Food and Agriculture Organization of the United Nations

Uganda

Food security and livelihoods in areas affected by desert locusts

September 2020

Assessment report

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Abbreviations and acronyms

CAPI	computer assisted personal interview
CARI	Consolidated Approach to Reporting Indicators of Food Security
CRS	Catholic Relief Services
DLCO-EA	Desert Locust Control Organization for Eastern Africa
DLG	district local government
FAO	Food and Agriculture Organization of the United Nations
FCS	food consumption score
FSNA	food security and nutrition assessment
GDP	gross domestic product
GPS	Global Positioning System
HDDS	household dietary diversity score
IPC	Integrated Phase Classification
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries [of Uganda]
OPM	Office of the Prime Minister
rCSI	reduced coping strategies index
UBOS	Uganda Bureau of Statistics
UNHS	Uganda National Household Survey
USAID	United States Agency for International Development
WFP	World Food Programme

Executive summary

The 2019/2020 invasion of desert locusts in the Horn of Africa was described as the worst in 25 years by the Food and Agriculture Organization of the United Nations (FAO). Originating from the Arabian Peninsula and having travelled through the borderlands of Ethiopia and Somalia and then Kenya, the first swarm of locusts entered the Ugandan territory in Amudat District in the Karamoja subregion on 9 February 2020. Since then, desert locusts have been sighted in over 20 districts in the Acholi, Elgon, Lango and Teso subregions.

Uganda has two major cropping seasons. The first begins in March and lasts until June/July; the second starts in August/September and runs until December (only Karamoja has only one cropping season, starting in mid-March and ending in July/August). Hence, the swarms that entered Uganda until March only had an impact on grazing lands. However, the swarms that entered the country from April onwards also affected croplands, destroying crops in areas where they stayed overnight.

The assessment discussed in this report aimed to establish the magnitude of the desert locust invasion and the degree to which it impacted upon agriculture, food security and livelihoods in the Ugandan subregions of Acholi, Elgon, Karamoja, Lango and Teso. The assessment is based a survey of 7 800 households in 23 selected districts in the five subregions, carried out in August–September 2020.[1][2]

Data were processed and analysed and a report was written by a technical team comprising staff of the Uganda Bureau of Statistics (UBOS), the Office of the Prime Minister (OPM), the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), Makerere University, FAO and Catholic Relief Services (CRS). Based on the results of the assessment, a number of recommendations for response options (including control measures and livelihood support programmes) were formulated.

The assessment found that all visited parishes in Acholi and Lango had been invaded by desert locusts between February and September 2020. Well over 90 percent of the parishes visited in Karamoja and Teso, and just under half of the parishes visited in Elgon, had been invaded. By September 2020, some parishes had been attacked three or more times, especially in Karamoja, Acholi and Lango.

[1] 1 375 households in Acholi, 600 households in Elgon, 3 125 households in Karamoja, 500 households in Lango and 2 200 households in Teso.
[2] Agago, Kitgum, Lamwo, Pader, Abim, Amudat, Kaabong, Kotido, Moroto, Nabilatuk, Nakapiripirit, Napak, Otuke, Bulambuli, Kween, Sironko, Amuria, Bukedea, Kapelebyong, Katakwi, Kumi, Ngora and Soroti.

At that point, about 8 percent of the parishes in Lango still had desert locusts, followed by Karamoja (7 percent), Acholi (7 percent) and Teso (1 percent). There were no reports of the presence of desert locusts in Elgon in September 2020.

The assessment found that the Teso subregion had the largest households with a mean size of eight people; the mean size of the households in the other subregions was seven. Of the households sampled across areas affected by desert locusts, 15 percent (Elgon) to 27 percent (Karamoja) are headed by women. Household heads were youngest in Lango (with an average age of 43 years) and oldest in Teso (47 years). The share of household heads that had not received any formal education was highest in Karamoja (65 percent) and lowest in Elgon (6 percent). In all subregions, 3 to 4 percent of household heads had received post-secondary education. The level of awareness of the coronavirus disease 2019 (COVID-19) outbreak and its transient effects among households was very high; nearly all households reported that their livelihoods had been affected by the COVID-19 control measures.

Most of the communities visited for the assessment are agropastoral communities that engage in both crop and livestock production. Sixty-one (Karamoja) to 97 percent (Acholi) of households were found to derive their livelihood mainly from crop production, and 0.1 (Acholi) to 3 percent (Karamoja) from livestock production. An outlier is the district of Amudat, in Karamoja, where 31 percent of households derive their income from livestock production. The only district where crop production is not the main source of livelihood for the majority of households is Moroto (in Karamoja), where most households rely on the sale of charcoal and firewood. Households in the Acholi and Lango subregions owned or had access to more land for crop production than those in other subregions.

While the first wave of desert locusts attacked Uganda at a time when farmers were still preparing the first cropping season and thus largely failed to cause crop losses, subsequent waves coincided with the weeding and harvesting stages and resulted in significant damages.

Fifteen percent of the households surveyed for the assessment reported that over 75 percent of their cropland had been affected by locusts. Households were most affected in the Lango subregion, where 26 percent of households reported that over 75 percent of their cropland had been affected, followed by Karamoja (21 percent), Acholi (14 percent), and Elgon and Teso (both 7 percent). Over 90 percent of households in communities affected by desert locusts were able to grow food and non-food crops during the first cropping season of 2020 (which is also the only cropping season in the Karamoja subregion). The crops that were grown the most often were cassava, beans, groundnut, maize, sesame and sorghum.

Forty-eight (Karamoja) to 77 percent (Lango) of households were found to own livestock. Goats are the most commonly owned type of livestock in all subregions except Elgon, where most households own cattle. Shortage of grazing land, shortage of water and conflict were reported as the main causes of livestock migration. An average 37 percent of households reported that their grazing land had been affected by desert locusts. Grazing land areas were affected most heavily in Lango, followed by Karamoja and Acholi. The majority of households in all subregions reported that the pasture type that was affected most was grasses. Sixty-four percent of all households surveyed reported that changes in grazing land conditions had negatively impacted the body condition of livestock, with the biggest impact reported in the Karamoja and Teso subregions.

In a bid to fight off the desert locusts, households adopted several control mechanisms. The actions most commonly undertaken by households were drumming and other types of noisemaking. However, these control measures are not officially recommended by MAAIF or FAO, which instead advocate the use of chemical or biological pesticides by trained technicians in accordance with internationally agreed guidelines to ensure safety for users, communities and the environment.

Through their impact on crop and livestock production, the desert locust invasions affected food security and destabilized livelihoods in the surveyed subregions. Seventy-two (Teso) to 84 percent (Lango) of households reported that their livelihood had been affected by the invasions, while 88 (Elgon) to 95 percent (Karamoja) of households stated that their food safety had been impacted upon. According to the World Food Programme (WFP), 58 percent of households in Karamoja were moderately to severely food insecure in 2019, which makes Karamoja the most food-insecure subregion in the country. Elgon was categorized as the most food secure of the surveyed subregions, with 82 percent of all households being considered (marginally) food secure.

At the time of the assessment, the availability of food stocks was highest for households in Acholi (66 percent of households), followed by Teso (67 percent) and Lango (63 percent). Only 25 percent of households in Karamoja were found to have food stocks. For about 55 percent of households, the available food stocks would last for two months, enough to take them to the next "green harvest" of November.[3]

[3] The "green harvest" is that of crops (including *inter alia* maize, sorghum, millet or pulses) that are consumed fresh, rather than dried for storage, in subregions with bimodal cropping seasons (i.e. all subregions except Karamoja).

Forty-one percent of all households included in the survey were found to be consuming only one meal a day; only 12 percent of households consumed at least three meals a day. Forty-eight percent of all households in the surveyed subregions had an acceptable food consumption score (FCS), while 15 percent had a poor FCS. The average FCS was found to be highest in Elgon, and lowest in Acholi.

Only 1.8 percent of households in the surveyed areas had a high reduced coping strategies index (rCSI), while the majority of households (62 percent) had a low rCSI. The proportion of households with a high rCSI was highest in Karamoja (2.3 percent) and lowest in Elgon (1.2 percent). Meanwhile, 28 percent of households were found to be using emergency coping strategies. The Karamoja subregion had the highest proportion of households employing emergency coping strategies (36 percent), followed by Acholi (28 percent). The Elgon subregion had the lowest proportion of households employing emergency coping strategies.

In conclusion, the assessment found that the various waves of desert locusts had adversely affected agricultural livelihoods in eastern and northern Uganda by reducing crop production and destructing pastures for livestock, most notably from May 2020 onward. The intermittent persistence of the locust swarms and the lack of effectiveness of the control operations undertaken in some communities contributed to the food losses.

Based on the results of the survey, it is estimated that the desert locust invasions affected the food security and livelihoods of 749 515 households. The assessment found a greater perceived impact on food security than on overall livelihoods across subregions. Subregions that rely more on staple crops (such as Acholi and Lango) were more heavily impacted in terms of livelihoods by desert locust invasions, while subregions with a greater diversity of crops (such as Elgon), and those with more diverse livelihood sources (such as Teso and Karamoja), were likely to have been more resilient to the impact of the different desert locust waves.

As long as there is desert locust activity in Kenya, Uganda remains at risk and thus on high alert. There is a critical need to improve Uganda's desert locust preparedness by strengthening the country's capacities for real-time surveillance, rapid verification and deployment of control teams upon confirmation of desert locust sightings. Desert locust preparedness requires infrastructure to safely store pesticides and well-maintained equipment to ensure that control operations are carried out with respect to international safety and health standards. In addition, extension staff must be trained in routine surveillance and the use of real-time information systems. Many of these resources are either transferable or adaptable to threats posed by other migratory pests and diseases. Thus, a holistic and integrated approach to preparedness is needed to safeguard the food security and livelihoods of vulnerable communities across Uganda.

Introduction

Background

The desert locust is a destructive migratory locust mainly found in Southwest Asia and parts of northern Africa. It is well known for its high mobility and broad-spectrum feeding habits. Desert locusts have an extraordinary ability to multiply themselves, and swarms can reach colossal sizes. Desert locusts can eat their own weight in fresh food in a single day.[1] In their solitarious form, desert locusts are harmless to crops. However, they cause destructive damage in their gregarious phase.[2] Under normal circumstances, desert locusts can travel 150 to 200 km per day. They usually form hopper bands during their nymphal stage and dense mobile swarms in the adult stage. In Africa, desert locusts have mainly been seen in Ethiopia, Kenya, the Sudan, South Sudan and Uganda. Outbreaks of locusts in these countries have been stimulated by favourable climatic conditions in the region as well as on the Arabian Peninsula. Indeed, the increase in rainfall along the Red Sea coast and across the Horn of Africa has drastically improved the ecological conditions for breeding and formation of mature and immature desert locust groups. Thus, the situation in these countries remains extremely alarming.

