APRA

Agricultural Policy Research in Africa

Future Agricultures

A MULTI-PHASE ASSESSMENT OF THE EFFECTS OF COVID-19 ON FOOD SYSTEMS AND RURAL LIVELIHOODS IN ETHIOPIA: THE CASE OF FOGERA PLAIN

Dawit Alemu and Abebaw Assaye

APRA COVID-19 Country Report
June 2021

Cover photo © Degu Addis

Acknowledgments

We thank the respondent smallholder rice farmers in the Fogera Plain, South Gondar zone, Amhara Region, Ethiopia, who were willing to participate in the three rounds of surveys, the development agents who facilitated the surveys, and the enumerators for ensuring quality data collection.

Dawit Alemu is Manager of the Bilateral Ethiopian-Netherlands Effort for Food, Income and Trade Partnership in Ethiopia. He is also a member of the Future Agricultures Consortium (FAC) and is Country Lead of the Agricultural Policy Research in Africa (APRA) programme in Ethiopia. Abebaw Asaye is a Researcher at the National Rice Research and Training Center (NRRTC) of the Ethiopian Institute of Agricultural Research (EIAR) and is a member of the APRA Programme in Ethiopia.

This country report forms part of a series presenting results from three rounds of mixed-methods, comparative assessments conducted by the APRA Programme on the effects of COVID-19 on local food systems and rural economies covering over 800 households and 65 key informants in eight countries (Ethiopia, Ghana, Kenya, Malawi, Nigeria, Tanzania, Zambia and Zimbabwe), beginning in June-July 2020 and ending in May-June 2021.

This country report is generously funded with UK aid from the UK government (Foreign, Commonwealth & Development Office – FCDO, formerly DFID). The opinions are the authors and do not necessarily reflect the views or policies of IDS or the UK government.

Key findings

- Overall, rice farmers from the study area were aware of COVID-19 threats, and prevention and control guidelines over the three rounds of the survey, specifically those measures related with the state of emergency (April 2020), the enacted directive (October 2020), and the adjusted directive.
- Many respondents remained sceptical about the seriousness of the outbreak and compliance with government guidelines continued to be very limited – mainly due to a limited understanding of the danger of COVID-19, limited access and capacity to buy required inputs (sanitiser, masks), and a lack of regulatory measures to enforce the guidelines.
- Agricultural activities continued to be minimally affected, whereas devastating floods, which occurred during the second round of surveys (October 2020) emerged as serious challenge and caused major disruption and displacement.
- Access to agricultural inputs remained a bottleneck, with the proportion of respondents reporting a decline in availability surging from 22% in the first round (July 2020), to 51% in the second (October 2020), and 71% in the third round (February 2021), while the number reporting an increase in input prices rose slightly from 71% to 74%, and to 87% over the three rounds.
- The ability to sell produce at local and regional markets improved over time, with the proportion of respondents reporting a decline decreasing from 33% to only 6% (local markets) and from 32% to 8% (regional markets) between the first and third rounds, implying improvements in marketing opportunities linked with the relaxation of trading and movement restrictions.
- An increase in the proportion of respondents reporting reduced availability of foods over the three periods of the survey was observed for root crops, milk and milk products, meat and poultry, and dark green vegetables, which indicates that the availability continued to be directly or indirectly affected by the COVID-19 pandemic.
- For most food items, more than 50% of respondents reported an increase in food prices over the three surveys due to the direct or indirect effect of COVID-19, mainly for milk and milk products, pulses, and processed food, which indicates that the price of nutritious foods increased more than other types of food items like cereals.
- Food security seems to have improved over time, with the proportion of respondents reporting their worries about not having enough food to eat decreasing from 64% in the first round to 30% in the third round, and consumption of less than one should eat decreasing from 31% in the first round to 17% in the third.
- Nutritional security also improved initially, with the proportion of respondents reporting an inability to eat healthy and nutritious food decreasing from 42% in the first round to 31% during the second round. This was mainly associated with emergency assistance provided by the government and non-governmental organisations (NGOs) after the flood occurred in the Fogera Plain. However, the figure increased to 61% during the third round survey.
- The self-assessed level of poverty indicated that male-headed householders were on average better off than female-headed households, with about a one-step difference based on the responses before COVID-19 and during the three rounds of survey. In addition, distribution of respondents by the perceived level of poverty indicates that there was a general increase in the proportion of respondents who rated themselves five and below (decline in perceived poverty), and a general decline in those who rated themselves six and above over the three rounds of surveys, compared to their rating before the COVID-19 pandemic (increase in perceived poverty).

1. Introduction

The COVID-19 pandemic has not only led to the loss of human life and resulted in an unprecedented challenge to public health, but has also seriously affected food systems and work opportunities (WHO, 2020). As a global pandemic, COVID-19 has impacted food systems and livelihoods as a result of both economic and health challenges that emanate from domestic public policy measures, and also actions taken by other countries, mainly in the form of trade restrictions.

Ethiopia activated its Public Health Emergency Operation Center to manage its COVID-19 preparedness and response on 27 January 2020. Following the confirmation of the first COVID-19 case in Ethiopia on 13 March 2020, and concerns about the sharp increase in cases, the federal government declared a state of emergency (SoE) on 8 April 2020 which lasted for five months (FNG, 2020). The SoE put in place key restrictions and obligations, including: (i) restrictions on the movement of people and goods, including border entry; (ii) control of food prices and other goods; and (iii) a reduction of public services, including those related to the operation of agri-food systems that are crucial for the livelihoods of rural communities.

Following the five-month SoE, the Ethiopian Government – through the Ethiopian Public Health Institute – enacted a Directive for the Prevention and Control of COVID-19 Pandemic No. 30/2020 on 5 October 2020. The main restrictive measures set by the SoE were relaxed by the different provisions of the directive, but still: (i) prohibited certain activities and duties that were associated with a list of activities that were not allowed;[1] and (ii) established precautionary measures to be applied during the provision of services to people (i.e. restaurants, coffee shops, hotels etc.), cultural events and other day-to-day activities. Most of the prohibitions and precautionary measures were in line with the technical guidance that was issued by the World Health Organization (WHO).

This paper presents the assessment of the impacts of the COVID-19 pandemic on agricultural commercialisation, food and nutrition security, labour and employment, as well as poverty and well-being in rural Ethiopia. Data from the three surveys reveals changes that took place during the SoE, where there were considerable restrictions on mobility, and after the COVID-19 prevention and control directive was enacted.

The paper is structured as follows. Section 2 provides the methodology deployed, Section 3 presents an overview of the COVID-19 prevention and control measures put in place and the extent of awareness about COVID-19 prevention and control measures. Section 4 documents the extent of awareness about COVID-19 prevention and control measures. Section 5 outlines the responses of rural households to the different measures. Section 6 documents the main effects in terms of changes to the participation in farming activities, access agricultural inputs, access to off-farm opportunities, the ability to market agricultural produce, and access to public services. Section 7 documents the changes in the availability and price of food items along with the perceived changes in food and nutritional security followed by Section 8 that details the perceived level of household poverty during the three rounds of the surveys. The last section provides the conclusions.

2. Methodology

2.1 The study area and survey strategy

The study was conducted in the Fogera Plain of Amhara Region, which is known for rice production. Respondents were drawn from a subset of households interviewed in an Agricultural Policy Research in Africa (APRA) survey of smallholder rice farmers in six *kebeles* (the lowest administrative unit in Ethiopia) in the Fogera Plain area in 2018. The data provided by the households, re-interviewed three times between July 2020 and February 2021, was complemented by data from 23 key informant interviews conducted in the *kebeles*. The data collection for this study was carried out over three rounds to capture three specific situations in Ethiopia: (i) the period during the SoE, with the survey conducted in July 2020, which was also the start of the agricultural production season; (ii) the start of the implementation of the national directive issued to prevent and control the COVID-19 pandemic, with the survey conducted October 2020, and which was also a time of year in which important agricultural activities that demand labour like weeding and cultivation take place; and (iii) in February 2021 when despite the different COVID-19 preventive and control measures being well communicated, there was a relatively high level

1 Prohibited activities included entering the country if a person was aware they were infected with COVID-19, shaking hands, providing a service (relevant to public and private employees) without maintaining a distance of two adult strides and wearing a mask; and conducting face-to-face learning for children in schools. In total, there were nine activities listed.

of infection and death being reported, particularly in urban areas. It was also a period after harvest in terms of the agricultural season.

