Food and Agriculture Organization of the United Nations

YEMEN

Agricultural livelihoods and food security in the context of COVID-19

Monitoring Report
January 2021

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Contents

Figures

Tables

Abbreviations

COVID-19	Coronavirus disease 2019
FAO	Food and Agriculture Organization of the United Nations
FIES	Food Insecurity Experience Scale
FPMA	Food Price Monitoring Analysis
GIEWS	Global Information and Early Warning System on Food and Agriculture
IPC	Integrated Food Security Phase Classification
KII	Key informant interview
LCSI	Livelihood-based Coping Strategy Index
NDVI	Normalized Difference Vegetation Index
NENA	Near East and North Africa
OCHA	Office for the Coordination of Humanitarian Affairs
SDG	Sustainable Development Goal
USAID	United States Agency for International Development
WFP	World Food Programme
WHO	World Health Organization
YER	Yemeni Rial

Key highlights

- The enacted COVID-19 restriction measures that aimed at curbing the spread of the virus have affected the country's agricultural value chains, from producers to consumers. For the agricultural community, the implications have been particularly relevant in terms of accessing agricultural inputs, pastureland, water and transportation of products to the market. In ensuring the resilience and sustainability of these livelihoods, livestock producers and fisherfolk included in the sample found these measures more challenging than did the crop producers surveyed.

- Food insecurity as measured through the Food Insecurity Experience Scale (FIES) module concluded that about 53.6 percent of the surveyed households find themselves in a state of moderate food insecurity or worse. In turn, 19 percent of households surveyed attributed their food insecurity experiences mainly to COVID-19 and its impacts on their livelihoods.

- Based on a combination of livelihood and food security indicators, the top four hardest hit household categories were:
  - households whose primary source of income comes from agricultural wage labour;
  - households relying on non-agricultural wage labour;
  - households deriving their main income from humanitarian and other forms of assistance; and
  - households producing and selling livestock products.

- Over one-third of the surveyed households reported more than a 50 percent decrease in their main source of income over the past three months, while 85 percent reported having incurred in debt that they had not been able to repay at the time of the survey. Still, it is worth noting that the household survey was administered during the planting and growing season of major crops, which normally involves higher than usual investment costs for households.

- The majority of households have been resorting to negative coping strategies in times of crisis in order to meet their immediate food needs. The most commonly adopted coping strategies reported include:
  - borrowing money or buying food on credit;
  - reducing essential non-food expenditure; and
  - reducing expenses on agricultural, livestock or fisheries inputs.

Despite a favourable weather forecast for crop production, 43 percent of the surveyed households expect that their production will be lower than the previous year. In addition, a large majority (66 percent) of the surveyed households experienced unusual difficulties in crop production, namely pest infestations and high prices of agricultural inputs, but only 8 percent of the surveyed households reported difficulties in accessing land due to COVID-19 restrictions.

- Over 40 percent of the surveyed households reported a decline in the number of livestock owned compared to last year. The major difficulties cited by livestock producers were animal disease and lack of feed and veterinary services.
- One in two of fisherfolk households reported a decrease in fish production of over 50 percent during last three months, citing constraints to fish production activities due to a lack of fishing materials, reduced market demand and high fuel prices.
- Disrupted livelihoods and stifled income opportunities are increasingly diminishing people's purchasing power. Traders experienced a reduction in the number of customers and an increased number of requests from the customers for carrying out purchases on credit.
- Both the high transportation cost of food commodities due to fuel shortages and the limited movement capacities due to COVID-19 restrictions impacted food availability in the surveyed markets.
- Cash, seeds, fertilizer, destocking and agricultural equipment were cited as priority needs for households.

Key recommendation

- The reinforcement and scaling up of the ongoing livelihood restoration and food security programmes is strongly recommended. As such, the strengthening of agricultural extension services and the establishment of a regular food security and livelihood monitoring system are important areas to consider in stabilizing the current situation.

Methodology

With financial support from the United States Agency for International Development (USAID), FAO Yemen – as a part of FAO's global initiative – is implementing an agricultural livelihoods and food security monitoring system, involving data collection and analysis in the context of COVID-19 and other shocks. The immediate objective of this assessment in Yemen is monitoring the risks that may affect the food security and livelihoods of vulnerable communities and food systems stemming from the impacts of COVID-19 pandemic and providing early warning information to support evidence-based, decision-making processes.

Within the monitoring system, data is collected every three months, mainly through computer-assisted telephone interviews. At the core of the data facility is a household survey at the Admin 1 level (with a 95 percent confidence level and a 10 percent of margin of error). This information is triangulated with information from key informants such as extension officers, food traders and agricultural inputs vendors, collected using closed-ended questions.

Three data collection tools were used with close ended questionnaires:

- household food security and livelihood survey;
- food traders survey; and
- key informant interviews (KII) of agricultural extension officers.

Methodology in brief

With financial support from USAID, FAO, as a part of FAO's global initiative, implemented this agricultural livelihoods and food security monitoring and assessment to study the impacts of COVID-19 and other shocks on the country's agricultural communities in Yemen.

From August to September 2020, a purposely designed sample of 1 775 households were surveyed across the 16 governorates of Yemen using a structured questionnaire. Of these 1 775 households, 12 did not respond to the survey. Thus, the information provided in this report is based on the 1 763 who did respond. The surveyed households were sampled from a list of current and past beneficiaries of interventions coordinated by FAO Yemen. These are households who engage in agricultural activities as their primary or secondary means of income and who live in some of the most problematic areas.

In July 2020, 48 agricultural extension officers and 90 food traders were interviewed in-depth across 18 governorates.

In terms of limitations, the household survey is not designed to be representative of the entire household population in Yemen nor can be considered a statistically representative sample of the agricultural production sector in Yemen, and therefore the results cannot be projected to the entire country. An effort has been made to use appropriate weights to reduce the potential bias when reporting results at national and governorate level.

In four governorates (Aden, Al Mahwit, Hadramaut and Hajjah), the household survey findings are not statistically reliable due to small sample sizes. The findings for these four governorates are presented in the report as indicative information only.

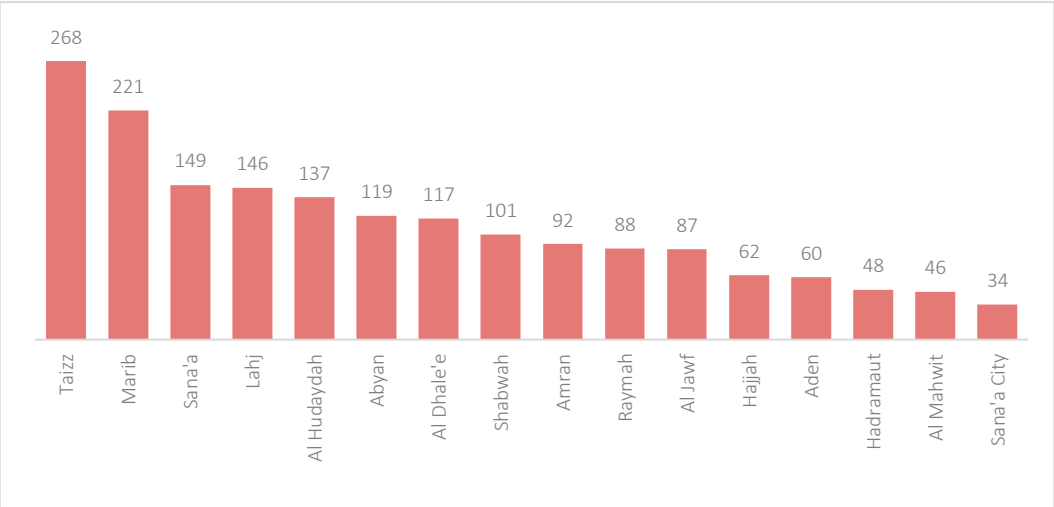
In drawing conclusions, the information derived from household interviews is triangulated with information from the interviews of the agricultural extension officers and food traders. In addition, desk reviews of assessments and reports on the impact of the pandemic and other shocks on food security and livelihoods published by reputable agencies has been carried out in order to validate and integrate the findings from the household survey, as relevant.

Within this monitoring system, FAO Yemen has initially planned to collect data in two rounds, three months apart, mainly using computer-assisted telephone interviews.

At the core of the data collection facility is the household survey, which is designed to be representative of the population of vulnerable households at the governorate level (Admin 1), as shown in Figure 1 below.

In addition, the Monitoring and Evaluation Unit of FAO Yemen maintains a verified list of beneficiaries for all the projects (active and closed), including their mobile numbers, which served as a sampling frame of vulnerable households. To this end, FAO and its service providers make use of this information to better target the most vulnerable households in key communities for their interventions.

Figure 1. Household sample size by governorate, unweighted
(total sample of households = 1 775)



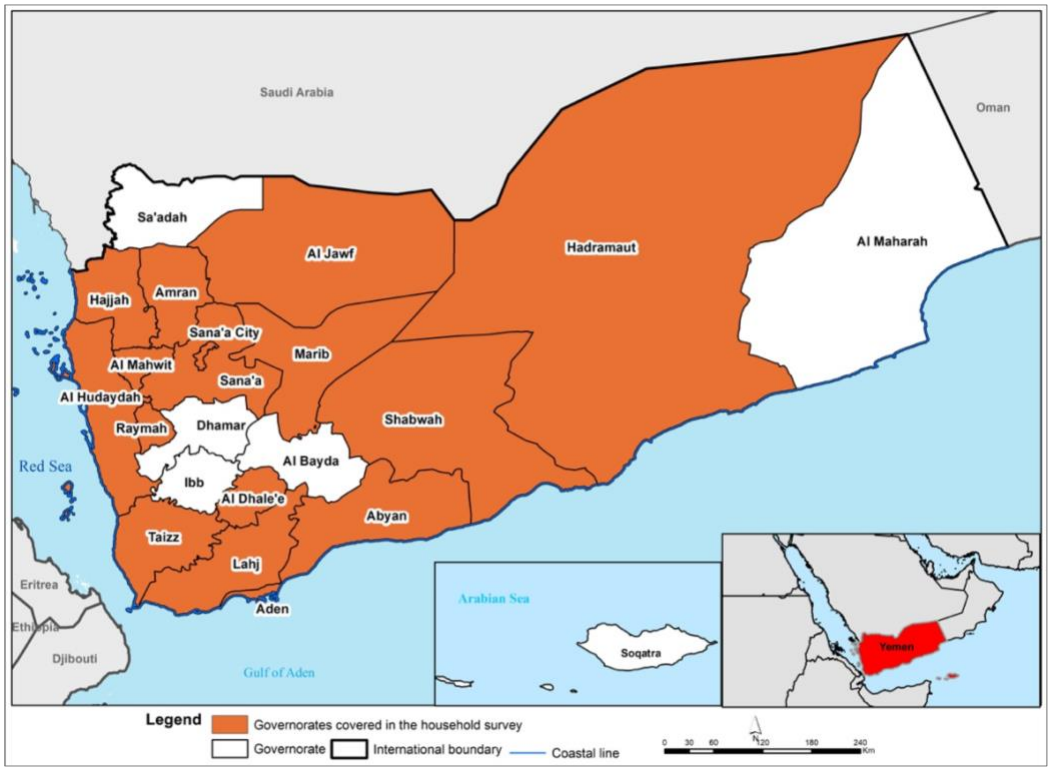
Source: FAO, 2020; FAO assessment results

Initially, the household survey was designed with 2 000 households spanning 18 governorates. Having anticipated that the beneficiary phone numbers recorded in the beneficiary database may not be in operation and that there may be higher non-response given the ongoing conflict, a large list of 14 889 households with telephone numbers was extracted from the sampling frame. From this, a random sample of 2 000 households was drawn. In the end, only 1 775 households from 16 governorates (Figures 1 and 2; Table 1) could be reached over phone during the data collection period from August to September 2020. Of these, 12 households did not respond the survey. The remaining households could not be contacted, mainly because their phone numbers were inactive. All information presented in this report with respect to household responses to the survey questions refers to the three months preceding the survey.

The number of governorates included in the assessment was defined by the availability of sufficient valid phone numbers in the beneficiary database. The selection of the districts within the governorates was purposive and was conducted in two steps:

1. Identification of the districts with households having valid digits of phone number.
2. Selection of districts with larger proportions of population facing acute food insecurity (Integrated Food Security Phase Classification [IPC] Phase 3 and above).

Figure 2. Sixteen governorates covered in the household survey



Source: FAO Yemen, 2020; GeoNames and Global Administrative Unit Layers, 2020

As part of this assessment, summarized in Table 1, not all sampled households declared to be strictly relying on agricultural activities. Since the households were drawn from a list of FAO Yemen's past and present beneficiaries, they are considered to be vulnerable to shocks and risks stemming from the current crisis.

Table 1. Number of respondents and timeline of the surveys and KII

	Household survey	KII with agricultural extension officers	Traders survey
Number of respondents	1 775	48	90
Number of governorates	16	17	18
Timeline	August–September 2020	July 2020	July 2020

Source: FAO, 2020; FAO assessment results

In terms of selecting food traders and agricultural extension officers, FAO Yemen, under the Food Security Information System, conducted the collection of price data of food and non-food commodities from around 200 markets across the governorates. In every one of these governorates there are governorate focal units who supported the price data collection. In turn, the governorate focal units collected the names and contacts of the traders from their respective markets, which was the basis for the trader's list for the current survey. As initially planned, the trader survey could not be conducted in all the districts and governorates sampled due to the unavailability of the traders for the interview as well as inactive phone numbers. The survey was ultimately administered with 90 traders in 60 districts from 18 governorates (Table 1). In this respect, there was substantial overlap in the geographical coverage of the household survey and the trader's survey, especially at the governorate level.

For the KII of the district-level agricultural extension officers, FAO Yemen collected the names and contacts of the officers from the governorate-level agriculture extension departments. As with the case of the trader's survey, the geographical coverage of the KII were not fully aligned with the geographical coverage of the household survey; however, there is substantial overlap between the two.

In terms of the weighting of the household data, the beneficiary list provided by FAO Yemen served as the sampling frame that represented the sampling universe as well. Weights were applied so that the distribution of households by governorate in the sample matched that of the sampling universe (Table 2).

Table 2. Household sample size, by governorate

Governorate	Unweighted number of households	Weighted number of households
Taizz	268	315
Marib	221	190
Sana'a	149	84
Lahj	146	88
Al Hudaydah	137	76
Abyan	119	29
Al Dhale'e	117	235
Shabwah	101	14
Amran	92	388
Raymah	88	50
Al Jawf	87	239
Hajjah	62	17
Aden	60	29
Hadramaut	48	13
Al Mahwit	46	7
Sana'a City	34	1
Total	**1 775**	**1 775**

Source: FAO, 2020; FAO assessment results

By design, the household survey was intended to be representative of FAO Yemen's beneficiary list, which includes vulnerable households that predominantly depend on agricultural livelihoods and who live in some of the most food insecure areas. Therefore, the survey cannot be deemed representative of the entire household population of Yemen, and this should be taken into account as a noteworthy limitation to the survey.

