

East Africa Regional Desert Locust Impact Monitoring

Round 1

KEY MESSAGES

- The Food Security and Nutrition Working Group (FSNWG) recently conducted a regional Desert Locust impact assessment in Ethiopia, Kenya, Somalia, and Uganda using a harmonized approach. The assessment **interviewed 10,831 agricultural respondents across Desert Locust-affected areas of the region in June/July 2020.**
- The assessment found that amongst respondents who either 1) currently had crops in their fields or 2) owned livestock, **roughly a third experienced desert-locust related pasture or crop losses.**
- For impacted households, Desert Locust losses were often quite large. More specifically, **roughly half of impacted cropping and livestock-rearing respondents experienced high or very high losses** to their crops and rangeland, respectively.
- Beyond direct crop and rangeland impacts, Desert Locust affected respondents also commonly expressed concerns that Desert Locusts were causing **emotional stress, environmental impacts, increased food insecurity or malnutrition, and animal health issues.**
- Due to multiple, compounding hazards (e.g. Desert Locusts, COVID-19, climatic shocks), there **was general pessimism amongst respondents (both those affected by Desert Locusts and those who were not) about harvest prospects and current rangeland conditions.** Given already high levels of food insecurity across the region, these challenges threaten to drive further food security deteriorations in the coming months.



Source: FAO

Assessment funded by:



Food and Agriculture
Organization of the
United Nations

For questions and /or any other feedback, please contact the FSNWG Secretariat through:

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METHODOLOGY

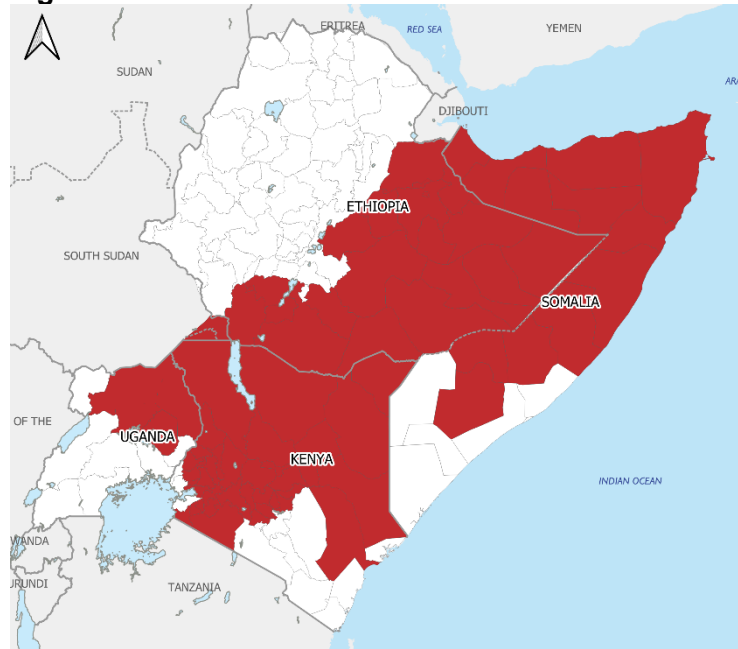
The assessment interviewed 10,831 respondents across Desert Locust-affected areas of Ethiopia, Kenya, Somalia, and Uganda (Figure 1) who indicated that their household was active in agricultural activities (cropping or livestock rearing) during the past 12 months. Desert Locust-affected areas were defined as administrative units where either 1) Desert Locusts were reported during the past two months, based on eLocust3M data, or 2) there was reasonable evidence to believe that Desert Locusts were likely present in the area despite a lack of data due to inadequate coverage of eLocust3M.

Data collection was conducted in June and July 2020, near the end of the cropping season in most areas (Figure 2), using a cell phone-based household survey approach.

The assessment was deployed by a service provider, GeoPoll, and interviewed respondents were selected using a random sampling approach. In each administrative unit assessed, the team aimed to interview at least 150 respondents. This goal was reached in all but two areas covered by the assessment¹.

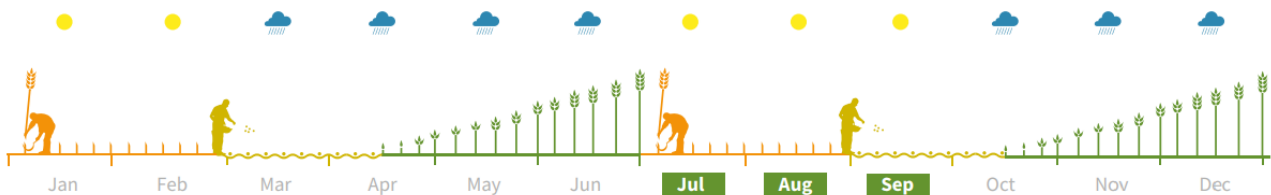
After data collection was completed in all countries, the data was cleaned. During this process, 433 respondents were dropped from the analysis due to data quality issues. This resulted in 10,398 interviews being included in the final analysis.

Figure 1. Assessed Desert Locust Affected Areas



Source: FSNWG

Figure 2. Seasonal calendar for the Horn of Africa



Source: FAO

KEY FINDINGS

Regional Analysis

Demographics

The assessment included cropping, agropastoral, and pastoral regions of East Africa and aimed to interview households with both cropping and livestock incomes. In total, 7,750 respondents had income from crop sales during the past year, of which 7,088 had crops in the field at the time of the survey. Additionally, 5,745 respondents had income from livestock or livestock product sales during

¹ 148 respondents were interviewed in Togdheer (Somalia) and 144 respondents were interviewed in the Eastern region (Uganda).

the past year. Other common income sources amongst the assessed respondents were salaries/wages, agricultural wage labour, petty trade, and nonfarm casual labour.

Amongst cropping households, the most commonly reported crops that respondents were growing were maize, pulses, fruits/vegetables, root crops/tubers, and sorghum. For livestock-rearing households, cattle, goats, poultry, and sheep were the most common types of animals owned.

For cropping households who reported that they did not currently have crops in the field, 67% indicated that they would, in a normal year, typically have crops in their field at this time of the year. Amongst this group who was not cultivating, the most commonly reported reasons were a loss of access to land, weather conditions and crop pests (including locusts). Meanwhile, very few livestock-rearing households indicated that they had dropped out of livestock-related activities during the past 12 months.

The average age of the respondents interviewed was 35 years old. Twenty six percent of respondents were female while 74 percent were male.

Awareness of Desert Locusts

Awareness of Desert Locusts amongst respondents was high across the surveyed areas with 95 percent of respondents indicating that they had heard of Desert Locusts. The most common sources of information were 1) observation of Desert Locusts, 2) radio, and 3) television. Awareness levels were very high across both genders, though a slightly higher percentage of men (96 percent), compared to women (93 percent), reported being aware of Desert Locusts. There were no major differences in information sources between the two genders.

Desert Locust Observations and Losses

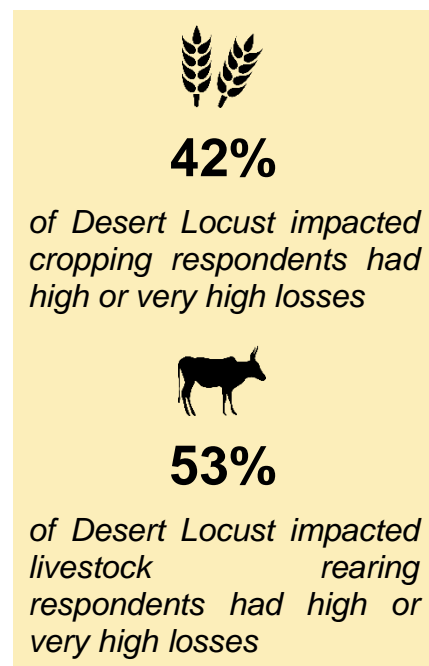
Amongst the 7,088 respondents who had crops in the field at the time of the survey, 43 percent of respondents indicated that they had seen Desert Locusts in their fields, and 30 percent of respondents reported Desert Locust-related losses to their crops.

For those who reported losses, Desert Locust impacts were in many cases significant. More specifically, 42 percent of cropping households who experienced losses indicating that their losses were high or very high, factoring in reported area affected and the severity of damages within fields that were impacted. Additionally, 42 percent thought that the current condition of their most important crop was poor, and 69 percent reported that upcoming harvests of this crop would be below average.

The most commonly reported crop stages when Desert Locust damages occurred, according to respondents, were the vegetative, flowering and seedling stages. Damages occurring during the seed filling and harvest periods were much less commonly reported.

For livestock-rearing households, 57 percent of respondents indicated that they had observed Desert Locusts in their rangelands, and 41 percent indicated that the Desert Locusts caused rangeland losses.

