madagascar
Target areas	Specific pilot districts and regions in Madagascar
Project period	Phase 1: 2023 - 2025 (3 years) Phase 2: 2026 - 2028 (3 years)
Target value chain	Undecided (To select several crops with high demand in domestic and international markets)
Target steps of the value chain	1. input, 2. production, 3. processing, 4. distribution, export, import, 5. retail, 6. consumption
Type of projects	1. financial cooperation, 2. technical cooperation, 3. investment finance, 4. business development
Background	In Madagascar, various governmental measures and disruptions to domestic and international transport due to the spread of COVID-19 have led to higher prices for agricultural inputs, which depend on import from abroad, so farmers were forced to reduce their purchases of chemical inputs for cultivation. Instead, they began to practice traditional organic farming methods that do not rely on chemical inputs (e.g., self-production of organic compost using animal waste, self-production of insecticides using vegetables containing stimulating ingredients). While organic farming is a desirable short-term solution for producers who face constant financial challenges regardless of the COVID-19 pandemic, traditional organic farming in Madagascar has much room for technical improvement, and productivity is low. Therefore, this project aims to develop appropriate organic farming techniques for the Malagasy context, provide guidance to producers, and help them disseminate appropriate organic farming techniques and increase productivity.

	<p>In addition, as of 2021, the Ministry of Agriculture of Madagascar is currently working on the introduction of a "<i>Système Participatif de Garantie</i>" (SPG) (Participatory Guarantee System) to establish a certification system for organic agricultural products. If the system is already in place when the project begins, the project will also provide technical support for its operation; if not, the project will provide technical support for its launch, and it will also provide support to ensure that agricultural products produced using the aforementioned organic farming methods are certified and first distributed on the domestic market. Although COVID-19 has led to a growing interest in certified organic products among the health-conscious middle classes, there is currently insufficient demand for such products, so it will be important to work with the Ministry of Industry, Commerce and Consumption to implement a marketing campaign aimed at stimulating demand in the domestic market. It is envisaged that the first phase of the project will target the domestic market during the first three years, and if a certain level of success is achieved during the first phase, the second phase will target the overseas market by supporting the acquisition of overseas certification and marketing activities.</p>
Beneficiaries	Producers of the target crops, retailers of organic products, and (indirectly) consumers
Objective(s)	<ol style="list-style-type: none"> 1. Production volume of nationally certified organic target crop exceeds XX 2. Sales volume of nationally certified organic target crop exceeds XX
Outputs and activities	<p><u>Output 1: Development and dissemination of appropriate organic farming techniques</u></p> <p>1-1 Identify target crops that have high market potential as organic products through research.</p> <p>1-2 Investigate the current status of organic production of the target crops (appropriateness of the technology).</p> <p>1-3 Develop appropriate techniques for organic farming of the target crops.</p> <p>1-4 Teach appropriate organic farming techniques to target farmers in target areas.</p> <p><u>Output 2: Operational support for a national certification scheme</u></p> <p>2-1 Provide technical guidance to improve the operation of a newly launched (or to be launched) national certification scheme.</p> <p>2-2 Support farmers in obtaining the certification*.</p> <p><u>Output 3: Stimulation of demand in the domestic market for organic products*.</u></p> <p>3-1 Develop an action plan to increase domestic demand for certified organic products*.</p> <p>3-2 Carry out various marketing activities based on the action plan*.</p>
Organization(s) concerned	<p>Implementing organization(s): Ministry of Agriculture</p> <p>Cooperating organization(s): Ministry of Industry, Commerce and Consumption</p>
Remarks	<ul style="list-style-type: none"> • For *, phase 2 of the project will focus on overseas certification and overseas markets. • A similar project implemented by JICA is the "Project for improvement of reliability of safe crop production in the northern region in Vietnam". • The <i>Service Environnement, Climat et Réponse aux Urgences</i> (Service Environnement, Climate and Urgent Response Service), of the Ministry of Agriculture, is working for promoting organic farming (and the use of appropriate amounts of chemical pesticides and fertilizers) to implement Climate Smart Agriculture. It may be possible to work with them if establishing a national certification system is not feasible.

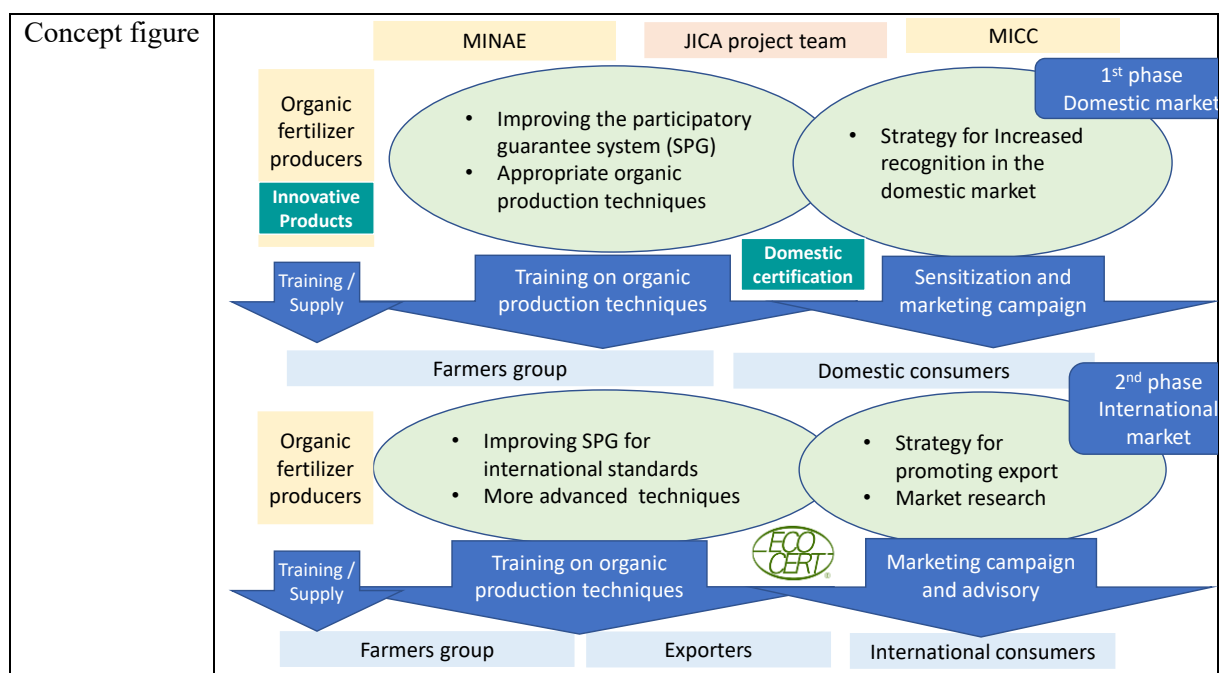


Table 5-8 Project concept for Madagascar: Project for Promoting Agricultural Mechanization

Item	Contents
Project name	Project for Promoting Agricultural Mechanization in Madagascar
Target areas	Specific pilot districts and regions in Madagascar
Project period	2023 - 2025 (3 years)
Target value chain	All crops (assuming mainly rice and vegetables)
Target steps of the value chain	1. input, 2. production, 3. processing, 4. distribution, export, import, 5. retail, 6. consumption
Type of projects	1. financial cooperation, 2. technical cooperation, 3. investment and loans, 4. business support projects
Background	<p>In Madagascar, agricultural mechanization has not been developed, mainly due to the fragmentation of land and the low cost of labor. Small-scale farmers usually mobilize agricultural labor to cultivate their land. This situation significantly affected their production activity when the movement of people was restricted due to the COVID-19 pandemic and when workers refused to work to avoid infection even without the governmental restrictions. In addition, the lack of a widespread rental service for agricultural machinery in Madagascar, both public and private, has also hindered progress in agricultural mechanization.</p> <p>The project will therefore support the establishment and operation of public or semi-governmental agricultural machinery rental services, with the aim of providing agricultural machinery rental services that meet the needs of farmers and of promoting agricultural mechanization. In addition, due to the increased need for the processing of unsold agricultural products because of the COVID-19 pandemic, the project will also provide rental services for machinery required for processing. The project will establish a public service provider that will have similar functions to those of the <i>Centre de Formation de Fabrication et d'Application du Machinisme et de Mecanisation Agricole</i> (CFFAMMA) (Training Center for Manufacturing and Application of Agricultural Machinery and Mechanization) in Antirabe, the only one of its kind in the country. As a semi-private service provider, the project envisages the Centre de AgroBusiness (CABIZ), which is being set up by the Ministry of Agriculture in several locations throughout the country as of 2021, as a one-stop agricultural service center, including the rental of agricultural machinery and technical guidance. Buildings and machinery</p>