Despite drawing a random sample from the available list of FAO beneficiary households at the governorate level, some of the sampled households could not be reached. This resulted in a lower number of sampled households (1 775) than the initially planned number of 2 000. Governorates such as Aden, Al Mahwit, Hadramaut and Hajjah ended up having very small sample sizes that were insufficient to produce statistically reliable results, while for Sana'a, the findings based on only 34 respondents cannot be reported. However, these observations from Sana'a have been included in the estimation of the total response.

Background

The prolonged conflict has been driving the current humanitarian crisis in Yemen since March 2015. It remains the worst in the world and is increasingly threatening the food security and livelihoods of millions of Yemenis. IPC analysis for the period of February–April 2020 estimated that two million people are facing acute food insecurity (IPC Phase 3 and above), representing 25 percent of the population analysed in 133 districts. The IPC analysis also estimated that the number of people facing acute food insecurity people would increase to 3.2 million, which equals to 40 percent of the analysed population in the period of July–December 2020, even if humanitarian food assistance is kept at the current levels (IPC, 2020; FAO, 2020e).

The country's collapsing economy, import restrictions and ongoing insecurity are driving up fuel and food prices, proving devastating for a population that heavily relies on imports for its staple goods. The COVID-19 restrictions measures put into effect by the Government to prevent the spread of the pandemic have further aggravated the food availability and access at the household level. Remittances, a significant lifeline for many Yemenis, have also been struck by the impacts of COVID-19 (FAO, 2020c). This has resulted in remittance flows decreasing from as little as 20 percent to as much as 70 percent in relation to the usual amounts received. Markets and supply chains have also been affected, as the restriction measures have generated import delays, logistical barriers and disruptions, from the farmgate to retail markets (IPC, 2020; FAO, 2020e).

Agriculture, which has traditionally been a source of income for more than half of the Yemeni population and a main pillar of the country's economy, has been severely affected. Prior to the conflict, agriculture contributed between 18 and 27 percent of the country's gross domestic product (GDP). The agricultural livelihoods of many have been hit hard, with cereal and livestock production levels falling drastically compared to pre-conflict levels. Some of the contributing factors include an emigrating workforce, displacements, limited public resources allocated to the agricultural sector, ineffective research and extension services and a limited availability of, and access to, quality inputs and services (FAO, 2018).

COVID-19 and other risk factors in the country

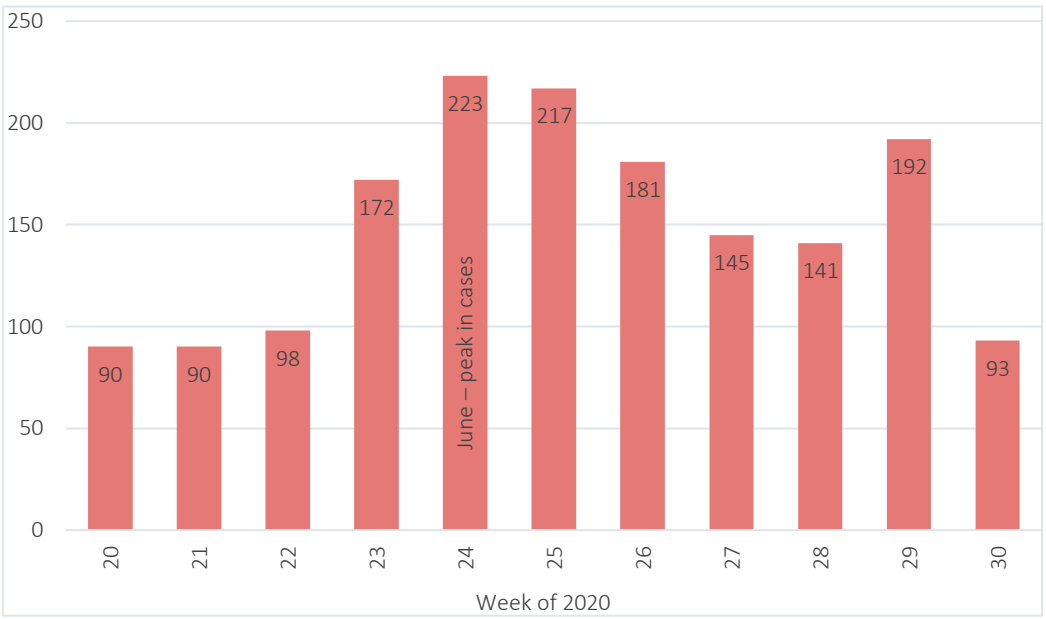
Major risk factors

Even before the current conflict, Yemen was already the poorest country in the Near East and North Africa (NENA) region. Since the conflict escalated in mid-March 2015, the economic and humanitarian situation has significantly deteriorated. Over the years the conflict has become protracted in nature, which caused large-scale displacements, a decline in domestic food production and economic activities. The main outcomes of the situation have been persistent food insecurity, malnutrition and livelihood crisis (FAO, 2019; 2020d; World Bank, 2020). As the conflict remains the main driver of all the challenges in Yemen, other risk factors emerge as a crisis within the crisis.

COVID-19 and other communicable diseases in Yemen

Since the escalation of conflict in mid-March 2015 several communicable diseases including cholera, diarrhoea, dengue and measles have significantly re-emerged in the country. The first COVID-19 case was detected in Yemen on 10 April 2020, with the number of cases peaking in June 2020 (Figure 3).

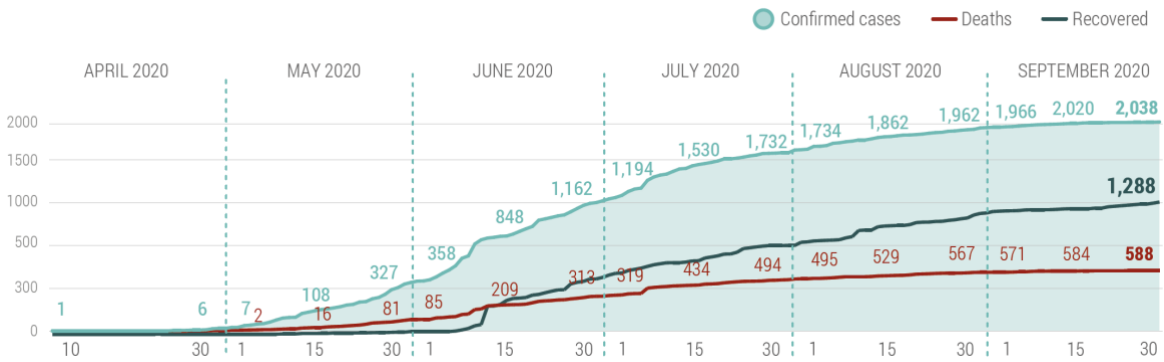
Figure 3. Number of new confirmed COVID-19 cases in Yemen, 2020



Source: World Health Organization (WHO) 2020a; Yemen COVID-19 Spatiotemporal Epidemiological Situation

However, from July onwards there was a gradual decline in the number of newly reported COVID-19 cases. As of 30 September, the total number of reported cases was 2 038, with 588 deaths and 1 288 patients recovered (Figure 4).

Figure 4. Cumulative COVID-19 cases in Yemen, April–September 2020



Source: OCHA 2020c; Yemen COVID-19 Preparedness and Response Monthly Situation, September 2020

As stated in recent OCHA reports, the health and development partners in the country speculate that actual number of cases and fatalities are much higher than officially reported (OCHA, 2020b; 2020c).

Other factors contributing to the underreporting of COVID-19 cases include (OCHA, 2020b; 2020c):

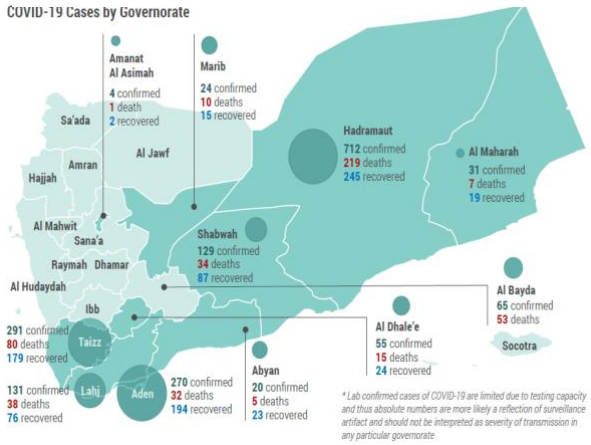
- sensitivity about public acknowledgement of the COVID-19 virus infection or symptoms;
- population not adopting preventive behaviour to reduce the transmission;
- funding shortages for health workers and for procuring protective gears and supplies; and
- long delays in importing COVID-19 response supplies.

In March 2020, both the internationally recognized government and the Southern Transitional Council imposed precautionary measures to prevent the spread of the virus, including closure of land borders, curfews, restrictions on movement, social distancing measures, suspension of public offices, bans on gatherings, educational activities and social and religious events (FAO, 2020c).

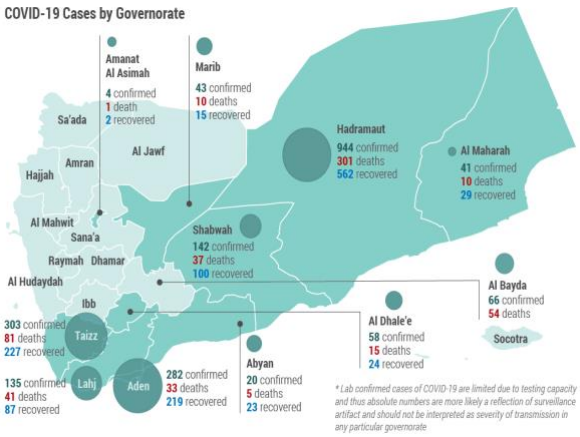
Nonetheless, regional level data on COVID-19 is available only in the internationally recognized government-administered governorates (Figure 5). Of the 11 governorates that are reporting on the pandemic, Hadramaut continued reporting the highest number of cases and fatalities since the beginning of the pandemic, with Taizz, Aden, Shabwah and Lahj also reporting particularly high numbers of cases. Still, Al-Bayda has thus far seen the highest death rate due to COVID-19 from all reporting governorates.

Figure 5. Yemen COVID-19 cases by governorate, July and September 2020

July 2020 (prior to start of assessment period)



September 2020 (end of assessment period)



Source: OCHA 2020b; 2020c; Yemen, COVID-19 Preparedness and Response Monthly Report, July and September 2020

Depressed domestic food production and high dependency on imports

Persistent fighting continues to seriously compromise all economic activities, including agriculture, while agricultural inputs, mostly imported, remain in short supply and expensive. In addition, high fuel prices, albeit lower than one year ago, are constraining agricultural activities, particularly those related to irrigated crops. In order to cope with the elevated production costs, farmers have shifted from irrigated to rainfed crops, which yield lower output and increasingly rely on family labour instead of on employing hired workers. The share of domestic wheat production in total food utilization in the last ten years is between 5 and 10 percent, depending on the performance of the domestic harvest, and food imports are almost 25 percent lower than in the corresponding period in 2019 (FAO, 2020c), which is likely to impact food availability in the local markets.

Flooding and pest infestations

Torrential rains in mid-April 2020 caused floods in the north of the country, particularly in the Marib and Sana'a governorates. In late April, intense rains also caused flooding in the southern part of the country (Hadramaut, Shabwah, Aden and Lahj), which were affected by flooding at the end of March 2020. The cities of Sana'a and Aden were exceptionally hard hit by the April floods as well. These series of floods coincided with the harvesting of wheat in the Central Highlands and planting of sorghum in the Southern Uplands and Central Highlands. Thus, planting activities were delayed, while standing crops awaiting harvest were damaged. Damage to agricultural infrastructure and livestock were also reported. In turn, the abundant precipitation enabled breeding desert locusts, particularly in the interior part of the country, and the country's capacity to survey and control pests is minimal due to lack of equipment (FAO, 2020c).

Severe economic decline

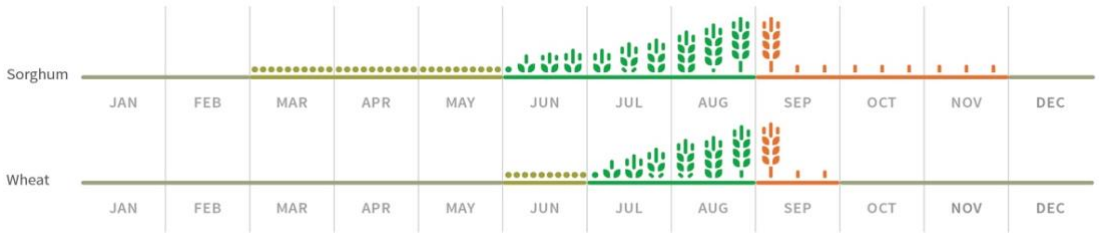
Yemen's economy has contracted sharply since the outset of the conflict. The country's already weak fiscal position has been eroded by currently low prices of oil, the depletion of hard currency reserves and the decline in remittances. Economic decline and high cost of imports due to depreciation of Yemeni Rial (YER) has impacted the price of basic goods and agricultural inputs in the markets as well (FAO, 2020c). In turn, the ongoing conflict and economic decline have steadily eroded peoples' coping mechanisms, leaving large parts of the population at risk of food and livelihood insecurity.

Gap in humanitarian funding

At a moment when Yemen should be expected to be receiving funds to tackle the humanitarian crisis triggered by conflict, the COVID-19 pandemic and natural disasters, OCHA reports that a "…lack of funding cripples the aid operation" in Yemen (OCHA, 2020a). As a result, 15 out of the 41 major United Nations humanitarian programmes in the country are being affected. The latest available information points to about 9 million people having been impacted by reductions in food assistance since April 2020, and estimates point to a further 1.37 million being affected from December 2020, unless additional funding is secured (OCHA, 2020a).