Similar to affected cropping households, losses for affected livestock-rearing households were often significant. More specifically, 53 percent of affected respondents indicating that they had high or very high losses to their rangeland. Additionally, 52 percent of respondents with losses thought that the current availability of pasture was below average while 69 percent thought their livestock were in either fair or poor condition. Of particular concern, 35 percent indicated that their livestock were



in poor condition. This finding would not typically be expected at the end of the rainy season when livestock body conditions would normally be relatively good due to the high availability of pasture and water resources.

For both crop and livestock-rearing respondents, the highest percentages of respondents observing Desert Locusts and reporting related losses were observed in Ethiopia while Kenya reported the lowest levels (Table 1). Similarly, the magnitude of losses reported by affected respondents were highest in Ethiopia (Table 2).

Table 1. Percentage of respondents reporting having observed Desert Locusts and experiencing losses, by country and livelihood activity.

Country	Cropping Respondents		Livestock Respondents	
	% Observed DL	% DL Losses	% Observed DL	% DL Losses
Ethiopia	80%	56%	84%	65%
Kenya	27%	17%	35%	24%
Somalia	54%	36%	60%	36%
Uganda	32%	29%	47%	41%
Total	43%	30%	57%	41%

Source: FSNWG Desert Locust impact assessment results

Table 2. Reported losses by country amongst respondents who indicated that they experienced Desert Locust losses to their crops or rangelands

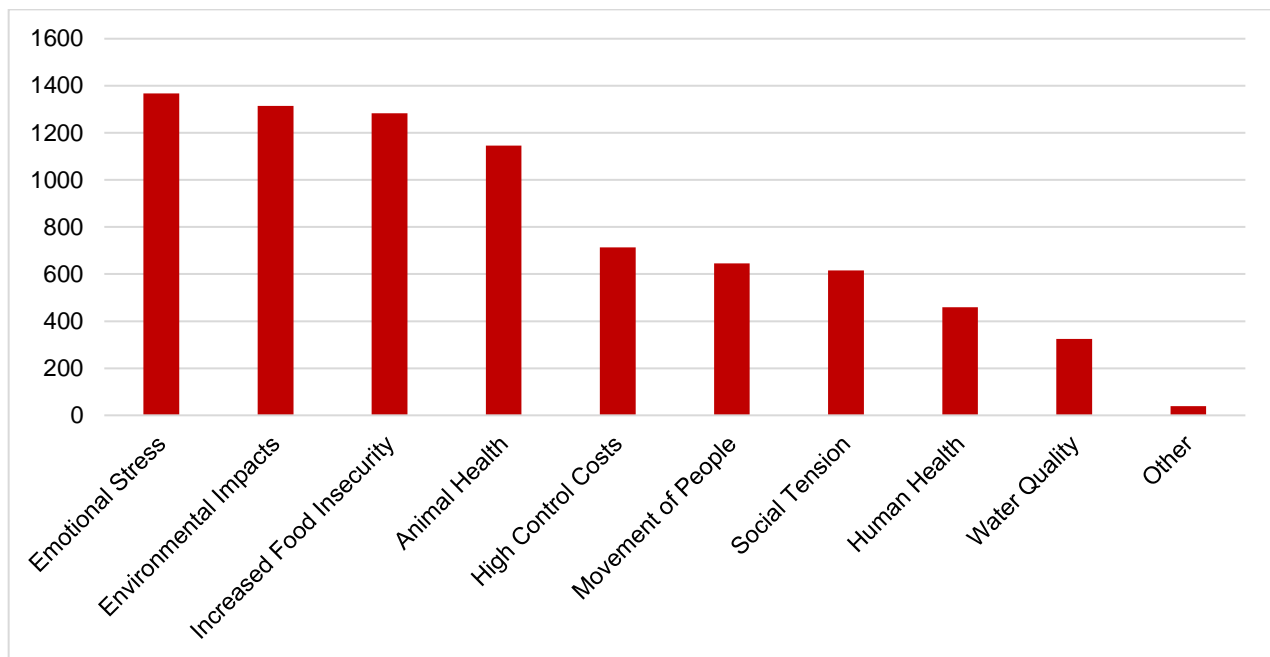
	Uganda	Kenya	Somalia	Ethiopia
Of cropping respondents who reported crop losses....	<ul style="list-style-type: none"> 9% had high or very high losses 73% thought harvests of their most important crop would be below average 	<ul style="list-style-type: none"> 40% had high or very high losses 51% thought harvests of their most important crop would be below average 	<ul style="list-style-type: none"> 48% had high or very high losses 65% thought harvests of their most important crop would be below average 	<ul style="list-style-type: none"> 50% had high or very high losses 80% thought harvests of their most important crop would be below average
Of livestock-rearing respondents reporting rangeland losses...	<ul style="list-style-type: none"> 7% had high or very high losses 33% thought their livestock were in either fair or poor condition (6% reported poor conditions) 	<ul style="list-style-type: none"> 28% had high or very high losses 59% thought their livestock were in either fair or poor condition 	<ul style="list-style-type: none"> 75% had high or very high losses 42% thought their livestock were in either fair or poor condition 	<ul style="list-style-type: none"> 61% had high or very high losses 82% thought their livestock were in either fair or poor condition (48% in poor condition)

Source: FSNWG Desert Locust impact assessment results

Other Desert Locust Impacts

Fifty-nine percent of respondents who had observed Desert Locusts also indicated that their household experienced Desert Locust-related impacts beyond direct losses to crops and pasture. Within this population, the most commonly reported impacts were increased emotional stress/anxiety, environmental impacts, increased food insecurity or malnutrition, and issues relating to animal health.

Figure 3. Other Desert Locust impacts



Source: FSNWG Desert Locust impact assessment results

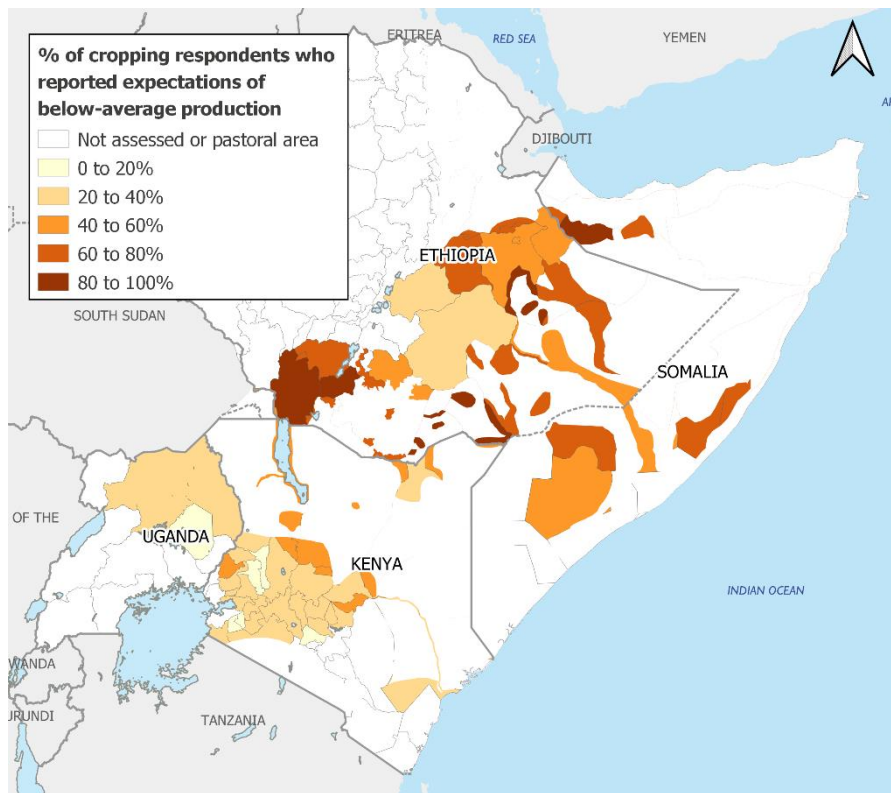
Current crop conditions and drivers

All respondents, regardless of whether they saw Desert Locusts or experienced related losses, were interviewed about the current state of their most important crop, as well as their expectations for the upcoming harvest.

As shown by Figure 4, there was general pessimism amongst the respondents about upcoming harvests, particularly in Ethiopia and Somalia where in many areas, the majority of cropping respondents thought that their production would be below average. Across the region as a whole, the most commonly reported drivers of current crop conditions were above-average rains, average rains, and Desert Locusts.