	will be provided by the Government of Madagascar and operations will be outsourced to the private sector. The project will provide machinery to the agricultural machinery training center or to several CABIZs and will provide technical guidance on the operation of the rental service for farmers and processors. In parallel, the project will develop and disseminate agricultural machinery suitable for the Malagasy context.
Beneficiaries	Producers and processors of targeted agricultural products
Objective(s)	<ol style="list-style-type: none"> 1. Production volume of agricultural products using agricultural machinery rental services exceeds XX 2. Production volume of processed goods using the processing machinery rental service exceeds XX 3. Farmers using the agricultural machinery rental service increase their profits by more than XX% compared to before using the service 4. Processors using the processing machine rental service increase their profit by more than XX% compared to before.
Outputs and activities	<p><u>Output 1: Introduction and development of agricultural machinery</u></p> <ol style="list-style-type: none"> 1-1 Determine the entity of agricultural equipment rental services (a center or multiple CABIZs, new or existing) and its number. 1-2 Provide the necessary agricultural machinery. 1-3 Develop and introduce new agricultural machinery appropriate to the Malagasy context, in collaboration with private companies and others. <p><u>Output 2: Provision of agricultural machinery rental services</u></p> <ol style="list-style-type: none"> 2-1 Provide technical guidance on the establishment and provision of agricultural machinery rental services.
Organization(s) concerned	<p>Implementing organization(s): Ministry of Agriculture</p> <p>Cooperating organization(s): Private agricultural machinery manufacturers</p>
Remarks	<ul style="list-style-type: none"> If the monetary value of the equipment to be supplied is significant, the grant aid scheme should be applied.
Concept figure	<pre> graph TD JICA[JICA] --> PPM[Provision of production & processing machines] JICA --> TAM[Technical advice on institutional set-up & management] MINAE[MINAE - The Gov't of Madagascar] --> PBL[Provision of building and land] PPM --> EC[Establishment of new CABIZ OR new mechanization center] PBL --> EC TAM --> EC EC --> CABIZ[Several or all CABIZ in the country
(operated by a private company)] EC --> MC[Mechanization Center
(operated by MINAE)] CABIZ --> CABIZ_S[CABIZ Service
• Production and processing machine lease service
• Agronomical advice and training
• Stockage] MC --> MC_S[Center Service
• Production machine lease service
• Training to farmers] CABIZ_S --> SFF[Mainly small scale farmers, processors] MC_S --> LSF[Mainly large scale farmers] SFF --> IUM[Increased use of machines and other agri-service] LSF --> IUM </pre> <p>Increased use of machines and other agri-service</p>

Table 5-9 Project concept for Madagascar: Project for Strengthening Food Reserve Capacity and Promoting Warehouse Receipt Financing Services

Item	Contents
Project name	Project for Strengthening Food Reserve Capacity and Promoting Warehouse Receipt Financing Services in Madagascar
Target areas	Specific pilot districts/regions in Madagascar (mainly Alotra Mangro, which is a major rice producer, but also other parts of the country)
Project period	2023 - 2025 (3 years)
Target value chain	All crops (assuming highly shelf-stable cereals such as rice)
Target steps of the value chain	1. input, 2. production, 3. processing, 4. distribution, export, import, 5. retail, 6. consumption
Type of projects	1. financial cooperation, 2. technical cooperation, 3. investment and loans, 4. business support projects
Background	In Madagascar, COVID-19 triggered a need to stockpile unsold agricultural products due to market closures and traffic restrictions. <i>Grenier Communautaire Villageois</i> (GCV), which provides loans secured by agricultural products (mainly rice) stored in warehouses, has become widespread in Madagascar. It is a major service for the branches of microfinance institutions, accounting for about 30-50% of their outstanding loans, and is much in demand by farmers. However, there are currently not enough warehouses to store agricultural products as collateral, and microfinance institutions are not able to provide sufficient services to meet the needs of farmers. The project will build several warehouses in the country, which will be rented out by the Government of Madagascar to microfinance institutions, private warehouse operators, and producers' associations to both increase the food reserve capacity and expand the availability of loans for warehouse receipt financing. The project will also provide technical assistance to microfinance institutions to help them provide warehouse receipt loans that are more tailored to farmers' needs. In addition, producers will be provided with guidance on agricultural technology and farming planning to improve their creditworthiness and access to better credit terms.
Beneficiaries	Producers of targeted agricultural products, microfinance institutions
Objective(s)	XX% increase in production of farmers who have received warehouse receipt financing service using the warehouses established by the project
Outputs and activities	<p><u>Output 1: Establishment and lending of warehouses</u></p> <p>1-1 Warehouses for stockpiling service will be built in several pilot areas.</p> <p>1-2 The warehouse is rented out to companies and organizations interested in using it.</p> <p><u>Output 2: Provision and improvement of warehouse receipt financing services</u></p> <p>2-1 Microfinance institutions provide warehouse receipt financing services through newly constructed warehouses.</p> <p>2-2 Provide technical guidance to improve the service to meet the needs of farmers.</p> <p><u>Output 3: Technical guidance on agricultural technology and farming plan</u></p> <p>3-1 Training in agricultural production techniques and farming plan for service user farmers.</p>
Organization(s) concerned	Implementing organization(s): Ministry of Agriculture Cooperating organization(s): Microfinance institutions, warehouse operators, producers' associations, <i>Association Professionnelle des Institutions de MicroFinance</i> (APIMF)
Remarks	<ul style="list-style-type: none"> The best is to demonstrate different warehouse receipt financing models by renting out warehouses to different organizations in several locations across the country, not just one. Technical guidance to microfinance institutions in the private sector should be provided through the microfinance association.

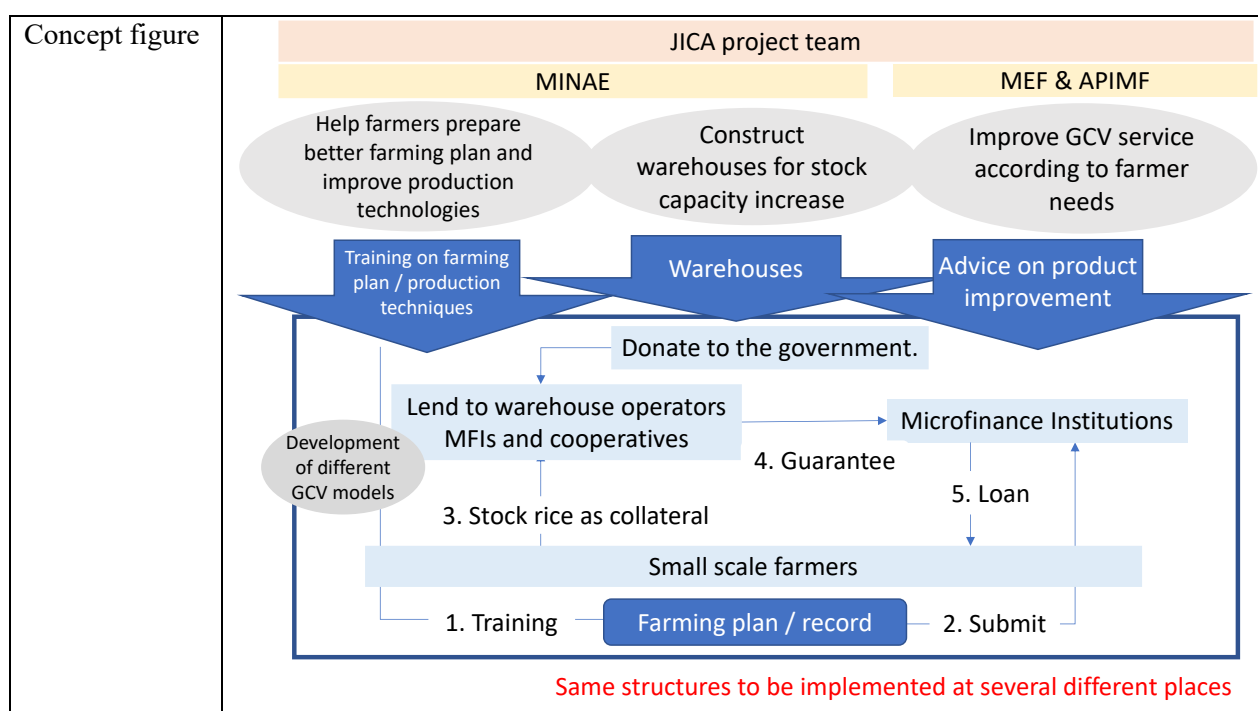


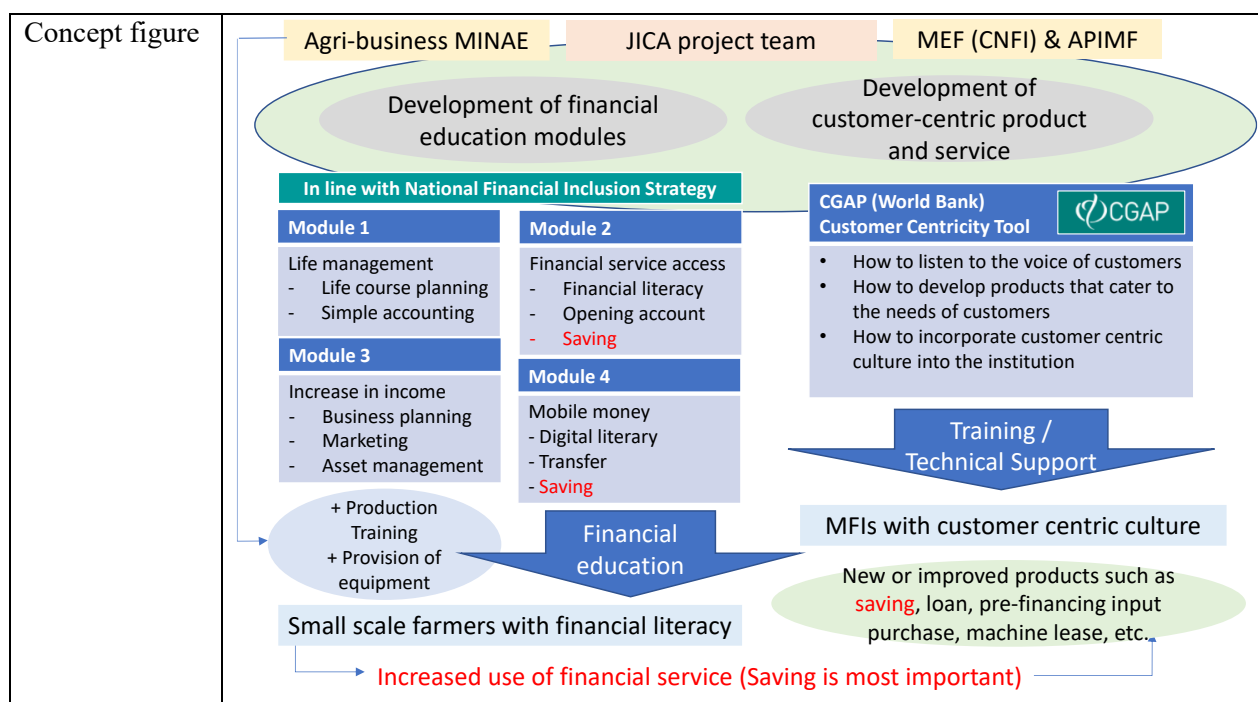
Table 5-10 Project concept for Madagascar: Small-Scale Farmer Financial Inclusion Project