Given the low levels of access to telephones, the data collection was made through face-to-face interviews in each of the *kebeles*. Local development agents were recruited to facilitate the fixing of appointments in each village in the *kebeles*, and trained enumerators, supervised by a research assistant, administered the pre-tested questionnaire.

2.2 Sampling and sample size

In order to select a representative sample, stratified sampling was considered for the 2018 APRA survey from which a subset sample for the COVID-19 surveys were considered. With a target of 100 respondents, key factors considered to determine the sample sizes for selected *kebeles* were: (i) ensuring representativeness of the sample, as per the importance of rice production by district in the Fogera Plain, where Fogera, Libokmekem and Dera Districts took a share of 65%, 27.7% and 7.3%, respectively from the total sample size; (ii) accessibility to mobile networks and all weather roads was considered in selecting *kebeles*; and (iii) consideration of the need to include female-headed households was also considered. Accordingly, the sample size per district and *kebele* was determined. Expecting unwillingness and/or the unavailability of selected respondents, 110 respondents were sampled. The overall responses were 107 in the first round (R1), 106 in the second round (R2), and 102 respondents in the third round (R3) (**Table 1**).

In addition to the farmers' survey, key informant interviews were conducted, targeting five informants from each *kebele*, making a total of 25 key informant interviews per survey. In each *kebele*, the selected informants were a *kebele* administrator or a member of the administration, a traditional/local leader, a model farmer in the village, and a head or expert at the *kebele* office of agriculture.

The socio-demographic characteristics of the sampled respondents shows that there is no statistically significant difference between female and male-head households in average age of household head, farming experience, and total land size owned (both rainfed and irrigated). The average age of the head of household was 46 years, with an average farming experience of 25 years and average land ownership of 1ha. There was, however, a statistically significant difference between female and male-headed households in education level of the household head in years of schooling, household size, and total livestock ownership in tropical livestock units (TLU). On average, the family size of female-headed household was four people, and was five people for male-headed households. In terms of livestock ownership, female-headed households owned 2.15 TLUs, whereas male-headed households owned 3.41 TLUs on average. Female household heads also had a lower level of education compared to male household heads (**Table A1**).

2.3 Data analysis

The generated data were analysed using qualitative methods mainly using trend analysis and frequency analysis. The information generated through the key

Table 1: Sample size by sampled districts for the COVID-19 rapid assessment household survey

Round	District	Gender of respondent		Total
		Male	Female	
R1 (July 2020)	Dera	15	3	18
	Fogera	56	14	70
	Libokemkem	13	6	19
	Total	**84**	**23**	**107**
R2 (October 2020)	Dera	16	4	20
	Fogera	52	14	66
	Libokemkem	14	6	20
	Total	**82**	**24**	**106**
R3 (February 2021)	Dera	16	3	19
	Fogera	51	15	66
	Libokemkem	13	4	17
	Total	**80**	**22**	**102**

Note: the *kebeles* covered for each district are Jigena in Dera District, Kidist Hana, Kuhar Abo and Kuhar Michael kebeles in Fogera District, and Bura *Kebele* in Libokemkem District

Source: Own calculations from APRA COVID-19 Rapid Assessment Surveys

informant interviews was synthesised using narrations and presentation of key informant quotes that are aligned with the survey results.

3. COVID-19 preventive and control measures and responses

The measures taken to prevent and control the spread of COVID-19 have evolved since the first confirmed case of COVID-19 in March 2020. Generally, one can categorise these measures into three phases: (i) the five-month SoE, from April to September 2020; (ii) the period of implementation of the directive issued for the prevention and control of the COVID-19 pandemic in October 2020; and (iii) the period from November 2020 when some relaxation of the restrictions began. Over the three phases, the restrictions applied country-wide under rural, peri-urban and urban contexts, with differences in the extent of the implementation and enforcement of these measures. The main characterstics of the three phases is summarised in **Table 2**.

Table 2: Restrictions and precautionary measures over the three survey periods

Restrictions/ prohibitions	State of Emergency: R1, July 2020	Directive No 30/2020: R2, October 2020	Directive No 30/2020 (with modifications): R3, February 2021
Meetings	Meetings of four or more persons for any religious, political, social or other purpose were prohibited	Meetings with up to 50 individuals were allowed if precautionary measures were taken	Meetings with up to 50 individuals were allowed if precautionary measures were taken
Transport	The number of passegers allowed was 50% of capacity	The number of passegers allowed was 50% of capacity	No restrictions were placed on capacity, but precautionary measures had to be taken
Entertainment places	Cinemas, theatres, bars and nightclubs remained closed	Cinemas, theatres, bars and nightclubs were allowed to operate if precautionary measures were taken	Cinemas, theatres, bars and nightclubs were allowed to operate if precautionary measures were taken
Hotels, cafes and restaurants	Hotels, cafes and restaurants remained open with a physical distance of 2m between consumers, and no more than three customers per table	The same as the SoE, with all precautionary measures	The same as the SoE, with all precautionary measures
Border entry	No one was allowed to enter or exit through Ethiopian borders except cargo/freight transport	People were allowed entry through Ethiopian borders but with a certificate of a negative RT-PCR test	People were allowed entry through Ethiopian borders but with a certificate of a negative RT-PCR test
Education	All educational institutions closed	All educational institutions remained closed	Educational institutions opened with precautionary measures during the first week of November 2020
Utilities and production and services	Work in basic public service institutions, including electricity, water, telecom, banks, medical institutions was allowed to continue. As was work related to freight/ cargo, production, agricultural activities or construction	The same as the SoE, with all precautionary measures	The same as the SoE, with all precautionary measures
Precautionary measures (physical distancing, wearing mask, use of sanitisers etc.)	In banks, markets, transport stations, shops, pharmacies and public service places, people were not allowed to sit or stand closed than 2m apart	All precautionary measures, set by WHO, had to be adhered to	All precautionary measures, set by WHO, had to be adhered to

Source: FNG (2020) and EPHI (2020)

While there were no restrictions in undertaking agricultural activities, the challenges that faced the sector due COVID-19 were related with restrictions that affected the provision of different agricultural services like extension services, and input and output marketing, etc.

4. Awareness about COVID-19 prevention and control measures

Given the different measures put in place to prevent and control COVID-19, the extent of rice farmers' awareness about these measures and the extent to which they abided by them were assessed. As indicated in **Figure 1**, all respondents reported that they were aware of COVID-19 during all the three survey periods, along with the prevention and control measures put in place. However, the proportion of respondents that followed the guidelines declined from 95% during the SoE (R1) to 49% during R3.

"Rice farmers get information about the virus and its prevention and control measures from their mobile phone (phone call rings are information about COVID-19), radio, other farmers and extension workers. However, they do not trust these sources and do not consider and abide with COVID-19 prevention and control measures communicated."