The first swarms of desert locusts entered Uganda from Kenya on 9 February 2020 through Amudat District in the Karamoja subregion. The locusts spread inland into other districts in Karamoja and to districts in the Acholi, Elgon, Lango and Teso subregions in north and north-east Uganda. On 18 February, the region of Mount Elgon (where the main crops include coffee, pine trees, cereals and bananas) was subsequently invaded by desert locusts. The swarms entered Bukwo District from Kenya's West Pokot County, causing panic among farmers. Desert locusts were sighted in 89 locations across 21 districts throughout February 2020, 16 locations in March, 34 locations in April, eight in May, two in July and about six in August. The largest swarms were sighted in February to mid-March 2020, while the last sighting was reported in the Kaabong and Karenga districts (in the Karamoja subregion) in September 2020.

[1] Half a million locusts weigh about 1 tonne and consume about 1 tonne of food per day, enough to feed 2 500 people.

[2] In low numbers, locusts behave as individuals (solitarious phase); in high numbers, they behave as a single mass (gregarious phase).

When the first wave of desert locusts invaded Uganda, most communities in the areas where the assessment took place were preparing the first planting season. This may explain why the crop damages caused by the first wave were minimal compared with those caused by subsequent waves, which arrived during the weeding and harvesting stages.

Desert locust invasions pose a severe threat to agriculture-based livelihoods, particularly in areas where food security is already fragile. An Integrated Food Security Phase Classification (IPC) analysis for Karamoja shows that an estimated 313 000 people in the subregion were in IPC Phase 3 (Crisis) and above by June 2020, meaning they were facing severe acute food insecurity (IPC, 2020). This number was projected to fall to 183 000 people by the end of October 2020, after the start of the 2020 harvest. The desert locust crisis poses a potential threat to the food security of another 277 000 people across the Karamoja and Teso subregions (IPC, 2020).

As long as there is desert locust activity in Kenya, Uganda remains at risk, and thus on high alert. There is a critical need to improve Uganda's desert locust preparedness by strengthening the country's capacities for real-time surveillance, rapid verification and deployment of control teams upon confirmation. Moreover, Uganda is a corridor for this migratory pest as it moves in a south-north direction towards South Sudan. Winds moving from east to west facilitate the movement of desert locusts into Uganda, at which point they will most likely turn northwards towards the Sudan, transiting other countries in East Africa, including Ethiopia and South Sudan.

At the onset of the crisis in the Horn of Africa in 2019, the Food and Agriculture Organization of the United Nations (FAO) launched a regional appeal urging countries to respond rapidly and take anticipatory action to bring the desert locust upsurge under control and mitigate its impact on livelihoods and food security.

Official desert locust surveillance and control efforts

To curb the spread of desert locusts, it is essential to train and improve the skills of national and local government personnel and community members involved in surveillance and control activities. The Ugandan Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), the Desert Locust Control Organization for Eastern Africa (DLCO-EA) and FAO implemented two eLocust training programmes on surveillance and reporting of desert locusts. These training programmes, which were mainly based on a Training-of-Trainers approach, targeted district agriculture officers, district entomologists and members of the civil society. To further improve

surveillance and control operations and ensure timely reporting, a second phase of training sessions has since been cascaded to frontline extension staff at the level of the subcounties.[3] These training sessions are expected to increase the frequency of reporting and improve the quality of desert locust surveillance data.

Following the eLocust training programmes conducted by FAO and MAAIF, other partners have begun to roll out eLocust training at community level. One such partner is Catholic Relief Services (CRS), which organized a series of training sessions for youth to raise awareness about the desert locust threat in Uganda and improve communities' surveillance and response capacities. Training sessions were held in the Moroto, Nabilatuk and Nakapiripirit districts in the Karamoja subregion, and in the Kapelebyong and Katakwi districts in the Teso subregion. Additional partners include Mercy Corps, Self Help Africa, Soroti Catholic Development Organization, Sustainable Agriculture for Rural Development Network, Teso Diocesian Development Organization, Teso Religious Leaders Efforts for Peace and Reconciliation, and World Vision.

In August 2020, the Government of Uganda, through MAAIF, created a technical working group on desert locust control operations in Uganda, to improve the response to current and future desert locust invasions. The technical working group was formed based on current projections that desert locust invasions could persist until 2021. It comprises officials from the Office of the Prime Minister (OPM), the DLCO-EA, MAAIF, the National Agricultural Research Organization, the National Environment Management Authority and FAO. The group's tasks include:

- assessing Uganda's capacity and readiness for the control of desert locusts, and providing guidance on mitigation measures;
- lobbying development partners to support the contingency mitigation plan;
- reviewing and updating desert locust control information and education materials; and
- coordinating desert locust response activities of all stakeholders (including civil society).

Overall, it has become increasingly important for the technical group to support current preparedness and coordination efforts by all stakeholders.

In response to the desert locust invasions, the Government of Uganda embarked on several locust surveillance activities in February 2020 (with technical support from

[3] At the time of the assessment in September 2020, 109 people (12 women and 97 men) had been trained in four regional centres: Moroto (for districts in the Karamoja subregion), Soroti (for districts in the Teso subregion), Gulu (for districts in the Acholi subregion) and Mbale (for districts in the Bugisu and Sebei subregion).

FAO). To improve surveillance (of desert locusts, but also of other pests), MAAIF, together with district local governments (DLGs), mobilized communities and established a locust surveillance system operating at three levels: the community level, the district level and the national level. Thanks to this system, the spread of desert locusts can be surveilled, mapped and reported on continuously, using existing structures within MAAIF and local governments.

Activities carried out under the locust surveillance system include inter alia monitoring breeding and mapping egg-laying areas to obtain information for early actions, collecting data (e.g. through ground surveys) to assess the presence of locusts and habitat conditions, and analysing data to provide information for planning and ensure that appropriate control methods are applied. Innovative surveillance methods adopted under the system include the use of satellite imagery and maps, drones, eLocust3m,[4] Global Positioning System (GPS)-enabled cameras and other technologies, as well as ground truthing by local communities (which are provided with the necessary equipment). Activities are planned to improve the capacities of district officers to differentiate desert locusts from other locust species and grasshoppers at the nymph stage. Other activities that are included in the locust surveillance system are the customization of eLocust3 systems to support monitoring and surveillance of locusts and migratory insects by MAAIF, and activities related to training and the building of capacities at all levels.

FAO continues to support efforts to improve the coordination of surveillance and forecasting activities, to prevent swarms from inflicting significant damage to crops and grazing land. In addition, the organization has procured and delivered over 90 000 litres of the insecticide chlorpyrifos to help control future desert locust swarms. FAO also procured 1 200 sets of specialized personal protective equipment for use by ground control teams and technical staff, and has provided technical assistance to MAAIF to promote the safe use and management of pesticides.

[4] eLocust3m is an application for smartphones that allows users to capture data and report on desert locusts in real time. The information is used to formulate appropriate responses, produce situation maps and forecast future developments.

Assessment of the 2020 desert locust invasion and its impacts on food safety and livelihoods

Objectives

In collaboration with the Government of Uganda,[5] the Intergovernmental Authority on Development, the Uganda Bureau of Statistics (UBOS), the World Food Programme (WFP) and CRS, FAO conducted a detailed assessment of the impact of desert locust invasions on livelihoods and food security across 23 districts in the Acholi, Elgon, Karamoja, Lango and Teso subregions. The assessment was coordinated by the OPM and received financial support from the United States Agency for International Development (USAID).

The aim of the assessment was to determine the magnitude of the 2020 locust invasion and help build a general understanding of the impacts of desert locust invasions on agriculture and households' livelihoods. The results of the assessment, presented in this report, are expected to improve interventions by the Government, FAO and other stakeholders by helping determine the magnitude of the impact of desert locust invasions on food security and providing information for livelihoods assistance efforts. In addition, FAO used this livelihood impact assessment to document ongoing emergencies such as the COVID-19 pandemic and flooding in some parts of Uganda, all of which affect household income and food security. This livelihood impact assessment has guided the prioritization of areas affected by desert locusts in 2020 for FAO's ongoing emergency assistance, which supports the protection and early recovery of agricultural livelihoods.

The assessment specifically aimed to:

- help understand the magnitude of the desert locust invasion in the subregions of Acholi, Elgon, Karamoja, Lango and Teso;
- help understand the impacts of the desert locust invasion on the ongoing agricultural season (on crops and livestock and in terms of future food availability) in those subregions;
- measure the key sociodemographic, socioeconomic and livelihood indicators (including food security indicators) of households in areas invaded by desert locusts; and
- formulate recommendations for response options, including control measures and livelihood support programmes.

[5] Including the OPM, MAAIF and the Ministry of Local Government and Rural Development.

Methodology

Geographical coverage

A household survey was conducted in 23 selected districts in the five subregions of Acholi, Elgon, Karamoja, Lango and Teso. Apart from the districts in Elgon, the districts were selected based on prior reporting of desert locust invasions. The 23 districts included:

- Acholi: Agago, Kitgum, Lamwo and Pader;
- Karamoja: Abim, Amudat, Kaabong, Kotido, Moroto, Nabilatuk, Nakapiripirit and Napak;
- Lango: Otuke;
- Elgon: Bulambuli, Kween and Sironko; and
- Teso: Amuria, Bukedea, Kapelebyong, Katakwi, Kumi, Ngora and Soroti.

Sampling design

Both purposive and random sampling techniques were applied to build the sample for the assessment. In a first stage, all subcounties in the Acholi, Karamoja, Lango and Teso subregions reported to have been invaded by desert locusts between February and May 2020 were purposively selected. The purposive selection of subcounties in the Elgon subregion was motivated by the floods that occurred in these areas in the months of April and May 2020.

In a second stage, a probability sample of parishes was randomly and independently selected in each subcounty using an updated list of parishes constituting a district (probability proportional to population size approach). The sampling frame was sorted by district, subcounty, parish and village. The households in villages were listed; these lists were used, in a third stage, as sampling frames for the selection of households in a third stage. A systematic random sampling methodology was used for all districts. This was done by using a random start and a calculated sampling interval based on the list of households obtained from the villages' local council chairpersons. A sampling interval was determined for each village by dividing the total number of verified households by the estimated sample. The first household was then determined randomly using the lottery method (drawing a random number within the sampling interval). The interval was applied across the sampling frame to generate a list of households to be visited. Each team was provided with a list of households to be surveyed on a daily basis. Interviews were only conducted in the sampled households. To minimize bias, replacements and changes of the selected households were controlled; they were largely avoided during the implementation of the survey.

Table 1. Samples used for the desert locust livelihood impact assessment

Subregion	District(s)	Number of parishes selected from district	Number of households listed	Number of households sampled
Acholi	Agago	6	957	300
	Kitgum	7	1 147	375
	Lamwo	6	1 509	425
	Pader	5	1 061	275
Karamoja	Abim	10	2 154	600
	Amudat	2	496	125
	Kaabong	10	1 198	375
	Kotido	9	2 798	775
	Moroto	5	1 646	375
	Nabilatuk	9	1 364	325
	Nakapiripirit	4	1 636	400
	Napak	4	563	150
Lango	Otuke	11	1 451	500
Elgon	Bulambuli	11	790	275
	Kween	7	667	225
	Sironko	3	317	100
Teso	Amuria	9	1 027	275
	Bukedea	4	1 014	250
	Kapelebyong	3	273	75
	Katakwi	10	1 174	300
	Kumi	7	1 444	275
	Ngora	22	2 324	550
	Soroti	9	1 964	475

Field work

A mix of quantitative and qualitative survey tools were used to collect data from the target population.