Agricultural production

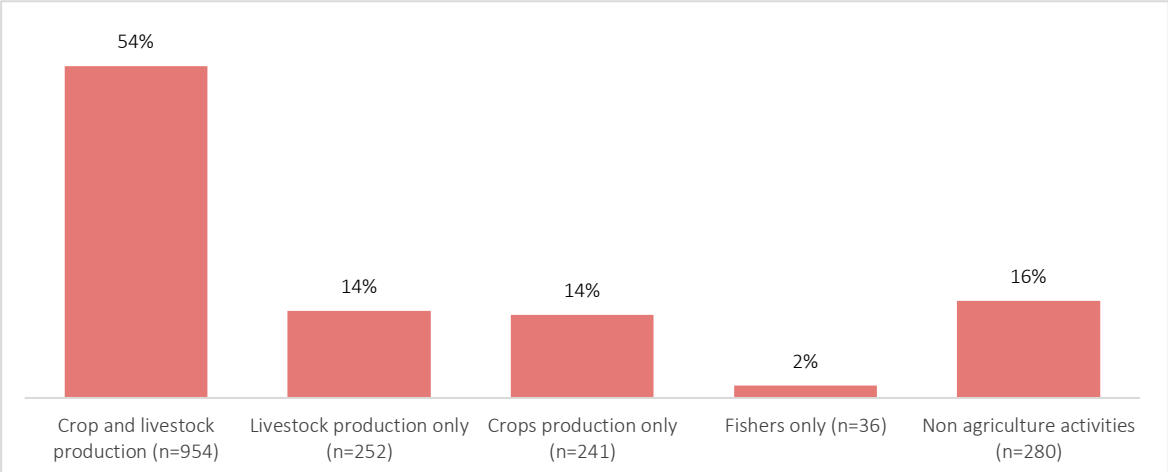
Figure 6. Yemen crop calendar



Source: FAO, 2020c; GIEWS Yemen Country Brief

Most results presented in this report are based on a household survey conducted by FAO Yemen.[1] Of the surveyed households, a large majority (84 percent) are engaged in agricultural activities and 16 percent in non-agricultural activities (Figure 7). Over half of the households were involved in both crop and livestock production. There were relatively fewer households who were exclusively engaged in crop, livestock or fish production.

Figure 7. Household engagement in agricultural activities
(percentage of surveyed household respondents [n = 1 763])



Source: FAO, 2020; FAO assessment results

The surveyed households were drawn from a list of past and present beneficiaries of FAO Yemen, which explains the large percentage of households participating in agricultural activities. The non-agricultural households may be old beneficiaries of FAO who have changed their livelihood in course of time. The presence of households pursuing fishing activities is significantly lower (2 percent), which can be attributed to the

[1] The survey covered a total of 1 775 households selected from a list of almost 15 000 past beneficiaries of FAO Yemen's projects for which a telephone number was available. Post-survey weights were computed to reflect the distribution of respondents in the sample by governorates. Here and in the rest of the report, the number of cases "n" are reported as weighted values. For more details on the sampling strategy, see the Methodology section.

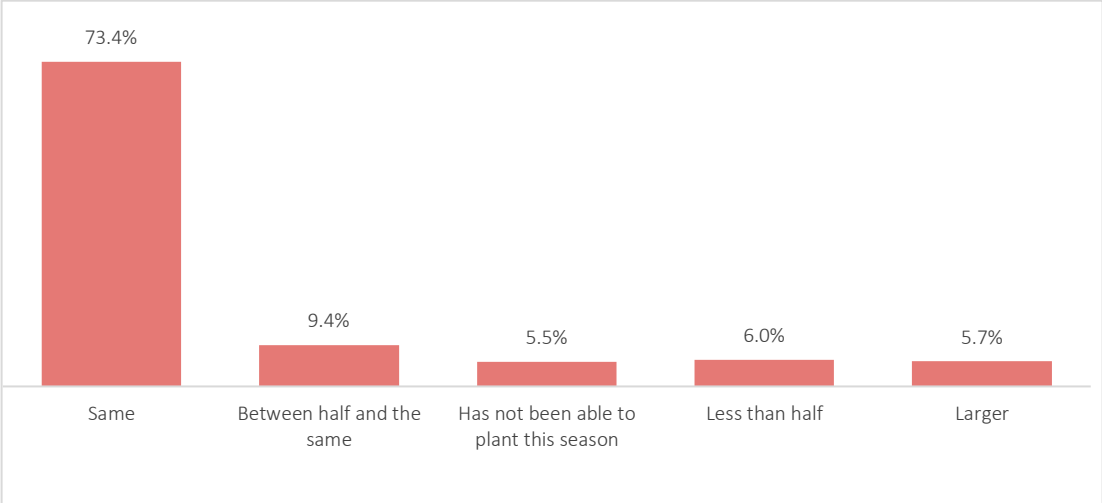
fact that the list of FAO Yemen's beneficiaries only included a small number of fisherfolk households. Though informative, the household survey was not designed to be representative of the entire household population of Yemen nor can be considered a statistically representative sample of the agricultural production sector. An effort has been made to use appropriate weights to reduce potential biases when reporting results at national and governorate level.

Crop

Area planted and types of crops produced

The survey period coincided with the planting and growing of major staple crops. As expected, given the sampling strategy adopted, 98 percent of the households responded that they planted crops in 2020. A large majority (73 percent) of the households interviewed reported that they cultivated the same amount of land this year compared to last year (Figure 8).

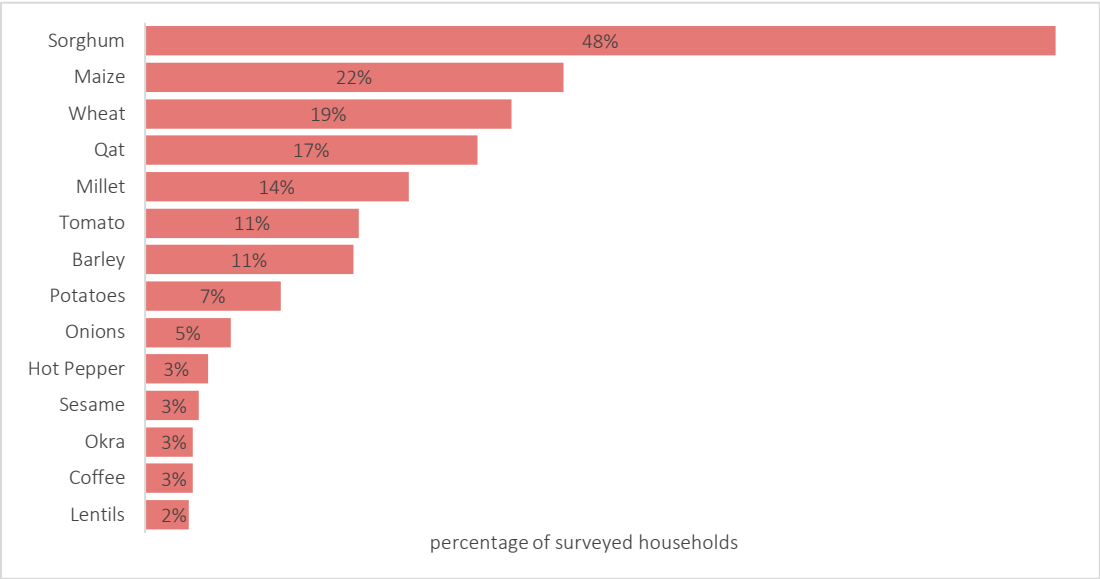
Figure 8. Household response on area cultivated for main crops this year compared to last year



Source: FAO, 2020; FAO assessment results

The surveyed households mostly produce food crops (Figure 9). About 48 percent of households stated that they generally produce sorghum and 22 percent produce maize. Wheat is produced by less than 20 percent of households. Fewer households are engaged in cash crop production, with qat, millet, tomato and barley as the major reported cash crops.

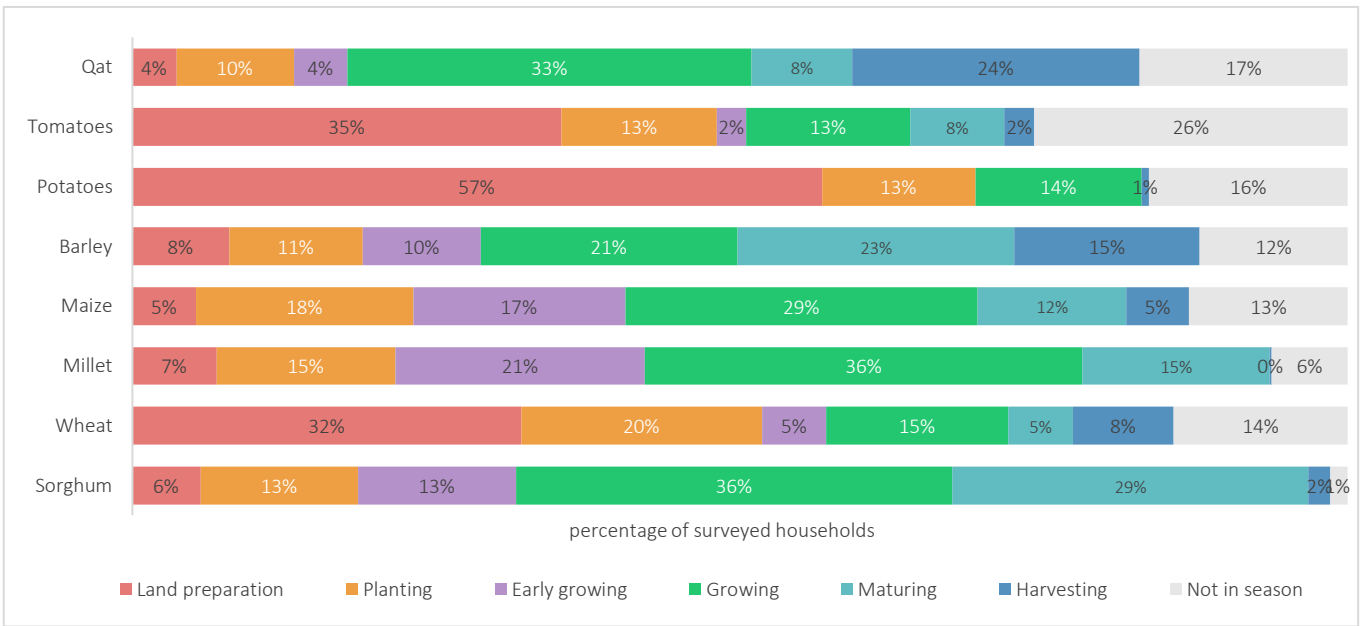
Figure 9. Main crops usually produced by households



Source: FAO, 2020; FAO assessment results

Considering conflict-related constraints as well as the pest outbreaks, GIEWS forecasted the total production of cereals in 2020 at 365 000 tonnes, about 5 percent below the previous year's harvest and almost 25 percent below the five-year average (FAO, 2020c). During the time of the survey (July–September 2020), the main crops like sorghum, wheat, millet, maize and barley were at planting or growing stage (Figure 10). In 2020, the planting activities were delayed because of the unexpected flood in April, which coincided with the harvesting of wheat and sorghum in Southern Uplands and Central Highlands (FAO, 2020c).

Figure 10. Stage of the main crops grown

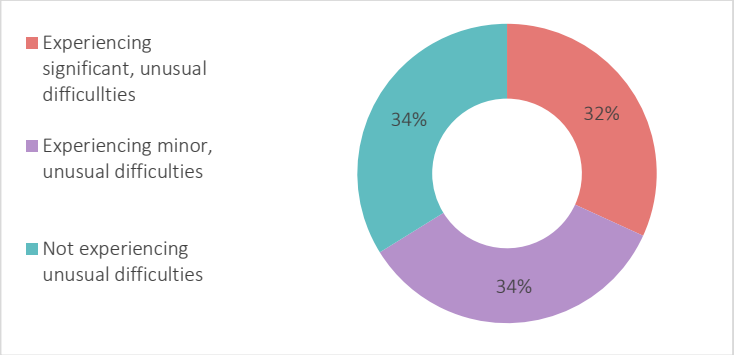


Source: FAO, 2020; FAO assessment results

Unusual difficulties faced by the surveyed households in crop production over past three months

Nearly two-thirds of the surveyed households faced multiple major difficulties during crop production, with one-third describing their difficulties as significant (Figure 11).

Figure 11. Households experiencing unusual difficulties in crop production in past three months



Source: FAO, 2020; FAO assessment results

Over one-fifth of the households identified heavy rains and floods as one of the main difficulties in crop production. GIEWS reported that the torrential rain in April which caused flooding coincided with the harvesting of wheat and sorghum in Southern Uplands and Central Highlands. The standing crops waiting to be harvested were damaged and the next planting activity of major cereals that usually happened between April to June was delayed (FAO, 2020c).

Major difficulties faced by crop producers in the past three months
• Heavy rains and floods (21.8 percent). • Outbreak of crop pests and disease (21.5 percent). • Difficulty in accessing agricultural inputs, especially fertilizers, and pesticides (17 percent). • Difficulty in accessing seeds (15 percent). • Difficulty in accessing land due to restriction measures (8 percent).

While one-fifth of households facing heavy rains and flooding, over one fourth of the households mentioned extended periods of drought and water shortages as majors constraint to crop production. Of these households 80 percent were rainfed crop producers and 11 percent used well-based irrigation. Below average rainfall in some southern parts of the country and lowering of the underground water for irrigation could have led to this response.

Findings from KII with agricultural extension workers
Primary major shocks affecting crop production: 1. dry spell/drought 2. heavy rain flooding 3. crop pests, locust, and others Secondary major shocks affecting crop production: 1. crop disease 2. difficulty to access crop inputs 3. hailstorms and strong wind In 54 percent of the surveyed districts, farmers faced disruptions in transportation of agricultural products.

The outbreak of pests and diseases has been another main difficulty faced by over one in five households. Desert locust is the major pest infestation reported by the households who experienced pests and crop diseases. Abundant rain enabled breeding of desert locusts. Here, hopper bands and mature swarms have formed in May. The country's capacity to survey and control pests is minimal due to lack of equipment (FAO, 2020c). The findings from the interviews with the agricultural extension workers on shocks affecting crop production aligns well with the household survey findings. Overall, 41 percent of the households reported that accessing seeds was a major or minor difficulty during the reporting period (Table 3 and Figure 12).

Table 3. Household responses on why accessing seed was difficult

Household responses on reasons behind difficulties accessing seeds	
Responses	Percentage of surveyed households
Prices of seeds are higher than usual	57
There is insufficient household income to buy seeds	28
Seeds are not available from local market	5
Seed varieties usually used are not available	3
Seeds are not available from vendors	2
Seeds usually provided by aid or subsidies are not provided anymore	1

Source: FAO, 2020; FAO assessment results

In certain governorates this was a difficulty for the majority of the households, like Lahj (79.3 percent), Marib (78.5 percent), Shabwah (67.3 percent), Abyan (52.5 percent), Al Hudaydah(50.6 percent) and Al Jawf (52.5 percent). As outlined in Table 3, high prices of seed and depressed household income are the main deterrent to accessing seed.