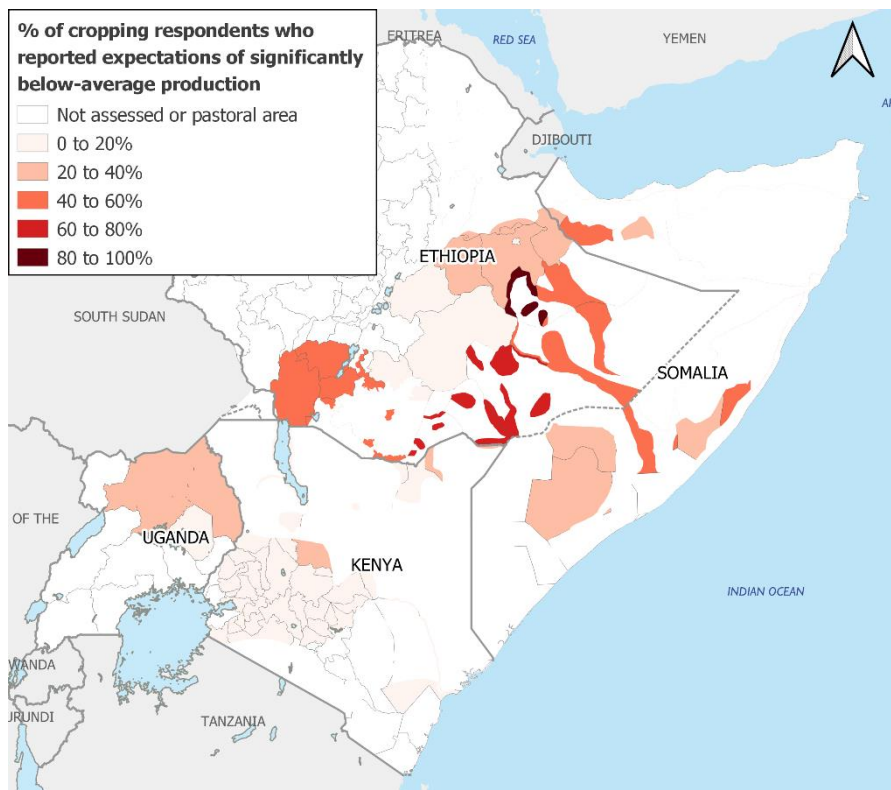
Amongst the areas with the highest levels of pessimism about upcoming harvests, South Omo, Segen Peoples', Nogob, and Liben in Ethiopia had more than 80 percent of cropping respondents indicating that they thought that their production would be below average. Similarly, more than 80 percent of cropping respondents in Woquoyi Galbeed in Somalia also thought their production would be lower than usual. Figure 6 shows that the key drivers of these expectations of below-average production varied from one area to another. However, in all cases, Desert Locusts were identified as either the most important or second most important driver of current crop conditions.

Figure 4. Percentage of respondents who indicated that they expected upcoming harvests for their most important crop to be below average (including mask to show only cropping and agropastoral areas)



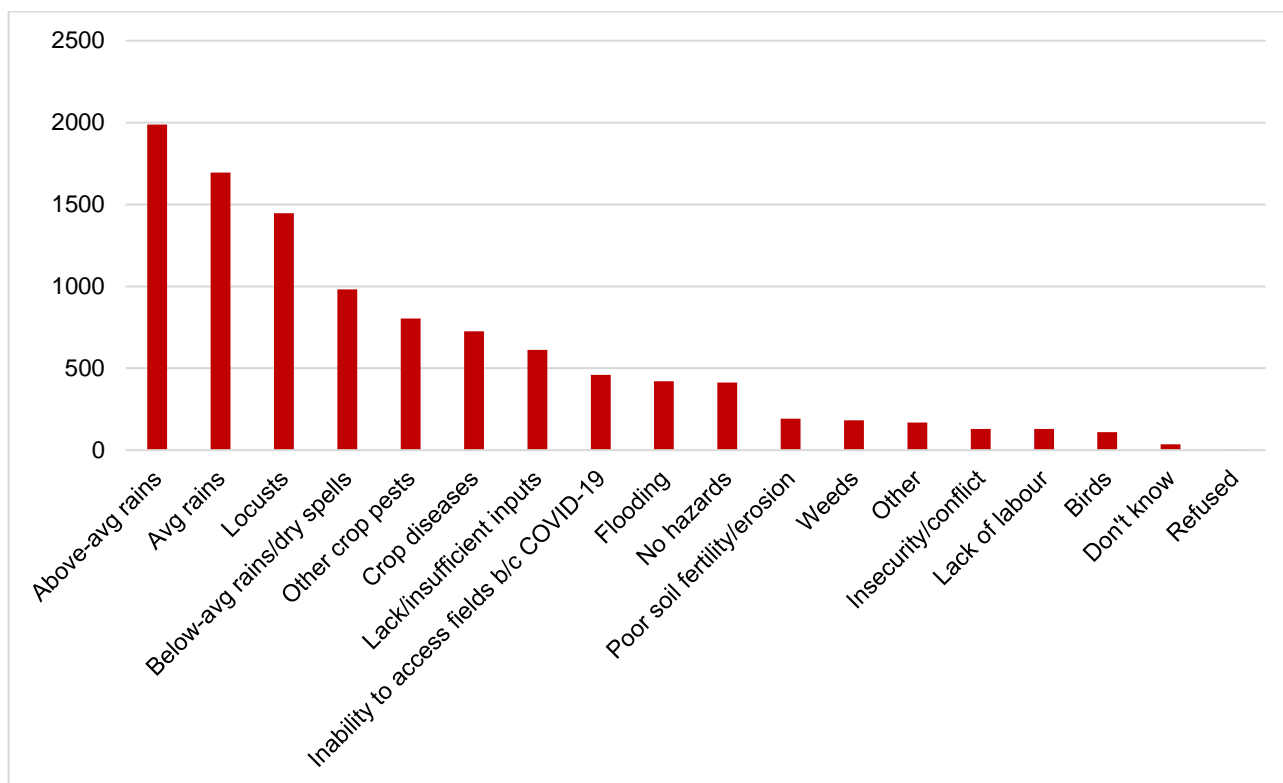
Source: FSNWG Desert Locust impact assessment results

Figure 5. Percentage of respondents who indicated that they expected upcoming harvests for their most important crop to be significantly below average (including mask to show only cropping and agropastoral areas)



Source: FSNWG Desert Locust impact assessment results

Figure 6. Drivers of current crop conditions



Source: FSNWG Desert Locust impact assessment results

Table 3. Drivers of current crop conditions in key areas of concern

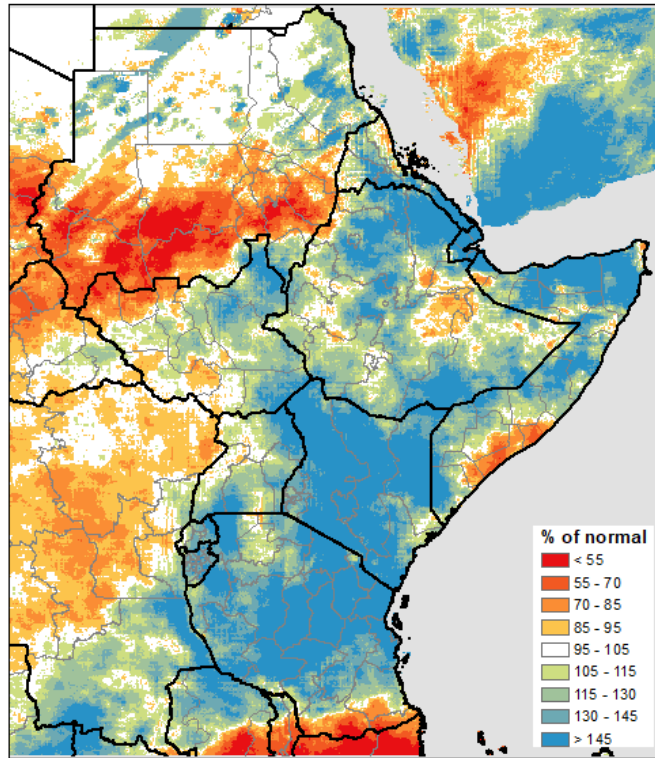
Administrative Unit	Key Drivers of Current Crop Conditions (in order of importance)
South Omo, Ethiopia	Above-average rains, Locusts, Crop diseases
Segen Peoples', Ethiopia	Above-average rains, Locusts, Flooding, Other crop pests
Nogob, Ethiopia	Locusts, Lack/insufficient inputs, Crop diseases
Liben, Ethiopia	Locusts, Flooding, Inability to access fields b/c COVID-19
Woquooyi Galbeed, Somalia	Below-average rains/dry spells, Locusts, Other crop pests