Mr Salehu Ayal,
kebele administration, Jigna Kebele,
Dera District, South Gondar

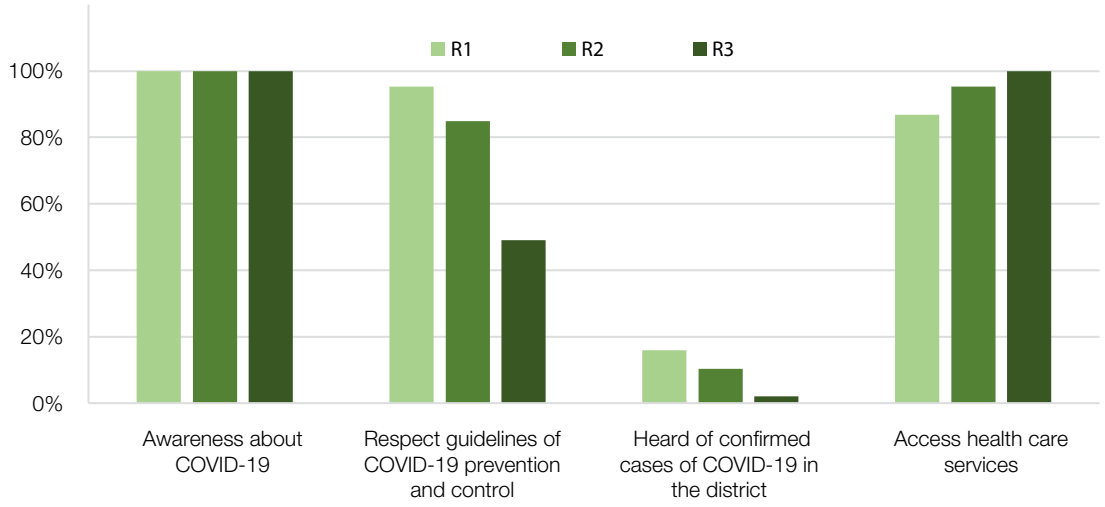
There was also an increase in respondents who reported being able to access health care services in R3 compared to R1 as restictions to mobility relaxed. The trend clearly indicates the gradual improvement in access to health care services, but the extent that COVID-19 prevention and control measures were respected declined consderably even though all respodents were aware about the pandemic and its health risks.

5. Responses to the threat of COVID-19

5.1 Responses to mobility restrictions

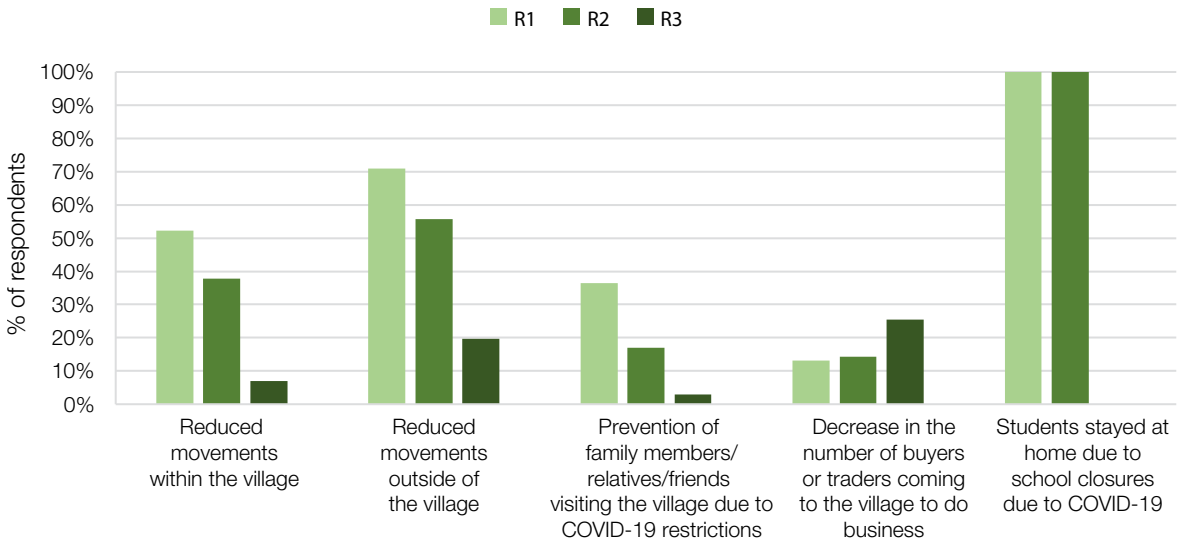
Overall, there is no statistically-significant difference in the responses of female and male-headed households to the perceived threats of COVID-19 during the three rounds of surveys. The proportion of respondents reporting reduced mobility due to COVID-19, both within and outside of the village, declined over the three rounds. Whereas 52% of respondents reported restricted movement within their villages and 71% encountered reduced mobility outside their villages in R1, these figures decreased to 38% and 56% respectively in R2 and to 7% and 20% respectively in R3. Similarly, the proportion of respondents that reported the prevention of family members, relatives and friends who lived outside of the village visiting due to COVID-19 restrictions declined trend over the three periods, from 36% in R1, to 17% in R2, and 3% in R3 (**Figure 2**). This clearly indicates the considerable decline in the challenges related with mobility to and from villages where smallholder rice farmers live. However, the proportion of respondents that reported a decline in the number of buyers or traders coming to their respective villages to do business remained

Figure 1: Perceived awareness about COVID-19



Source: Own calculations from APRA COVID-19 Rapid Assessment Surveys

Figure 2: Key responses to COVID-19 prevention and control measures



Source: Own calculations from APRA COVID-19 Rapid Assessment Surveys

more or less the same, at 13% in R1 and 14% in R2, but then increased to 26% in R3. This reveals the initial challenge associated with reduced business travel to rural areas affecting marketing of agricultural produce.

The response to students' mobility to schools was aligned with the initial closure of schools and later opening up with precautionary measures (including shift learning where students were able to attend either in the morning or afternoon to reduce class sizes, mandatory face masks, sanitisation and social distancing). Accordingly, in R3 survey schools were open, which avoiding challenges related with the change in the roles of household members (see Section 5.2).

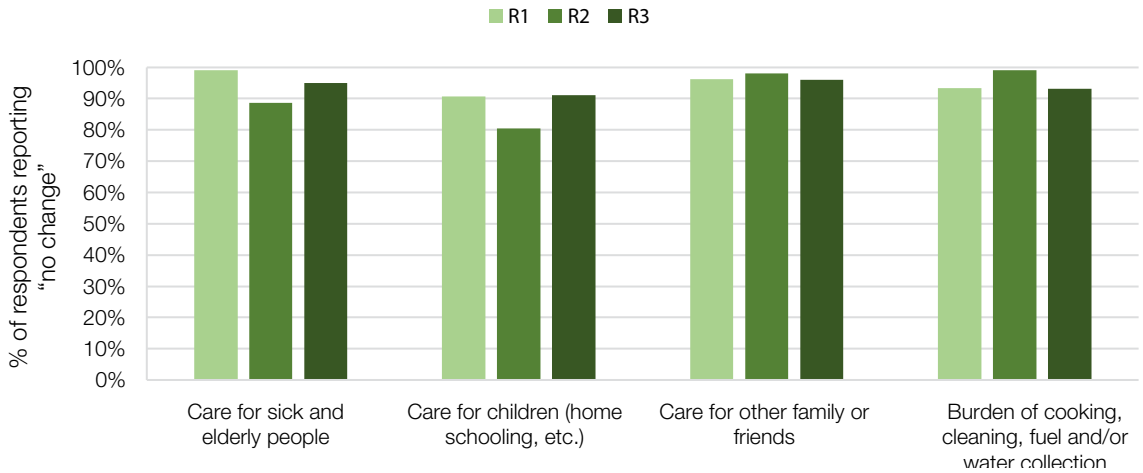
5.2 Changes in daily caring responsibilities

As presented in **Figure 3**, the majority of the respondents reported that there was no change in the daily caring responsibilities for household chores related with caring for the sick and elders, children, and other family members. There was also little change for activities related with cooking, cleaning and fuel and water fetching over the three rounds. This can be associated with the limited impact of the COVID-19 pandemic on farm activities.