Item	Contents
Project name	Small-Scale Farmer Financial Inclusion Project in Madagascar
Target areas	All over the country, based in the capital of Madagascar (It is also possible to select specific project areas)
Project period	2023 - 2025 (3 years)
Target value chain	All crops, including non-surveyed crops
Target steps of the value chain	1. input, 2. production, 3. processing, 4. distribution, export, import, 5. retail, 6. consumption
Type of projects	1. financial cooperation, 2. technical cooperation, 3. investment and loans, 4. business support projects
Background	People in Madagascar have a lower level of access to formal financial services than other Southern African countries ⁸⁵ . This is due to a lack of financial literacy and mistrust of financial services on the part of farmers, and a failure of financial institutions, such as microfinance institutions, to provide services that meet the needs and repayment capacity of farmers. This project aims to bridge the gap between the supply and demand sides of microfinance services by providing financial education to farmers and support to microfinance institutions in developing services that meet the needs of farmers, thereby promoting financial inclusion among small-scale farmers and agribusinesses in the country. The Ministry of Finance and Economy is currently preparing the next five-year National Financial Inclusion Strategy for the period 2023-2027, and promotion of financial education will be included as one of the key areas of focus, so the project activities should be aligned with the National Strategy.
Beneficiaries	Small-scale producers, small-scale agricultural entrepreneurs, and microfinance institutions
Objective(s)	1 Increase in the use of formal financial services by participants in the project's financial education by at least XX%. 2 Increase in the income of the project's financial education participants by at least XX%.

⁸⁵ Madagascar National Financial Inclusion Strategy 2018-2022 (Ministry of Finance and Economy, Madagascar)

Outputs and activities	<p><u>Output 1: Financial education for farmers</u></p> <p>1-1 To develop a financial education module tailored to the levels of smallholder farmers in Madagascar.</p> <p>1-2 Provide financial education in pilot areas.</p> <p>1-3 Teaching farming techniques and providing small-scale equipment and inputs as part of financial education.</p> <p><u>Output 2: Development of financial services tailored to farmers' needs</u></p> <p>2-1 Provide technical guidance to develop and improve services to meet the needs of farmers.</p> <p>2-2 Microfinance institutions provide developed and improved financial services.</p> <p>2-3 Continue to improve the service based on feedback from users.</p>
Organization(s) concerned	<p>Implementing organization(s): Coordination Nationale de la Finance Inclusive (CNFI), Ministry of Finance and Economy</p> <p>Cooperating organization(s): Association of Microfinance Institutions, Microfinance Institutions, Agribusiness Department, Ministry of Agriculture</p>
Remarks	<ul style="list-style-type: none"> • The entry point for users of financial services is not a loan, but opening accounts and saving, so financial education and service development should focus on these areas. • The development of financial education modules should make extensive use of audio-visual materials for small-scale farmers with low literacy skills. To make financial education effective, it can be combined with technical guidance on agricultural production, which is their source of income generation, and the provision of simple assets and inputs. • Technical guidance to private microfinance institutions should be provided through the microfinance institution association. The customer centricity guidelines⁸⁶ of the Consultative Group to Assist the Poor (CGAP), the World Bank's financial inclusion think-tank, can be used to develop services that meet the needs of farmers. • Regulation can be a barrier to the provision of financial services, so it is also important to lobby the regulator for deregulation or special permission in such cases. • Similar projects implemented by JICA include the “Project on Life Improvement and Livelihood Enhancement of Conditional Cash Transfer Beneficiaries through Financial Inclusion,” the “Smallholder Families’ Financial Inclusion Project in Albania,” and the “Project for Promoting Gender-Responsive Financial Inclusion through Vietnam Women’s Union.” • If it is not feasible for small-scale farmers to use the services of microfinance institutions, an alternative is to support the formation of savings groups that are being worked on by other donors and NGOs. In this case, it is advisable to work with the Madagascar Savings Group Promoter Network (<i>Réseau des Promoteurs des Groupes d'Epargne à Madagascar: RPGEM</i>).

⁸⁶ <http://customersguide.cgap.org/>



5.2.4. Malawi

Based on the results of the survey in Malawi, the impact of the COVID-19 on FVCs was as summarized as follows: (1) production was affected by poor access to inputs, such as fertilizer, and lack of funds, which negatively affected production and sales (the impact on cereals, such as maize and rice, was relatively small due to the availability of government subsidies); (2) the supply chain, from production to retail, was impacted by high prices and insufficient supply (including abandonment) as a result of restrictions on domestic and international movement and sales due to various COVID-19 control measures. (3) producers and other actors, such as individuals and small businesses, suffered a loss of sales, revenue, and income due to increased production costs and regulatory restrictions on movement and business, causing a shortage of funds. However, many producers and small-scale entrepreneurs had difficulty in accessing financial services and did not have the opportunity to obtain adequate market information. In particular, there is a need to improve access to finance and to correct the imbalance between demand- and supply-side information. A measure to address these issues is financial inclusion, with a special focus on agricultural production and livelihoods. In the SDGs, financial inclusion is not only identified as a target indicator for Goal 1: Poverty Eradication, but also as a key enabler for achieving the seven goals (1, 2, 3, 5, 8, 9, 10)⁸⁷. The target for access to financial services in Malawi is 55%, but in 2018 it was less than 20%. The results of this survey also indicated that small-scale farmers have challenges related to financial services. Providing support on this challenge is expected to improve their productivity and diversification in agriculture, as well as their income, well-planned household, and risk management for their livelihoods, which will contribute to the achievement of the SDGs.

Therefore, the following project, including financial inclusion, is proposed for Malawi.

⁸⁷ The seven goals: Goal 1: No poverty, Goal 2: Zero hunger, Goal 3: Good health and well-being, Goal 5: Gender equality, Goal 8: Decent work and economic growth, Goal 9: Industry, innovation and infrastructure, Goal 10: Reduce inequalities

Table 5-11 Project concept for Malawi: Project for Improving Livelihoods through Financial Inclusion for Smallholder Farmers

Items	Contents
Project name	Project concept for Malawi: Project for Improving Livelihoods through Financial Inclusion for Smallholder Farmers in Malawi
Target areas	One district (Select target district after selecting the target crops)
Project period	2023 – 2025 (3 years) (First year: formulate a detailed plan, second and third year: project implementing stage)
Target value chain	Cereals, horticulture
Target steps of the value chain	1. input, 2. production, 3. processing, 4. distribution, export, import, 5. retail, 6. consumption
Type of projects	1. financial cooperation, 2. technical cooperation, 3. investment finance, 4. business development
Background	<p>It is estimated that there are more than 3.9 million smallholder farmers⁸⁸ in Malawi, they are more than 13 million people (about 76% of the population), and that these smallholders are responsible for about 70% of agricultural GDP⁸⁹. On the other hand, the average cultivated area of smallholder farmers is limited to about 0.6 ha⁹⁰, and their use of fertilizers and good seeds, except for maize, is low and insufficient.</p> <p>As a result, 23.6% of the smallholder farmers are among the poorest, living on less than MWK 101,293 per day, and 56.6% are among the poorest, living on less than MWK 165,879 per day⁹¹. Thus, smallholder farmers in Malawi face challenges both in terms of agricultural production and livelihoods.</p> <p>However, only 11.4%⁹² of smallholders access financial services. Many smallholders manage their households through a combination of agricultural and off-farm income and a variety of informal sources of finance (such as village banking and borrowing from relatives). This has become even more apparent under COVID-19, and the need to develop preparedness measures to deal with unexpected events. As a measure, this project will improve the livelihoods of small-scale farmers by promoting financial inclusion.</p>
Beneficiaries	Smallholder farmers related to target VC, extension officers (Demand side), Members of Village Bank, MFIs, input retailers/distributors/retailers, (Supply side)
Objective(s)	To improve production and livelihoods of smallholder farmers through promotion of financial inclusion
Outputs and activities	<p><u>Output 1: VC related challenges to agricultural production are identified and approaches to financial inclusion are considered.</u></p> <p>1-1: Conduct an analysis of the VC actors and clarify the issues at the production, processing, distribution, and marketing</p> <p>1-2: Conduct a household survey of farmers</p> <p>1-3: Identify challenges related to income and consumption, asset building, risk management, and access to basic services.</p> <p>1-4: Conduct a survey on the financial sector and financial services.</p> <p>1-5: Based on the above, financial inclusion approaches (e.g. agricultural working capital loans for agricultural inputs, loans using warehouse receipts, use of agricultural insurance, and provision of information on</p>