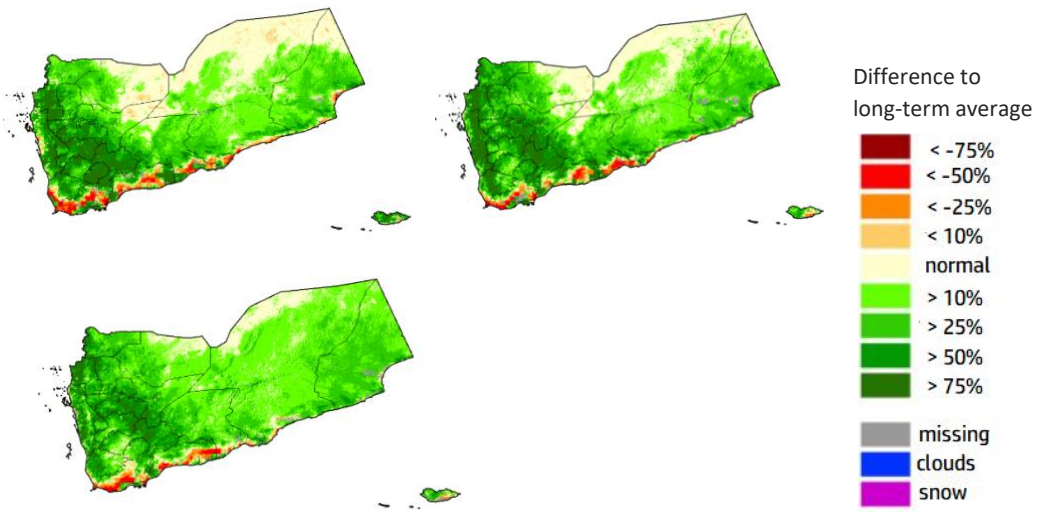
Crop production prospects

Figure 12. Households facing difficulties in accessing seeds in past three months, by governorate[2]

Source: FAO, 2020; FAO assessment results

From an agriculture perspective, 2020 is a normal year for Yemen. The Normalized Natural Vegetation Index (NDVI) during the time of the survey shows that, except some areas in the south, the vegetation is normal or better than normal compared to the NDVI long-term average.

Figure 13. NDVI anomaly for Yemen, July–September 2020

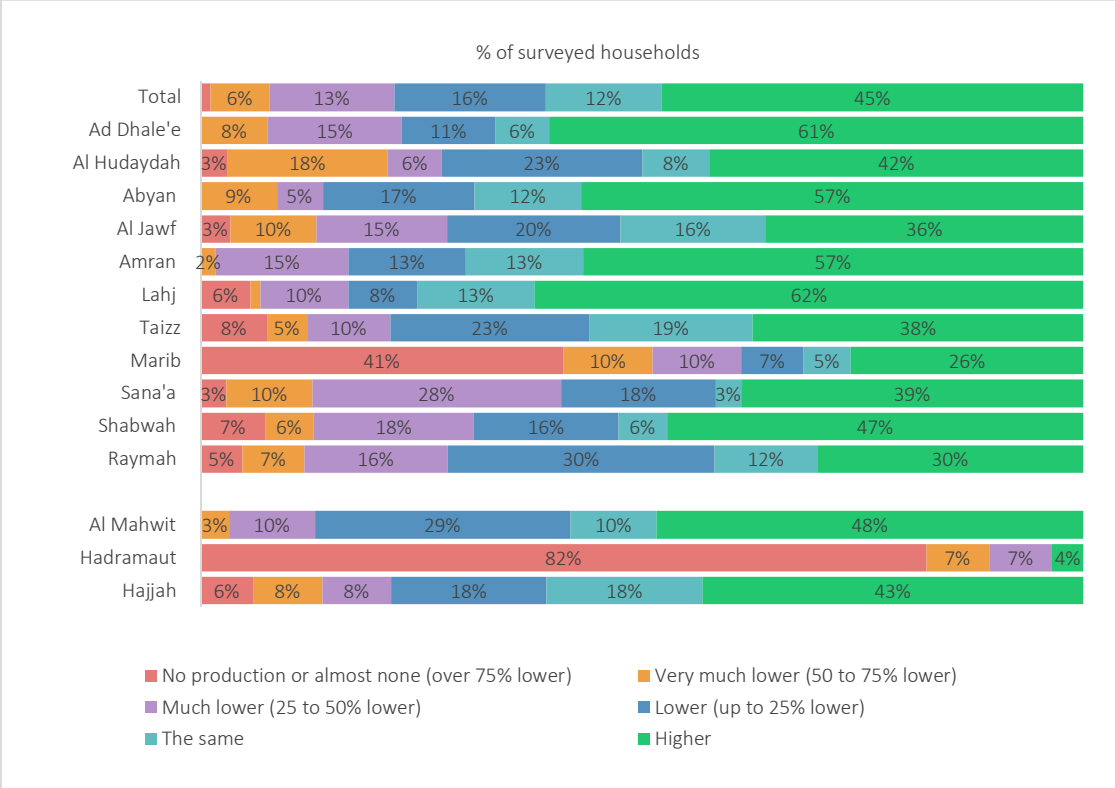


Source: FAO, 2020a

[2] The data from the Al Mahwit, Hadramaut and Hajjah governorates is shown separate from the rest given their small sample sizes. This information is thus indicative only.

Nearly equal proportions of the households anticipated either favourable (45 percent) or unfavourable (43 percent) crop production in 2020 compared to last year, respectively (Figure 14).

Figure 14. Household response on crop production prospects this year compared to last year/normal year, by governorate[3]



Source: FAO, 2020; FAO assessment results

In the governorates of Al Hudaydah, Marib, Sana'a, Raymah and Hadramaut, the majority of the respondents were expecting lower production this year compared to last year (Figure 14). There have been considerably high responses on "none to minimal production" in Marib and Hadramaut, 41 percent and 82 percent, respectively. This can be attributed to over 70 percent of the surveyed households in the governorates having reported difficulties in accessing seed. In addition to the constrained access to seed, the flooding in April in the governorates may also have lowered production expectations of the respondents. In the case of Hadramaut, the findings should be interpreted with caution due to small number of respondents involved.

As was the case for respondents to the household survey, the interviewed agricultural extension officers were equally divided on their views on crop production outlook (Table 4). Over the years, the domestic production of the crops has declined in the Yemen due to prolonged conflict and related deteriorations.

[3] The data from Al Mahwit, Hadramaut and Hajjah governorates is shown separate from the rest given their small sample sizes. This information is thus indicative only.

Table 4. Expectations of agricultural extension workers on crop production this year compared to last year

Response	Percentage of surveyed households
Expects an increase in production	40
Expects a decrease in production	40
Expects same level of production	18
Does not know	2

Source: FAO, 2020; FAO assessment results

According to the FAO GIEWS country cereal balance sheet (Table 5), the outlook of the total cereal production in 2020 is about 5 percent below the previous year's harvest and almost 25 percent below the five-year average. This forecast considers conflict-related constraints and pest outbreaks.

Table 5. Yemen cereal production

	Production (1 000 tonnes)			Percentage change
	2015–2019 average	2019	2020 forecast	2020/2019
Sorghum	207	170	160	-5.9
Wheat	155	140	130	-7.1
Millet	55	40	40	0
Others	58	35	35	0
Total	**475**	**385**	**365**	**-5.2**

Source: FAO, 2020; FAO assessment results

The households and the extension officers who were expecting a better harvest may have based their positive response on the favourable weather conditions, the area planted being equivalent to last year's and the sufficient availability of seed to most of the farmers.

Livestock

Surveyed households who engage in livestock production (68 percent of the total, as per Figure 7) are small-scale producers, mostly raising sheep, cattle and goats (Table 6). As such, it is worth stressing that raising small ruminants is an important income source for the rural community, especially as they account for a significant contribution to their livelihoods.

Table 6. Household response on number of livestock owned[4]

Type of livestock owned	1 to 5 units	5 to 10 units	10 to 20 units	20 to 30 units	30 to 50 units
	percentage of household respondents (n)				
Sheep	36.6% (429)	27.2% (319)	9.3% (109)	6.1% (71)	2.4% (28)
Cattle	25.9% (304)	-	0.34% (3)	-	-
Goat	22.1% (259)	11% (129)	3.6% (43)	0.56% (7)	0.21% (2)
Camel	2.8% (32)	0.4% (4)	-	-	-
Donkey	4.9% (57)	-	-	-	-
Poultry	2.6% (30)	1.6% (18)	0.8% (9)	-	-

Source: FAO, 2020; FAO assessment results

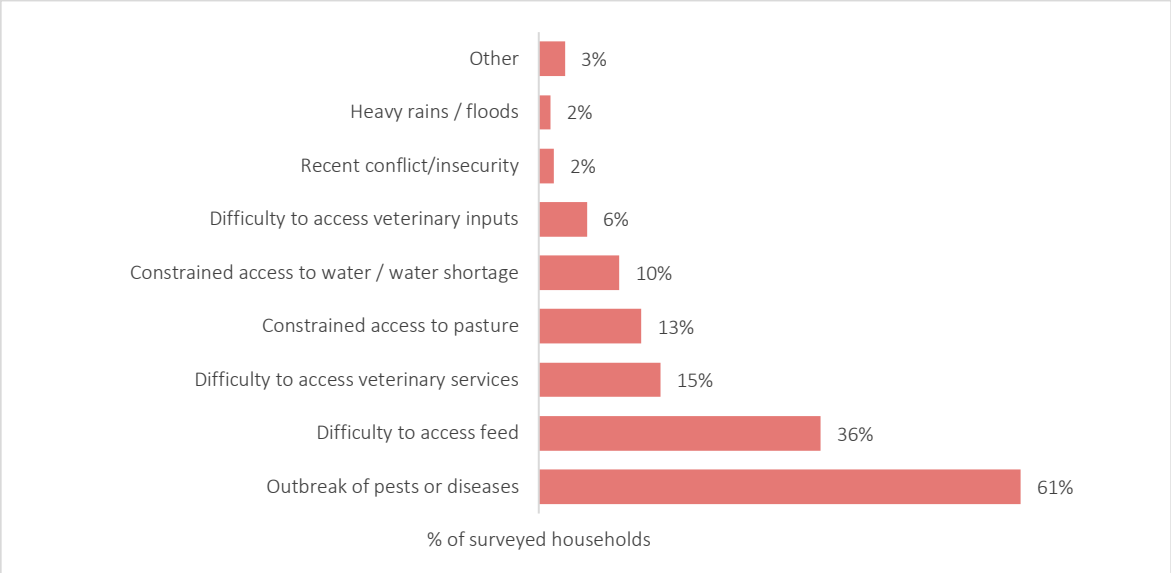
Difficulties in livestock production

The protracted conflict has likely affected the livestock sector and the day-to-day activities of livestock producers. As such, nearly half of the surveyed households who are engaged in livestock production reported facing difficulties, with one-fifth saying that the difficulties were of significant nature. In this respect, the top five difficulties reported by the surveyed livestock producing households are as follows (Figure 15):

1. outbreak of animal pests or diseases (61 percent);
2. difficulty to access feed (36 percent);
3. difficulty to access veterinary services (15 percent);
4. constrained access to pasture (13 percent); and
5. water sources (10 percent).

[4] There is a total of 1 174 households engaged in livestock production (n = 1 174).

Figure 15. Types of unusual difficulties faced by livestock-producing households in past three months



Source: FAO, 2020; FAO assessment results

Most of the agricultural extension workers have also identified livestock disease as the main shock they have experienced, followed by lack of feed and access to veterinary services. It is worth noting that the higher rate of households reporting animal disease as a shock (61 percent) is linked to the lack of access to veterinary services. Of households who said they were unable to access veterinary services, 89.3 percent indicated this was due to higher prices of veterinary services (Table 7). In fact, prices of veterinary services and inputs escalated mainly due to the shattered infrastructure in light of the ongoing conflict. However, as part of the KII, a smaller percentage of informants (slightly over 10 percent) mentioned that COVID-19 and the ensuing economic disruptions were the main shocks impacting livestock production at large.

Likely decline in livestock production
Nearly 48 percent of the agricultural extension service providers interviewed expect a decline in livestock production due to disease, lack of feed and lack of veterinary services.

Table 7. Reasons households were unable to access veterinary services in past three months
(percentage of surveyed household respondents)

Reason for inability in accessing services	Percentage of surveyed household respondents
Prices are higher than usual	89
Income insufficient to purchase services	39
Not available from usual vendors	18

Source: FAO, 2020; FAO assessment results

Due to conflict, drought, natural calamities, environmental degradation and encroachment of other livelihoods activities, the natural grazing areas have not been fully providing the required needs of the livestock population. In addition, as a result of the escalated conflict and the displacement, livestock watering and feeding systems have been disrupted, thus limiting the movement of livestock to the normal natural grazing areas.[5]

As such, this may be forcing households to purchase feed for livestock at a higher cost (Table 8). Surveyed households stated their financial inability to purchase veterinary services and feed, 39 percent and 55 percent, respectively (Tables 7 and 8).

Table 8. Reasons households were unable to access feed
(percentage of surveyed household respondents)

Reason for inability in accessing feed	Percentage of surveyed surveyed households
Feed prices are higher than usual	72
Income insufficient to purchase feed	55
Feed not available from usual vendor	6
Not able to access market to purchase feed	4

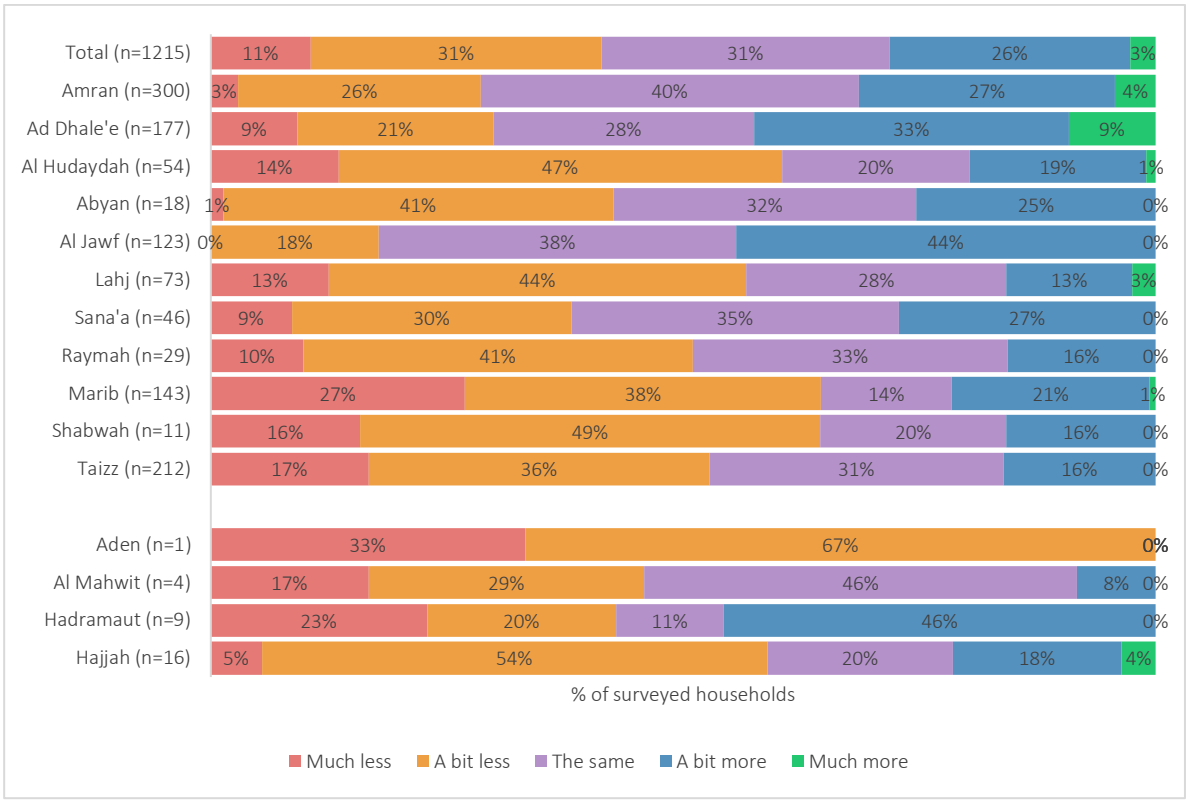
Source: FAO, 2020; FAO assessment results

[5] Yemen: Rapid Assessment Report on Livestock Sector in Conflict Affected Areas of Al Hudaydah Governorate (Al-Jarahi, Jabal Rass and Hays districts), 15 January 2018.