5.3 Provision of assistance

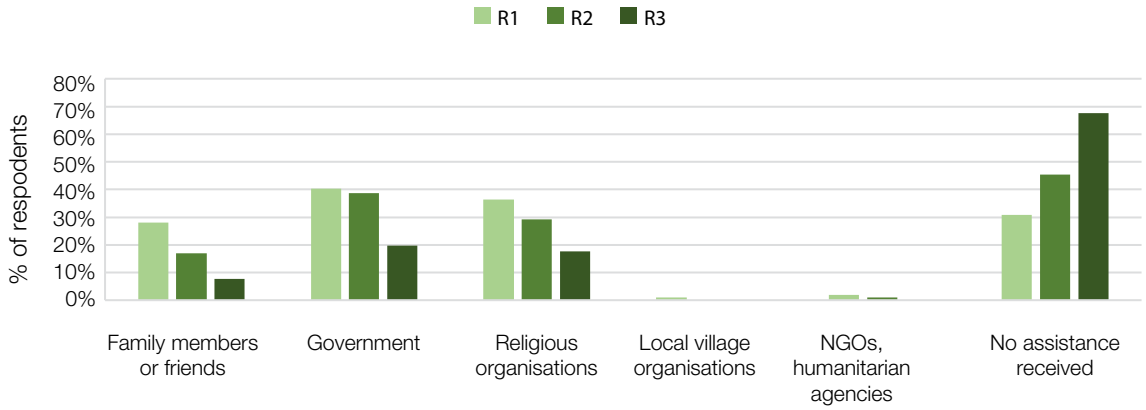
Following the outbreak of the COVID-19 pandemic, different actors were engaged in providing assistance to smallholder rice farmers. Overall, relatives, the government and religious organisations have been engaged in providing assistance. The trend over the three rounds indicate a considerable decline in the proportion of households receiving assistance. The proportion of respondents who reported no assistance increased from 31% in R1, to 45% in R2, and 68% in R3

Figure 3: Changes in daily caring responsibilities due to COVID-19



Source: Own calculations from APRA COVID-19 Rapid Assessment Surveys

Figure 4: Extent of access to assistance by source



Source: Own calculations from APRA COVID-19 Rapid Assessment Surveys

(**Figure 4**). This is linked with the different measures put in place in the initial period of the pandemic compared to the situation in February 2021 (R3) where many restrictions had been eased.

"There was a campaign to create awareness about COVID-19 and the protective measures. People know about COVID-19 and about the required precautionary measures. Surprisingly, after August 2020, no one talks about COVID-19 in the kebele and no one abides with the measures put in place. Most people associate this pandemic with the political interest of the government."

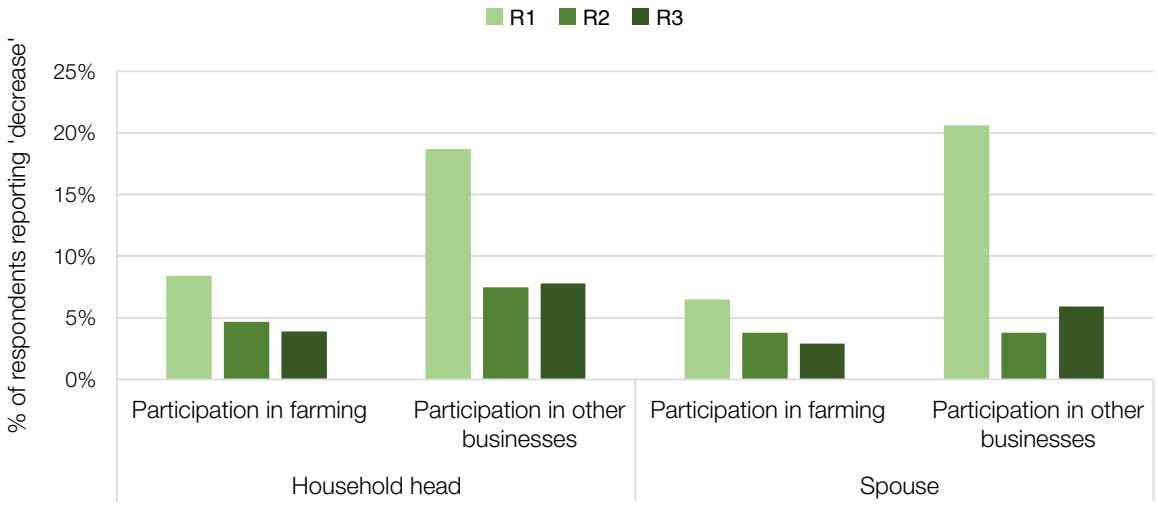
Mr Gashaw Getnet, model farmer, Kidist Hana Kebele, Fogera District, South Gondar

6. Effect of COVID-19 on farming, labour and marketing

6.1 Changes in the participation in farming and other business activities

Overall, the effect of COVID-19 on participation in farming activities was limited as the decrease in the participation of farming activities was only reported by about 10% of the respondents during R1, about 5% in R2 and 4% in R3. This is likely because farmers were advised to continue to farming operations with precautionary measures. More or less the same trend was reported for spouses, except for participation in other businesses during R3, where a decrease in participation was reported by more respondents compared with the proportion during R2 (**Figure 5**), which could be due to a decline in business opportunities that women commonly were involved in. The increase in the proportion of respondents that reported a decrease in the participation in other

Figure 5: The direct or indirect effect of COVID-19 on the participation of farm activities



Source: Own calculations from APRA COVID-19 Rapid Assessment Surveys

businesses during the last two periods of the survey is associated with the overall decline in the business environment as a result of national economic challenges caused by COVID-19.

6.2 Changes in the availability and price of farm inputs

Farm inputs considered were rental land and other inputs related with seed, fertilisers and agro-chemicals. The responses of the respondent in terms of changes in availability and price indicate that there was a decreasing trend in the availability of both rental farm land and other farm inputs over the three rounds. The proportion of respondents that reported a decrease in the availability of rental farm land increased from 31% in R1 to 57% in R3, whereas the proportion of respondents that reported a decrease in the availability of farm inputs increased from 22% in R1 to 73% in R3. This clearly indicates that the availability of inputs during the 2019/20 production season (during COVID19) was not much affected compared to the 2020/21 production season (the following year when restrictions were lifted).

"Unlike the situation in the first and second round surveys, agricultural marketing during the third round was rather affected by the ethnic conflict, desert locust and flooding that has happened in Fogera. In addition, farmers could not adequately access farm inputs due to the prevailing inflation and increased input prices."

Mr Eshte Tena, traditional leader, Kidist Hana Kebele, Fogera District, South Gondar

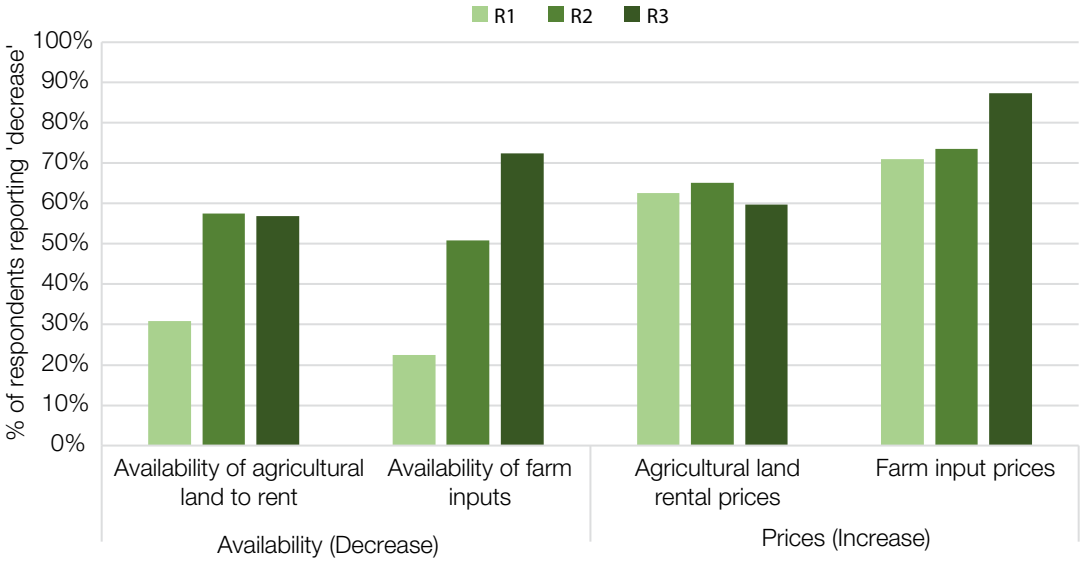
With reduced availability in inputs, the proportion of respondents that reported an increase in the price of farm inputs increased over the three rounds, but the proportion of respondents reporting an increase in the price of rental farm land slightly declined. The proportion of respondents that reported an increase in the price of farm inputs increased from 71% in R1 to 87% in R3 (**Figure 6**).