Source: FSNWG Desert Locust impact assessment results

Current pasture availability and drivers

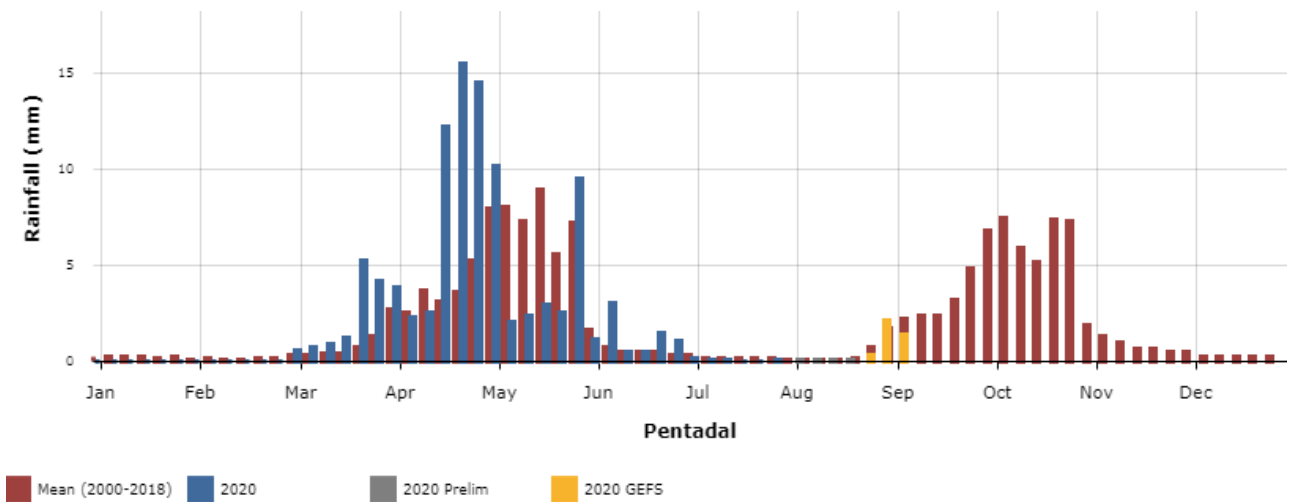
A high percentage of livestock-rearing respondents indicated that they believed current pasture availability was below average, with many areas having more than 40 percent of respondents indicating below-average availability. Across the region, the most commonly reported drivers of current pasture availability were locusts, above-average rains, and poor rainfall. With regards to the reports of poor rainfall, the region as a whole experienced well above-average rains during the recent 2020 March to May period (Figure 7). However, in some areas, a dry spell occurred in May, which was immediately before the assessment's data collection (Figure 8). For this reason, dry spells were likely on many respondents' minds at the time of the assessment.

Figure 7. Seasonal Rainfall Accumulation (% of normal), March to May 2020



Source: FEWS NET/USGS

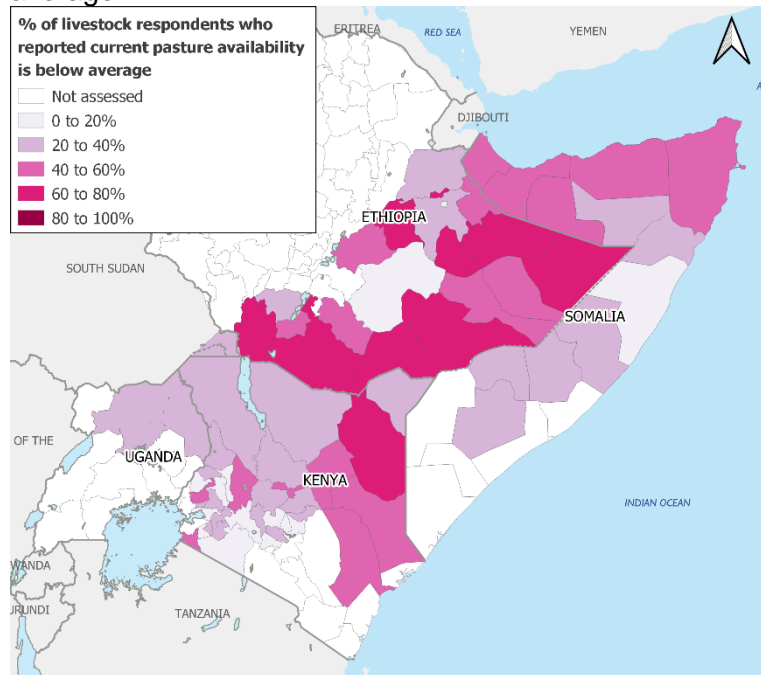
Figure 8. Rainfall distribution during the March to May 2020 season for Sool, Somalia showing May dry spell



Source: FEWS NET/USGS

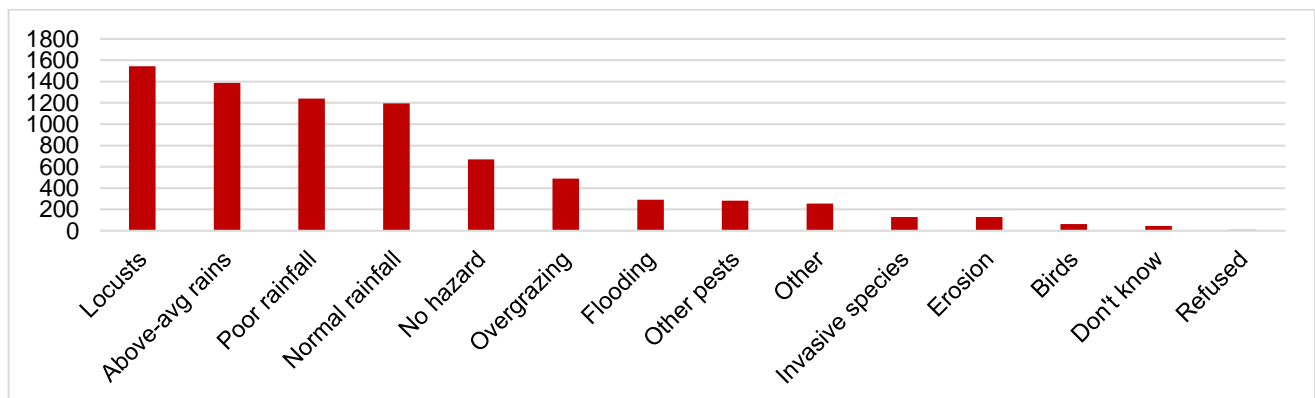
Key areas of concern with regards to pasture availability are areas where more than 60 percent of the respondents indicated below-average availability. These areas include; Wajir in Kenya as well as Dire Dawa, South Omo, Basketo, Nogob, Jarar, Doolo, West Harege, Borena, Afder, and Liben in Ethiopia. As shown by Figure 10, locusts were typically identified as the most important driver of current pasture availability in these worst-affected areas. However, other drivers including poor rainfall/dry spells, above-average rains, overgrazing, and other pests were also commonly identified.

Figure 9. Percentage of livestock-rearing respondents who indicated that current pasture availability is below average



Source: FSNWG Desert Locust impact assessment results

Figure 10. Drivers of current pasture availability



Source: FSNWG Desert Locust impact assessment results

Table 4. Drivers of current pasture availability in key areas of concern

Administrative Unit	Key Drivers of Current Pasture Availability (in order of importance)
Wajir, Kenya	Poor rainfall, locusts, above-avg rainfall
Dire Dawa, Ethiopia	Poor rainfall, locusts, overgrazing
South Omo, Ethiopia	Locusts, above-avg rainfall, overgrazing
Basketo, Ethiopia	Locusts, above-avg rainfall, no hazards
Nogob, Ethiopia	Locusts, poor rainfall, other pests
Jarar, Ethiopia	Locusts, poor rainfall, above-avg rainfall
Doolo, Ethiopia	Locusts, poor rainfall, overgrazing
West Harege, Ethiopia	Locusts, poor rainfall, other
Borena, Ethiopia	Locusts, poor rainfall, no hazards
Afder, Ethiopia	Locusts, poor rainfall, birds
Liben, Ethiopia	Locusts, poor rainfall, other pests