Data for the assessment were collected through computer-assisted personal interviews (CAPI), which were developed using KoBoCollect software. The questionnaires were programmed into the personal digital assistant by writing codes using MS Excel software. The resulting CAPI was tested and validated during training and pre-testing sessions. The final version was reviewed and approved by a technical team comprising representatives of MAAIF, the OPM, Makerere University, FAO and WFP, and uploaded on the tablets.

Seventy-four enumerators and 16 data quality supervisors were trained to collect data across the five subregions. The data collection was coordinated by FAO, in collaboration with CRS and its partners Caritas Moroto and Caritas Soroti. The field data collection started on 28 August 2020 and ended on 13 September 2020.
The field data collection teams in each district included about eight enumerators, a data quality supervisor, an administrative supervisor and a field guide (where needed). The exact number of enumerators in each district varied based on the sample size. The teams were introduced to the villages' local council chairperson, who introduced the field teams to the households previously selected during the listing exercise.

Consent was sought from the household head and/or caregiver before proceeding with the interview. The enumerators used tablet computers to record responses during the interviews. They submitted all completed questionnaires to the supervisors on a daily basis. In each district, two supervisors were deployed to ensure that the data collection went smoothly. The technical team kept in close contact with the field teams to provide regular feedback on any emerging quality issues, non-response rates and incomplete questionnaires.

To complement the household information, key-informant interviews with local district authorities were conducted.

Data processing

The data were processed by statisticians from UBOS and Makerere University. Initial processing of the data began with supervisors in the field, who reviewed the information collected by the enumerators before entering it into the server. The statisticians downloaded the data from the server and corrected any inconsistencies, gaps and outliers; they then conducted a final cleaning of the data and coded open-ended questions. The statisticians analysed the data using Stata 14, based on the tabulation plan that was developed for the assessment. A team comprising staff members from FAO, the OPM, MAAIF, UBOS, CRS and Makerere University interpreted the outputs of the analysis and wrote reports.

For reasons of brevity, not all data obtained through the survey are discussed in this report. This is the case for data regarding water and sanitation (availability and access to water and sanitation, sufficiency of water, treatment of household water) and social programmes for youth and the elderly (participation in and impact of such programmes). The questionnaire used for the interviews, as well as the data obtained, are available upon request from FAO's country office in Uganda.

Magnitude of the 2020 desert locust invasions

By September 2020, Uganda had experienced four waves of desert locust invasions: the first wave in February/March 2020, the second wave in April 2020, the third wave in June/July 2020, and the fourth wave in August/September 2020.[6] In many waves, desert locust swarms from Kenya entered Uganda through Amudat District (and some through Bukwo District), spreading from there to other districts in the Acholi, Elgon, Lango, Karamoja and Teso subregions.

Concerns that the eggs laid by the desert locusts of the first invasion would have hatched were refuted by the fact that the locusts sighted during subsequent invasions were already flying, and that there were no community reports of crawling nymphs. It has been widely reported that conditions for egg-laying at the time of the first invasion were not favourable. While heavy rains in late March created favourable climatic conditions for breeding, the characteristics of the soil and vegetation in Uganda are largely unfavourable to the laying of eggs by desert locusts. Adult females were reported to have dropped eggs on the bare ground after failing to find suitable grounds (loose sandy soils) for egg-laying.

The assessment found that 96 percent of all visited parishes in the Karamoja subregion had been invaded by desert locusts (see Table 2). All districts in Karamoja reported that 100 percent of their parishes had been affected, with the exceptions of Moroto (80 percent of parishes affected) and Kotido (88 percent). In the Acholi subregion, 100 percent of the parishes visited in Agago, Kitgum, Lamwo and Pader districts had been invaded by desert locusts during the past seven months. The situation was similar in Otuke District in the Lango subregion. In the Teso and Elgon subregions, 92 and 48 percent of all parishes, respectively, had been affected. The magnitude of the invasion was lowest in Bulambuli District with 18 percent of all parishes affected, followed by Kween District (71 percent) (see Appendix II, Table C).

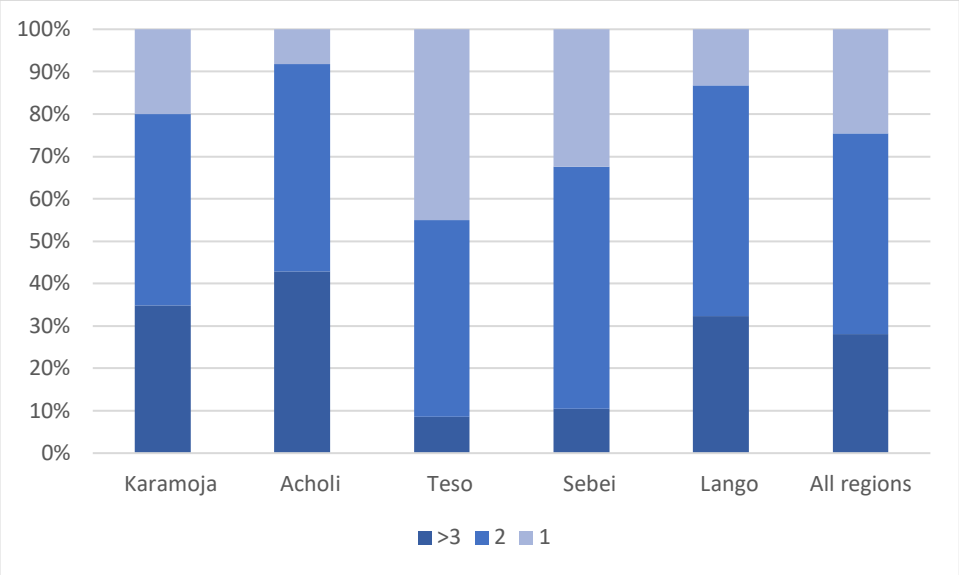
[6] The last swarm to enter Uganda was sighted on 12 September 2020. However, Uganda remains on high alert given the continued presence of desert locusts in Kenya and the ongoing breeding across the Horn of Africa.

Table 2. Magnitude of the 2020 desert locust invasion in Uganda, per subregion (February–September)

Subregion	% of parishes invaded in selected districts	Number of attacks over the past 7 months (% of total parishes)						Parishes still infected with desert locusts in September 2020 (% of total parishes)
		1	2	3	4	5	6	
Acholi	100	8.1	49.0	34.8	6.8	1.1	0.2	7
Karamoja	96	19.9	45.1	29.2	4.9	0.7	0.1	7
Lango	100	13.2	54.5	28.9	2.5	0.5	0.5	8
Elgon	48	32.5	57.1	10.4	0.0	0.0	0.0	0
Teso	92	45.0	46.4	8.4	0.1	0.0	0.0	1

By September 2020, 43 percent of the parishes in the invaded districts in Acholi had been attacked at least three times. In Karamoja, Lango, Elgon and Teso, the proportion of parishes that had been attacked three or more times stood at 35, 32, 10 and 9 percent, respectively. The districts with the lowest proportion of parishes attacked three or more times during the past seven months included Bukedea (1.6 percent), Sironko (1 percent), Ngora (3.5 percent), Soroti (5 percent), Amuria (7.3 percent), Moroto (7.9 percent), Kapelebyong (9.3 percent) and Kotido (9.8 percent) (see Appendix II, Table C).

Figure 1. Frequency of desert locust attacks over the period from February to September 2020



Source: FAO survey results, August–September 2020.

Two of the most recent sightings of a big swarm of desert locusts were registered in Napak District on Thursday, 13 August 2020 and in parts of Moroto District on or around 22 August 2020; these invasions took the affected communities by surprise.

This assessment found that by September 2020, about 8 percent of the parishes in the Lango subregion still had desert locusts, followed by Karamoja (7 percent), Acholi (7 percent) and Teso (1 percent). There were no reports of the presence of desert locusts in Elgon in September 2020.

Household and livelihood characteristics

Household characteristics

Household size

The larger a household, the greater the strain on its food security and resources (including financial resources, water and housing). The assessment found that the Teso subregion had the largest households with a mean size of eight persons; the mean size of the households in the other subregions was seven.[7] The districts with the largest households in Teso were Kumi and Ngora (with an average nine people per household). In the Karamoja subregion, the largest households were found in Abim, Kotido, Nabilatuk, Nakapripirit and Napak (with an average eight people per household). The smallest households (consisting of six people on average) were found in Sironko (Elgon), Amudat (Karamoja) and Moroto (Karamoja) (see Appendix II, Table A).[8]

Sex of household heads

A household head is the person acknowledged by the members of a household as responsible for its day-to-day running. The household head is responsible for making major decisions within the household but is not necessarily the main income earner of the household.

Household headship is considered an important demographic variable. A number of studies (for example UBOS, 2018) have argued that children born in female-headed households are more vulnerable to food insecurity and malnutrition. It is, however, not empirically clear whether female-headed households are generally more food insecure than male-headed households. On the one hand, household resources may be distributed more equitably in female-headed than in male-headed households. On the other hand, several studies indicate that male-headed households usually

[7] Household size refers to the number of usual members in a household. Usual members are defined as those who have lived in a household for at least 6 of the 12 months preceding a survey, as well as those who have spent less than six months in the household over the past 12 months but have joined the household with the intention to live there permanently, or at least for an extended period of time. These members include newborns and newly-weds, among others.

[8] The results regarding average household sizes obtained by the assessment are higher than those of UBOS' 2016/2017 household survey and resulting estimates (UBOS, 2018). This can be explained by the fact that in 2020, many people migrated back from cities to rural areas due to the COVID-19 pandemic.

have more resources at their disposal than female-headed households, as female heads have to devote time to caring for the children and thus have less time for income-generating activities (UBOS, 2018).

The survey found that 15 percent (Elgon) to 27 percent (Karamoja) of households are headed by women. In Karamoja, the proportion of female-headed households was highest in Moroto District (45 percent) and lowest in Amudat District (10 percent).[9] The Elgon subregion had the lowest proportion of female-headed households; within this subregion, the district of Kween had the lowest proportion at 9 percent (see Appendix II, Table A).

Age of household heads

Evidence from several food security and malnutrition assessments indicates that intra-household food distribution is likely to be poorer, and children more likely to be malnourished, in households with very young household heads (UBOS, 2018). This assessment found that household heads were youngest in the Lango subregion (with a mean age of 43 years) and oldest in Teso (47 years). Of all the districts, Amudat had the youngest household heads, with a mean age of 38 years (see Appendix II, Table A).

Household heads are commonly categorized according to whether they are adults or children. This categorization is motivated by the assumption that the economic sustainability of households, as well as their ability to acquire, utilize and exchange resources with other actors, is influenced by the age of household heads. The assessment found that almost 100 percent of the sampled households were headed by adults; only in Kapelebyong District were slightly over 1 percent of households headed by children (see Appendix II, Table A).