6.3 Changes in access to off-farm opportunity and hired labour

In general, access to off-farm opportunities both within and outside of the village was reported to be low. Access to off-farm activities within the village was reduced by COVID-19, from 17% having access in R1, to 7% in R2, and 15% in R3. However, access to off-farm activities outside of the village increased, with the proportion of respondents reporting access increasing from 3% during R1 to 5% in R2 and 6% in R3 (**Figure 7**). This clearly indicated that opportunities for off-farm activities have been affected in the rural villages (though there was an increase in R3 compared to R2), and increased outside villages over the three survey periods.

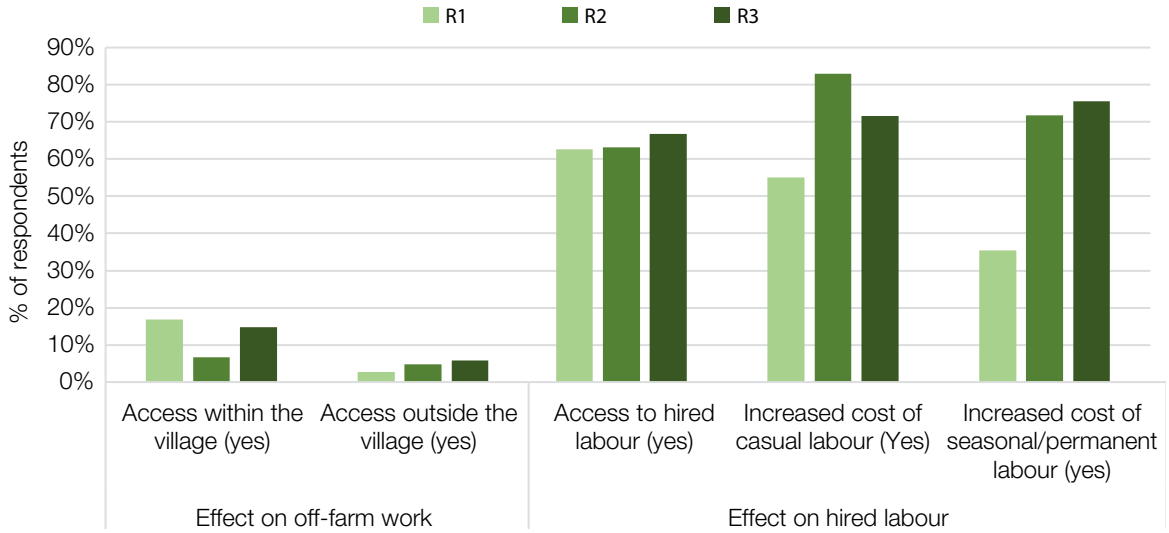
The responses in relation to access to hired labour indicated an increasing trend, along with an increasing trend in the cost of both casual, seasonal and permanent labour. The proportion of respondents that reported having access to hired labour in R1 and R2 was 63%, which increased to 67% in R3 (**Figure 7**). The Fogera Plain has become an area that absorbs casual, seasonal and permanent labour for the production of not only rice but also for emerging vegetable production

Figure 6: Effect of COVID-19 on the availability and price of farm inputs



Source: Own calculations from APRA COVID-19 Rapid Assessment Surveys

Figure 7 Effect of COVID-19 on access to off-farm activities and hired labour



Source: Own calculations from APRA COVID-19 Rapid Assessment Surveys

during the off-season. The increase in access to hired labour in the R3 is highly associated with the harvest and post-harvest labour demand for rice, and for the planting of vegetables.

"The effect of COVID-19 on agriculture is minimal. It had some effect on labour cost. However, the floods of Rib and Gumara rivers damaged a lot of rice fields that decreased dramatically competition for labour. Some of the farmers whose rice farm lands were damaged by the flood started working as a casual labourer."

Mrs Embet Minale,extension worker
Kuhar Micheal Kebele, Fogera District, South Gondar

6.4 Change in the ability to market agricultural produce

Respondents were asked about the change in their ability to market their produce at farm gate, local markets, which are often village level markets, and district and regional markets in the three rounds. The results indicate that the ability to sell in the three market options increased, given the reduced proportion of respondents reporting a decline in their ability to sell. The situation was worse during R1 where reduced ability to sell was reported by 10% at farm gate, 33% at local markets, and 32% at district and regional markets. This trend improved by R3, where the proportion of respondents reporting the decline was 6% at local markets, 8% at district and regional markets, and 11% at the farm gate (**Figure 8**). However, the results also indicated that respondents do not have the ability to sell at national markets not only due to COVID-19 but also due to the poor performance of marketing system in the area, which needs due attention.

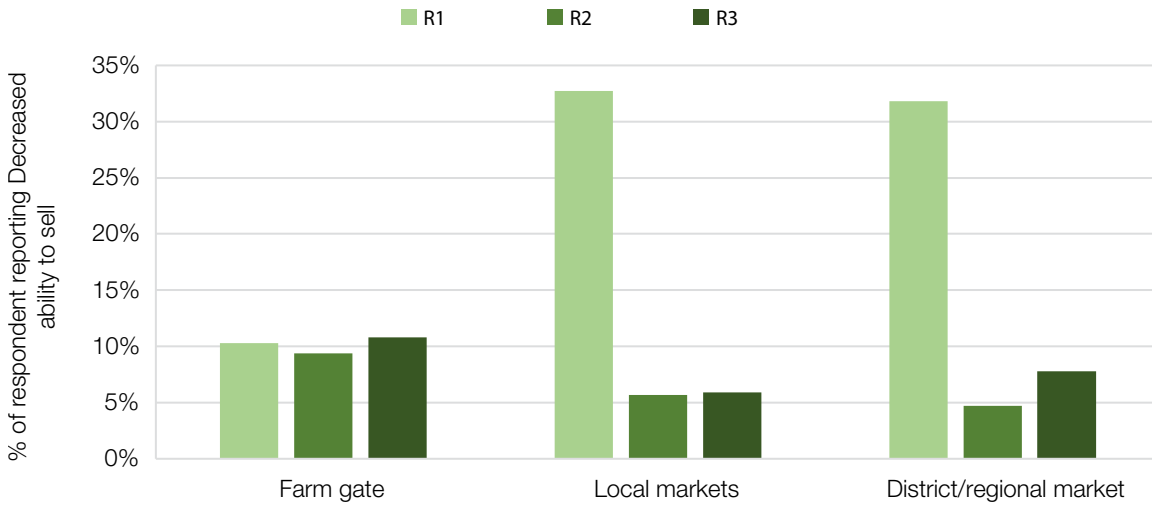
6.5 Change in ability to buy

The key informant interviews indicated that due to the COVID-19 pandemic, the markets for different items that smallholder rice farmers often buy were distorted. These items are: (i) consumable items like salt, edible oil, pepper, garlic and lemon, and processed products (both imported, or domestic that depend on imported raw materials); (ii) agricultural inputs like improved seed, fertiliser and agro-chemicals; and (iii) industrial products, mainly fuel for motor pumps that are used for irrigation. The inability to buy items for consumption and agricultural inputs is highly associated with the considerable increase in the unit price of these items. However, the inability to buy fuel was also caused by limited availability. This has affected timely application of irrigation, and increased the cost of production under irrigation.