Change in number of livestock owned

Forty one percent of the surveyed households that are engaged in livestock production reported a decrease in the number of livestock owned, compared to the same month last year. More than 50 percent of households in the governorates of Taizz, Shabwah, Marib, Lahj and Al Hudaydah report a decrease in the number of livestock owned, compared to last year (Figure 16).

Figure 16. Household response on owning more or less livestock compared to the same month last year[6]



Source: FAO, 2020; FAO assessment results

The households who reported a decline in number of livestock attributed it to selling of the animals to meet household need, death of animals due to epidemics and/or diseases and limited access to veterinary services, as outlined in Table 9 below.

The findings from the "Livelihoods, incomes and coping strategies" section further below reveal that 44 percent of the surveyed household respondents mentioned that the income from livestock production drastically decreased over the past three months (Table 12).

[6] The data from Aden, Al Mahwit, Hadramaut and Hajjah governorates is shown separate from the rest given their small sample sizes. This information is thus indicative only.

This explains the selling of animals among livestock producers as a coping mechanism to meet essential household needs, ease financial constraints and access necessary services and inputs for the remaining livestock raising possible.

Table 9. Main reasons for the decrease in the number of livestock compared to last year
(percentage of surveyed household respondents)

Reason for the decrease in the number of livestock	Percentage of surveyed households
Sold as usually done to cover household needs	54
Died due to livestock epidemics	44
Lack of veterinary services	18
Culled animals for household consumption	8
Sold in more-than-usual rates or quantities (as a distress coping mechanism)	6
Died due to natural disasters (i.e., flood, thunderstorm or similar)	4
Died due to conflict	3

Source: FAO, 2020; FAO assessment results

Fisheries

Prior to the outset of the conflict, fisheries was the third most important sector (after agriculture and oil production) to the Yemeni economy, contributing up to 3 percent of the Gross Domestic Product (IFAD, 2010). Since the conflict began five years ago, the fishing industry has faced an increasing number and degree of challenges, including a significant drop in production levels in light of the displacement of many fisherfolk and their associated workforce (Sana'a Center for Strategic Studies, 2020).

According to the survey leading to this report, fisherfolk households comprised only 2 percent of all surveyed households, with the majority residing in coastal governorates, such as Aden, Abyan, Hadramaut, Abyan and Shabwah.

Difficulties in seafood and fisheries production

A large majority, or 30 out of 36, of the few surveyed households who declared to be engaged in fishing, reported unusual difficulties in their fisheries production, with 13 of them reporting having experienced "major" difficulties, including: (i) a lack of fishing materials; (ii) marketing-related constraints for their products, in turn constrained by the lower demand and decreased fish market prices; (iii) the ongoing crisis and higher prices of fuel; and (iv) the decline in the number of fish caught vis-à-vis previous periods.

In addition, 6 out of the 36 fisherfolk households surveyed reported concerns and restrictions related to COVID-19 as drivers that were deterring the marketing of their fish production.

Change in the number of fish caught and fish sales over the past three months

Most of the surveyed fisheries households (31 out of 36) reported a decrease in the number of fish caught, with the decline in fish yield likely due to a shortage of fishing materials and high prices of fuel.

The majority of the fisheries households (24 out of 36) reported a drop in the sale of fish products in past three months, which is likely to have serious implications on the livelihoods and food security of the households depending on the sale of these fish products.

Food supply and markets

In the context of COVID-19 restriction measures, the food supply and market analysis data reported below are mostly based on the food traders' survey administered in July 2020, a month after the highest peak of COVID-19 new cases were reported in the country.[7]

Impact of COVID-19 on market operations

About 28 percent of the interviewed traders declared not being able to work in the past month. Sixty percent of them attributed it to business restrictions due to COVID-19.

Supply and demand

About 70 percent of the food traders reported a decrease in food commodity supply as compared to the quantities that are usual at this time of the year. In fact, over one-fourth of them mentioned that the decrease witnessed was especially sharp. In addition, the transport of commodities was mentioned as a difficulty that contributed to reduced local food supply by 76 percent of the traders. Regarding food availability, traders from half of the districts surveyed mentioned it was "lower than usual."

Price of major food commodities and customer access to food

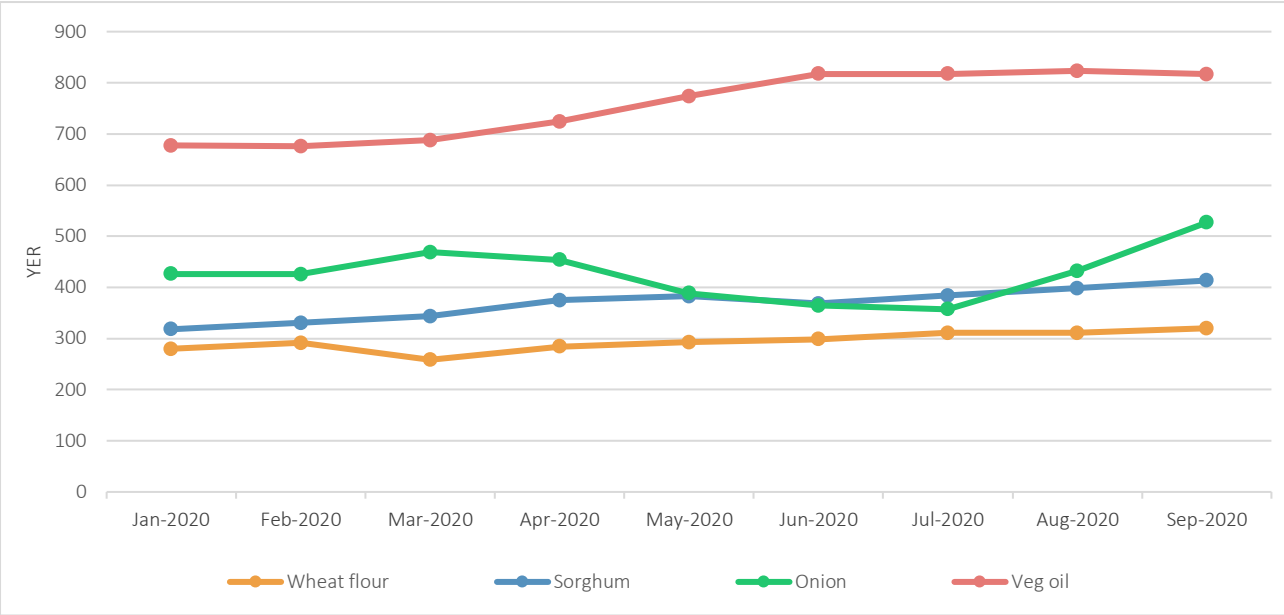
Eighty seven percent of the food traders reported price increases of main food commodities. According to the FAO GIEWS monitoring of food prices in Yemen, the average prices of essential food commodities like wheat flour, vegetable oil, onion and sorghum increased over the year (Figure 17), with the prices of onion being more volatile than those of other food commodities.

Point to point change in average food price between January and September 2020 (GIEWS FPMA)
Wheat flour: 14.4 percent increase
Sorghum: 30 percent increase
Vegetable oil: 23.6 percent increase
Onion: 20.6 percent increase

[7] The coverage of the trader's survey and the selection of respondents are described in the Methodology section of this report.

Figure 17. Monthly price of major food commodities

(average of Hadramaut, Al Hudaydah and Hajjah markets)



Source: FAO and FPMA, 2020

In this respect, the World Food Programme (WFP) in Yemen has reported an increase in food prices in 2020, especially in areas under controlled by the internationally recognized government. Inflation in the cost of the Minimum Food Basket has already crossed the 2018-crisis level benchmark by 15 percent and has reached YER 6 318 per person per month in IRG areas (WFP, 2020).

Moreover, nearly 37 percent of food traders have reported a significant decline in the number of customers in the past three months. Likewise, an increase in the request for credit purchase by customers was reported by 67 percent of the food traders. Similarly, 81 percent of the food traders reported a decrease in quantities purchased by customers during this reference period.

Access to financial services

Almost half of the surveyed food traders experienced difficulties in accessing financial services in the past three months compared to what respondents consider an otherwise normal situation. From the traders who faced difficulties, 30 percent of them made changes to their businesses in order to cope with the lack of sufficient access to financial resources, which was mainly slowing down their activities.

Summary of impact of COVID-19 pandemic as reported in the surveys

In the absence of reliable information on the spread of COVID-19 and the impacts of the pandemic, and in light of the political sensitivity about the topic, it is difficult to examine the direct impact of COVID-19 on the food security and livelihoods of the Yemeni population. The following table summarises the effects of COVID-19-related restriction measures, as reported in the household survey and the interviews of traders and agricultural extension workers (Table 10).

The survey and KII reveal that the COVID-19 restriction measures that were executed to curb the spread of the virus have left an impact on the agricultural value chains, from producers to consumers. For the agricultural community, the implications have been particularly tangible with respect to accessing agricultural inputs, pastureland, water and transportation modalities for their products to be sold at markets. Of all the agricultural livelihoods concerned, livestock producers and fisherfolk found the restriction measures more challenging vis-à-vis crop producers. In addition, the market functionality was partly affected, which had negative repercussion for both traders and producers.

As such, in a conflict-ridden Yemen, where lives and livelihoods are constantly threatened, the COVID-19 pandemic, combined with other health and environmental hazards, have further deteriorated the food security and livelihoods of millions.

Table 10. Impact of COVID-19 restriction measures on livelihood, food security and food supply chains

Difficulties experienced by the households due to COVID-19 related restriction measures	Agricultural extension workers reporting on COVID-19	Traders reporting on COVID-19
• 1.8% of the households reported it as a major shock. • 8% of the households found it difficult to access agricultural land. • 10% of the households faced constrained access to water for their livestock. • 13% faced constrained access to pasture for their livestock. • 17%of fisherfolk reported the restrictions as a constraint in their fishing activity. • 19% of the households explicitly indicated their food insecurity was mainly due to COVID-19. The percentage is higher (27%) among livestock producers.	• 50% of extension workers manifested confirmed and/or suspected COVID-19 cases in their areas. • 47% of the agricultural extension workers experienced disruption in their services due to COVID-19 restrictions. • Sharecroppers have been most affected by COVID-19, followed by cattle herders, small ruminant keepers and farmers.	• Out of the 28% of traders who were unable to work last month, 60% attributed it to COVID-19-related restrictions.

Source: FAO, 2020; FAO assessment results

Livelihoods, incomes and coping strategies

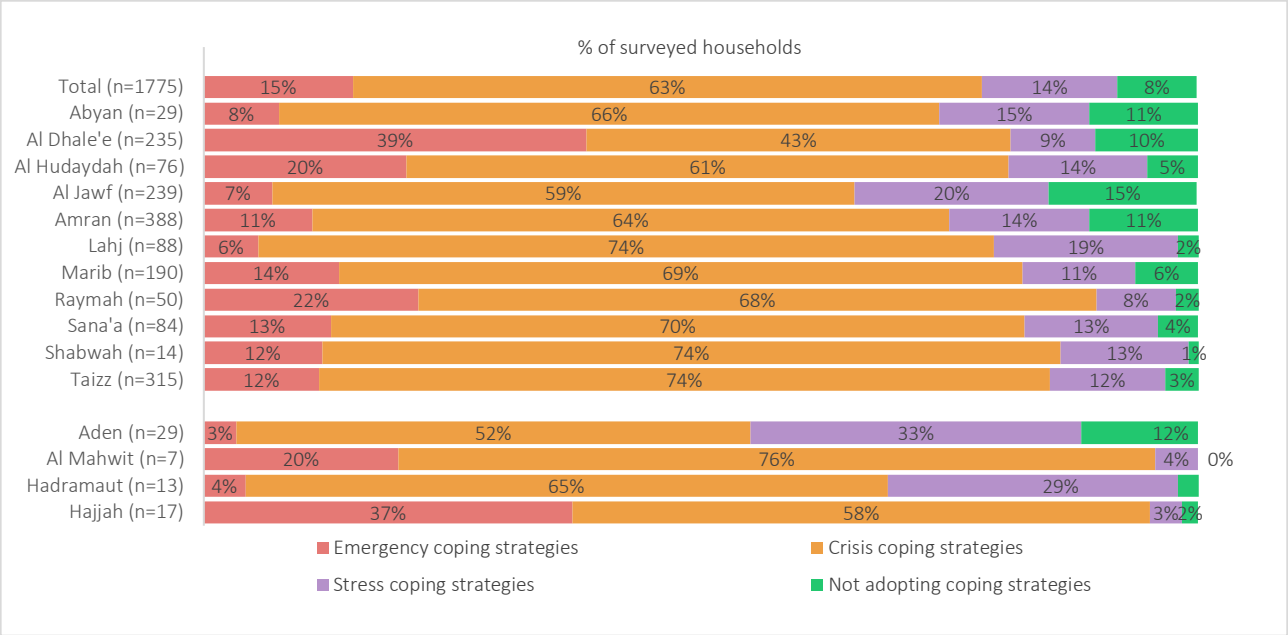
The Livelihood-based Coping Strategy Index (LCSI) has been applied to measure household experience with livelihood stress and asset depletion.[8] Understanding the behaviours of households in adapting to recent crises provides insights into the particular extent and types of difficulties of their respective current situations.