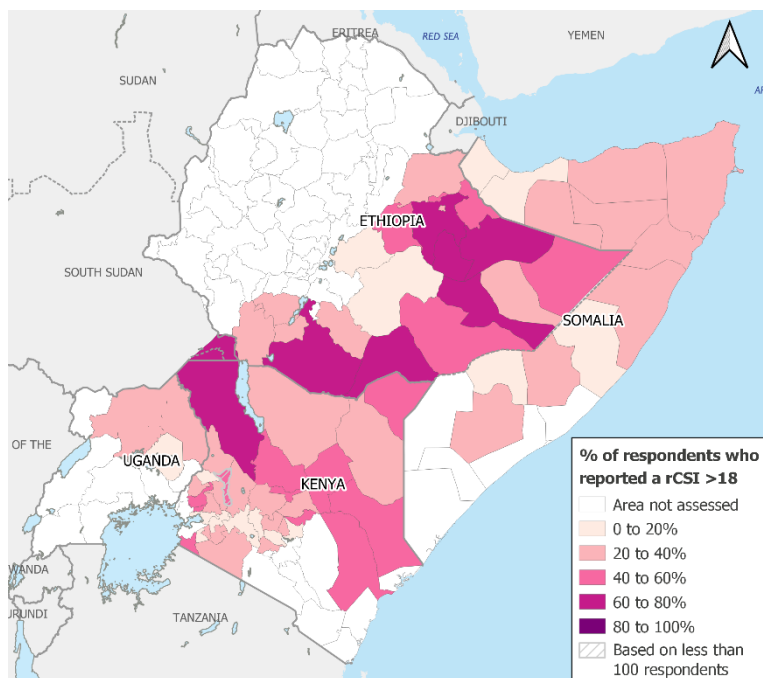
Source: FSNWG Desert Locust impact assessment results

Food insecurity

This desert locust impact assessment was not intended to be a food security assessment. However, in order to get an understanding of existing food insecurity amongst respondents, one food security indicator, reduced coping strategy index (rCSI), was calculated.²

The rCSI is a food security module, which asks respondents about the frequency, during the past 7 days, that they employed five common coping strategies: 1) eating less-preferred foods, 2) borrowing food/money from friends and relatives, 3) limiting portions at mealtime, 4) limiting adult intake, and 5) reducing the number of meals per day.³ The reduced coping strategies index is a food security outcome indicator according to the IPC acute food security reference tables, with an rCSI exceeding 18 considered in line with Crisis (IPC Phase 3) or worse food insecurity.

Figure 11. Percentage of respondents reporting an rCSI greater than 18



Source: FSNWG Desert Locust impact assessment results

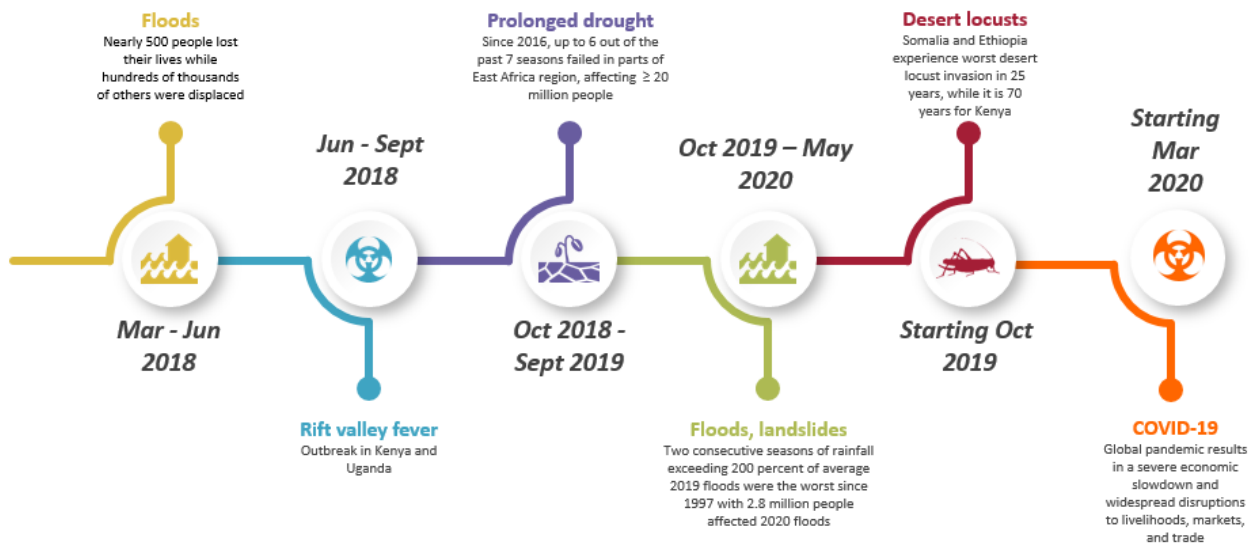
As shown by Figure 11, more than 20 percent of respondents in most of the assessed areas reported an rCSI that exceeded 18. Of these administrative areas, more than 60 percent of respondents indicated an rCSI greater than 18 in eight areas that are of particular concern: Nogob, Ethiopia (76 percent), Liben, Ethiopia (76 percent), Jarar, Ethiopia (68 percent), Turkana, Kenya (66 percent), East Harege, Ethiopia (64 percent), Borena, Ethiopia (64 percent), Shabelle, Ethiopia (62 percent), and Fafan, Ethiopia (60 percent).

Though the assessment did not explore the key causes of this food insecurity, the East Africa region has seen multiple current and recent threats to food security (Figure 12) that likely contributed to these very high figures.

² Given that only households involved in crop and livestock production were interviewed by this assessment, the rCSI data only represents food insecurity amongst this population and is not representative of food insecurity levels across all populations living within the administrative unit.

³ For more information about rCSI, please visit: https://documents.wfp.org/stellent/groups/public/documents/manual_guide_proced/wfp211058.pdf

Figure 12. Recent hazards affecting rural livelihoods in East Africa



Source: FAO

Country-level Analysis

The following sections present key country-level facts and figures for Ethiopia, Kenya, Somalia, and Uganda.

ETHIOPIA

Desert Locust observations and losses

Table 5. Percentage of respondents reporting having observed Desert Locusts and experiencing Desert Locust losses, by livelihood activity

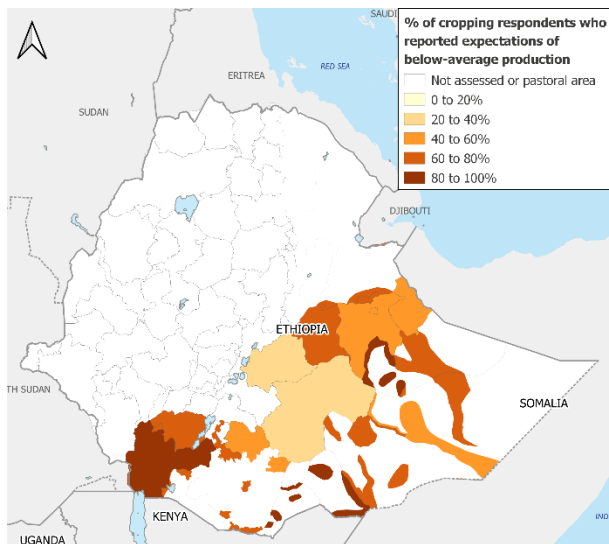
Cropping Respondents		Livestock Respondents	
% Observed DL	% DL Losses	% Observed DL	% DL Losses
80%	56%	84%	65%

Table 6. Reported losses amongst respondents who indicated that they experienced Desert Locust losses to their crops or rangeland

Of cropping respondents who reported crop losses....	<ul style="list-style-type: none"> 50% had high or very high losses 80% thought harvests of their most important crop would be below average
Of livestock-rearing respondents reporting rangeland losses...	<ul style="list-style-type: none"> 61% had high or very high losses 82% thought livestock were in fair or poor condition (48% in poor condition)

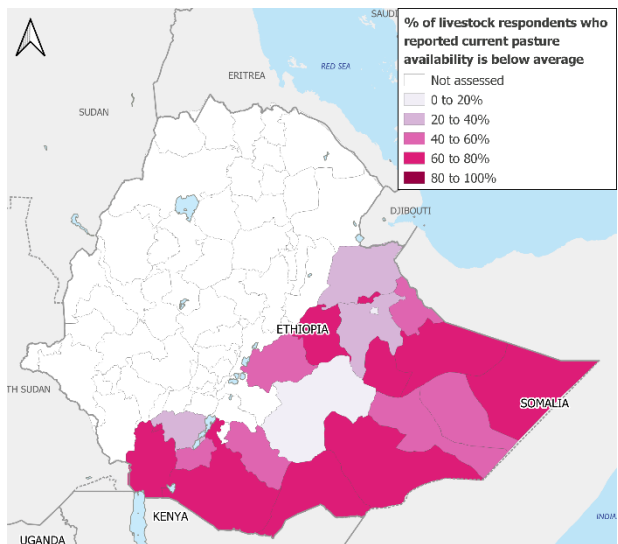
Current crop conditions

Figure 13. Percentage of respondents who indicated that they expected upcoming harvests for their most important crop to be below average