6.6 Access to services

The effect of COVID-19 in relation to access to services considered public agricultural extension, rural finance and transport services. In Ethiopia, public agricultural extension is one of the major services in rice farming. The proportion of respondents reporting problems with the availability of extension services declined from about 34% in R1, to 22% in R2 and 29% in R3.

Figure 8: Effect of COVID-19 on the ability to sell agricultural produce by market options



Source: Own calculations from APRA COVID-19 Rapid Assessment Surveys

The decline in R2 was associated with the end of the SoE and the associated relaxation of the restrictions on the movement of extension workers in rural areas, including in Fogera, while the increase in the R3 is linked with the limited availability of extension services during the off-season when the R3 survey was done.

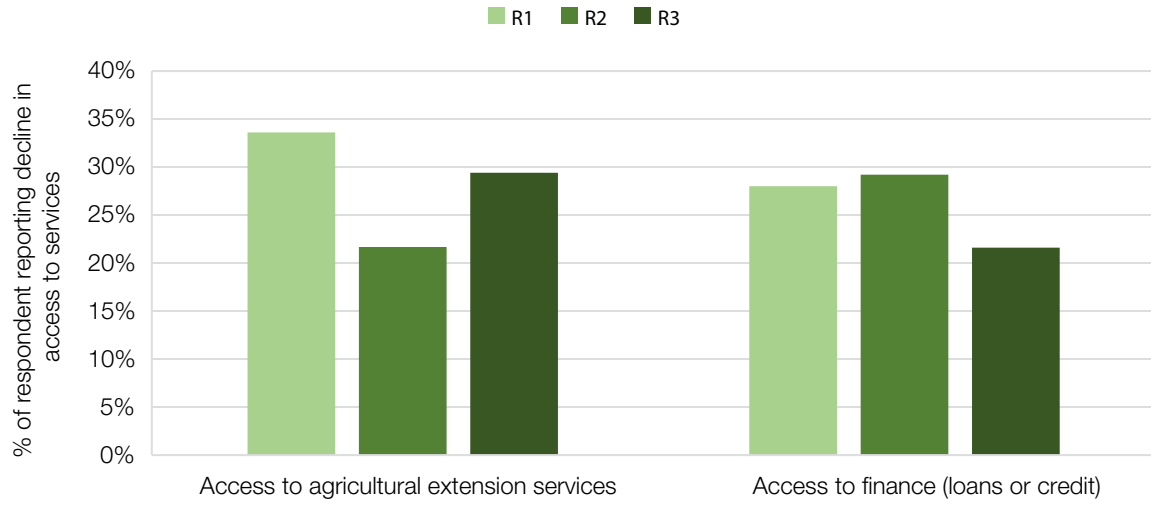
With regards to access to finance, the two major sources of rural finance in Ethiopia are financial cooperatives and microfinance institutions (Abate et al., 2015), which also applies to the Fogera Plain. Given the challenges these institutions have faced, the proportion of respondents that reported a decline in access to finance was 28% in R1, but this had declined to 22% in R3 (**Figure 9**) due to the normalisation of operation of rural finance institutions.

Access to transport services for both people and goods was initially affected due to the mobility restriction, with all respondents reporting reduced access, however, following the lifting of the mobility restrictions, accessing services was no longer a problem but the main challenges became the very high increases in transport costs for both people and goods (agricultural produce). This was exacerbated by the limited availability of fuel which reduced the frequency of services.

7. Effect on food and nutrition security

Existing literature clearly indicates that COVID-19 has affected food and nutrition security both directly, by disrupting food systems, and indirectly, through

Figure 9: Changes in access to services due to COVID-19



Source: Own calculations from APRA COVID-19 Rapid Assessment Surveys

the impact of lockdowns on household incomes and physical access to food (Devereux, Béné and Hoddinott, 2020; WHO, 2020). This paper therefore assessed the effect of COVID-19 on food and nutrition security by considering the perceived changes in the availability and price of food items and the perceived level of a households food security.

7.1 Changes in the availability and price of food items

The response in relation to the availability of various food items during the three surveys shows no statistically significant differences between male and female-headed households. Overall, a considerable proportion of respondents reported a decline in the availability of different food items. In addition, the trend in the proportion of respondents over the three periods revealed a considerable difference across the different categories of food items. An increase in the proportion of respondents reporting reduced availability was observed for root crops, milk and milk products, meat and poultry, and dark green vegetables, which indicates that availability continued to be directly or indirectly affected by the COVID-19 pandemic. For cereals, pulses and processed food items, there was an initial increase in the proportion of households reporting a decline in availability in R2, compared to R1, followed by a significant decline in R3. This indicates that the availability of these foods was affected by COVID-19 more during R2 compared to R1 and R2 (**Figure 10**).

For all types of food items, the proportion of respondents reporting no change in R1 compared to the situation before the COVID-19 pandemic was over 80% of respondents, which declined to less than 30% in R2.

For most of the food items, more than 50% of respondents reported an increase in food prices over the three periods of data collection. As indicated in **Figure 11**, a considerable proportion of respondents reported an increase in the price in R3 for milk and milk products, and pulses, which indicates the price of sources of protein increased more than the other type of food items like cereals.

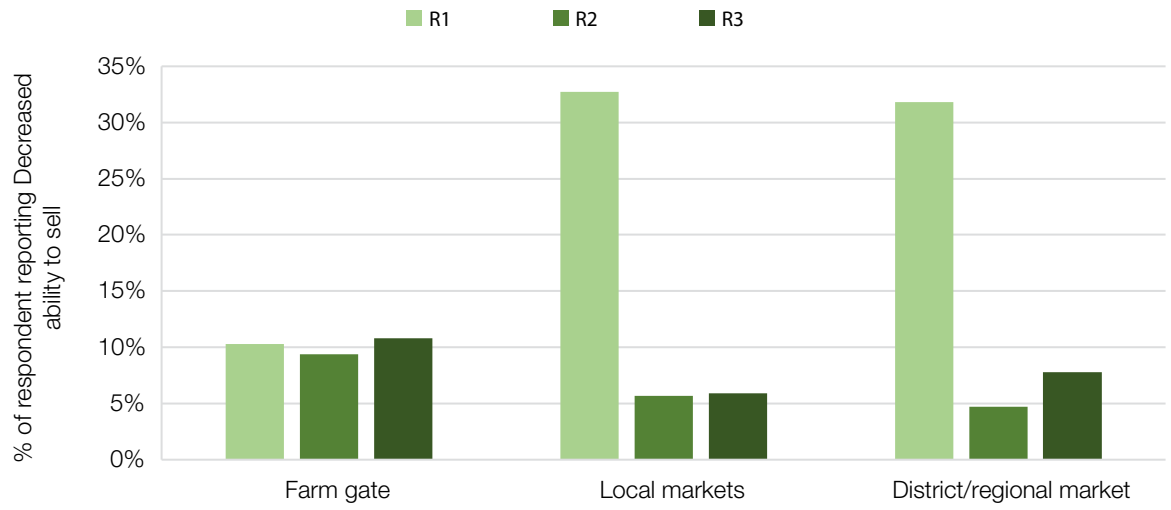
7.2 Perceived level of household food insecurity

Overall, the proportion of respondents reporting food insecurity for most indicators declined over the three survey periods, except an indicator related to the inability to eat healthy and nutritious food. This is in line with the responses to the availability of nutritious food items presented in **Figure 10**.

The proportion of respondents reporting that they were worried about not having enough food to eat decreased from 64% in R1, to 40% in R2, and 30% in R3. Similarly, the proportion of respondents reporting a shortage of food to meet their family's needs declined from 41% in R1, to 19% in R2 and to 16% in R3 (**Figure 12**).