Educational attainment of household heads

Attainment of higher levels of education by the head of a household is linked to better literacy and possibly to a much higher household income and overall food security (FAO, 2018), which in turn influences the nutritional status of a household's members.

[9] These findings are consistent with those of the most recent food security and nutrition assessment (FSNA) conducted by WFP in this subregion (Barrantes and Caravani, 2020).

Recent surveys in Uganda demonstrate that the majority of households whose heads received no formal education are poor (UBOS, 2018). In all regions in the country, the poverty status of households differs significantly according to the educational attainment of household heads. The higher the average education level of a community, the greater the proportion of non-poor households within that community.

The lowest attainment of formal education (irrespectively of the level) was registered in the Karamoja subregion, where about 65 percent of household heads had not received any formal education. In four of the eight sampled districts in Karamoja, over 80 percent of household heads had not received any formal schooling (88 percent in Kotido, 86 percent in Amudat, 86 percent in Kaabong and 83 percent in Moroto). The highest attainment of formal education was registered in the Elgon subregion, where only 6 percent of household heads had not received any formal schooling. Surprisingly, all subregions had a similar level of attainment of post-secondary education, ranging between 3 and 4 percent (see Appendix II, Table B).

Awareness about the COVID-19 pandemic and its impacts

The findings of this assessment indicate that over 99 percent of the households included in the survey had a high level of awareness of the coronavirus outbreak and its transient effects. This is encouraging, since awareness of a problem is necessary to change individuals' behaviour – a crucial element in a country's preparedness for highly contagious pandemics such as COVID-19.

Given the large share of the informal sector in Uganda's gross domestic product (GDP) and overall employment, COVID-19 response measures have negatively impacted on Uganda's economy and people's livelihoods. Indeed, the total lockdown of the country resulted in immediate job losses for many Ugandans, and especially for those employed in the informal sector. Many boda boda (motorcycle taxis) operators, roadside food vendors, petty traders and dealers in non-food items lost their livelihoods either temporarily or permanently. Those employed in the formal sector, and especially teachers, were also heavily affected. Almost all sampled households across the five subregions indicated that their livelihoods had been affected both directly and indirectly by the COVID-19 pandemic. The districts where most households were affected were Abim, Amudat, Otuke and Bukedea; here, 43, 39, 38 and 31 percent of households, respectively, saw over 75 percent of their livelihoods affected by the COVID-19 pandemic (see Appendix II, Table A).

Livelihood characteristics

Main sources of livelihood for households

Populations in Northern and Eastern Uganda traditionally rely mainly on field crop production, followed by livestock rearing, as the main sources of household livelihoods. The Uganda National Household Survey (UNHS) 2016/17 report shows subsistence farming (51.3 percent), followed by wage employment (21.8 percent) and non-agricultural enterprise (17.2 percent), as the main sources of livelihood in Karamoja (UBOS, 2018). According to FAO (2018), households in the Karamoja subregion have over time reduced their reliance on the traditional source of livelihood in the area i.e. semi-nomadic livestock rearing.

The UNHS 2016/17 report lists subsistence farming (64.7 percent), followed by wage employment (15.7 percent) and non-agricultural enterprise (10.6 percent), as the main sources of livelihood in the Teso subregion (UBOS, 2018). Meanwhile, the main sources of livelihood in the Elgon subregion are subsistence farming (56.9 percent), followed by wage employment (21.3 percent) and non-agricultural enterprise (13.3 percent). In the Acholi subregion, subsistence farming (62.2 percent), wage employment (17.3 percent) and non-agricultural enterprise (13.5 percent) are the main sources of livelihood. The percentages for the Lango subregion are as follows: subsistence farming (51.3 percent), wage employment (18.8 percent) and non-agricultural enterprise (19.9 percent) (UBOS, 2018).

The findings of this assessment concur with those of the 2016/17 UNHS. Most of the communities visited for the assessment are agropastoral communities that engage in both crop and livestock production. Overall, 81 percent of households in the areas affected by desert locusts derived their livelihood mainly from crop production (see Table 3). Even though livestock production has traditionally been the main source of livelihood in Amudat District as a whole, this assessment found that the main source of livelihood for households in Amudat District has gradually shifted from pastoralism to crop production. Meanwhile, households in affected subcounties in Moroto District mainly derived their livelihood from the sale of charcoal and firewood.

Table 3. Main sources of livelihood in the surveyed districts
(in % of total households)

District	Field crop production	Animal production	Artisanry, crafts and tailoring	Brewing	Boda boda	Casual labour	Salaried employment	Sale of charcoal/ firewood	Trade	Other*
Karamoja	**60.6**	**3.0**	**0.4**	**4.8**	**0.4**	**8.4**	**3.4**	**10.7**	**3.0**	**5.3**
Abim	81.4	0.3	0.3	0.3	0.5	3.3	8.8	0.2	1.4	3.4
Amudat	39.2	31.2	0.0	5.6	0.0	8.8	0.8	0.8	8.0	5.6
Kaabong	84.0	3.7	0.0	1.9	0.0	0.0	0.3	5.6	0.5	4.0
Kotido	63.6	2.3	0.5	6.9	0.0	10.1	0.8	12.2	1.9	1.7
Moroto	13.3	1.1	0.0	11.7	0.8	12.2	2.7	38.7	3.2	16.4
Nabilatuk	46.1	2.8	0.0	6.4	0.0	16.3	1.4	17.7	3.5	5.7
Nakapiripirit	52.3	1.5	1.3	3.8	1.5	16.2	6.3	3.8	6.6	6.6
Napak	79.2	1.3	0.6	1.3	0.6	2.6	1.3	5.8	5.8	1.3
Acholi	**96.7**	**0.1**	**0.1**	**0.2**	**0.0**	**0.1**	**1.3**	**0.3**	**0.5**	**0.7**
Agago	95.9	0.0	0.0	0.0	0.0	0.0	1.7	0.3	1.0	1.0
Kitgum	94.8	0.0	0.3	0.0	0.0	0.0	2.2	0.3	1.1	1.4
Lamwo	97.3	0.3	0.0	0.3	0.0	0.3	0.8	0.3	0.2	0.5
Pader	98.6	0.0	0.0	0.3	0.0	0.0	1.0	0.0	0.0	0.0
Teso	**93.2**	**0.2**	**0.2**	**0.4**	**0.2**	**1.5**	**1.9**	**0.1**	**0.9**	**1.4**
Amuria	98.2	0.0	0.0	0.0	0.0	1.1	0.7	0.0	0.0	0.0
Bukedea	96.4	0.8	0.0	0.0	0.0	0.4	1.2	0.0	0.0	1.2
Kapelebyong	98.7	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0
Katakwi	85.3	0.3	0.3	2.7	0.0	4.0	1.0	0.3	2.3	3.7
Kumi	94.9	0.0	0.4	0.0	0.0	1.5	1.8	0.0	0.7	0.7
Ngora	92.0	0.2	0.0	0.0	0.2	2.0	3.3	0.0	0.7	1.6
Soroti	92.9	0.2	0.6	0.2	0.6	0.6	2.1	0.2	1.5	1.0
Elgon	**89.8**	**1.0**	**0.0**	**0.3**	**0.2**	**2.7**	**2.0**	**0.2**	**2.8**	**1.0**
Bulambuli	85.5	0.0	0.0	0.7	0.4	3.6	4.0	0.4	4.4	1.1
Kween	92.9	1.8	0.0	0.0	0.0	2.2	0.4	0.0	2.2	0.4
Sironko	95.0	2.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	2.0
Lango	**91.3**	**0.4**	**0.6**	**1.3**	**0.0**	**0.6**	**1.7**	**0.2**	**1.9**	**1.7**
Otuke	91.3	0.4	0.6	1.3	0.0	0.6	1.7	0.2	1.9	1.7

*Others: bricklaying, food assistance, hunting/gathering, pension allowances, remittances, social support, village savings, begging, fishing, beekeeping, quarrying, sand mining.

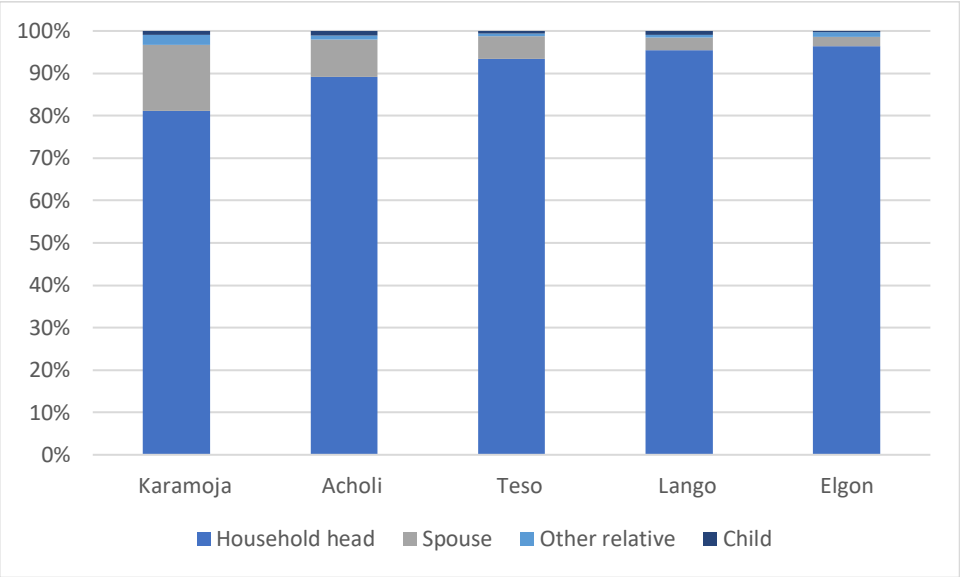
Agricultural livelihoods

As agriculture is the main source of household income in Uganda (UBOS, 2018), access to and ownership of agricultural land is essential to household livelihood security in the country. Over 70 percent of agricultural land in Uganda is accessible. Agricultural plots are largest in Northern Uganda (including Acholi, Karamoja and Lango), where the average household owns or has access to 1.6 ha of agricultural land. The second largest plots are those in Eastern Uganda (comprising Elgon and Teso), where the average stands at 1.1 ha (UBOS and MAAIF, 2010; Knapman *et al*., 2017).

Nearly 40 percent of agricultural land in Uganda is owned jointly (by spouses), while 34 percent is owned by men and 27 percent by women (UBOS, 2018). Similar percentages are found in most of the subregions included in the assessment.

Figure 2 shows the proportions of households where the household head is the major decision maker on agriculture. The highest proportion was found in the Elgon subregion (96 percent), while the lowest proportion was that of the Karamoja subregion (81 percent). In Karamoja, key decisions related to livestock are made by men in 60.8 percent of households, by spouses jointly in 29.5 percent of households and lastly by women alone (Catley and Ayele, 2018). Spouses engage jointly in crop production in 42.3 percent of all households in the Karamoja subregion (UBOS, 2018).