⁸⁸ Fifth integrated Household Survey 2019-2020, National Statistics Office

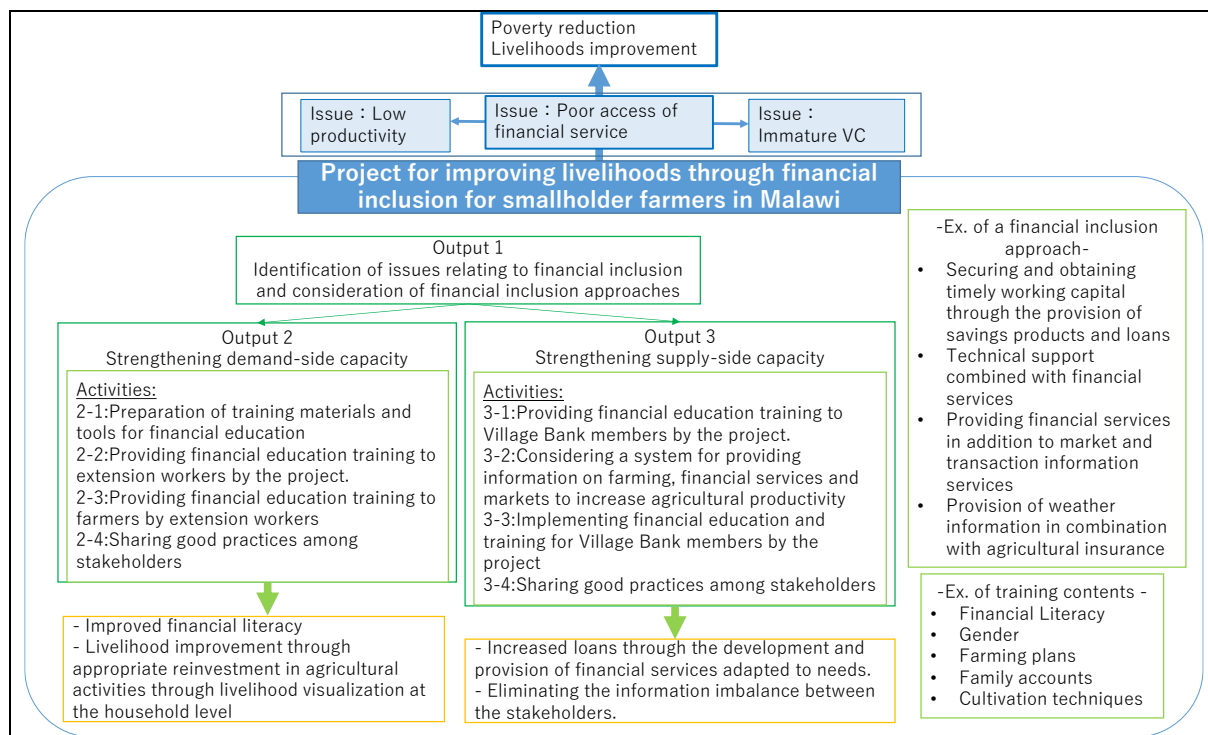
⁸⁹ National Agriculture Policy, 2016

⁹⁰ National Agriculture Policy, 2016

⁹¹ Malawi Poverty Report 2020

⁹² Malawi Population and Housing Census, 2018

	<p>weather, loans, and transaction) will be considered.</p> <p><u>Output 2: The capacity of the demand side (small-scale farmers, extension officers) to manage farm activities and households will be improved.</u></p> <p>2-1: Develop the necessary formats, manuals, and tools for financial training for Village Bank members and farmers.</p> <p>2-2: Provide training on financial education to extension workers by the project.</p> <p>2-3: Provide training on financial education to small-scale farmers by extension workers.</p> <p>2-4: Good practices will be shared among stakeholders.</p> <p><u>Output 3: The capacity of the supply side (Village bank members) involved in financial inclusion will be improved.</u></p> <p>3-1: Provide training on financial education to the supply side (village bank members) by the project.</p> <p>3-2: A system for providing information on farming services, financial services, and markets to enhance agricultural productivity will be examined.</p> <p>3-3: Pilot projects on the financial inclusion approach, including the results of the study in 3-2, will be implemented.</p> <p>3-4: Good practices will be shared among stakeholders.</p>
Organization(s) concerned	<p>Implementing organization(s): Ministry of Agriculture, Ministry of Finance</p> <p>Cooperating organization(s): Ministry of Industry, Agricultural cooperatives, other MFIs, NGOs, etc.</p>
Remarks	<ul style="list-style-type: none"> • The target crops will be decided at the time of the survey and will be selected on the basis of local demand, statistical production, and crops that look promising in terms of export and reduction of imports. • Application of ICT technology • Gender considerations • When developing a financial inclusion approach, consider not only financial service providers, but also approaches to inputs suppliers, distributors, and retailers. (e.g., introduction of good farmers, sharing of small farmers' financial situation, support for development of financial products, support for development of agricultural services, etc.)
Conceptual figure	



5.2.5. Mozambique

The results of the study in Mozambique showed that the restrictions aimed at preventing the spread of COVID-19 and the economic stagnation affected the business of many FVC actors. Southern urban areas, such as the capital city, rely on imports of vegetables and other agricultural products from the southern regions of the country and South Africa, resulting in shortages due to transportation disruptions and price surges in distribution and retail due to increased production and transportation costs. Few farmers are able to realize year-round cultivation, and at certain times of the year, locally grown vegetables are in short supply, and the percentage of imported products increases.

The majority of households in rural areas of Mozambique are engaged in agricultural activities. Even before COVID-19, farmers were susceptible to natural disasters, but they have also been affected by weather conditions, including natural disasters, during the COVID-19 pandemic. Worsened access to inputs and finance and lack of funds were also cited as the main reasons for the decline in production related to the COVID-19 pandemic. Thus, in the rural areas of Mozambique during COVID-19, food security and livelihoods have been threatened by multiple factors. In the workshops conducted as part of the study, it was also emphasized that providing financial education and promoting financial inclusion is important to improve the vulnerable situation of rural farmer households by improving their household management skills and financial literacy, then improving their livelihoods through well planned economic activities.

Based on the above, the following two project proposals are presented for Mozambique: “The pilot project to enhance food value chains with resilience for urban and peri-urban areas in the southern region of Mozambique with a market-oriented approach” and “The pilot project to enhance the food and nutrition security in rural areas of Mozambique through financial inclusion.” The former aims to ensure the stable supply of nationally produced vegetables in urban areas, particularly in the capital, and the

latter aims to improve the food and nutrition security and livelihoods of rural agricultural households through financial inclusion.

Table 5-12 Project concept for Mozambique: The Pilot Project to Enhance Food Value Chains with Resilience for Urban and Peri-Urban Areas in the Southern Region of Mozambique with a Market-Oriented Approach

Item	Contents
Project name	The Pilot Project to Enhance Food Value Chains with Resilience for Urban and Peri-Urban Areas in the Southern Region of Mozambique with a Market-Oriented Approach
Target areas	Southern region of Mozambique, especially in Maputo City and Maputo Province
Project period	From 2023 to 2025 (3 years)
Target value chain	Horticulture
Target steps of the value chain	1. input, 2. production, 3. processing, 4. distribution, export, import, 5. retail, 6. consumption
Type of projects	1. financial cooperation, 2. technical cooperation, 3. investment finance, 4. business development
Background	<p>Mozambique relies to a certain extent on imports from South Africa for its supply of vegetables and other agricultural products, particularly in the capital and other urban areas in the south-central part of the country. During the COVID-19 pandemic, the country experienced shortages due to transport disruptions and price increases due to the rising cost of production and transportation. In Mozambique, even before the COVID-19 pandemic, the number of farmers who were able to achieve year-round cultivation was very limited, and at certain times of the year, local vegetables were in short supply and the proportion of imported products increased. The frequency of natural disasters, such as droughts and hurricanes, makes it difficult to ensure a stable supply of produces.</p> <p>In this context, this project aims to introduce and establish innovative technologies in Mozambique such as greenhouse and net house cultivation, in order to achieve stable cultivation and supply of agricultural products, especially vegetables, in peri-urban areas and to meet the demand of urban consumers with locally produced vegetables. Firstly, pilot cultivation and sales using innovative cultivation systems will be carried out through lead farmers and agricultural cooperatives, with the aim of subsequent dissemination to other parts of the countries in the future. The pilot will also introduce market-oriented agriculture approach to empower peri-urban farmers in Mozambique to understand market demand and apply the information obtained in the market research to their production and marketing. In addition, in Mozambique, where farmers' access to finances is low, the project aims to develop financial products and services in collaboration with financial institutions that can be realistically used by farmers. Then, the project aims to create conditions that facilitate the development of agribusiness through services provided by private financial institutions, and to build and develop a strong vegetable FVC through peri-urban agriculture.</p>
Beneficiaries	Horticulture farmers in peri-urban areas
Objective(s)	To establish a VC model for the stable cultivation and supply of agricultural products, particularly vegetables, in the capital and its suburbs.
Outputs and activities	<p><u>Output 1: Implementation of pilot activities on innovative cultivation for peri-urban agriculture</u></p> <p>1-1 Carry out initial market research on demand and marketing conditions for</p>