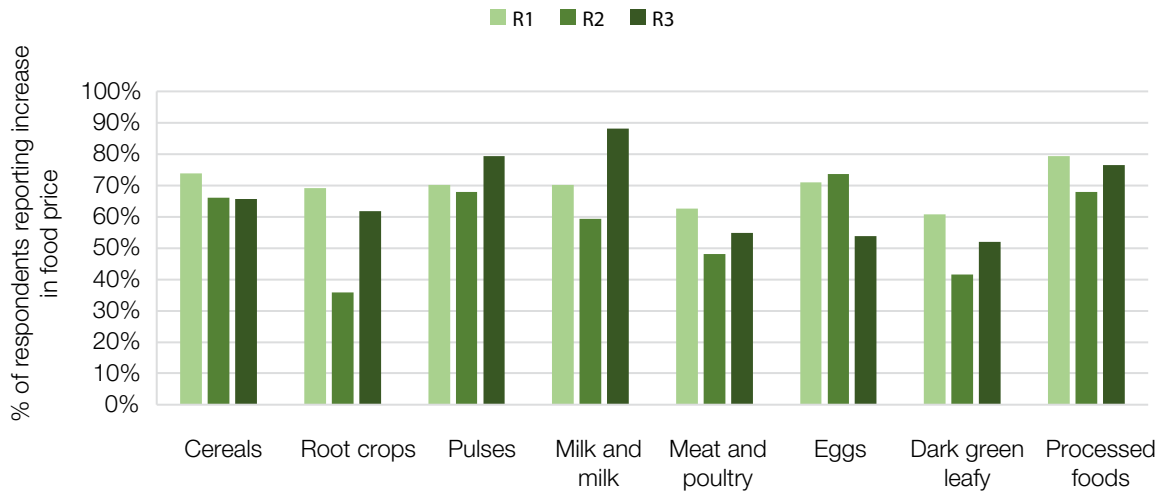
The results in the improvement in perceived nutritional security is associated with the emergency assistance provided by the government and NGOs in response to the flood disaster that affected the Fogera Plain (three of the five target *kebeles* were seriously affected) during the R2 survey, and the gradual adaptation and improvement in responding to the challenges of COVID-19.

Figure 10: Effect of COVID-19 on the availability of food items at household level



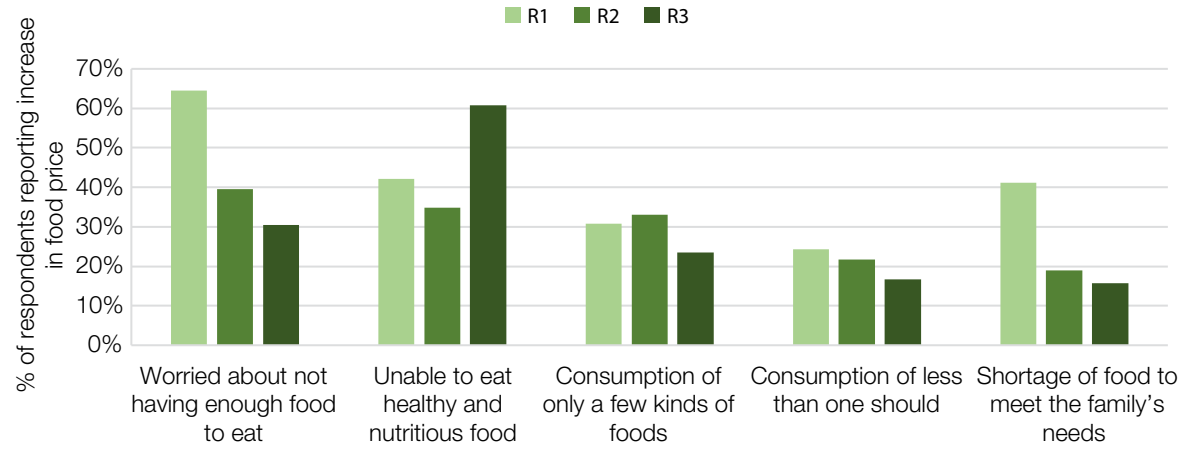
Source: Own calculations from APRA COVID-19 Rapid Assessment Surveys

Figure 11: Effect of COVID-19 on prices of food items and processed foods



Source: Own calculations from APRA COVID-19 Rapid Assessment Surveys

Figure 12: Effect of COVID-19 on household food security indicators



Source: Own calculations from APRA COVID-19 Rapid Assessment Surveys

8. Effect COVID-19 on perceived/self-assessed poverty

The perceived/self-assessed household level of poverty was assessed by asking respondents to rate their capacity to change their lives using a nine-step ladder, where the first step indicates those who are totally unable to change their lives, while step nine indicates those who have full control and ability to change their lives. Overall, male-headed households are on average better off compared to female-headed households.

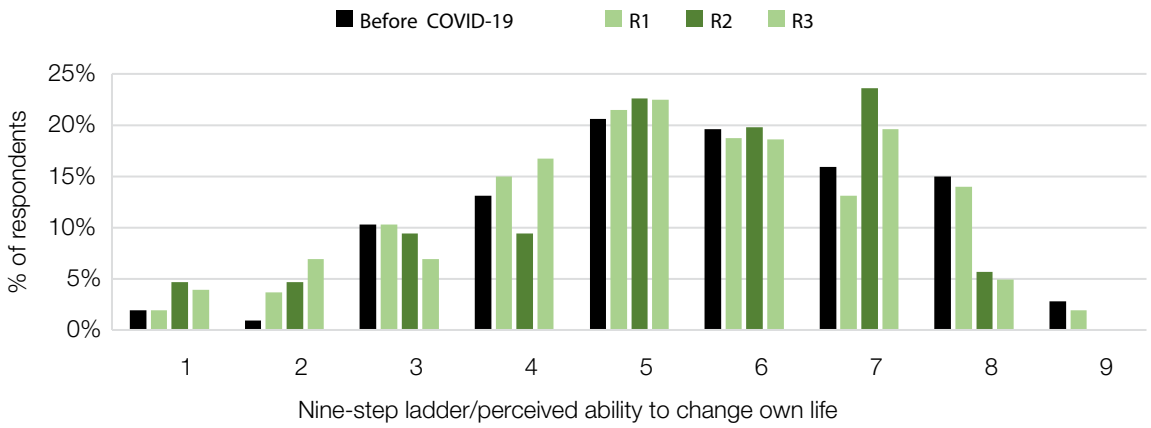
The distribution of respondents by the perceived level of poverty indicates that there was a general increase in the proportion of respondents who rated themselves five and below, and a general decline in those who rated themselves six and above over the three rounds of surveys, compared to their rating before the COVID-19

Table 3: Perceived/self-assessed level of poverty

Round	Male	Female	Total	F-value
Before COVID-19	5.92	4.61	5.64	10.6***
R1	5.74	4.17	5.40	14.9***
R2	5.49	4.33	5.23	8.1***
R3	5.51	3.41	5.06	31.9***

Source: Own calculations from APRA COVID-19 Rapid Assessment Surveys

Figure 13: Distribution of respondents by perceived/self-assessed level of poverty



Source: Own calculations from APRA COVID-19 Rapid Assessment Surveys

pandemic (**Figure 13**).

9. Conclusions

This paper presents the key COVID-19 prevention and control measures, the extent of awareness about the pandemic and measures put in place among smallholder rice farmers, the responses to these measures, and the effect of COVID-19 on food systems and rural livelihoods, with a particular focus on the impact of COVID-19 on farming and marketing, food and nutritional security and overall perceived farm household poverty.

In general, all respondents were aware of the COVID-19 pandemic along with the different public measures put in place for its prevention and control. However, the proportion of respondents that followed the guidelines declined from 95% during the SoE (R1 survey) to 49% during R3. This trend of declining adherence to the guidelines is a national challenge, but limited access to important facilities (such as hand-washing facilities) particularly in rural areas, has made adherence to the guidelines difficult for some people (Baye, 2020). Thus, in addition to designing a proper mechanism and approach that incentivises farmers to abide by the diverse measures of prevention and control, it is important to ensure that there is investment in the required facilities and infrastructure.