Figure 2. Main decision makers on agricultural activities in households (percentage of total households)



Source: FAO survey results, August–September 2020.

Crop production and impact of the desert locust invasions

Access to cropland

This assessment found that households in the Acholi and Lango subregions owned or had access to more land for crop production (1.99 ha and 1.96 ha, respectively) than those in other subregions. Households in Karamoja (1.10 ha) and Elgon (0.87 ha) were least privileged in terms of the amount of land they could access for crop production (see Table 4).

Table 4. Average amount of land (hectares) used for crop production by households

Karamoja	**1.10**
Abim	1.68
Amudat	0.68
Kaabong	0.74
Kotido	1.04
Moroto	0.74
Nabilatuk	1.13
Nakapiripirit	1.17
Napak	1.19
Acholi	**1.99**
Agago	2.34
Kitgum	1.89
Lamwo	1.89
Pader	1.94
Teso	**1.19**
Amuria	1.12
Bukedea	1.59
Kapelebyong	1.59
Katakwi	1.56
Kumi	1.16
Ngora	1.18
Soroti	0.77
Elgon	**0.87**
Bulambuli	1.01
Kween	0.81
Sironko	0.62
Lango	**1.96**
Otuke	1.96

Timing of the desert locust invasions

Most areas of Uganda have two major cropping seasons, which reflect rainfall patterns. Rainfall patterns in Teso, Acholi, Lango and Elgon are bimodal, with a first rainy season from March to June/July and a second rainy season between August/September and December. Karamoja largely has a unimodal rainy season with rains between mid-March and July/August, and hence only one cropping season. Table 5 provides an overview of the cropping calendars in the various subregions affected by desert locusts.

Table 5. Cropping calendars in areas affected by desert locusts

	First cropping season		Second cropping season	
	Start	End	Start	End
Acholi	March	July	July	December
Karamoja	March	September	n/a	n/a
Lango	March	June	July	November
Elgon	March	July	August	December
Teso	March	June	July	December

The swarms that invaded Uganda in February and March – the first wave of desert locust swarms – consisted mainly of mature adults. At that time, farmers were clearing their fields and had not yet planted, so there largely was no crop vegetation on which the locusts could settle. Hence, these swarms did not cause significant damage to the vegetation cover.[10] However, the swarms that appeared during a second wave in April consisted mostly of immature adults, which are the most voracious stage of locust development; they appeared as aggressive feeders and caused severe damages to food and forage crops. This second wave was reported to have greatly affected crops in the Teso subregion, especially in villages where the locusts remained for a day or two.

Unlike during previous invasions, the swarms reported in July (third wave) and August to mid-September (fourth wave) landed on maturing crops that were nearing their point of harvest. These swarms consisted of both mature and immature adults. Farmers in the subcounties of Rupa (in Moroto District) and Ngoleriet (in Napak District) reported damages to their vegetable gardens and maize, sorghum and sunflower crops.

[10] The eggs laid by the swarms of the first wave did not hatch into nymphs. There are no reports of subsequent swarms laying eggs in Uganda.

Cropland area affected by the desert locust invasions

Desert locusts are migratory insects that follow spring rains; they eat anything green, including both crops and non-crop vegetation, and can cause very active destruction. Through its impact on crop production, the desert locust invasion affected food security and destabilized livelihoods in eastern and northern Uganda. The intermittent persistence of the locust swarms and the lack of effectiveness of the control operations undertaken in some communities led to food crop losses and affected agriculture-based livelihoods.

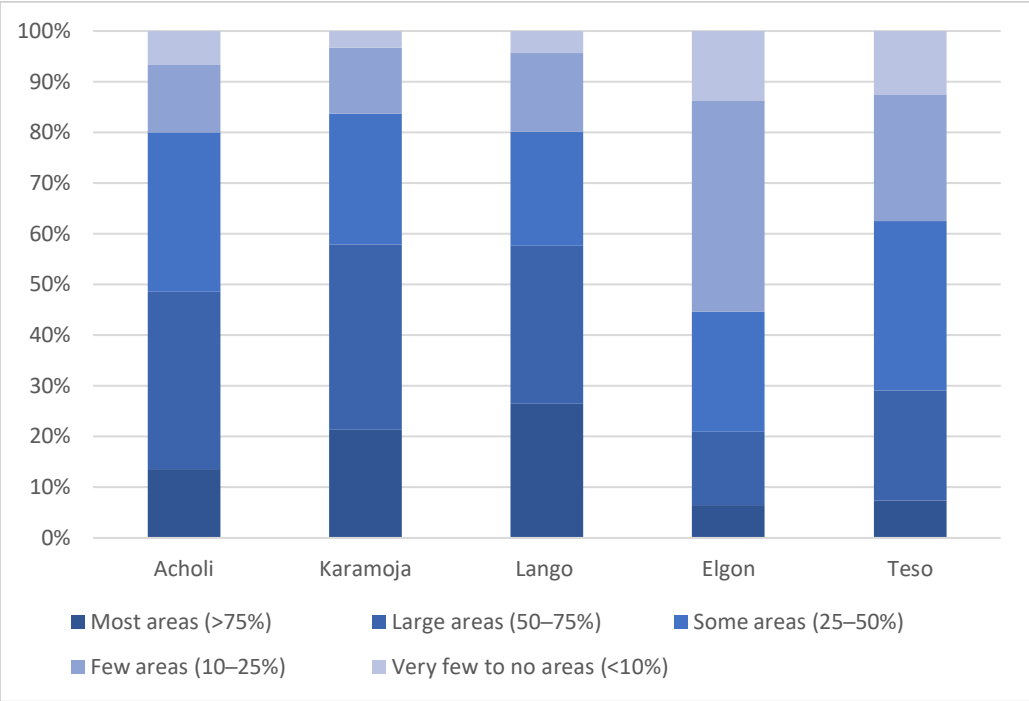
The subregions affected by the locust invasions are leading producers of cereals (maize, wheat, barley and millet), root crops (sweet potatoes and cassava), pulses (beans and pigeon peas) and oil crops (soybeans, sesame and sunflower) in the country. Some farmers recorded major crop losses as a result of the desert locust invasion, while others did not suffer any negative impacts. Farmers who had planted crops near grazing fields where the desert locusts settled, were affected most.

Fifteen percent of the households surveyed for the assessment reported that over 75 percent of their cropland had been affected by locusts (see Table 6). Households were most affected in the Lango subregion, where 26 percent of households reported that over 75 percent of their cropland had been affected, followed by Karamoja (21 percent), Acholi (14 percent), and Elgon and Teso (both 7 percent). At the district level, cropland was most affected in Nabilatuk District, where 41 percent of the households reported that over 75 percent of their cropland was affected, followed by Nakapiripirit (30 percent) and Kotido (24 percent) (see Figure 3).

Table 6. Proportion of cropland affected by desert locusts between February and September 2020 (% of total households reporting that a certain amount of cropland was affected)

Region/district	Very little to no areas (< 10% of all cropland)	Few areas (10–25%)	Some areas (25–50%)	Large amount of areas (50–75%)	Most areas (> 75%)	Don't know
Acholi	**6.6**	**13.4**	**31.4**	**35.0**	**13.5**	**0.2**
Agago	3.9	14.3	35.7	20.8	24.0	1.3
Kitgum	19.0	14.5	28.9	26.9	10.7	0.0
Lamwo	1.1	8.3	32.3	45.3	13.0	0.0
Pader	6.6	22.6	29.2	31.6	9.9	0.0
Karamoja	**3.3**	**12.9**	**25.7**	**36.4**	**21.3**	**0.4**
Abim	2.9	12.1	29.0	37.8	17.5	0.7
Amudat	7.5	15.1	18.9	52.8	5.7	0.0
Kaabong	1.6	1.6	22.2	55.6	19.0	0.0
Kotido	1.6	10.9	16.3	46.8	24.4	0.0
Moroto	13.0	31.5	29.6	18.5	7.4	0.0
Nabilatuk	3.9	3.9	20.4	30.1	40.8	1.0
Nakapiripirit	0.8	14.6	34.6	20.0	29.6	0.4
Napak	4.2	13.7	26.3	42.1	12.6	1.1
Lango	**4.3**	**15.5**	**22.4**	**31.0**	**26.3**	**0.4**
Otuke	4.3	15.5	22.4	31.0	26.3	0.4
Elgon	**13.7**	**41.7**	**23.7**	**14.4**	**6.5**	**0.0**
Bulambuli	41.7	16.7	33.3	8.3	0.0	0.0
Kween	11.7	48.9	25.5	10.6	3.2	0.0
Sironko	9.1	30.3	15.2	27.3	18.2	0.0
Teso	**12.5**	**24.8**	**33.3**	**21.7**	**7.3**	**0.3**
Amuria	5.6	19.8	52.4	19.0	3.2	0.0
Bukedea	26.7	18.3	28.3	17.5	9.2	0.0
Kapelebyong	0.0	9.7	9.7	80.6	0.0	0.0
Katakwi	8.7	20.7	25.3	18.7	26.0	0.7
Kumi	14.7	33.7	37.9	11.6	2.1	0.0
Ngora	15.2	31.8	32.8	16.2	4.0	0.0
Soroti	9.6	26.3	32.3	29.3	1.5	1.0
Total	**6.9**	**17.1**	**28.9**	**31.3**	**15.4**	**0.3**

Figure 3. Proportion of cropland affected by desert locusts between February and September 2020



Source: FAO survey results, August–September 2020.

In the district of Kumi (Teso), the locusts destroyed more than 1 000 gardens with millet, sorghum, cowpea, green gram, sunflower, watermelon, rice and soybean (among others), thus affecting 707 households in the district.

Figure 4. Cropland invaded by desert locusts

© Uganda, Office of the Prime Minister.

Crop production during the first cropping season of 2020

Type of crops grown

Households in the Elgon subregion usually grow mainly maize, cassava, beans and rice, while those in Teso mainly plant cassava, maize and sweet potatoes. In the Acholi and Lango subregions, households usually grow maize, cassava, beans and rice; those in Karamoja mainly grow sorghum, maize and beans.

This assessment found that about 99 percent of households in areas in Acholi affected by desert locusts were able to plant crops during the first cropping season of 2020. The majority of households in the subregion planted maize (71.5 percent), followed by sorghum (40.3 percent of households) and sesame (simsim) (35.3 percent). The least planted crop was rice at 0.4 percent, which contradicts other agricultural production reports for this subregion (see UBOS, 2020). No households in the areas of Acholi that were affected by desert locusts planted East Africa highland bananas (matooke). The dominant type of agricultural production in the subregion was rainfed production, with no to very minimal irrigation. Households that were unable to grow crops during the first cropping season stated the following main reasons: inadequate inputs, sickness or inability, heavy flash floods or water logging, and uneven rainfall distribution (see Appendix II, Table D).