	<p>domestically produced vegetables.</p> <p>1-2 Select pilot farmers to introduce innovative cultivation methods in Mozambique (introducing several production methods to different farmers and cooperatives).</p> <p>1-3 Provide trainings on cultivation and marketing with MADER and DPAP/SDAE.</p> <p><u>Output 2: Building and applying the market-oriented Agriculture Model for peri-urban agriculture in Mozambique</u></p> <p>2-1 Develop a training curriculum on market-oriented agriculture for peri-urban agriculture.</p> <p>2-2 Provide training to pilot farmers and cooperatives/associations on market-oriented agriculture, and then pilot farmers and cooperatives produce and sell agricultural products based on demand.</p> <p>2-3 Provide trainings in agricultural accounting and business planning.</p> <p>2-4 Establish mechanisms within MADER and DPAP/SDAE to match producers with market actors.</p> <p>2-5 Establish a supporting mechanism for production and distribution in partnership with agribusiness companies.</p> <p><u>Output 3: Development of financial products and services for agriculture and agribusiness</u></p> <p>3-1 Develop financial products and services tailored to the needs of farmers engaged in peri-urban agriculture. (For example, in the case of loans, mechanisms to complement the creditworthiness of the producer should be incorporated into the product design.)</p> <p>3-2 Establish a matching mechanism between producers and financial institutions to facilitate the use of financial products and services.</p> <p><u>Output 4: Accumulation of knowledge and experiences in national institutions for agricultural research and extension (e.g., IIAM) and dissemination of technology to extension officers.</u></p> <p>4-1 Accumulate knowledge on experimental cultivation at IIAM and other institutions.</p> <p>4-2 Develop a training curriculum for agricultural extension workers.</p> <p>4-3 Provide training to extension officers in pilot areas and other provinces.</p>
Organization(s) concerned	<p>Implementing organization(s): Ministry of Agriculture and Rural Development (MADER), Provincial/municipal governments, Provincial and District Office for Agricultural Extension (DPAP/SDAE), and Mozambique Institute of Agricultural Research (IIAM)</p> <p>Cooperating organization(s): Financial institutions and Agribusiness companies</p>
Remarks	<ul style="list-style-type: none"> - It is important that crops are supplied to wholesale markets, supermarkets, restaurants, and other customers in the quality and manner that they require, and the trainings for farmers are necessary to ensure these conditions. - In Mozambique, a number of companies have emerged in recent years that provide farmers and agricultural cooperatives with technical assistance and sales support. The establishment of a mechanism to match these companies with producers can also be considered to be effective in improving the quality and distribution of domestic vegetables.
Conceptual figure	

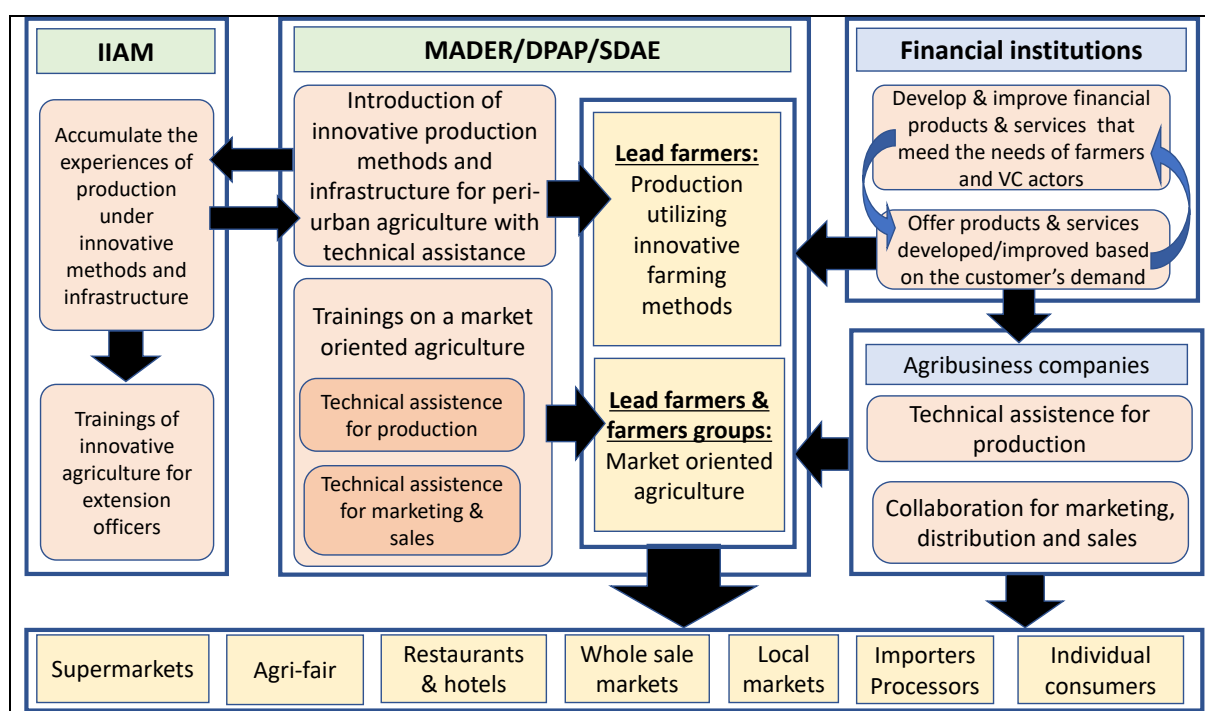


Table 5-13 Project concept for Mozambique: Pilot Project to Enhance the Food and Nutrition Security in Rural Areas of Mozambique Through Financial Inclusion

Item	Contents
Project name	The Pilot Project to Enhance the Food and Nutrition Security in Rural Areas of Mozambique Through Financial Inclusion
Target areas	Mozambique (southern, central, and northern regions)
Project period	From 2023 to 2025 (3 years)
Target value chain	Any crops that can be produced by small holder farmers in rural areas
Target steps of the value chain	1. input, 2. production, 3. processing, 4. distribution, export, import, 5. retail, 6. consumption
Type of projects	1. financial cooperation, 2. technical cooperation, 3. investment finance, 4. business development
Background	<p>In Mozambique, about 63.5% of the population lives in rural areas as of 2019, and about 70% of all the households are involved in agricultural activities.⁹³ The majority of rural areas depend on agricultural activities for food and income, and even before the COVID-19 pandemic, agricultural production was susceptible to natural disasters. Under the COVID-19 pandemic, in addition to adverse weather conditions including natural disasters, access to inputs such and financial services has worsened, causing farmers to experience funding shortages. As a result, many rural farming households found themselves in a situation where their food and nutrition security was threatened by deteriorating agricultural production and reduced income.</p> <p>In Mozambique, the government has been implementing a program to support agriculture, but the target farmers are above the level of emerging small-scale commercial farmers. Therefore, farming households that have not yet reached that stage are not likely to be eligible. In addition, in rural areas, access to financial services and agricultural inputs is very limited.</p>

⁹³ <https://data.worldbank.org>

	In this context, in order to improve food and nutrition security and livelihood resilience of rural agricultural households, the project aims to build a model of Mozambican version of "Graduation Approach" in which agricultural households improve their household financial management skills and financial literacy, and then receive training to improve food and nutrition security and livelihood improvement ⁹⁴ . While the pilot financial institutions and the MADER are considered the main implementing organizations of the project activities, the collaboration with agribusiness companies especially input companies is planned to be constructed.
Beneficiaries	Rural families that belong to savings groups and are dedicated to agriculture
Objective(s)	To develop a model for improving the food and nutrition security of rural small holder farmers and subsistence households through financial inclusion.
Outputs and activities	<p><u>Output 1: Development of a series of training modules to improve food and nutrition security through financial inclusion</u></p> <p>1-1 Develop a series of training modules on household financial management, financial literacy, business planning, and agricultural technics.</p> <p>1-2 Develop a model of cooperation between financial institutions and the MADER/DPAP/SDAE and agribusiness companies.</p> <p><u>Output 2: Implementation of pilot activities</u></p> <p>2-1 Select pilot financial institutions and pilot regions⁹⁵.</p> <p>2-2 Implement a series of training developed in 1-1 in the pilot regions.</p> <p>2-3 Conduct an end-line survey and improve the training modules and delivery methods.</p> <p><u>Output 3: Development and provision of financial products and services for rural farming households</u></p> <p>3-1 Promote household financial management and savings, as well as the use of existing financial products and services.</p> <p>3-2 Develop and/or improve financial products and services based on the "Customer-Centric Approach (CCA).</p> <p><u>Output 4: Creating the mechanism of collaboration with agribusiness companies</u></p> <p>4-1 Establish a mechanism and model of collaboration and cooperation with agribusiness companies.</p> <p>4-2 Develop and improve methods of providing inputs that meet the needs and reality of rural small-holder and subsistence farmer households.</p> <p><u>Output 5: Establishing the model for food and nutrition security through financial inclusion</u></p> <p>5-1 Finalize a model for improving food and nutrition security through financial inclusion by integrating the learnings from the pilot activities.</p>
Organization (s) concerned	<p>Implementing organization(s): Ministry of Agriculture and Rural Development (MADER), Bank of Mozambique (Superintendency for financial institutions including Microbancos and MFIs)⁹⁶</p> <p>Cooperating organization(s): Financial Institutions such as Microbancos and MFIs, and</p>