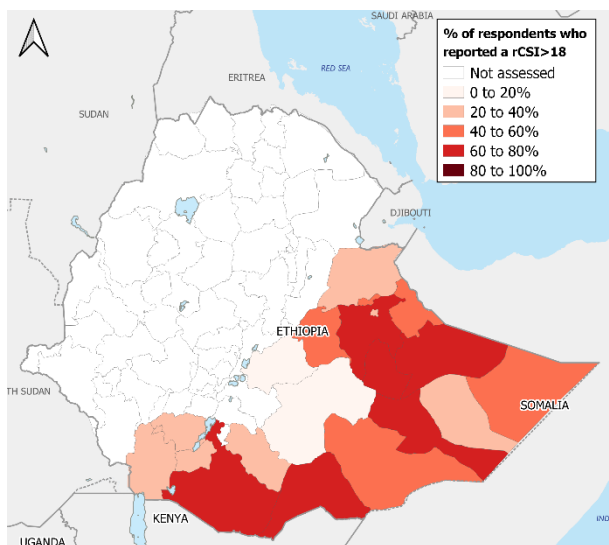
Current pasture availability

Figure 14. Percentage of livestock-rearing respondents who indicated that current pasture availability is below average



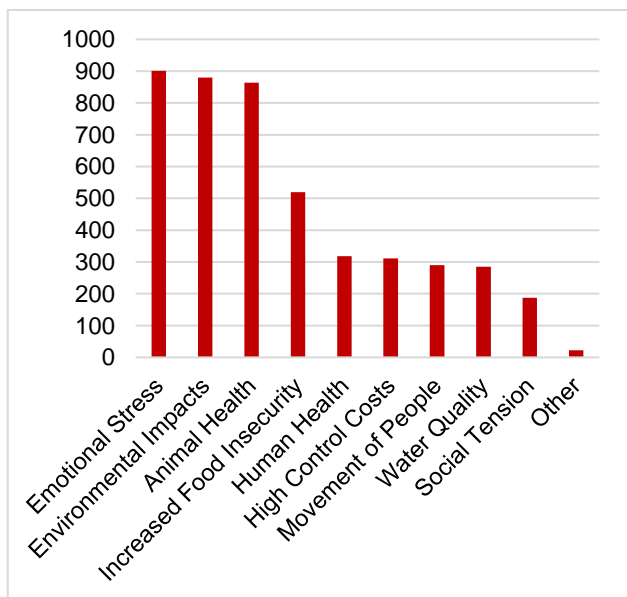
Food insecurity

Figure 15. Percentage of respondents reporting an rCSI greater than 18



Other Desert Locust impacts

Figure 16. Other Desert Locust impacts



KENYA

Desert Locust observations and losses

Table 7. Percentage of respondents reporting having observed Desert Locusts and experiencing Desert Locust losses, by livelihood activity

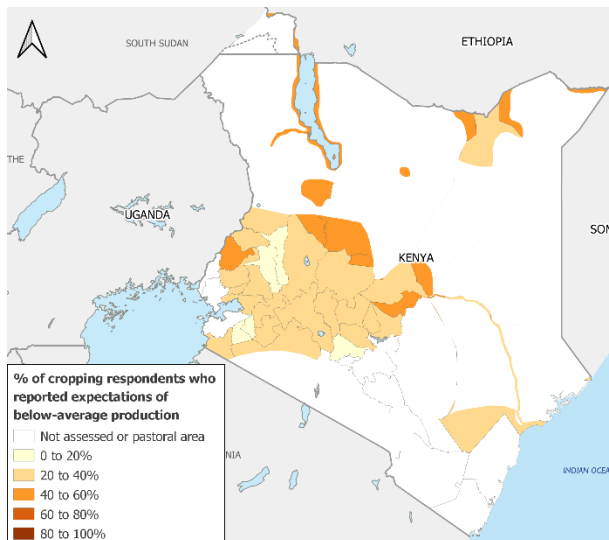
Cropping Respondents		Livestock Respondents	
% Observed DL	% DL Losses	% Observed DL	% DL Losses
27%	17%	35%	24%

Table 8. Reported losses amongst respondents who indicated that they experienced Desert Locust losses to their crops or rangeland

Of cropping respondents who reported crop losses....	<ul style="list-style-type: none"> 40% had high or very high losses 51% thought harvests of their most important crop would be below average
Of livestock-rearing respondents reporting rangeland losses...	<ul style="list-style-type: none"> 28% had high or very high losses 59% thought their livestock were in either fair or poor condition

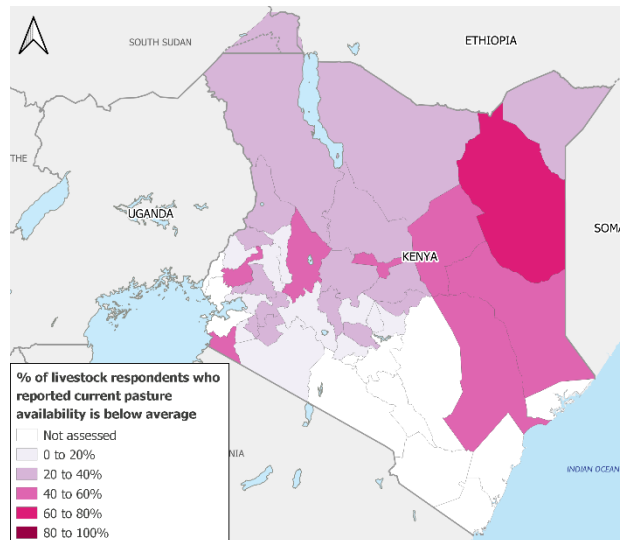
Current crop conditions

Figure 17. Percentage of respondents who indicated that they expected upcoming harvests for their most important crop to be below average (including mask to show only cropping and agropastoral areas)



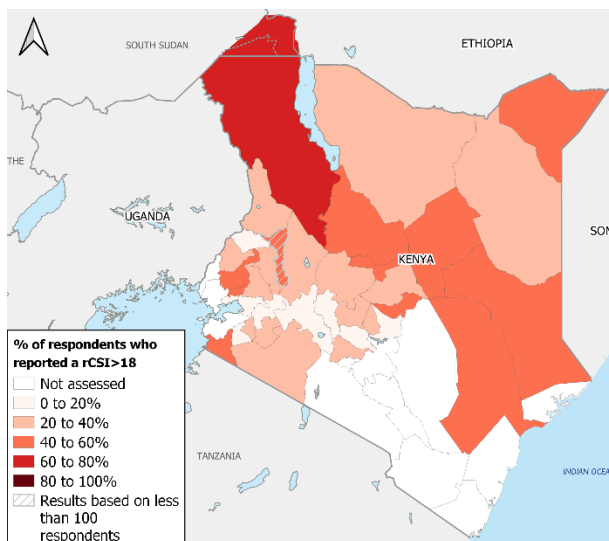
Current pasture availability

Figure 18. Percentage of livestock-rearing respondents who indicated that current pasture availability is below average



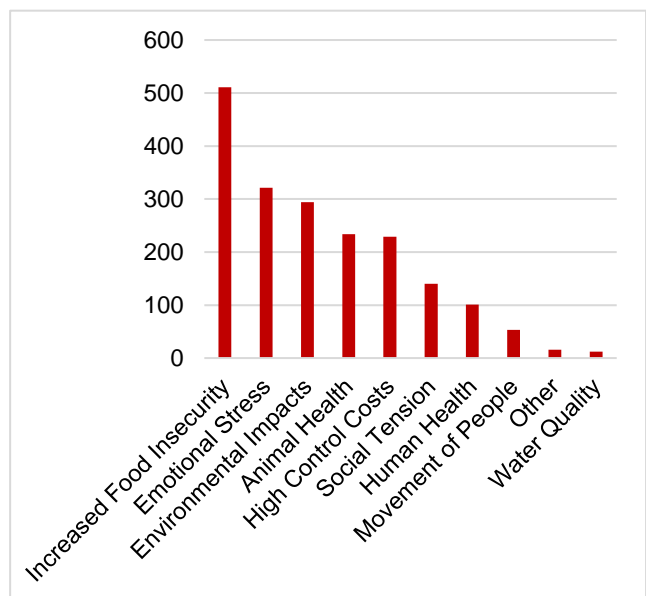
Food insecurity

Figure 19. Percentage of respondents reporting an rCSI greater than 18



Other Desert Locust impacts

Figure 20. Other Desert Locust impacts



SOMALIA

Desert Locust observations and losses

Table 9. Percentage of respondents reporting having observed Desert Locusts and experiencing Desert Locust losses, by livelihood activity