About 95 percent of households in desert locust-affected areas in the Lango subregion (Otuke) were able to plant crops during the first season of 2020. A majority of households planted cassava (38.3 percent), followed by beans (32.5 percent) and maize (29.9 percent). The least planted non-food crop in this subregion was cotton (0.7 percent), while the least planted food crops were sorghum and sweet potatoes (3.9 percent). No households in desert locust-affected areas in the Lango subregion (Otuke) had grown East Africa highland bananas (matooke). Most households practiced rainfed agriculture. The main reasons given by households that were unable to grow crops during the first cropping season were inadequate inputs, sickness or inability, heavy flash floods or water logging, and uneven rainfall distribution (see Appendix II, Table D).

In the Karamoja subregion, about 92 percent of households in desert locust-affected areas were able to plant crops during the first cropping season of 2020, with a majority planting sorghum (71.1 percent) and maize (51.7 percent). The least grown crops in this subregion were East Africa highland bananas (matooke) (0.2 percent) and rice (0.8 percent). Most households in the subregion practiced rainfed agriculture; very minimal irrigation was practiced in the Kotido and Nakapiripirit districts. The main reasons given by households that were unable to grow crops during the first cropping season were a lack of land, fear of locusts and inadequate inputs (see Appendix II, Table E).

About 98 percent of households in desert locust-affected areas in the Teso subregion were able to plant crops during the first season of 2020. A majority of households (69 percent) planted groundnut, followed by cassava (59.2 percent) and maize (32.4 percent). The least planted crop in this subregion was rice (3.6 percent). No households in desert locust-affected areas in Teso grew East Africa highland bananas (matooke). Households chiefly practiced rainfed agriculture, with some irrigation practiced in the Kumi and Ngora districts. The main reasons given by households that were unable to grow crops during the first cropping season were insufficient labour, insufficient rainfall and inadequate inputs (see Appendix II, Table F).

In the Elgon subregion, about 98 percent of households in areas affected by desert locusts and floods were able to plant crops during the first season of 2020, with a majority of them planting maize (85.8 percent) and beans (58.5 percent). The least grown crops in this subregion were millet (1 percent) and cowpeas (1.2 percent). Households largely practiced rainfed agriculture, with very minimal irrigation practiced in Sironko District. The main reasons given by households that were unable to grow crops during the first cropping season were inadequate inputs, a lack of land and sickness or inability (see Appendix II, Table F).

Estimated production

Using yield estimates derived from the annual agricultural survey of 2018 and acreage estimates derived from the findings of this assessment, the production of the main crops in the subregions was estimated.

It is estimated that during the first cropping season of 2020, households in desert locust-affected areas in Acholi produced 729 tonnes of maize, 356 tonnes of sorghum and 111 tonnes of sesame (simsim). In the Lango subregion (Otuke district), households were estimated to have produced 276 tonnes of cassava, 34 tonnes of beans and 98 tonnes of maize (see Appendix II, Table G).

It was estimated that households in desert locust-affected subcounties in the Karamoja subregion would produce about 565 tonnes of sorghum and 881 tonnes of maize (see Appendix II, Table H). Meanwhile, it was estimated that households in areas in the Elgon subregion affected by desert locusts and floods would produce 286 tonnes of maize and 62 tonnes of beans (see Appendix II, Table I). In the Teso subregion, the production of groundnut was estimated at 299 tonnes, that of cassava at 1 138 tonnes and that of maize at 259 tonnes (see Appendix II, Table J).

Stage and condition of crops in September 2020

When the assessment was conducted, most of the crops in the fields were at their maturity stage. A majority of households (59.7 percent) reported that the condition of their crops was below normal (poor health and low expected yields). Forty percent of households reported that yields were promising; however, crops remained vulnerable to potential future attacks by desert locusts. Most farmers had planted their second-season annual crops by September 2020.

Table 7. Dominant stage and condition of crops in September 2020

	Dominant stage of crops (% of households reporting a stage as dominant)								Dominant growth condition of crops (% of households reporting a condition as dominant)		
	Clearing the field	Flowering	Germinated/ emerging	Grain-filling/yield formation	Harvested	Just planted	Maturation	Vegetative	Below normal	Normal	Above normal
Acholi	**0.3**	**10.6**	**2.8**	**14.7**	**9.6**	**1.1**	**44.8**	**16.0**	**59.7**	**36.2**	**4.1**
Agago	0.0	9.1	6.2	10.1	8.7	1.1	39.9	25.0	35.4	63.9	0.7
Kitgum	0.3	10.5	1.5	19.5	11.4	0.6	45.0	11.1	59.7	35.3	5.0
Lamwo	0.7	14.1	2.1	11.6	5.9	0.9	49.5	16.4	76.3	19.6	4.1
Pader	0.0	6.8	2.7	20.5	16.3	2.3	39.5	11.8	47.8	46.0	6.2
Lango	**0.5**	**20.5**	**8.5**	**8.0**	**4.7**	**0.9**	**20.0**	**36.8**	**36.8**	**62.2**	**1.0**
Otuke	0.5	20.5	8.5	8.0	4.7	0.9	20.0	36.8	36.8	62.2	1.0
Karamoja	**0.7**	**4.8**	**4.5**	**7.2**	**16.7**	**1.3**	**50.2**	**14.5**	**74.7**	**23.4**	**1.9**
Abim	0.0	4.8	4.1	7.4	9.5	1.5	50.5	22.2	53.4	42.8	3.7
Amudat	0.0	1.7	0.0	0.0	1.7	0.0	95.7	0.9	38.5	52.1	9.4
Kaabong	0.0	13.6	16.9	14.3	0.7	4.0	10.0	40.5	87.3	12.7	0.0
Kotido	0.1	0.4	2.8	6.1	14.6	0.0	61.8	14.2	89.8	10.2	0.0
Moroto	0.0	3.6	0.0	7.2	22.8	1.0	64.5	1.0	48.7	46.8	4.5
Nabilatuk	4.0	2.0	4.0	9.0	37.0	2.0	41.0	1.0	98.5	1.5	0.0
Nakapiripirit	5.6	6.0	4.7	6.0	37.6	1.3	37.2	1.7	88.5	11.1	0.3
Napak	0.0	14.1	1.5	4.4	39.4	2.9	35.0	3.6	80.4	17.0	2.6
Elgon	**7.0**	**12.5**	**11.0**	**5.0**	**4.2**	**8.3**	**37.9**	**14.1**	**20.7**	**78.0**	**1.3**
Bulambuli	6.0	9.0	10.9	6.4	5.6	7.1	46.8	8.2	24.8	74.4	0.8
Kween	11.3	16.9	9.9	4.7	2.8	6.1	39.0	9.4	17.5	80.9	1.5
Sironko	0.0	12.6	13.7	2.1	3.2	16.8	10.5	41.1	16.7	81.3	2.1
Teso	**2.3**	**9.9**	**19.3**	**4.0**	**2.7**	**6.5**	**10.6**	**44.8**	**40.1**	**53.0**	**7.0**
Amuria	0.4	6.5	28.5	4.1	0.8	12.7	24.6	23.5	54.9	43.6	1.5
Bukedea	3.7	11.0	20.0	0.0	0.0	10.6	8.6	46.1	16.8	79.5	3.7
Kapelebyong	0.0	17.4	26.1	2.9	4.3	14.5	5.8	29.0	81.9	18.1	0.0
Katakwi	2.2	7.3	18.3	6.6	16.8	9.5	17.2	22.0	64.6	33.3	2.1
Kumi	0.7	19.9	8.8	2.9	0.0	5.1	9.6	52.9	14.7	77.9	7.4
Ngora	0.0	8.4	13.3	3.3	0.4	0.7	4.6	69.3	25.4	59.8	14.8
Soroti	6.5	7.4	26.8	6.5	0.9	5.7	8.3	37.9	54.4	39.0	6.5

Livestock production and impact of the desert locust invasions

Access to grazing land

The average amount of land owned or accessed for livestock grazing was found to be relatively low across all subregions. In Karamoja and Teso, grazing land is usually communally owned, and households do not devote their own land to livestock keeping (except those keeping goats). In Acholi and Elgon, ownership of livestock is low. As a result, no households devote land permanently to grazing (see Table 8).

Table 8. Average amount of land (hectares) used as grazing land by households

Karamoja	**0.33**
Abim	0.04
Amudat	1.07
Kaabong	0.18
Kotido	0.36
Moroto	0.01
Nabilatuk	0.56
Nakapiripirit	0.58
Napak	0.87
Acholi	**0.65**
Agago	0.61
Kitgum	1.24
Lamwo	0.39
Pader	0.51
Teso	**0.13**
Amuria	0.06
Bukedea	0.52
Kapelebyong	0.05
Katakwi	0.17
Kumi	0.04
Ngora	0.04
Soroti	0.08
Elgon	**0.08**
Bulambuli	0.05
Kween	0.13
Sironko	0.08
Lango	**0.50**
Otuke	0.50

Livestock ownership

Table 9 presents results concerning the ownership of different types of livestock by households in areas affected by desert locusts.

About 75 percent of households in the Acholi subregion owned some type of livestock, with most of them (69 percent) owning and rearing goats. In this subregion, the highest proportion of households that owned at least one type of livestock was found in Kitgum District, again with a majority (74 percent) owning goats.

The ownership of livestock is extremely important to communities in the Karamoja subregion. However, only 48 percent of households in desert locust-affected communities were found to own livestock. The majority of these households (92 percent) were in the Amudat District.[11] Most households (73 percent) owned goats, followed by households owning cattle (58 percent). In Amudat District, 92 percent of households owned cattle and 86 percent own goats.

Almost 67 percent of the households in the Teso subregion owned livestock. The highest proportion of households with livestock in the subregion was that of Kumi District (78 percent). Most households in desert locust-affected communities in Teso owned goats (57 percent), followed by those owning cattle (55 percent).

In the three districts in the Elgon subregion included in the assessment, an average 63 percent of households in desert locust-affected areas owned livestock. A majority of these households owned cattle. No significant difference in ownership levels between the three districts was found, although Kween District had a slightly higher proportion of households owning livestock than the other two districts.

Seventy-seven percent of households in desert locust-affected communities of Otuke District owned livestock, with majority of them (57 percent) engaged in poultry farming.

[11] These results are consistent with the results of a recent FSNA conducted in the subregion, which found that livestock ownership stood at 54 percent in June 2017, at 57 percent in July 2018 and at 50 percent in January 2020 (Karamoja Resilience Support Unit, 2018).