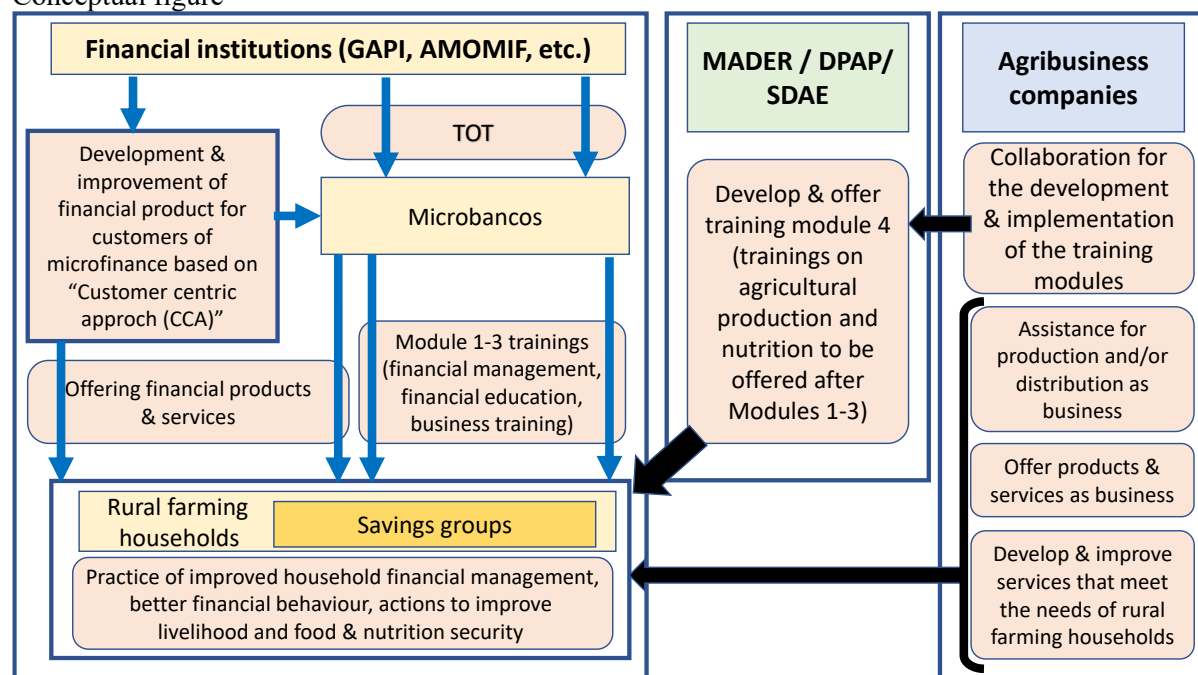
⁹⁴ The Graduation Approach is a method combining financial inclusion and poverty reduction promoted by CGAP (Consultative Group to Assist the Poor). The Graduation Approach has been used as a method to lift people out of poverty in many parts of the world, and JICA has also used it in its projects in Honduras and Pakistan.

⁹⁵ The target areas will be selected from the areas where micro banks (microbancos) operate. By giving priority to micro-banks as target institutions, households belonging to savings groups can be targeted. In Mozambique, a system of micro-banks has recently been introduced in between commercial banks and MFIs. Microbanks can offer a wide range of products and services, including loans and deposits, and often provide training and services targeting savings groups. 9 microbanks existed as of 2020, and several MFIs have since been upgraded to microbanks.

⁹⁶ The actual implementing entities are assumed to be GAPI, a semi-private financial institution, and Microbancos, which cooperate with GAPI.

	AMOMIF (Mozambique Association for MFIs), Provincial and District office for Agricultural Extension (DPAP/SDAE), and Agribusiness companies especially input companies
Remarks	<ul style="list-style-type: none"> • In order to expand opportunities for the provision of agricultural inputs in rural areas, it is desirable to explore the possibility of partnerships with input companies from the beginning of the project. • In the implementation of the pilot activities, it is suggested that several regions with different characteristics be selected, with the expectation that the model can then be utilized throughout the country after the pilot project. • The selection of pilot regions and pilot financial institutions should be conducted in coordination with GAPI, which provides support to microbancos and MFIs, and the Mozambique Association of Microfinance Institutions (AMOMIF), of which many MFIs are members.

Conceptual figure



Appendix 1: List of participants in the kick-off workshop in each target country

1. Zambia

The participants in the kick-off workshop in Zambia

S/N	VC	Category	Organization	Name
1	Production	Maize farmer	Individual farmer	Mrs. Faustina Lyumbika
2		Rice farmer	Individual farmer	Mr. Akabondo Simakumba
3		Sugar cane grower	Kaleya Small Holders Company LTD.	Mr. Percy Simunika
4		Agricultural cooperative	Panjira Multipurpose Co-op	Mr. Nothando Chirwa Ms. Sharon Mujuta
5	Retailing	Supermarket	Jumbo	Mr. John Puta Ms. Naomi Zulu
6	Distribution	Trading company	Clementile Trading	Mr. Clement Zulu
7	Consumption	General consumer	Consumer Unity & Trust Society (CUTS)	Ms. Jane Zulu
8		General consumer	Zambia Consumer Association	Mr. Juba Sakala
9		Government Stakeholder	Ministry of Commerce (Economics – Foreign Trade)	Mr. Mcpherson Munsanje
10			Ministry of Commerce (Domestic Trade)	Mr. Kalumba Chulu
11			Ministry of Agriculture (Chief Agriculture Officer – Fruits and Vegetables)	Mr. Mwiya Mukungu
12			Ministry of Agriculture (Agribusiness)	Mr. Kwibisa Malimba
13			Ministry of Agriculture (Chief Agricultural Officer – Field Crops)	Mr. Malumo Nawa
14		FVC consultant	GRAND SEK	Mr. Martin Sekeleti
15			GRAND SEK	Mr. Wesley Litaba Wakunuma
16			GRAND SEK	Ms. Nina Lengesela
17			GRAND SEK	Mr. Humprey

2. Zimbabwe

The participants in the kick-off workshop in Zimbabwe

S/N	VC	Category	Organization	Name
1	Input	Seed maker	Champion Seeds	Mr. Zonke
2		Seed maker	CTDO	Mr. Spiwe
3		Seed maker	Agri-seeds Pvt Ltd	Mr. Gerald Mafere
4		Fertilizer maker	Kutsaga	Ms. Aretha Chako
5		Retailer	Ecomark Zimbabwe Limited	Mr. Isheanesu Nyamukapa
6	Production	Farmer	Individual farmer	Mr. Karumbe Alec

7	Processing	Agricultural company	Deerhurst	Mr. Valetine Nyamande
8		Agricultural company	Melfort	Mr. Ali-Baba Mutisi
9		Farmer	Individual farmer	Mr. Blessing Vambe
10		Processing company	Lotan foods	Mr. Forgive Manyisa
11		Processing company	Plot 31 Honeyspruit Farm Chikomba District	Mr. Danai Bester Mazongonda
12		Processing company	FWB (Pvt ltd)	Mr. Fungai Very Muringa
13		Processing company	Zengeya Village, Mhondoro	Mr. Rev Joseph Handiseni
14	Distribution	Processing company	CFS Agro	Mr. Hebert Shonhai
15		Wholesaler	EggGrow	Mr. Ronald Murowe
16		Wholesaler	Starwhite Fresh Produce	Mr. James Apollo
17		Wholesaler	Agridurable solutions	Mr. Rufaro Mazangabonwa
18		Wholesaler	Usena Solutions Pvt LTD	Mr. Joseph Anesu Marova
19		Wholesaler	Lukon Farm	Ms. Tatenda benza
20	Retail	Retailer	Connect Investments	Ms. Rosaline Masayile
21		Retailer	Farm and City Centre	Mr. Cliff P Mukumba/Primrose
22	Consumption	Individual consumer	Individual consumer	Mr. Njabulo Mpofu
23		Individual consumer	Individual consumer	Mr. Rutendo Brenda Nyamadzawo
24		Individual consumer	Individual consumer	Ms. Caroline Mukonowatsauka
25		Individual consumer	Individual consumer	Mr. Abigail madamombe
26	Other associations	Bank	Agribank	Ms. Leslie Makwembere
27		Consulting	Zimbabwe Agricultural Think Tank	Mr. Kubvakacha Dickson
28		Association	Coalition Of Agricultural Graduates of Zimbabwe (CAGOZ)	Mr. Killian Marufu
29		Individual consultant	Individual consultant	Mr. Tendai Joseph Musizvingoza
30		NGO	Empowered Zimbabwe	Mr. Hilton Msaope

3. Madagascar

The participants in the kick-off workshop in Madagascar

S/N	VC	Category	Organization	Name
1	Input	Input Trader	STOI Agri General Coordinator	RAOBELISON Denis
2			Guanomad Responsible for	RAKOTOARIVELO Ialy