To gauge the responses to the threats of COVID-19 and to the measures put in place, responses to mobility restrictions, changes in daily caring responsibilities, and the extent of provision of assistance to affected smallholder farmers was assessed. The proportion of respondents reporting reduced mobility due to COVID-19 both within and outside of the village declined over the three rounds of surveys, which indicates an improvement in the movement of rice farmers within and outside of the village compared to the situation in June 2020 (R1). It was expected that COVID-19 would affect daily caring responsibilities, mainly in relation to the closure of schools and mobility restrictions, however, the majority of the smallholder farmers reported that there had been no change. In terms of assistance provision to smallholder farmers, the main sources of assistance were family members and friends, the government, and religious organisations. In general, the proportion of farmers who received assistance considerably declined over the three rounds.

The impact of COVID-19 on farming and marketing was assessed by considering the extent of participation in farming activities, availability and price of farm inputs, access to off-farm activities, ability to market the agricultural produce, and access to services related to farming and marketing:

- The extent of participation in farming was not affected by COVID-19. However, the availability of land for rent and agricultural inputs declined, and prices for both increased over the three rounds. This is expected to affect future production and productivity, and the need to ensure timely availability of required inputs, mainly quality seed of improved varieties, fertiliser and agro-chemicals.
- Overall, access to off-farm opportunities both within and outside of the village was low and COVID-19 has further reduced access. However, access to off-farm opportunities outside of the village increased. It is important to address limited access to off-farm opportunities by enhancing the diversification of production to high value crops observed in the Fogera Plain and associated value

addition and service business opportunities.

- Use of hired labour is a very common practice in the study area, given the nature of rice production, which is labour intensive. While access to hired labour has shown an improvement in R2 and R3 compared to R1, the cost of both casual and permanent labour increased, affecting the cost of production directly. The operation of the rural labour market in the Fogera Plain is still traditional, and conducted by word of mouth, which demands tailored modernisation, such as services being adopted in Addis Ababa where labourers are registered so people in need of labour can recruit more easily.
- With regards to the ability of rice farmers to sell their agricultural produce, there has been an improvement over the three rounds across three market options (farm gate, local market and district markets). However, respondents' inability to sell at national markets indicates a key challenge of limited connectivity to the different markets. Thus, developing the capacity of smallholder rice farmers to be able to sell at national markets is very important.
- The COVID-19 pandemic has contributed to the reduced access to services for the farming community, mainly related with agricultural extension, rural finance and transport. Though, the trend over the three rounds indicates improvement, overall access is still low, which demands that access to these services be improved more generally.

The effect of COVID-19 on food and nutritional security was assessed by looking at changes in the availability and price of important food items, and perceived food security:

- An increase in the proportion of respondents reporting reduced availability was observed for root crops, milk and milk products, meat and poultry, and dark green vegetables, which indicates that the availability continued to be directly or indirectly affected by the COVID-19 pandemic.
- For most food items, more than 50% of respondents reported an increase in food prices, but this was more so for milk and milk products and pulses, which indicates the price of sources of protein increased more than other types of food items like cereals.
- Given the potential of the Fogera Plain to diversify production into nutritious foods, the extension system needs to promote local production of nutritious commodities.
- The impact of COVID-19 on household food insecurity in terms of having enough food to eat, reduced diversity of food items consumed, and overall shortage of food to meet family needs did improve in R2 and R3 compared to R1.
- The self-assessed household level of poverty indicated that male-headed households are on average better off compared to female-headed households. This is associated with the overall differences in resource endowment, which clearly shows the need to enhance the empowerment of female-headed households.

References

Abate, G., Rashid, S., Borzaga, C. and Getnet, K. (2015) *Rural Finance and Agricultural Technology Adoption in Ethiopia: Does Institutional Design Matter?* IFPRI Discussion Paper 01422. Washington DC: International Food Policy Research Institute (IFPRI).

Baye, B. (2020) *COVID-19 prevention measures in Ethiopia: Current realities and prospects*. ESSP Working Paper 142. Addis Ababa: International Food Policy Research Institute (IFPRI) Ethiopia Strategy Support Program.

Devereux, S., Béné, C. and Hoddinott, J. (2020) 'Conceptualising COVID-19's impacts on household food security', *Food Security* 12: 769-772. https://doi.org/10.1007/s12571-020-01085-0

EPHI (Ethiopian Public Health Institute) (2020) *A directive issued for the prevention and control of COVID-19 pandemic*. Directive No 30/2020. Ethiopian Public Health Institute. Addis Ababa: EPHI.

FNG (Federal Negarit Gazette). (2020) *A regulation issued to implement the state of emergency proclamation enacted to counter and control the spread of covid-19 and mitigate its impacts. Proclamation No. 3 /2020*. Addis Ababa: Federal Negarit Gazette (FNG) of the Federal Democratic Republic of Ethiopia.

WHO (World Health Organization). (2020) 'Impact of COVID-19 on people's livelihoods, their health and our food systems. Joint statement by ILO, FAO, IFAD and WHO', *WHO* [online], 13 October. Available at: https://www.who.int/news/item/13-10-2020-impact-of-covid-19-on-people's-livelihoods-their-health-and-our-food-systems (Accessed: 31 May 2021).

Appendix

Table A1 Socio-demographic characteristics of respondents

Variable	Indicator	Gender			F-value
		Female	Male	Total	
Age of the household head	Mean	46.48	45.31	45.56	0.15
	Std. deviation	10.35	13.59	12.92	
	N	23	84	107	
Education level of the household head in years of schooling	Mean	0.43	1.13	0.98	3.27
	Std. deviation	1.04	1.76	1.65	
	N	23	84	107	
Farming experience of the household head in years	Mean	27.09	23.83	24.53	1.34
	Std. deviation	9.89	12.41	11.95	
	N	23	84	107	
Household size	Mean	3.78	5.25	4.93	7.43
	Std. deviation	2.17	2.32	2.36	
	N	23	84	107	
Total land size owned in hectares (both rainfed and irrigated)	Mean	0.88	1.03	1.00	1.35
	Std. deviation	0.39	0.57	0.54	
	N	23	84	107	
Total livestock ownership in TLU	Mean	2.15	3.75	3.41	7.62
	Std. deviation	1.60	2.64	2.54	
	N	23	84	107	

Source: Own calculations from APRA COVID-19 Rapid Assessment Surveys

Alemu, D. and Assaye, A. (2021) *A Multi-Phase Assessment of the Effects of COVID-19 on Food Systems and Rural Livelihoods in Ethiopia: The Case of Fogera Plain,* APRA COVID-19 Country Report, Brighton: Future Agricultures Consortium

ISBN: 978-1-78118-875-0

DOI: 10.19088/APRA.2021.036

Agricultural Policy Research in Africa (APRA) is a programme of the Future Agricultures Consortium (FAC) which is generating new evidence and policy-relevant insights on more inclusive pathways to agricultural commercialisation in Sub-Saharan Africa. APRA is funded with UK aid from the UK Foreign, Commonwealth & Development Office (FCDO) and will run from 2016-2022.

The APRA Directorate is based at the Institute of Development Studies (IDS), UK (www.ids.ac.uk), with regional hubs at the Centre for African Bio-Entrepreneurship (CABE), Kenya, the Institute for Poverty, Land and Agrarian Studies (PLAAS), South Africa, and the University of Ghana, Legon. It builds on more than a decade of research and policy engagement work by the Future Agricultures Consortium (www.future-agricultures.org) and involves more than 100 researchers and communications professionals in Africa, UK, Sweden and USA

Funded by the UK Foreign, Commonwealth & Development Office

Foreign, Commonwealth & Development Office

UKaid from the British people

This report is funded with UK aid from the UK government (Foreign, Commonwealth & Development Office – FCDO, formerly DFID). The opinions are the authors and do not necessarily reflect the views or policies of IDS or the UK government