Fifteen percent of the households resorted to "Emergency" coping strategies, 63 percent to "Crisis" coping strategies and 14 percent to "Stress" coping strategies during the time of the survey (Figure 18). Only 8 percent of the surveyed households reported that they did not face any shortage of food or money therefore did not adopt any coping strategies. While the majority of the households are resorting to crisis coping strategies[9] across all the governorates surveyed, adoption of "emergency" coping strategies is higher in Al Dhale'e, Al Hudaydah and Raymah, compared to other governorates (38.5 percent, 20.4 percent and 21.4 percent, respectively).

[8] For information on the LCSI methodology, consult the FSC Indicator Handbook, P.49, available at https://bit.ly/3nVBoY0 and the Consolidated Approach to Reporting Indicators of Food Security (CARI) Guidelines, WFP, VAM, 2015, P.25; 44-48; and 52-54, available at https://bit.ly/3qAVjxr.

[9] The surveyed households reported their experience on ten livelihood coping strategies relevant to the context of Yemen, based on a 30-day recall period. Based on the globally standardized LCSI categories, household responses are grouped into (i) not adopting any coping strategies; (ii) stress coping strategies, such as expenditure of savings, buying food on credit, selling household goods and sending household members to eat elsewhere, the adoption of which reduces the ability to deal with future shocks due to a current reduction in resources or increase in debts; iii) crisis coping strategies involving human and physical resource depletion through reduced non-food expenditures in health and education, selling productive assets and reduced expenses on livelihood inputs; and iv) emergency coping strategies that are more difficult to reverse or more dramatic in nature, affecting future productivity like the selling of land or house, selling of last productive assets or sending household members for a socially degrading work like begging. The explanation of the Crisis, Stress and Emergency coping strategies are derived from the WFP Consolidated Approach to Reporting Indicators of Food Security (CARI).

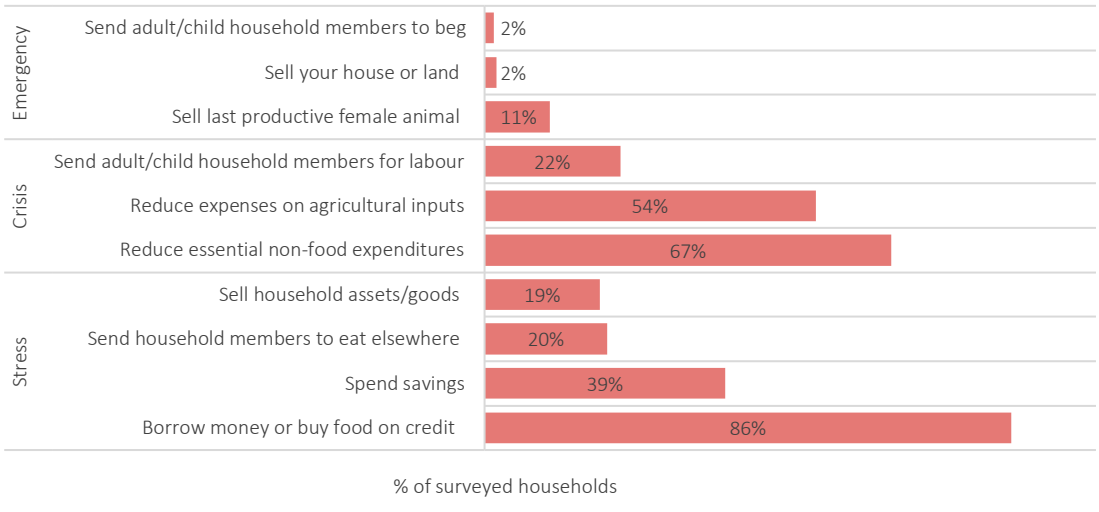
Figure 18. Livelihood Coping Strategy Index[10]



Source: FAO, 2020; FAO assessment results

As shown in Figure 18, the top three livelihood coping strategies that most of the surveyed households adopted were borrowing money or buying food on credit (86 percent of surveyed households), reducing essential non-food expenditures (67 percent of surveyed households) and reducing expenses on agricultural, livestock and fisheries inputs (54 percent of surveyed households).

Figure 19. Types of livelihood coping strategies adopted by households



Source: FAO, 2020; FAO assessment results

[10] The data from Aden, Al Mahwit, Hadramaut and Hajjah governorates is shown separate from the rest given their small sample sizes. This information is thus indicative only.

Reduced expenses on livelihood inputs were reported as a major difficulty by the surveyed households whose main source of income comes from the production and sale of crops, livestock and fish products. Among the main income source groups, nearly or over 80 percent of the agricultural wage labour, non-agricultural wage labour and sellers of agricultural cash crops were resorting to both emergency and livelihood coping strategies, which was higher than the total average of surveyed households (78 percent) as shown in Table 11.

Table 11. Emergency and crisis coping strategies adopted, by main income groups[11]

Main sources of income	Emergency and crisis response coping strategies (percentage of surveyed households)
Sale of agricultural cash crops	**83**
Sale of other agricultural products	66
Sale of livestock products	71
Sale of seafood and fish products	57
Agricultural wage labour	**79**
Non-agricultural wage labour	**80**
Assistance (humanitarian and other)	75
Other non-agricultural activities	73

Source: FAO, 2020; FAO assessment results

Main sources of, and changes in, income over the past three months

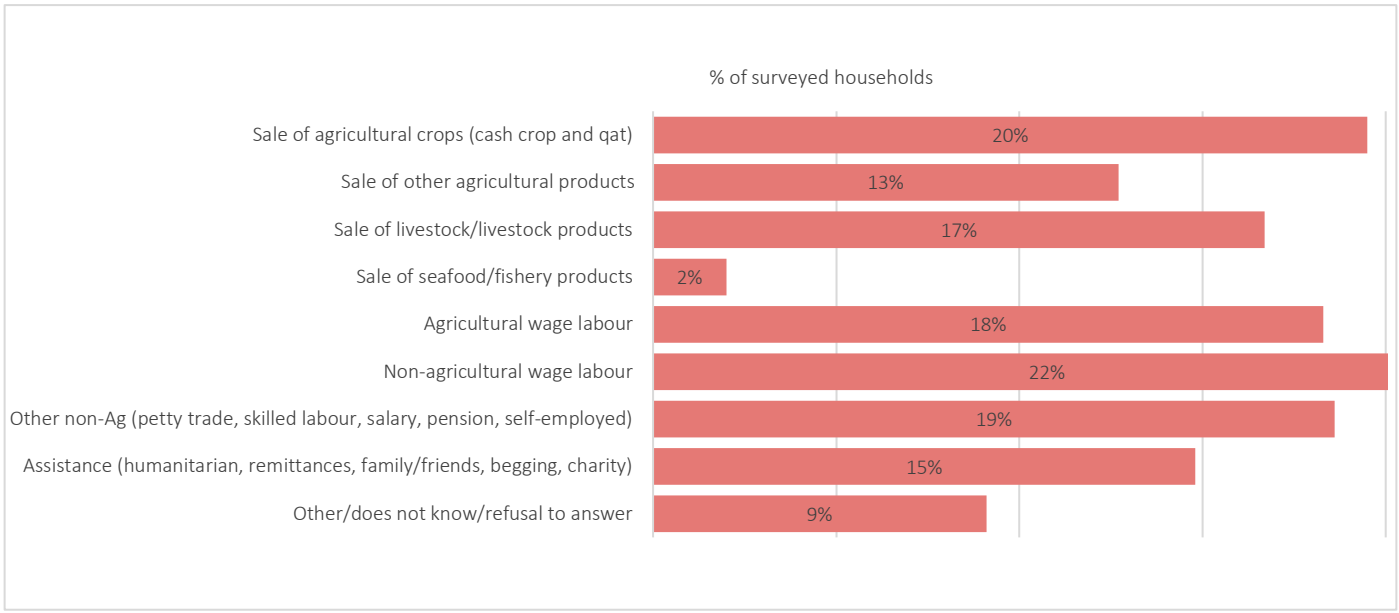
About 84 percent of the surveyed households are engaged in agricultural activities as primary or secondary sources of income (Figure 20). However, agriculture is not the major source of income across all surveyed households.

Main sources of income

The survey covered households whose major income source varied, including agriculture and non-agriculture sectors (Figure 20). Non-agricultural wage labour was reported as a major source of income by nearly 22 percent of the households, followed by the sale of agricultural cash crops, which was the main source of income for two out of every five households. Even for households whose main source of income was a non-agricultural activity, agriculture still remained as the secondary income source.

[11] The estimates in bold text are higher than the average of 78.3 percent across all main sources of income and, thus, show the severity in the prevalence of coping strategies per income source group.

Figure 20. Main sources of income

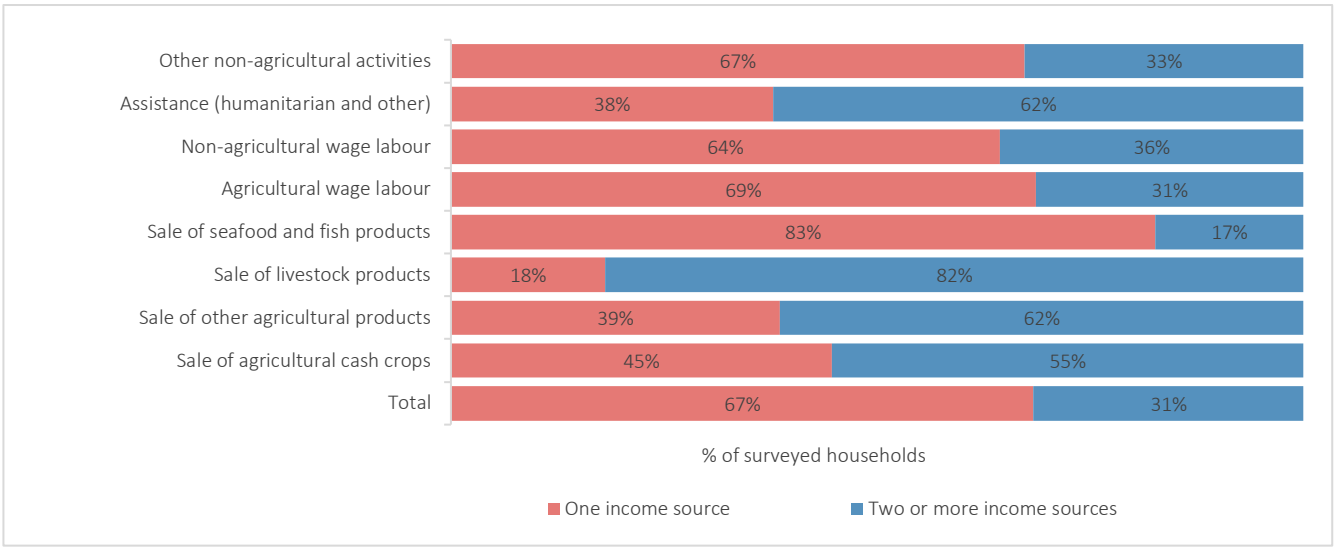


Source: FAO, 2020; FAO assessment results

The sale of seafood and fishery products served as major income source only for 2 percent of the total households. This can be attributed to the sampling frame comprising of FAO's past and present beneficiaries. It is likely that FAO Yemen provided more support to crop producers than to fishers hence there are fewer households with sale of seafood and fish as major income source.

Nearly one-third of the surveyed households reported relying on more than one income source (Figure 21), which is likely to make them less vulnerable to any specific shock. A large majority of the producers and sellers of cash crops, agricultural products and livestock also reported having multiple sources of income. Among those who mainly depended on humanitarian and other forms of assistance, three out of five households had at least one additional income source. Also, households whose main income derives from non-agricultural activities, wage labour (agriculture and non-agriculture) and fisheries were more likely to report only one source of income.

Figure 21. Number of income sources

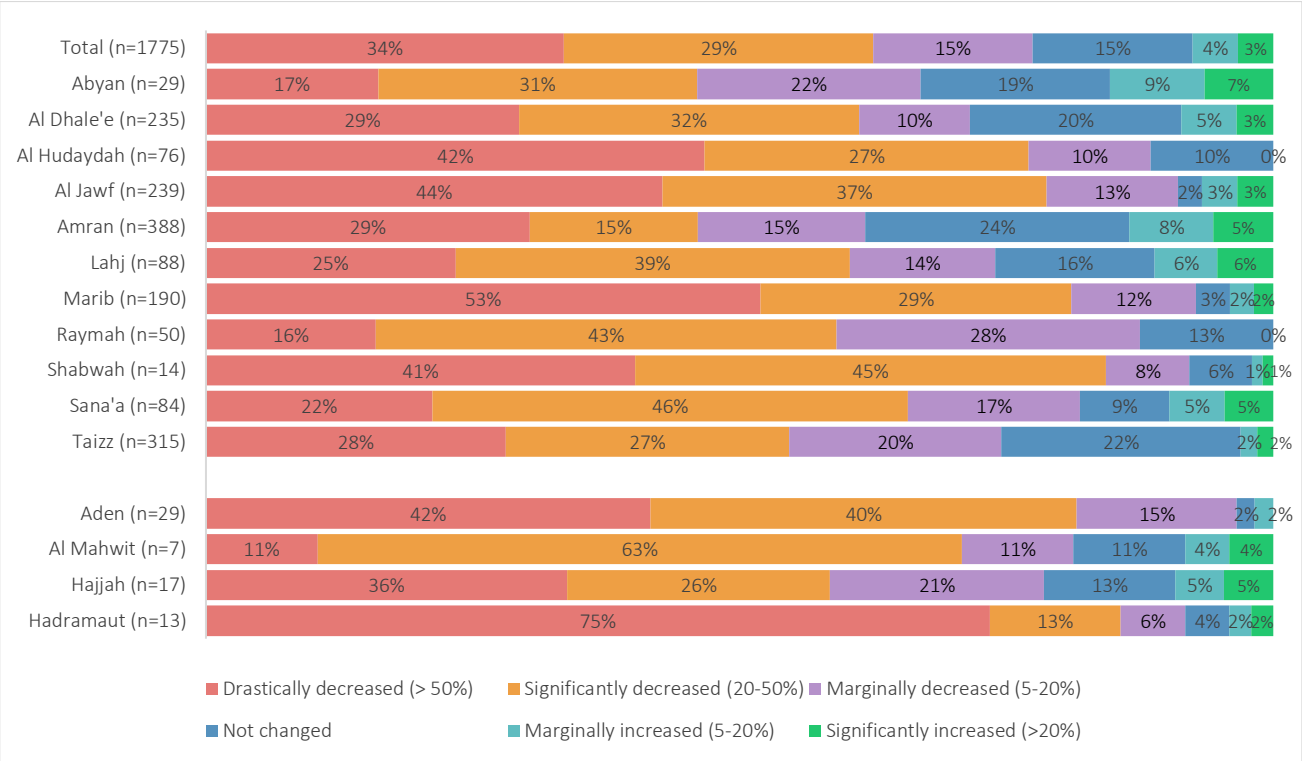


Source: FAO, 2020; FAO assessment results

Change in main income in past three months

During the household survey period (August–September 2020), 62 percent of the surveyed households reported a drastic to significant decline in their income during the past three months, and over 50 percent of all surveyed households reported drastic to significant decreases in income across all governorates concerned (Figure 22).