			Monitoring and Evaluation	
3			SOLEVO GROUP (ex-SEPCM)	RAKOTOARIVELO Rojo
4	Production	Chamber of Agriculture	Tranoben'ny Tantsaha Mpamokatra Executive Secretary	RAKOTONIAINA Sylvie Nirina
5		Association	FIFATA Executive director	RANOASY Andriamparany
6		Producer	Pink pepper Producer	RASOLONARIVO Jules
7			Onion Producer	RALISON Justin
8			Tomato Producer	RANDRIAMPANARIVO Odon
9			Bean Producer	RAZAFINDRANORO Julienne Lily
10			Potato Producer	RAKOTONDRABE Martin
11	Processing	National Council	National Cocoa Council Executive Secretary	RAKOTONDRABARY Bernard
12	Consumption	Consumer	Individual consumer	RAVAOHARISOA Honorine
13			Individual consumer	RAKOTOSAMIMANANA
14		Government	Ministry of Agriculture, Livestock and Fisheries Head of Agriculture	RAMAROSON Lantonirina Harivelo
15			Head of Coordination and Support Unit for Projects and Regional Activities	RAHARINOMENA Fanja Miharisoa
16			Director of Plant Production Support	RAMANANJANAHARY Harivony Blandine
17		Development Partner	Inter-Regional Coordinator PROSPERER	RANDRIAMIARINJATO Jean Olivier

4. Malawi

The participants in the kick-off workshop in Malawi

S/N	VC	Category	Organization	Name
1	Production	Rice Farmer	Individual farmer	Ms. Edrina Kenamu
2		Rice Farmer	Individual farmer	Mr. James Makhuva
3		Potato Farmer	Individual farmer	Mr. Daud Jame Wamu
4		Onion Farmer	Individual farmer	Mr. Sauli Kamwaza
5		Large scale maize farmer	Individual farmer	Mr. Daniel Chingoli
6		Medium Scale Soybean Farmer	Individual farmer	Mr. Boaz Mandula
7		Pepper farmer	Individual farmer	Mr. Dennis K. Manda

8		Pepper farmer	Individual farmer	Mr. Timothy Kasela
9		Agricultural cooperative	Farmer Cooperative member	Mr. Mdzikanabo Chinkhokha
10		Agricultural cooperative	Farmer Cooperative member	Ms. Ruth Kumpandula
11		Agricultural cooperative	Lilongwe Naphini Cooperative	Mr. Brighton Mateyu
12		Agricultural cooperative	Lilongwe Naphini Cooperative	Mr. Zaphuka Chipembebe
13	Processing	Processing company	Sun seed Oil Ltd	Mr. Vijay Kumar
14		Small Agro-processor and farmer	(Individual farmer)	Ms. Sithembile Tembo
15		Government Stakeholders	Ministry of Agriculture (Economist)	Mr. Francis Wiseman
16			Ministry of Industry (Deputy Director)	Ms. Jacinta C. Chipendo
17			Ministry of Industry (Deputy Director)	Mr. Henry A Mandere
18		FVC consultant	RUO Consultants Ltd.	Mr. Penjani Kamanga
19			RUO Consultants Ltd.	Ms. Rachel Kamende
20			RUO Consultants Ltd.	Ms. Bertha Kadawayula
21			JICA Survey Team	Mr. Justice Khimbi

5. Mozambique

The participants in the kick-off workshop in Mozambique

S/N	VC	Category	Organization	Name
1	Input	Seed sector association	APROSE (Seeds Promotion Association)	Mr. Marcelino Botão
2		Private sector representative organization	CTA (Confederation of associations of private sectors): Agriculture Department	Mr. Bento Uachisso Mr. Samo Dique
3		Seed sector association	MOSTA (Mozambican Association of Commercial Seeds Companies)	Mr. Rui Santos
4		fertilizer sector association	AMOFERT (Mozambican Association for Promotion of Fertilizer Use)	Mr. Sérgio Ussaca Mr. Carlos Zandamela
5	Production	Famer union	UNAC (National Farmers Union)	Mr. Bartolomeu Henriques Mr. Isidro
6		Farmer federation	FENAGRI (National Farmer Federation)	FRUTICAD (Fruits & Horticulture associations) on behalf of FENAGRI
7		Cooperative union	UGC (General Union of Cooperatives)	Mr. Fernandes Domingos
8		Association of	AMPCM (Mozambican	Mr. Nelson Americano

		cooperatives	Association for Promotion of Modern Cooperatives)	Ms. Glória Gomes Mr. Cecílio Valentim
9	Processing	Private sector representative organization	CTA: Industry Department	Ms. Muzila Nhatsave
10		Processing & trading company for multiple products	ETG (Export Trading Group)	Mr. Shrikantha Naik
11		Cashew nuts processor	AICAJU (Cashew nuts processor association)	Mr. Guilherme Machado Mr. Mohammed Yunuss
12	Distribution	Logistics company	Good trade	Mr. Diogo
13	Retailing	Municipal market	Maputo Municipal Market	Administrator
14		Municipal Market	Malanga Retail Market in Maputo City	Administrator
15	Consumption	Consumer Organization	ProConsumer (Consumer protection Association)	Mr. Crispim Amaral Mr. Alexandre Bacião
16		Consumer Organization	ASSOCOOP (Association of Consumption Cooperatives of Maputo City)	Mr. Basílio Chirime
17		Hotel industry association	AHSM (Southern Mozambique Hotel Association)	Mr. Vasco Manhiça
18	Others	Poultry industry association	AMIA (Mozambican Association of Poultry Industry)	Mr. Zeiss Lacerda
19		Agribusiness association	AWAB Mozambique (Mozambique Women Association of Agribusiness)	Ms. Tatiana Mata Ms. Célia Ribeiro
20		Government stakeholders	MADER (<i>Ministry of Agriculture and Rural Development</i>)	Mr. Pedro Dzugule Mr. Fredson Pátria Mr. Guilhermina Matiquite And other 6-7 officials
21		Survey consultants	Miruku Coop	Mr. Abdul Cauio Mr. Haji Antonio
22			Local Consultants	Mr. Teofilo Chilenge Mr. Joao de Araujo
23		JICA (Japan International Cooperation Agency)		Sr. Kohei Kawazuma Sr. Nobuaki Kuribayashi Sr. Edson Marina

Appendix 2: List of participants in the closing workshop in each target country

1. Zambia

The participants in the closing workshop in Zambia

S/N	VC	Category	Organization	Names
1	Input	Orange nursery	ZNFCA	Mr. Isaac Mungwala
2	Production	Sugar cane grower	Kaleya Small Holder	Mrs. Audrey M. Hachilube
3		Vegetables	Zambia Fruit and Vegetable Association	Mr. Gideon Kalima
4	Processing	Rice millers	Sefula Rice Processors	Mr. Mundia L.S
5		Maize millers	Kalomo Millers Association	Mr. Hamuyube Hamilimo
6	Distribution	Onion	Onions, Potatoes and Allied Products	Mr. Mbewe J.C
7		Onion	Onions, Potatoes and Allied Products	Mr. Andrew Pandala
8		Tomato/Onion	Panjira Multipurpose Co-op	Ms. Sharon Mujuta
9		Onion	Cross Border Network Africa	Mr. Benard Sikunyongana
10		Onion	Onions, Potatoes and Allied Products	Mr. Matukwa Mubita
11		Onion	Cross Border Network Africa	Mr. Mischeck Musonda
12		Soybean traders	Grain Traders Association of Zambia	Mr. Yotam Mkandawire
13		Rice traders	Cross Boarder Network Africa	Mrs. Justina Mukanya
14		Rice and Vegetable traders	COMESA Trader	Mr. Evans Kasanga
15	Retailing	Retail shop	Clementile Trading	Mr. Clement Zulu
16	Consumption	General consumers	Consumer Unity & Trust Society (CUTS)	Mrs. Jane Zulu
17		General consumers	Zambia Consumer Association	Mr. Juba Sakala
18	Financial Institution	Financial institution	GIPO Credit Service Limited	Mr. Vincent Champo
19		Government Stakeholder	Fruits and Vegetables, Department of agriculture, Ministry of Agriculture	Mr. Malumo Nawa
20			Agribusiness Department, Ministry of Agriculture	Mr. Peter Kalambo
21			Field Crops, Department of agriculture, Ministry of Agriculture	Mr. Malumo Nawa
22		Development partner	Japan International Cooperation Agency	Mr. Richard Katongo

23		FVC consultant	GRAND SEK	Mr. Martin Sekeleti
			GRAND SEK	Mr. Wesley Litaba Wakunuma
24			GRAND SEK	Ms. Nina Lengesela
25			GRAND SEK	Ms. Soneni Sekeleti
26			GRAND SEK	Ms. Esnart K. Phiri
27			Local consultant	Mr. Francis Kubi