Table 9. Livestock production in desert locust-affected areas (percentage of total households)

	Households owning livestock	Amount of land used by households for livestock production					Type of livestock owned							
		No land	<0.5 ha	0.5 to 1 ha	1 to 5 ha	>5 ha	Cattle (including oxen)	Oxen	Goats	Sheep	Pigs	Poultry	Camels	Rabbits
Acholi	**74.5**	**28.4**	**46.6**	**12.5**	**10.7**	**1.8**	**44.0**	**29.0**	**68.8**	**3.5**	**20.7**	**61.8**	**0.0**	**0.1**
Agago	68.2	34.3	38.7	10.5	14.4	2.2	46.0	40.6	63.4	3.0	37.6	49.0	0.0	0.0
Kitgum	82.6	25.1	49.5	8.4	13.4	3.7	52.3	16.3	74.0	6.3	16.3	64.0	0.0	0.0
Lamwo	73.4	26.6	50.0	14.6	7.9	0.9	32.3	36.0	66.6	2.6	16.4	62.4	0.0	0.2
Pader	72.9	32.1	41.9	15.3	9.8	0.9	55.3	20.9	71.2	1.9	20.0	69.3	0.0	0.0
Karamoja	**47.9**	**70.7**	**7.1**	**6.7**	**13.7**	**1.7**	**57.8**	**10.5**	**72.5**	**42.5**	**3.2**	**49.7**	**0.2**	**0.1**
Abim	26.0	84.7	8.3	4.2	2.8	0.0	41.7	6.6	65.6	8.6	13.9	63.6	0.0	0.7
Amudat	92.0	54.1	1.8	9.7	31.9	3.5	92.2	4.3	86.1	54.8	0.0	33.0	1.7	0.0
Kaabong	42.7	74.1	7.5	9.4	10.0	0.0	35.6	8.8	71.3	50.6	6.9	32.5	0.0	0.0
Kotido	62.5	65.6	9.6	8.3	16.6	0.0	53.8	15.5	68.1	53.0	0.0	64.9	0.0	0.0
Moroto	54.4	97.0	3.0	0.0	0.0	0.0	75.5	3.9	93.6	52.9	0.0	16.2	0.0	0.0
Nabilatuk	36.2	62.7	15.7	3.9	3.9	13.7	82.0	10.0	74.0	34.0	0.0	32.0	0.0	0.0
Nakapiripirit	35.8	78.0	2.8	2.8	7.8	8.5	53.9	2.1	57.4	15.6	5.0	56.7	0.7	0.0
Napak	61.0	29.8	9.6	16.0	43.6	1.1	54.3	28.7	67.0	37.2	6.4	73.4	0.0	0.0
Lango	**77.3**	**38.6**	**33.8**	**12.7**	**14.3**	**0.6**	**48.0**	**33.9**	**61.0**	**6.2**	**20.6**	**57.3**	**0.0**	**0.0**
Otuke	77.3	38.6	33.8	12.7	14.3	0.6	48.0	33.9	61.0	6.2	20.6	57.3	0.0	0.0
Elgon	**63.0**	**28.8**	**69.1**	**1.9**	**0.3**	**0.0**	**63.2**	**4.8**	**49.5**	**11.1**	**11.4**	**55.3**	**0.0**	**1.6**
Bulambuli	60.7	39.8	59.6	0.6	0.0	0.0	49.7	2.4	53.9	1.8	24.0	60.5	0.0	2.4
Kween	67.6	21.7	74.3	3.3	0.7	0.0	76.3	9.2	46.7	21.1	2.0	50.0	0.0	0.7
Sironko	59.0	15.8	82.5	1.8	0.0	0.0	67.8	0.0	44.1	11.9	0.0	54.2	0.0	1.7
Teso	**66.7**	**74.8**	**20.2**	**2.4**	**2.3**	**0.2**	**55.3**	**21.3**	**56.7**	**18.3**	**29.2**	**52.1**	**0.0**	**0.9**
Amuria	60.1	83.7	13.3	2.4	0.6	0.0	46.1	25.7	59.3	14.4	22.8	56.9	0.0	0.0
Bukedea	61.8	22.6	64.5	6.5	4.5	1.9	54.8	16.1	60.6	11.0	29.0	56.8	0.0	2.6
Kapelebyon	69.3	88.5	9.6	0.0	1.9	0.0	48.1	55.8	48.1	7.7	13.5	59.6	0.0	0.0
Katakwi	61.3	70.7	16.8	3.8	8.7	0.0	70.1	19.0	70.7	35.3	25.0	52.7	0.0	0.5
Kumi	78.5	85.1	13.0	1.4	0.5	0.0	49.1	25.5	44.4	19.4	37.5	53.2	0.0	1.4
Ngora	77.6	88.2	9.4	1.7	0.7	0.0	49.4	12.9	59.0	15.9	38.2	52.7	0.0	1.2
Soroti	56.7	70.8	25.8	1.5	1.9	0.0	67.2	26.5	51.1	18.3	18.3	42.5	0.0	0.0

Grazing land area affected by the desert locust invasions

Both during the first invasion in February/March 2020 and during subsequent attacks, swarms settled on grazing land where they found green vegetation. This affected the availability of grazing land for livestock. Households in the Acholi, Karamoja and Lango subregions reported to have had much of their grazing land affected by the locust invasion, with the most affected districts including Abim (53 percent of households reporting damages to grazing land), Pader (53 percent), Nabilatuk (53 percent) and Napak (62 percent). The majority of households in Acholi (38 percent) reported that 25 to 50 percent of their grazing land had been affected, although most households in Agago District reported that 50 to 75 percent of their grazing land had been affected. In the Karamoja subregion, 37 percent of households had 50 to 75 percent of their grazing land affected; Kaabong District was reported to have been affected most. In the Teso subregion, a majority of households (36 percent) reported that 10 to 25 percent of grazing land was affected, with Amuria District reported to have been affected most (see Table 10 and Appendix II, Table K).

Table 10. Households whose grazing land had been affected by desert locust invasions prior to the survey

Subregion	Households whose grazing land was affected (% of total households)	Proportion of grazing land affected				
		<10%	10–25%	25–50%	50–75%	>75%
Acholi	43.0	7.1	21.6	38.0	28.8	4.0
Karamoja	42.2	3.9	14.1	32.9	36.5	12.8
Lango	41.6	5.1	11.4	26.1	32.4	24.4
Elgon	34.5	7.7	59.3	24.2	6.6	2.2
Teso	25.9	9.7	35.7	34.2	16.8	3.7
Total	**37.3**	**6.1**	**21.3**	**33.7**	**29.3**	**9.2**

The majority of households in all subregions reported that grasses were the type of pasture that was most affected by the desert locust invasions. Only in Nakapiripirit District did households report that forage trees were the most affected type of pasture (see Table 11).

Table 11. Type of grazing land affected by desert locust invasions between April and September 2020

Subregion	Households whose grazing land was affected (% of total households)	Type of pasture affected most				
		Crop residues (%)	Grasses (%)	Shrubs (%)	Forage trees (%)	Other types of pasture (%)
Acholi	43.0	3.9	37.8	4.0	26.8	27.0
Karamoja	42.2	1.7	28.3	7.7	20.4	41.7
Lango	41.6	0.0	62.3	2.3	18.9	16.6
Elgon	34.5	6.6	83.5	0.0	7.7	2.2
Teso	25.9	1.5	48.3	3.7	35.1	11.2
Total	**37.3**	**2.3**	**39.0**	**5.3**	**24.4**	**28.7**

Grazing land conditions

At the time of the assessment in September 2020, grazing land conditions were reported by 34 percent of households in the Karamoja subregion to be better than at the same time of year during the past three years. In the Teso subregion, 63 percent of households in desert locust-affected areas reported that grazing land conditions had worsened (see Table 12).

Table 12. Grazing land conditions in September 2020 as compared to those at the same time of year during the past three years (percentage of total households reporting a condition)

	No grazing land this year	Much worse	Slightly worse	Similar	Slightly better	Much better
Karamoja	**0.5**	**12.2**	**30.4**	**22.5**	**23.9**	**10.6**
Abim	1.7	7.6	32.8	33.6	21.8	2.5
Amudat	0.0	0.0	12.2	24.3	37.4	26.1
Kaabong	0.6	11.9	32.5	12.5	41.3	1.3
Kotido	0.2	13.0	35.4	32.8	7.2	11.3
Moroto	0.0	6.8	25.9	9.8	49.3	8.3
Nabilatuk	0.0	27.5	33.3	5.9	21.6	11.8
Nakapiripirit	2.1	29.3	20.7	7.9	17.9	22.1
Napak	0.0	7.4	43.6	29.8	18.1	1.1
Teso	**1.0**	**20.8**	**42.5**	**21.3**	**12.8**	**1.5**
Amuria	1.2	19.6	55.2	17.2	5.5	1.2
Bukedea	1.9	11.6	16.8	47.7	19.4	2.6
Kapelebyong	0.0	23.5	56.9	15.7	3.9	0.0
Katakwi	0.5	22.8	51.6	15.2	7.1	2.7
Kumi	4.2	23.7	34.9	22.8	14.0	0.5
Ngora	0.0	16.9	41.2	25.2	16.2	0.5
Soroti	0.0	28.9	48.9	6.7	12.6	3.0
Elgon	**0.8**	**11.2**	**28.6**	**39.6**	**13.6**	**6.1**
Bulambuli	0.0	14.5	25.3	42.8	11.4	6.0
Kween	0.7	7.4	38.9	32.9	14.8	5.4
Sironko	3.4	11.9	11.9	47.5	16.9	8.5
Acholi	**0.8**	**6.2**	**27.5**	**18.3**	**21.8**	**25.5**
Agago	1.0	7.1	50.5	15.7	25.8	0.0
Kitgum	0.7	5.7	18.6	14.2	21.3	39.5
Lamwo	0.4	5.5	26.6	23.6	20.5	23.4
Pader	1.4	7.6	20.4	15.2	21.3	34.1
Lango	**3.0**	**8.1**	**47.6**	**13.6**	**26.5**	**1.2**
Otuke	3.0	8.1	47.6	13.6	26.5	1.2

Impact of the desert locust invasions on livestock production

Impact on livestock body condition

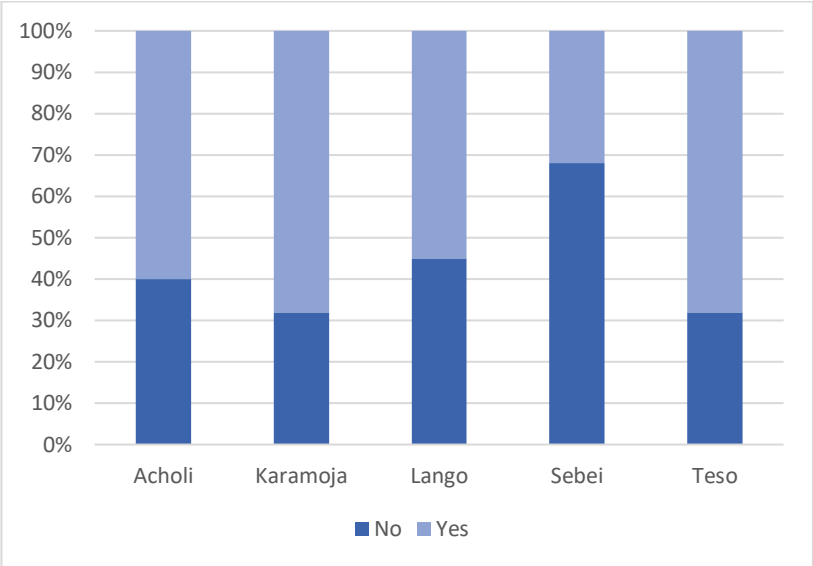
Any negative impact on grazing land conditions, and thus on the feeding of livestock, will usually have either or both of two effects on livestock production: a worsening of body condition, and a drop in milk production. In this assessment, households were asked if changes in grazing land conditions resulting from locust invasions had had any impact on their livestock's body condition. Sixty-four percent of all households surveyed reported that changes in grazing land conditions had negatively impacted on the body condition of livestock, with the biggest impact reported in the Karamoja and Teso subregions. In Karamoja, the biggest impact was reported in Kaabong District (where 91 percent of households reported a negative impact on body conditions), followed by Kotido (84 percent) and Napak (69 percent) districts. In the Teso subregion, the biggest impact was reported in Kapelebyong District (100 percent), followed by Soroti and Katakwai (both 88 percent). The smallest impact was reported in the Elgon subregion, and particularly in Kween District (25 percent), where the sampled parishes had little livestock and locust invasions remained limited (see Table 13 and Figure 5).