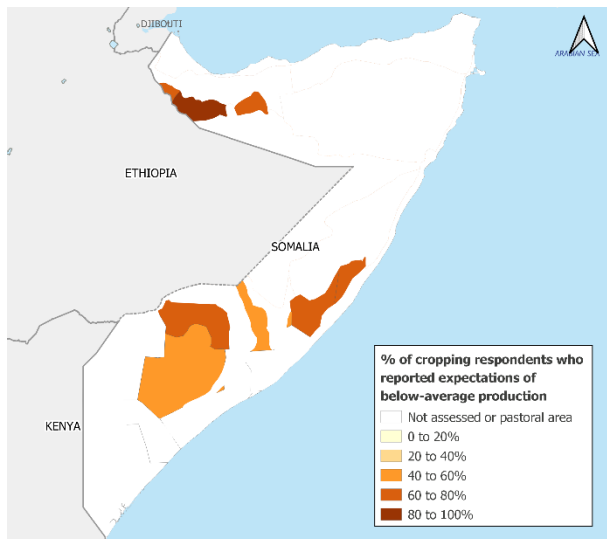
Cropping Respondents		Livestock Respondents	
% Observed DL	% DL Losses	% Observed DL	% DL Losses
54%	36%	60%	36%

Table 10. Reported losses amongst respondents who indicated that they experienced Desert Locust losses to their crops or rangeland

Of cropping respondents who reported crop losses....	<ul style="list-style-type: none"> 48% had high or very high losses 65% thought harvests of their most important crop would be below average
Of livestock-rearing respondents reporting rangeland losses...	<ul style="list-style-type: none"> 75% had high or very high losses 42% thought their livestock were in either fair or poor condition

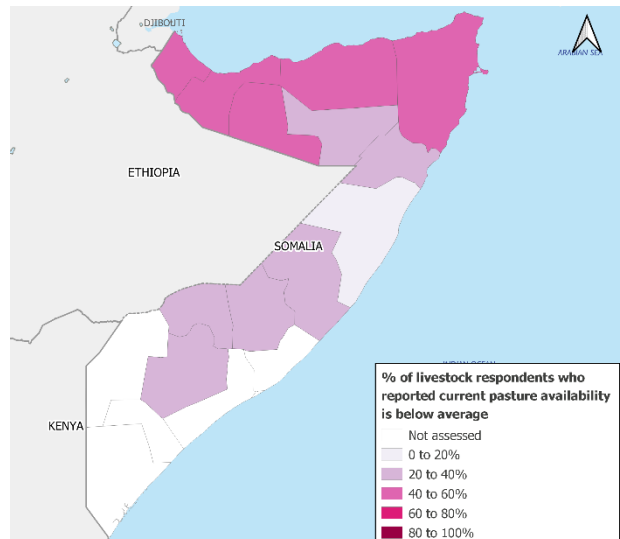
Current crop conditions

Figure 21. Percentage of respondents who indicated that they expected upcoming harvests for their most important crop to be below average (including mask to show only cropping and agropastoral areas)



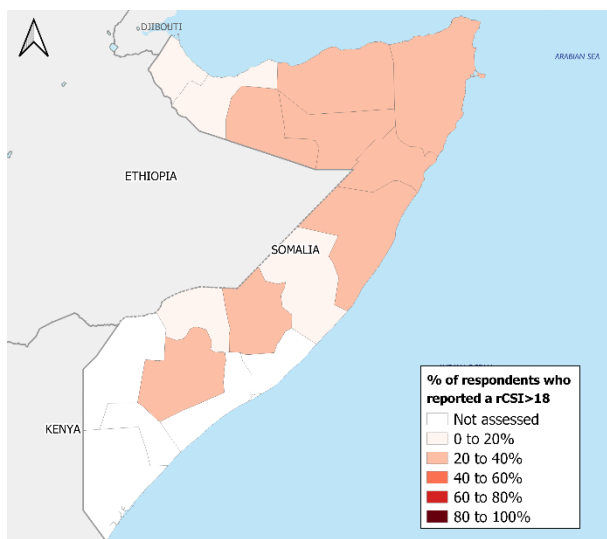
Current pasture availability

Figure 22. Percentage of livestock-rearing respondents who indicated that current pasture availability is below average



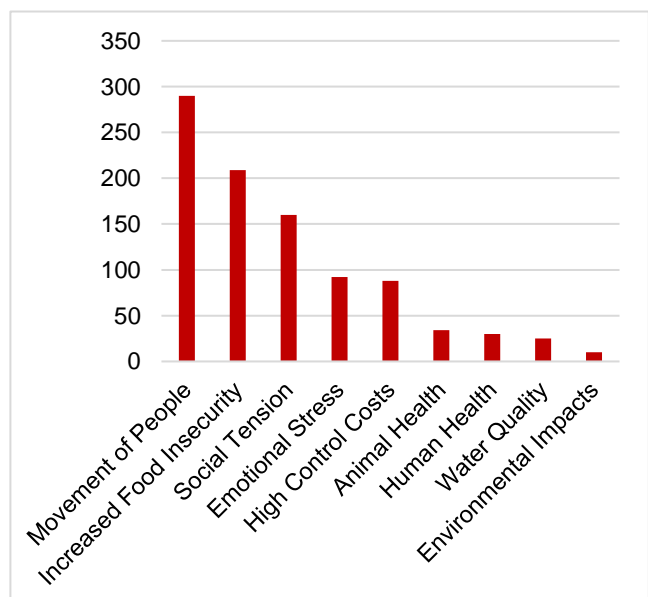
Food insecurity

Figure 23. Percentage of respondents reporting an rCSI greater than 18



Other Desert Locust impacts

Figure 24. Other Desert Locust impacts



UGANDA

Desert Locust observations and losses

Table 11. Percentage of respondents reporting having observed Desert Locusts and experiencing Desert Locust losses, by livelihood activity

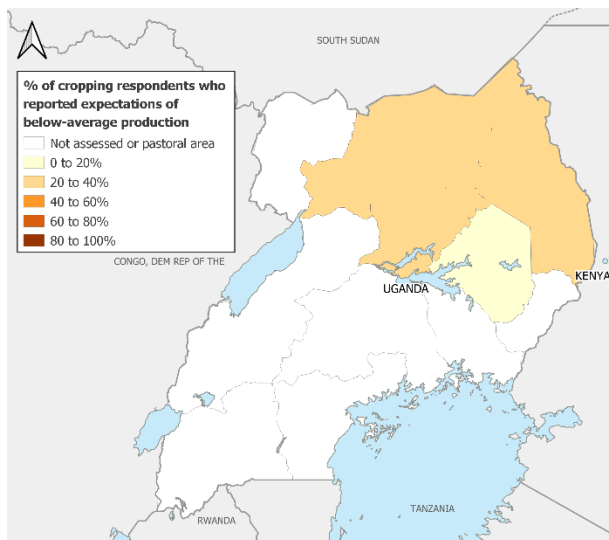
Cropping Respondents		Livestock Respondents	
% Observed DL	% DL Losses	% Observed DL	% DL Losses
32%	29%	47%	41%

Table 12. Reported losses amongst respondents who indicated that they experienced Desert Locust losses to their crops or rangeland

Of cropping respondents who reported crop losses....	<ul style="list-style-type: none"> 9% had high or very high losses 73% thought harvests of their most important crop would be below average
Of livestock-rearing respondents reporting rangeland losses...	<ul style="list-style-type: none"> 7% had high or very high losses 33% thought livestock were in fair/poor condition (6% poor conditions)

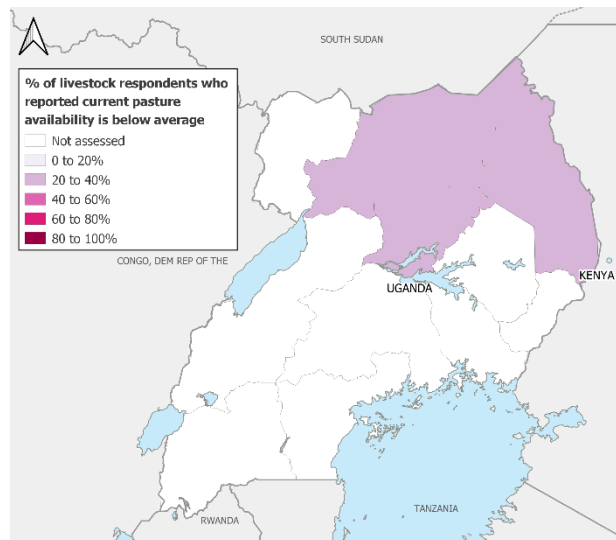
Current crop conditions

Figure 25. Percentage of respondents who indicated that they expected upcoming harvests for their most important crop to be below average (including mask to show only cropping and agropastoral areas)