2. Zimbabwe

The participants in the closing workshop in Zimbabwe

S/N	VC	Category	Organization	Name
1	Input	Seed maker	Champion Seeds	Ms. Narita Charakapa
2		Seed maker	CTDO	Mr. Enward Masiri
3		Seed maker	Agriseeds Pvt Ltd	Mr. Gerald Mafere
4		Fertilizer maker	Kutsaga	Ms. Aretha Chako
5		Retailer	Ecomark Zimbabwe Limited	Mr. Isheanesu Nyamukapa
6	Production	Farmer	Individual farmer	Mr. Karumbe Alec
7		Agricultural company	Deerhurst	Mr. Valetine Nyamande
8		Agricultural company	Melfort	Mr. Ali-Baba Mutisi
9		Farmer	Individual farmer	Mr. Blessing Vambe
10	Processing	Processing company	Lotan foods	Mr. Forgive Manyisa
11		Processing company	Honeyspruit Farm	Mr. Danai Bester Mazongonda
12		Processing company	FWB (Pvt ltd)	Mr. Fungai Very Muringa
13		Processing company	Zengeya Village, Mhondoro	Ms. Rev Joseph Handiseni
14		Processing company	CFS Agro	Mr. Hebert Shonhai
15	Distribution	Wholesaler	EggGrow	Ms. Susan salafi
16		Wholesaler	Starwhite Fresh Produce	Mr. James Apollo
17		Wholesaler	Agridurable solutions	Mr. Rufaro Mazangabonwa
18		Wholesaler	Usena Solutions Pvt LTD	Mr. Joseph Anesu Marova
19		Wholesaler	Lukon Farm	Ms. Tatenda benza
20	Retail	Retailer	Connect Investments	Ms. Rosaline Masayile
21		Retailer	Farm and City Centre	Mr. Cliff P Mukumba/Primrose
22	Consumption	Individual consumer	Individual consumer	Mr. Njabulo Mpofu
23		Individual consumer	Individual consumer	Mr. Rutendo Brenda Nyamadzawo
24		Individual consumer	Individual consumer	Ms. Caroline Mukonowatsauka
25		Individual consumer	Individual consumer	Mr. Abigail

				madamombe
26	Other associations	Bank	Agribank	Ms. Leslie Makwembere
27		Consulting	Zimbabwe Agricultural Think Tank	Mr. Kubvakacha Dickson
28		Association	Coalition Of Agricultural Graduates of Zimbabwe (CAGOZ)	Mr. Killian Marufu
29		Individual consultant	Individual consultant	Mr. Tendai Joseph Musizvingoza
30		NGO	Empowered Zimbabwe	Mr. Hilton Msaope

3. Madagascar

The participants in the closing workshop in Madagascar

S/N	VC	Category	Organization	Name
1	Input	Input Trader	STOI Agri General Coordinator	Mr. RAOBELISON Denis
2			SEEDFAS	Mr. ANDRIANANTOANDRO Solonirina Carolia
3			Guanomad	Mrs. RAKOTOARIVELO Ialimandimby
4			SOLEVO GROUP (ex-SEPCM)	Mrs. RAMIANDRISOA Diamondra
5		Financial Institution	NIM	Mrs. JAOFERSON Dina
6			FIDECO	Mr. RAZAKAHARIVELO Charlot
7			CECAM	Mr. ANDRIANASOLO Richard
8			SMEEC	Mr. ANDRIANOMENJANAHARY Andrianjaka
9			RPGEM	Mr. ELYAH Ariel
10			APIMF	Mrs. RAKOTOMAHARO Fanja
11		Equipment	CFAMMA Antsirabe	Mr. HOSANA Richardson
12			HAIVY Lac AMbatondrazaka	Mr. RAKOTOARIVELO Annicet
13	Production	Chamber of Agriculture	Tranoben'ny Tantsaha Mpamokatra Executive Secretary	Mrs. RAKOTONIAINA Sylvie Nirina
14		Association	FIFATA Executive director	Mr. RANDRIANOMENJANAHARY Haingo
15			TATA Cooperative	Mr. TIARIMANANA Jean Frédéric
16		Producer	Pink pepper Producer	Mr. RASOLONARIVO Jules
17			Rice Producer	Mr. RASAMOELY Maurice
18			Tomato Producer	Mr. RABEMANANTSOA Germain
19			Bean Producer	Mr. RATOLOJANAHARY Rivo
20			Potato Producer	Mr. RAKOTONIAINA Daniel
21	Processing	National Council	National Cocoa Council Executive Secretary	Mr. RAKOTONDRABARY Bernard
22		Government	MINAE	Mr. RAMANANJANAHARY Harivony

			Director Plant Production	
23			MINAE – Director Rural Engineering	Mrs. RAFALIMANANA Fanja Oliva
24			MINAE – Director of Agiculture and Livestock Analamanga region	Mrs. RAZAFINDRATOANINA Vololontsoa
25			MINAE – po Head of Environment, Climate and Emergency Response	Mrs. RANDRINARISOA Avotiana
26			MINAE – Analamanga Office	Mrs. ANDRIAMANANTSOA Aina
27			Ministry of Trade – Trade and Competition Commissioner	Mrs. RAJAOFENO Honorelle
28			Ministry of Fincance – CNFI p.o	Mrs. RAMPARANY Tiana
29		Development Partner	Inter-Regional Coordinator PROSPERER	Mr. RANDRIAMIARINJATO Jean Olivier
30		JICA	Program Manager	Mr. RANDDRIANTSOA Andry
31			PAPRIZ Expert	Mrs. NBOW

3. Malawi

The participants in the closing workshop in Malawi

S/N	VC	Category	Organization	Name
1	Input	Fertilizer/Chemical importer	ETG Group	Mr. Abhinav Seugar
2		Chemical importer	Osho Chemicals	Mr. Ramsey Banda
3		Input retailer	Edam General Trading	Mr. Edwin Kasele
4		Input retailer	Kanyimbo Agro-dealer	Mr. Vitumbiko Thibo
5		Seed maker	Demeter Seed	Mr. M.Daka
6		Financial Institution	Comsip Investments	Mr. Kelvin Msiska
7	Production	Rice Farmer	Individual farmer	Ms. Edrina Kenamu
8		Rice Farmer	Individual farmer	Mr. James Makhuva
9		Potato Farmer	Individual farmer	Mr. Daud Jame Wamu
10		Onion Farmer	Individual farmer	Mr. Sauli Kamwaza
11		Large scale maize farmer	Individual farmer	Mr. Daniel Chingoli
12		Tomato Farmer	Individual farmer	Mr. Laston Msuzin
13		Tomato Farmer	Individual farmer	Mr. Peter Mlewa
14		Pepper farmer	Individual farmer	Mr. Yotamu Manjaaluso
15		Pepper farmer	Individual farmer	Mr. Mathews James
16		Agricultural cooperative	Farmer Cooperative member	Mr. Mdzikanabo Chinkhokha

17		Agricultural cooperative	Farmer Cooperative member	Mr. dzianabo Chinkhokha
18		Agricultural cooperative	Farmer Cooperative member	Ms. Ruth Kumpandula
19		Agricultural cooperative	Farmer Cooperative member	Mr. Brighton Mateyu
20		Agricultural cooperative	Farmer Cooperative member	Mr. Zaphuka Chipembele
21	Processing	Potato Processing	Potato chips maker	Mr. Precious Majamanda
22		Soybean oil Processing	Sun seed oil Ltd	Mr. Vijay Kumar
23	Distribution	Potato wholesaler	Individual	Mrs. Michanza
24		Cereal Exporter	Grain Securities	Mr. Fastino Kaswada
25	Retailing	Local market	Market vendor	Mr. RobertMwale
26		Supermarket	SPAR Supermarket	Mr. Jameson Tibu
27	Consumption	Restaurant	Kips Restaurant	Ms. Maureen Mtolongo
28		Government Stakeholders	Ministry of Industry (Deputy Director)	Ms. Jacinta C. Chipendo
29		Development Partner	International Fund for Agriculture	Mr. Babettie Juwayeyi
30			JICA	Mr. Zakiaman Makwale
31			JICA	Mr. Aoki Michihiro
32		FVC consultant	RUO Consultants Ltd.	Mr. Penjani Kamanga
33			RUO Consultants Ltd.	Ms. Eliza Mwalwanda
34			RUO Consultants Ltd.	Ms. Bertha Kadawayula
35			RUO Consultants Ltd.	Mr. Boaz Mandula
36			JICA Survey Team	Mr. Justice Khimbi

5. Mozambique

The participants in the closing workshop in Mozambique

S/N	VC	Category	Organization	Name
1	Input	Private sector representative organization	CTA (Confederation of associations of private sectors): Agriculture Department	Ms. Piona Chongola
2		Seed sector association	APROSE (Seeds Promotion Association)	Ms. Cristina Amaral
3		Seed sector association	MOSTA (Mozambican Association of Commercial Seeds Companies)	Mr. Rui Santos
4		International Seed Company	Syngenta	Ms. Carmona Cossa
5	Production	Farmer federation	FENAGRI (National Farmer Federation)	Mr. Uridice Martins
6		Association of cooperatives	AMPCM (Mozambican Association for Promotion of Modern Cooperatives)	Mr. Alisio Baquistone Ms. Rabeca Gloria
7		Association of Horticulture	ASSOCIAÇÃO ACRIVERDE	Mr. Francisco Parruque

		Farmers		
8	Distribution	Wholesale Market	Zimpeto Wholesale Market	Mr. Alcido Mapandzene
9	Retailing	Municipal Market	Malanga Retail Market in Maputo City	Mr. Jose Melisse
10	Consumption	Consumer Organization	ASSOCOOP (Association of Consumption Cooperatives of Maputo City)	Mr. Ernesto Machifico
11	Others	Government stakeholders	MADER (<i>Ministry of Agriculture and Rural Development</i>)	Mr. Antonio Machava
12			FNDS (National Fund for Sustainable Development)	Mr. Francisco Mataca
13			MIC (Ministry of Industry and Commerce)	Ms. Sheila Mabombo
14			IIAM (Mozambique Institute of Agricultural Research)	Mr. Joao Mudema
15		Agribusiness Company	CAVA (Comércio, Assistência, e Valorização Agrícolas, LDA.)	Ms. Neide Irina Ms. Almira Langa
16		International NGO	TechnoServe	Mr. Orlando Acevedo
17		Survey consultants	Miruku Coop	Mr. Abdul Cauio Mr. Taib Abdul
18			Local Consultant	Mr. Joao de Araujo