Figure 22. Change in main source of income in past three months, by governorate[12]



Source: FAO, 2020; FAO assessment results

The survey period coincided with the planting and growing season of major crops, which may have contributed to the further degeneration of income along with other factors. In terms of substantial decrease in income, the hardest hit governorates are Al Hudaydah, Al Jawf, Marib and Shabwah, where over 40 percent of the households reported a decrease of more than 50 percent in their main source of income over the past three months (Figure 22). In the governates of Aden, Al Mahwit, Hadramaut and Hajjah, there were also indications of substantial decreases in income.

Moreover, while all livelihood groups were affected by a decrease in income in the past three months, households depending on assistance from humanitarian and other sources and livestock producers and sellers have been the most affected, with over 40 percent of these households experiencing a decrease in income of more than 50 percent (Table 12). The increased funding gap in humanitarian assistance and reduced remittance flows helps explain the amplified vulnerability of the households who mainly rely on assistance from others for their survival. Although households that depend on assistance as their main livelihood support were also more likely to have more than one income source, their secondary income sources may not be sufficient to fill the considerable gap created by a drastic decline in their primary income source. As for livestock producers, the death of animals due to disease is a plausible cause for the drastic change in their income.

[12] The two categories "Marginally increased (5–20%)" and "Significantly increased (>20%)" have small observations (<5) in most governorates, hence the respective estimates are not reliable. The weighted and unweighted "n" values for Aden, Al Mahwit, Hadramaut, and Hajjah are too small, so the responses are indicative only. For this reason, their data is shown separate from the rest.

Table 12. Change in income over past three months, by main source of income

Main sources of income	Drastically decreased (> 50%)	Significantly decreased (20–50%)	Marginally decreased (5–20%)	Did not change	Increased
	percentage of surveyed households				
Sale of cash crops	33	25	23	11	5
Sale of other agricultural products	34	31	12	10	11
Sale of livestock products	44	25	14	9	7
Sale of seafood and fish products	26	42	19	10	2
Agricultural wage labour	35	35	8	17	4
Non-agricultural wage labour	32	34	14	10	4
Other non-agricultural activities	29	28	14	25	4
Assistance (humanitarian, friends/family, charity, other)	45	22	15	16	0

Source: FAO 2020; FAO assessment results

Shocks and debts

Shocks experienced by the households in past three months

Idiosyncratic shocks such as sickness of household members (47.7 percent of reporting households) was the most widely reported shock, followed by increases in prices (35.2 percent of reporting households). In addition, households in certain governorates were affected by the impacts of natural disasters, conflict and loss of employment and income as major shocks (Table 13).

It is worth noting that restrictive measures in response to COVID-19 were not perceived as a significant shock by the majority of surveyed households. Over one-third of the surveyed households reported having encountered more than one type of shock in the past three months. The governorates where over half of the surveyed households experienced more than one shock were Al Hudaydah, Al Jawf, Marib, Sanaa and Shabwah. In turn, the proportion of surveyed households experiencing multiple shocks was highest in Marib, at 70 percent of all reporting households.

Table 13. Major shocks experienced by the surveyed households in past three months[13]

(percentage of household respondents, by governorate)

Governorate	Number of households (weighted)	Sickness of household members (n)	Death of household members (n)	Employment loss (n)	Income loss (n)	Price increases (n)	Natural hazard (n)	Insecurity and/or conflict (n)	No shock (n)	Households facing > 1 shock (n)
Abyan	29	60.5% (17)	5.9% (2)	5.9% (2)	7.6% (2)	39.5% (11)	1.7% (0)	16% (5)	17.6% (5)	44.5% (13)
Al Dhale'e	235	44.4% (104)	4.3% (10)	2.6% (6)	1.7% (4)	11.1% (26)	0% (0)	11.1% (26)	25.6% (60)	8.5% (20)
Al Hudaydah	76	58.4% (44)	2.2% (2)	5.8% (4)	3.6% (3)	62% (47)	16.1% (12)	0% (0)	16.1% (12)	53.3% (41)
Al Jawf	239	66.7% (159)	10.3% (25)	3.4% (8)	3.4% (8)	43.7% (104)	4.6% (11)	11.5% (27)	17.2% (41)	50.6% (121)
Amran	388	38% (148)	6.5% (25)	2.2% (8)	1.1% (4)	6.5% (25)	2.2% (8)	2.2% (8)	44.6% (173)	7.6% (30)
Lahj	88	47.3% (42)	5.5% (5)	4.8% (4)	5.5% (5)	41.8% (37)	0.7% (1)	6.2% (5)	28.1% (25)	43.2% (38)
Marib	190	41.6% (79)	6.3% (12)	10.9% (21)	10% (19)	65.6% (124)	21.3% (40)	28.1% (53)	11.3% (21)	70.1% (133)

[13] Estimates with observations (*n* value) < 5 are not reliable. In addition, the unweighted and weighted n values in Aden, Al Mahwit, Hadramaut and Hajjah are too small, so the estimates are indicative only. The unweighted *n* values by governorate are reported in the Methodology section of this report.

Raymah	50	53.4% (26)	0% (0)	15.9% (8)	3.4% (2)	34.1% (17)	1.1% (1)	0% (0)	33% (16)	38.6% (19)
Sana'a	84	51% (43)	4.7% (4)	18.1% (15)	12.1% (10)	57.7% (49)	4.7% (4)	0% (0)	18.8% (16)	55.7% (47)
Shabwah	14	47.5% (7)	1% (0)	1% (0)	5.9% (1)	67.3% (10)	9.9% (1)	0% (0)	18.8% (3)	51.5% (7)
Taizz	315	44.8% (141)	2.6% (8)	9.3% (29)	4.1% (13)	45.9% (145)	0.4% (1)	6.7% (21)	29.5% (93)	39.6% (125)
Aden	29	60% (17)	1.7% (0)	11.7% (3)	8.3% (2)	35% (10)	8.3% (2)	0% (0)	21.7% (6)	53.3% (15)
Al Mahwit	7	78.3% (6)	0% (0)	10.9% (1)	19.6% (1)	78.3% (6)	2.2% (0)	0% (0)	10.9% (1)	80.4% (6)
Hadramaut	13	29.2% (4)	0% (0)	8.3% (1)	16.7% (2)	66.7% (8)	39.6% (5)	0% (0)	12.5% (2)	58.3% (7)
Hajjah	17	46.8% (8)	4.8% (1)	3.2% (1)	9.7% (2)	25.8% (5)	0% (0)	0% (0)	21% (4)	30.6% (5)
Total	**1 775**	**47.7% (846)**	**5.3% (94)**	**6.3% (112)**	**4.4% (78)**	**35.2% (625)**	**4.9% (88)**	**8.2% (146)**	**26.9% (478)**	**35.3% (627)**

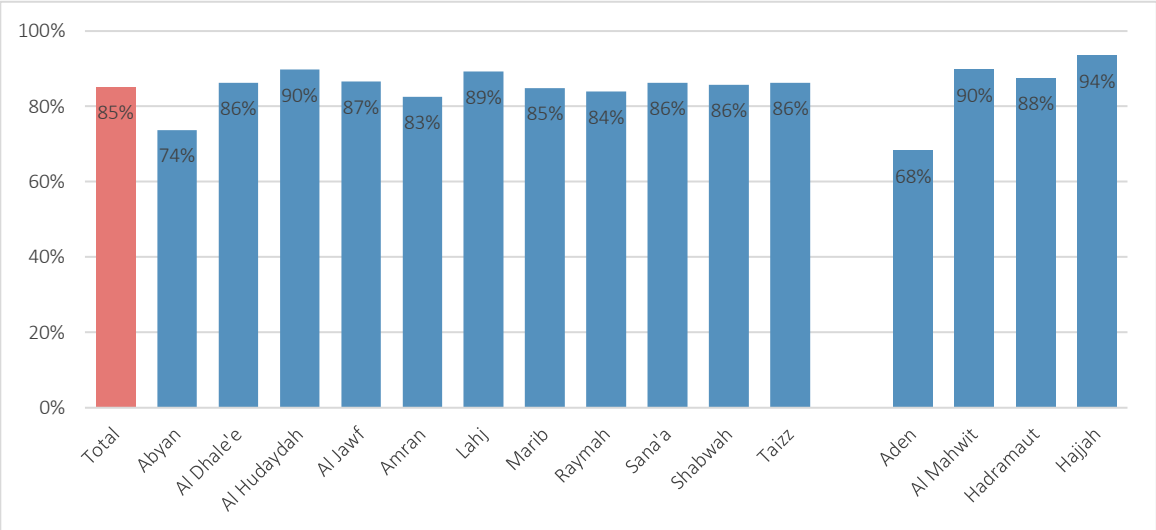
Source: FAO 2020; FAO assessment results

Due to insufficient information, it is difficult to contextualise the illness and death of household members amidst the COVID-19 pandemic in Yemen. The pandemic is occurring against a backdrop of high levels of other communicable diseases like cholera, measles, dengue and poor health infrastructure due to the ongoing conflict. As such, these may all be contributing factors faced by households who have reported illness or death. With this in mind, the Ministry of Public Health reported the cumulative total number of suspected cholera cases from 1 January to 2 August 2020, amounting to 167 278, with 48 associated deaths (CFR 0.03 percent). Children under five years of age represented 24 percent of total suspected cases during 2020 (WHO, 2020b).

Household debt in past three months

Across the majority of the governorates, over 80 percent of the surveyed households incurred new financial debt in the past three months and declared not have repaid it by the time of the survey (Figure 23). Over 40 percent of these households had debt amounting to over 200 000 YER, which is above USD 250.[14] Over one-third of the households in governorates including Al Dhale'e, Al Jawf and Marib incurred debt more amounting to more than YER 400 000, which is above USD 500.

Figure 23. Households incurring new debt in past three months, by governorate[15]



Source: FAO 2020; FAO assessment results

The highest percentage of households who reported incurring debt in past three months are agricultural wage labourers, almost 87 percent. In terms of value, sellers of agricultural crops and products had higher total amounts of debt, more than YER 300 000 (Table 14). The survey period coincided with the planting and growing periods of the staple crops when households invested in agricultural inputs. The findings of the household survey and key informant interviews of agricultural extension officers and traders point to the conclusion that access to agricultural inputs has been constrained by high prices, which consequently increased production

[14] The national monthly average of the unofficial exchange rate of YER against USD in September 2020 is USD 1 = YER 700 (FAO, 2020d).
[15] The data from Aden, Al Mahwit, Hadramaut and Hajjah governorates is shown separate from the rest given their small sample sizes. This information is thus indicative only.

costs and this may have caused the very high debt rates reported by the farm-based households.

Table 14. Households incurring new debt in past three months, by income source

Main income sources	Percentage of surveyed households incurring debt in the past three months	Median debt incurred (YER)
Sale of cash crops	81	300 000
Sale of other agricultural products	80	300 000
Sale of livestock and livestock products	83	200 000
Sale of seafood and fishery products	60	120 000
Agricultural wage labour	87	200 000
Non-agricultural wage labour	84	150 000
Other non-agricultural activities	80	200 000
Assistance (humanitarian and others)	85	170 000
Other income sources	82	150 000

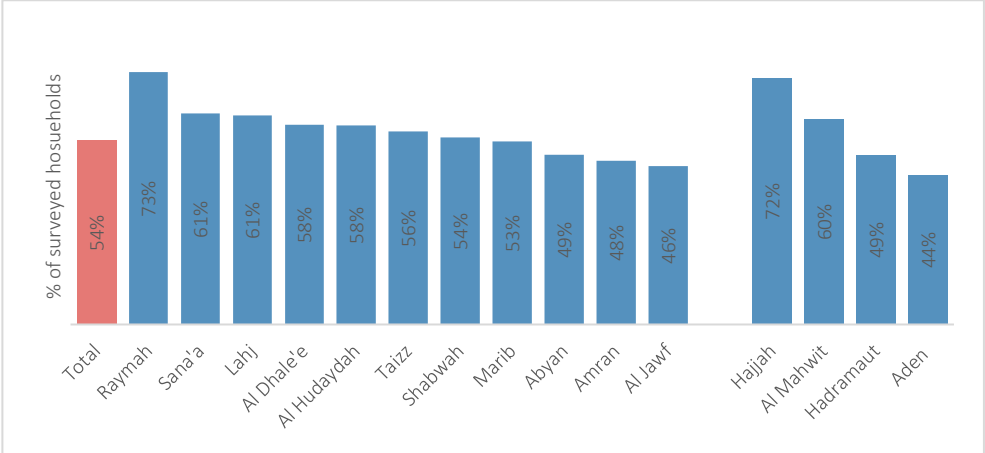
Source: FAO 2020; FAO assessment results

Similarly, among households selling livestock and livestock products, 44 percent had financial debt amounting to over YER 200 000. It is worth noting that there is substantial overlap between the crop and livestock producers, given that about half of the surveyed households in this sample engage in both activities.

Food security

To assess the recent food insecurity status of the households covered in the survey, a 30-day recall period of the Food Insecurity Experience Scale (FIES) was applied. Results (Figure 24) show that 53.6 percent of the population represented by the households reached with this sample[16] were either moderately or severely food insecure, as defined in the context of the global monitoring of the Sustainable Development Goals (SDG).[17]

Figure 24. Food Insecurity Experience Scale, moderate to severe[18]



Source: FAO 2020; FAO assessment results

Against this assessment, over half of the represented population in Raymah, Sana'a, Lahj, Al Dhale'e, Al Hudaydah, Taizz, Shabwah and Marib would be classified as either moderately or severely food insecure. Raymah would have the highest prevalence of food insecure households, at over 70 percent. In the governorates with very small samples, such as Hajjah and Al Mahwit, it is also likely to expect higher food insecurity levels.

The FIES-based prevalence of food insecurity assessment has also been estimated by grouping households in terms of their reported main source of income; results show the expected gradient.

[16] In computing the estimates, appropriate weights were applied to reflect the differences in the share of vulnerable household in each governorate as measured in the reference population (defined by FAO Yemen list of beneficiaries) and in the realized sample.

[17] The category "moderate or severe" defined in the context of the SDG monitoring is based on globally uniform food insecurity severity thresholds that do not necessarily coincide with those used in the context of IPC acute food insecurity analyses. The SDG "moderate or severe" class is expected to capture more households than the IPC "Crisis" level (IPC Phase 3 or higher). Specific research is ongoing at FAO to establish appropriate thresholds to be used with FIES data in the context of IPC analyses.

[18] The data from Hajjah, Al Mahwit, Hadramaut and Aden governorates is shown separate from the rest given their small sample sizes. This information is thus indicative only.