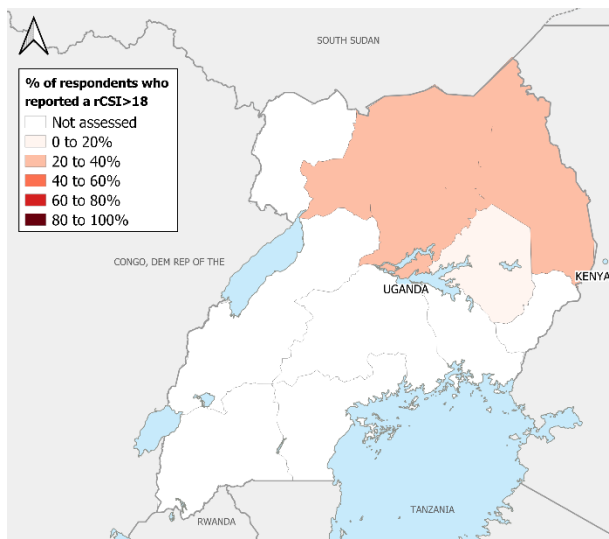
Current pasture availability

Figure 26. Percentage of livestock-rearing respondents who indicated that current pasture availability is below average



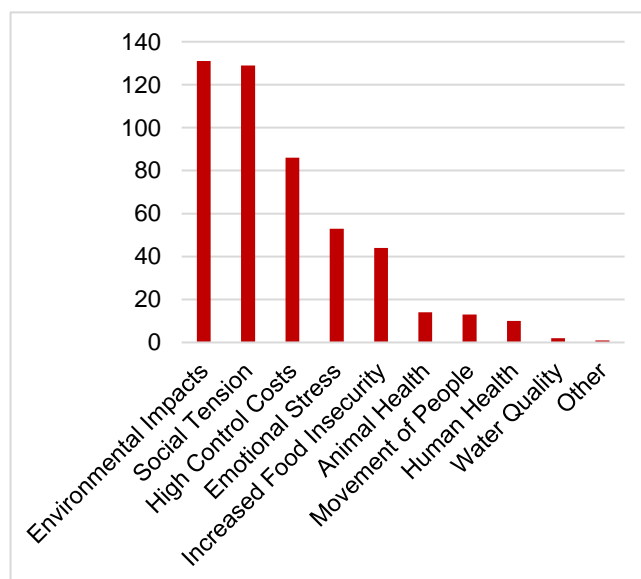
Food insecurity

Figure 27. Percentage of respondents reporting an rCSI greater than 18



Other Desert Locust impacts

Figure 28. Other Desert Locust impacts



CONCLUSIONS AND RECOMMENDATIONS

This assessment found that roughly one third of agricultural households living in Desert Locust affected administrative units experienced related pasture and crop losses. Though these percentages are not overly large, the impacts of Desert Locusts on households who did experience losses were in many cases quite significant. More specifically, roughly half of impacted cropping and livestock-rearing respondents experienced high or very high losses to their crops and rangeland where their animals graze, respectively. Additionally, many Desert Locust impacted cropping and livestock-rearing respondents reported that they expected their forthcoming harvests for their most important crop to be below average and/or that their livestock were currently in poor or fair condition.

Additionally, there was general pessimism amongst respondents (both amongst those affected by Desert Locusts and those who were not) about harvest prospects and rangeland conditions due to multiple, compounding hazards affecting rural livelihoods at this time (e.g. Desert Locusts, COVID-19, climate shocks such as flooding, dry spells, etc.). However, in many of the areas where the highest percentage of respondents reported poor pasture availability or that harvests would be below average, Desert Locusts were identified as a key driver of current conditions. Given already high levels of food insecurity, these challenges to crop and livestock production threaten to drive further food security deteriorations.

Finally, beyond direct crop and rangeland losses, respondents also expressed concerns that Desert Locusts were driving emotional stress, environmental impacts, increased food insecurity or malnutrition and animal health concerns.

Given these key findings, the FSNWG would recommend the following actions:

- 1) **Immediate livelihood and food security support programmes to vulnerable Desert Locust affected households** are needed to ensure adequate access to food and rebuild household livelihoods with the aim of enabling rural cropping, agropastoral, and pastoral households to take full advantage of the upcoming rainy/agricultural seasons despite recent hazards that negatively impacted their livelihoods and assets. These programmes should be focused in areas with high level of existing food insecurity, as well as areas where crop and livestock production are expected to be below average.
- 2) **Continued Desert Locust surveillance and control operations** in order to identify and rapidly control new swarms and hopper bands to prevent further Desert Locust-related crop and pasture losses.
- 3) **Additional assessments to better understand the full extent of Desert Locust impacts** across the region. These assessments need to include 1) additional Desert Locust impact monitoring in unimodal areas of East Africa to inform upcoming livelihood support programmes, 2) full on-the-ground Desert Locust impact assessments to produce quantitative estimates of Desert Locust losses, and 3) evaluations to further explore non-agricultural impacts of Desert Locusts and control operations, including but not limited to, environmental impact assessments and studies looking at the implications for conflict and social tension throughout the region, given reports that many Desert Locust affected households are concerned about these issues
- 4) **Strengthened food security monitoring and early warning systems** with an increased focus on anticipatory action, given severe levels of existing food insecurity across East Africa and the high frequency of a variety of hazards (e.g. climatic, pests, conflict, economic, etc.) affecting vulnerable populations' food security.

ANNEX 1: ASSESSMENT SAMPLING

Admin Unit	# of respondents interviewed	# of respondents kept for analysis	% respondents with crop income	% of respondents with livestock income
Afder	156	144	0.32	0.92
Arsi	177	170	0.97	0.36
Bale	152	141	0.97	0.38
Basketo	155	149	0.95	0.70
Borena	157	151	0.81	0.73
Dira Dawa	153	150	0.95	0.25
Doolo	152	145	0.22	0.92
East Harege	160	150	0.91	0.63
Fafan	152	142	0.54	0.87
Gamo Gofa	190	180	0.92	0.65
Guji	154	147	0.93	0.43
Hareri	151	150	0.81	0.41
Jarar	151	144	0.54	0.87
Korahe	158	152	0.30	0.83
Liben	150	144	0.67	0.74
Nogob	152	151	0.58	0.81
Segen Peoples	164	157	0.78	0.66
Shabelle	155	146	0.60	0.81
Siti	152	147	0.59	0.66
South Omo	171	162	0.93	0.59
West Harege	189	184	0.99	0.40
Ethiopia	3351	3206		
Baringo	150	143	0.42	0.64
Bomet	150	149	0.94	0.47
Bungoma	150	141	0.96	0.47
Elgeyo-Marakwet	150	144	0.88	0.24
Embu	150	143	0.95	0.55
Garissa	150	147	0.58	0.52
Isiolo	150	142	0.46	0.80
Kakamega	150	147	0.57	0.66
Kericho	150	147	0.99	0.76
Kiambu	150	145	0.89	0.37
Kirinyaga	150	145	0.93	0.46
Kisii	150	144	0.85	0.83
Kisumu	150	146	0.88	0.17
Laikipia	150	148	0.82	0.49
Mandera	150	146	0.60	0.70
Marsabit	150	147	0.50	0.79
Meru	150	143	0.90	0.61
Migori	150	147	0.94	0.41
Murang'a	150	149	0.92	0.13
Nakuru	150	148	0.95	0.30
Nandi	150	139	0.97	0.69
Narok	150	149	0.88	0.53
Nyamira	150	145	0.88	0.26
Nyandarua	150	148	0.95	0.13
Nyeri	150	146	0.86	0.71
Samburu	150	142	0.56	0.64
Tana River	150	143	0.78	0.64
Tharaka-Nithi	150	146	0.93	0.48
Trans Nzoia	150	150	0.94	0.46
Turkana	150	138	0.47	0.88
Uasin Gishu	150	142	0.94	0.28
Vihiga	150	149	0.85	0.50
Wajir	150	144	0.29	0.93
West Pokot	150	146	0.84	0.51
Kenya	5100	4938		
Awdal	150	141	0.32	0.69
Bakool	150	138	0.60	0.43
Bari	150	144	0.49	0.52
Bay	150	143	0.66	0.36

Galguduud	150	143	0.61	0.40
Hiran	151	142	0.74	0.27
Mudug	150	143	0.71	0.30
Nugal	150	145	0.63	0.39
Sanaag	151	141	0.59	0.42
Sool	150	141	0.57	0.45
Togdheer	148	135	0.66	0.35
Woqooyi Galbeed	150	146	0.27	0.74
Somalia	1800	1702		
Eastern	144	143	0.99	0.02
Northern	436	409	0.84	0.79
Uganda	580	552		
Grand Total	10831	10398		