Households whose main source of income comes from humanitarian and other forms of assistance and daily wage labour (both agricultural and non-agricultural) have a higher proportion of food insecure households compared to others (Table 15). This is hardly surprising when considering that households whose main income source stems from assistance are the hardest hit in terms of decline in incomes.

Table 15. Most food insecure households, by income source and FIES

Main income sources	FIES: moderate to severe food insecurity (percentage of surveyed households)
Assistance (humanitarian and other)	62
Non-agricultural wage labour	61
Agricultural wage labour	56
Other non-agricultural activity	50
Sale of livestock and livestock products	47
Sale of agricultural cash crop	45
Sale of other agricultural products	39
Sale of seafood and fish products	37

Source: FAO 2020; FAO assessment results

The conflict, restriction measures and agricultural lean season have likely further constrained employment opportunities for the daily wage-based livelihoods. With eroded income and high price of staples in the market, these households are likely to have compromised food consumption more than other households.

Table 15 also shows that agricultural households are in a more favourable food security state than non-agricultural households. Generally, crop producers stock food from their previous harvest which provides them insulation during the lean seasons. Among the agriculture income-based households, livestock producers and sellers have a higher percentage of food insecure households compared to crop and fish producers.

Most affected population groups and needs

In the surveyed households, the most affected are identified based on their reported main income sources and the livelihood-related stress that they have experienced over the past three months.

Livelihood stress is measured based on:

- decreases in income;
- number of income sources;
- level of debt;
- worse categories of livelihood coping strategies; and
- major household shocks.

Eight variables are used to derive an ad hoc score to rank the main income source groups from affected to worst affected (Table 16).[19]

While all categories of households experienced exposure to shock and vulnerabilities, the hardest hit households were daily wage labour-based households (agricultural wage and non-agricultural wage labours) and households whose main income source depended on humanitarian or other forms of assistance, such as support from family and friends, remittances, begging or charity, among others.

Among households whose main source of income stemmed from agricultural production, livestock producers and sellers were the most affected, followed by cash crop producers and sellers (Table 16).

The ranking of affected households based on livelihood indicators align well with the ranking of households based on food insecurity. This suggests that diminishing livelihood and income are contributing to the compromised food consumption in Yemen.

[19] Each of the eight indicators are ranked from 1 better to 8 worse by eight main income sources. The ranks are summed up to derive a score, the highest achievable score is 64 (8 indicators x 8 main income sources) and lowest score is 8 (1 x 8). Based on the scores, the income source groups are ranked from affected to worst affected.

Table 16. Household vulnerability ranking, by main income source and livelihood stress indicator[20]

	Change in income		Debt	Severe livelihood coping strategy		Income	Main shocks			
Income source	Drastically decreased	Significantly decreased	Incurred debt and could not pay it	Emergency livelihood coping strategy	Crisis livelihood coping strategy	One income source	Illness or death of household members	Increased prices	Score	Rank
percentage of surveyed households										
Agricultural wage labour	35	35	87	17	63	69	57	26	48	Most affected
Non-agricultural wage labour	32	34	84	16	64	64	45	42	41	
Assistance (humanitarian and others)	45	22	85	16	59	38	62	44	40	
Sale of livestock and livestock products	44	25	83	10	61	18	58	61	38	
Other non-agricultural activities	29	28	80	17	56	67	44	46	34	
Sale of cash crops	33	25	81	16	67	45	36	42	32	
Sale of other agricultural products	34	31	80	10	57	39	51	40	28	
Sale of seafood and fishery products	26	42	60	3	54	83	50	27	26	Affected

Source: FAO 2020; FAO assessment results

[20] Each indicator is ranked from 1 to 8 (lowest to highest severity) for eight income groups. The ranks were added to derive a composite score, such that the higher the score, the higher the vulnerability.

Need for assistance in crop, livestock and fisheries production for the next three months

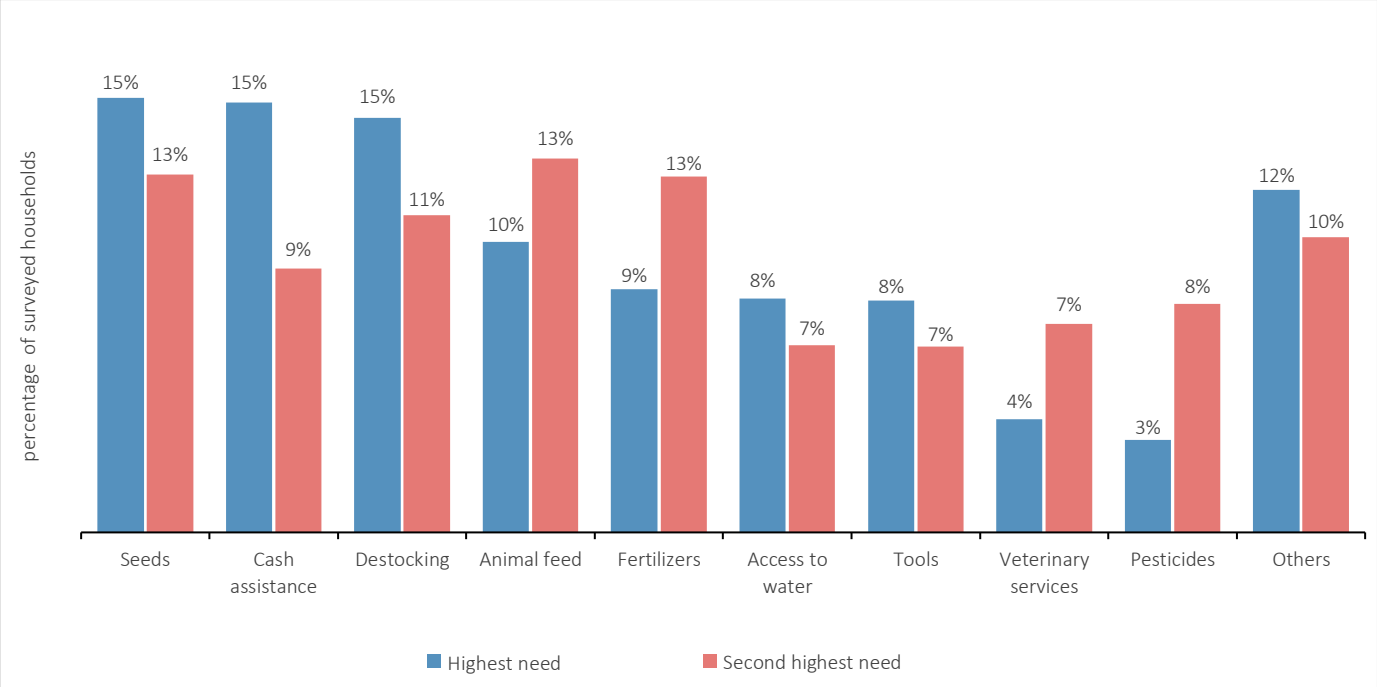
The five-year conflict continues disrupting livelihoods, reducing incomes and affecting various micro and macroeconomic dimensions in the country at large. In 2020, other additional shocks, such as the COVID-19 pandemic, further amplified the ongoing crisis, thereby exhausting the coping capacities of the households surveyed. As a result of this, the humanitarian needs in the country have broadened in scale and deepened in intensity.

The National Food Security Cluster estimates that 20.1 million people would have needed food assistance and agricultural interventions from June to December 2020, of whom 10 million would have fallen under a category of acute need.

As shown in Figure 25, the five most pressing needs reported by the surveyed households for the next three months of crop, livestock and fishery production are as follows:

1. seeds;
2. cash assistance;
3. destocking;
4. animal feed; and
5. fertilizers.

Figure 25. Highest and second highest need for assistance in crop, livestock and fisheries production in next three months



Source: FAO 2020; FAO assessment results

In addition, the needs for assistance for the surveyed household respondents vary according to their primary source of livelihood, as illustrated in Table 17).

Table 17. Highest needs, by agricultural livelihood[21]

Agricultural livelihood	Seeds	Fertilizers	Pesticides	Tools	Animal feed	Access to water	Veterinary services	Destocking	Fishing equipment	Cash assistance	Other
percentage of surveyed households											
Crop production only	23	8	4	14	0	13	0	11	0	11	16
Livestock production only	*2.2	*2.7	0	*1.5	19	5	5	27	0	32	3
Crop and livestock	18	10	4	9	11	8	5	13	0	12	9
Fisheries only	0	0	0	11	0	*1.5	0	0	70	6	11

Source: FAO 2020; FAO assessment results

The major findings on needs, based on livelihood groups are as follows:

- Destocking and animal feed are the predominant needs of households who engage in livestock production only.
- Seeds, tools and access to water are the predominant needs of the crop-producing households.
- Seeds and destocking are the predominant needs of the households who engage in both crop and livestock production.
- Fishing equipment for households dedicated to fisheries activities.
- Direct cash assistance is an important need across all types of livelihoods, with households engaged in livestock production and selling reporting it as a particularly dire need they face.

Most urgent needs for the next three months
As highlighted by the food traders, the most urgent priorities are fuel and transportation, whereas the most urgent needs for the next three months, as reported by the agricultural extension officers are access to seeds and agricultural inputs and the access to veterinary services.

[21] The estimates with asterisks represent less than five household responses, therefore they are not reliable and should only be interpreted as indicative.

Most vulnerable areas in relation to worse performing livelihood indicators and shocks

A similar principle to that used to identify the affected households was applied to rank governorates in terms of vulnerability.[22]

Shabwah, Al Hudaydah, Sanaa, Al Jawf and Marib are the most vulnerable governorates (where the majority of the indicators have an individual score of 10 and above out of 15 (Table 18). These top five affected governorates are also reported by IPC Projection for July–December 2020 as areas with more than 40 percent of the population in a phase of crisis or higher (IPC Phase 3 and above).

Among the four governorates with small samples, indications suggest that Al Mahwit is the most affected one (Table 18).

[22] Each of the indicators are ranked from 1 (better) to 15 (worse) for all 15 governorates. The ranks are added up to derive a score. The highest achievable score is 105 (7 indicators x 15 governorates) and lowest score is 7 (1 x 7). Based on these scores, the governorates are ranked from “affected” to “worst affected”.

Table 18. Vulnerability ranking of surveyed governorates based on livelihood stress indicators

Governorates	Change in income (percentage of households)		Debt (percentage of households)	LCSI: Emergency (percentage of households)		Shocks (percentage of households)		Score	Rank
	Drastically decreased (> 50%)	Significantly decreased (20–50%)	Incurred debt	Emergency	Crisis	Illness of household members	Increased prices		
Shabwah	41	45	86	12	74	48	67	73	Worst affected
Al Hudaydah	42	27	90	20	61	58	62	69	
Sana'a	22	46	86	13	70	51	58	64	
Al Jawf	44	37	87	7	59	67	44	62	
Marib	53	29	85	14	69	42	66	60	
Lahj	25	39	89	6	74	47	42	57	
Raymah	16	43	84	22	68	53	35	54	
Taizz	28	27	86	12	74	45	46	52	
Al Dhale'e	29	32	86	39	43	44	11	45	
Abyan	17	31	74	8	66	61	40	44	
Amran	29	15	83	11	64	38	7	28	Affected
Al Mahwit	11	63	90	20	76	78	78	85	
Hajjah	36	26	94	37	58	47	27	53	
Hadramaut	75	13	88	4	65	29	67	50	
Aden	42	40	68	3	52	60	35	44	

Source: FAO 2020; FAO assessment results

Conclusion

Yemen's main economic sector is agriculture, which has been crippled by the compounded effects of displacements, disease outbreaks and diminishing livelihood options. Similarly, the agriculture sector has been severely constrained by a shortage of agricultural inputs, particularly seeds, vaccines, drugs, feeds and other essential commodities for the crop, livestock and fisheries sectors. As a result, the Yemeni economy has sharply contracted since the conflict escalated, and imports and internal movement of goods have become more costly and difficult to ensure. Yemen is in a dire need of strengthening its agricultural sector, specifically revitalising crop and livestock production.

Humanitarian agencies working in Yemen have their own Humanitarian Response Plan, which is updated on an annual basis according to the evolving needs in the country. At present, the major interventions that are implemented in the country fall under:

- food assistance through direct and voucher-based food distribution and school feeding
- livelihood restoration which mostly focuses on agricultural livelihoods
- health, nutrition, and immunization support
- water, sanitation and hygiene (WASH).

Given the array of programmes that the humanitarian agencies are implementing, providing recommendations for new interventions is not a viable option. Strengthening the ongoing livelihood and food security interventions so that they can accommodate the needs reported by the households is a more realistic approach.

Recommendations

The surveys conducted clearly revealed that agricultural producers are facing serious difficulties in accessing agricultural inputs and in marketing and transporting their products. The key drivers of their constraints are the high prices of livelihood inputs and their financial inability to afford the high cost of the inputs and equipment to begin with. In this respect, this report has identified suitable measures to stabilise the livelihood and food insecurity of those most in need, as follows.

1. Reinforcing the livelihood restoration programmes through a holistic approach.
    - Combining cash voucher with the in-kind agricultural incentives in the farmer's supply chain system for the small producers can be a first-hand solution. Providing cash to small-scale producers engaged in crop, livestock and fish production can also boost the purchasing power within the wider local agricultural market. The design of the cash and in-kind support interventions should be preceded by a market survey to assess the availability of agricultural inputs and equipment in the market and evaluate cash voucher option.
    - Scaling up the ongoing agricultural income-generating programmes for the most vulnerable groups. These programmes should connect the beneficiaries to the agricultural extension services and agricultural markets, so that the income generation objective sustains in the long run.

2. Reinforcing the expansion of agricultural extension services, particularly for the livestock support, remains crucial. To this end, the agencies concerned should work together to improve the technical support to crop and livestock producers. This can be achieved through the following four approaches.
    - Expanding the early warning system of animal disease outbreak and veterinary services and the vaccination of animals.
    - Expanding the training on animal health among community-based livestock health workers so that veterinary services can be delivered to an increased number of affected households and communities.
    - Scaling up the distribution of livestock restocking tools and relevant equipment to livestock producers.
    - Providing fishing equipment, in particular fishing gear and boats, to the most vulnerable households who depend on fishery activities.
3. Scaling up the food assistance programmes particularly during the agricultural lean seasons, and at the times of escalated shocks like outbreak of pandemic, natural disasters etc. An increased focus on food-for-work or cash-for-work interventions, beyond general food distribution, is recommended in order to address the seasonal shocks.
4. Expanding and strengthening real-time food security, agriculture and livelihoods monitoring systems to provide timely and improved information with which to measure the impacts of COVID-19 and of other shocks. The protracted crises in the country warrant a data collection and analysis system through which to inform evidence-based programming. This data collection system should be established through a coordinated approach and agreement between the humanitarian agencies concerned in the interest of avoiding duplication of information and efforts.

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