Table 13. Households reporting that changes in grazing land conditions resulting from desert locust invasions had had a negative impact on livestock body condition (no/yes) prior to the survey

Region/district	No	Yes
Acholi	**40.2**	**59.8**
Agago	56.2	43.8
Kitgum	43.0	57.0
Lamwo	19.9	80.1
Pader	57.3	42.7
Karamoja	**31.8**	**68.2**
Abim	36.8	63.2
Amudat	44.0	56.0
Kaabong	8.9	91.1
Kotido	16.1	83.9
Moroto	47.4	52.6
Nabilatuk	35.2	64.8
Nakapiripirit	46.1	53.9
Napak	30.8	69.2

Region/district	No	Yes
Lango	**44.8**	**55.2**
Otuke	44.8	55.2
Elgon	**68.1**	**31.9**
Bulambuli	66.7	33.3
Kween	75.0	25.0
Sironko	30.8	69.2
Teso	**31.7**	**68.3**
Amuria	41.0	59.0
Bukedea	45.2	54.8
Kapelebyong	0.0	100.0
Katakwi	11.7	88.3
Kumi	56.9	44.1
Ngora	61.1	38.9
Soroti	11.6	88.4
Total	**36.1**	**63.9**

Figure 5. Households reporting that grazing land losses resulting from desert locust invasions had had a negative impact on livestock body condition (no/yes) prior to the survey



Source: FAO survey results, August–September 2020.

Impact on milk production

Negative changes in grazing land conditions affect the feeding of cattle and thus impact upon their body condition, calving and milk production. Most of the households did not have any cattle that was being milked at the time of the assessment. However, the few households that were milking largely reported a reduction in the quantity of milk produced (see Table 14).

Table 14. Milk production in September 2020 as compared to that in 2019 (percentage of total households reporting that milk production is …. than in 2019)

	No cattle/not milking	Much lower	Slightly lower	Similar	Slightly higher	Much higher
Karamoja	73.7	6.1	11.5	3.9	3.7	1.1
Abim	92.1	2.2	4.1	1.4	1.0	0.2
Amudat	15.2	0.8	16.8	18.4	27.2	21.6
Kaabong	88.0	4.0	5.9	1.6	0.5	0.0
Kotido	66.8	10.1	18.2	4.0	0.8	0.1
Moroto	58.9	7.7	18.0	4.5	10.3	0.5
Nabilatuk	71.6	12.1	7.8	4.3	4.3	0.0
Nakapiripirit	83.8	3.8	5.8	3.3	3.3	0.0
Napak	64.3	7.8	20.8	6.5	0.6	0.0
Teso	73.6	11.2	10.1	2.5	2.1	0.4
Amuria	78.4	6.8	10.8	2.5	1.1	0.4
Bukedea	71.3	6.8	11.6	4.8	5.2	0.4
Kapelebyong	69.3	12.0	13.3	5.3	0.0	0.0
Katakwi	65.3	16.7	14.0	1.7	1.3	1.0
Kumi	71.6	11.6	12.0	1.5	2.9	0.4
Ngora	73.8	11.5	8.4	3.6	2.2	0.5
Soroti	78.9	12.1	6.9	0.8	1.3	0.0
Elgon	66.5	5.0	14.3	7.2	2.8	4.2
Bulambuli	76.7	5.1	6.5	4.7	2.5	4.4
Kween	53.8	2.2	24.4	11.1	2.7	5.8
Sironko	67.0	11.0	13.0	5.0	4.0	0.0
Acholi	76.3	9.5	6.5	4.3	2.3	1.2
Agago	82.4	5.1	6.4	4.1	2.7	0.3
Kitgum	74.1	13.5	8.0	2.8	1.1	0.6
Lamwo	76.2	5.6	5.9	6.9	2.9	2.4
Pader	72.9	17.3	5.8	1.7	2.0	0.3
Lango	81.1	5.7	7.9	1.1	4.1	1.1
Otuke	81.1	5.7	7.9	1.1	4.1	1.1

Livestock migration

Livestock migration was reported by households in all desert locust-affected communities, with most of it having happened in the Karamoja, Acholi and Lango subregions. The main cause of livestock migration in all subregions (with the exception of Lango) was shortage of grazing land; the main cause in Lango was shortage of water. The second most frequently reported cause of livestock migration was conflict in the Karamoja and Elgon subregions, and shortage of water in the Teso and Acholi subregions (see Table 15).

Table 15. Livestock migration and causes
(percentage of total households reporting migration/cause)

	Livestock migration during the past 5 months (yes)	Primary cause of migration			
		Shortage of water	Shortage of grazing land	Conflict	Other
Karamoja	91.1	12.7	55.5	52.7	26.4
Abim	99.0	0.0	100.0	0.0	0.0
Amudat	53.7	27.3	100.0	0.0	0.0
Kaabong	97.7	0.0	0.0	0.0	0.0
Kotido	85.1	20.0	40.0	80.0	20.0
Moroto	96.7	2.0	42.9	67.3	44.9
Nabilatuk	95.4	0.0	40.0	80.0	20.0
Nakapiripirit	89.9	13.6	63.6	22.7	22.7
Napak	71.0	37.5	56.3	75.0	0.0
Teso	62.1	63.0	85.2	3.7	14.8
Amuria	65.4	100.0	70.0	0.0	20.0
Bukedea	90.8	0.0	0.0	0.0	0.0
Kapelebyong	42.6	0.0	0.0	0.0	0.0
Katakwi	58.2	38.5	92.3	0.0	15.4
Kumi	54.1	100.0	100.0	0.0	0.0
Ngora	42.1	0.0	0.0	0.0	0.0
Soroti	86.1	33.3	100.0	33.3	0.0
Elgon	77.8	0.0	80.0	20.0	0.0
Bulambuli	80.2	0.0	66.7	33.3	0.0
Kween	72.1	0.0	100.0	0.0	0.0
Sironko	81.3	0.0	0.0	0.0	0.0
Acholi	79.9	35.3	88.2	0.0	17.6
Agago	94.6	100.0	100.0	0.0	0.0
Kitgum	70.5	0.0	0.0	0.0	100.0
Lamwo	80.8	38.5	92.3	0.0	0.0
Pader	75.9	0.0	100.0	0.0	100.0
Lango	86.7	100.0	0.0	0.0	0.0
Otuke	86.7	100.0	0.0	0.0	0.0

Locust control actions by households and communities

Control actions by households

In a bid to fight off the desert locusts, households adopted several mechanisms that they thought would help in the struggle. Table 16 presents the actions taken most commonly by households (see also Annex III, Table L).

Table 16 shows that noisemaking (including drumming) is the control method that is used most often by households. However, it is not a control measure that is officially recommended by MAAIF or FAO, which instead advocate the use of chemical or biological pesticides by trained technicians in accordance with internationally agreed guidelines (such as the FAO/ World Health Organization *International Code of Conduct on Pesticide Management*, which was adopted to the Ugandan context by MAAIF) to ensure safety for users, communities and the environment.

Table 16. Actions taken by households to control locusts (percentage of total households undertaking an action)

Region	Chemical pesticides	Biological control methods	Smoke	Premature crop harvesting	Noisemaking (including drumming)	Other actions	Do nothing
Karamoja	1.7	0.1	4.8	0.1	25.6	2.3	65.9
Acholi	4.5	0.2	11.9	1.0	34.2	5.0	52.0
Teso	1.6	0.3	3.6	0.0	77.8	2.4	17.4
Elgon	40.5	1.1	3.3	0.0	34.9	7.8	17.1
Lango	1.2	0.2	5.5	0.0	27.6	2.6	67.0
Total	**3.8**	**0.3**	**6.0**	**0.3**	**42.9**	**3.2**	**47.1**

Table 17 shows that overall, children and women are most involved in desert locust control actions.

Table 17. Household members involved in locust control actions (percentages of households indicating that a category is involved in control actions)

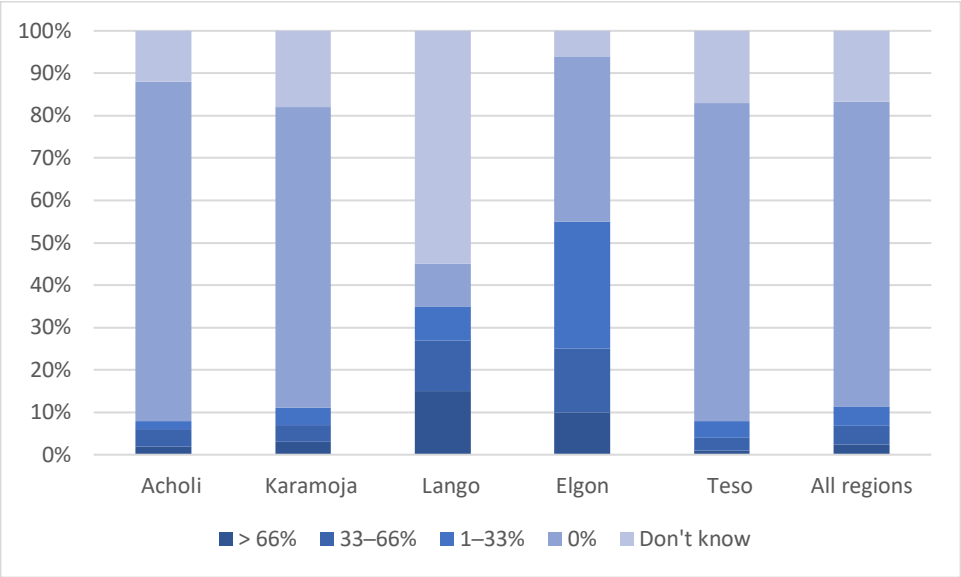
Region	Children (under 18)	Women	Men	Elderly	Youth (18 to 35)
Karamoja	63.9	60.6	50.7	20.1	56.0
Acholi	74.1	72.6	62.4	8.0	56.6
Teso	69.7	76.3	59.4	19.7	65.8
Elgon	25.8	44.7	68.4	7.4	34.4
Lango	82.4	77.9	68.4	13.2	43.4
Total	**66.2**	**68.4**	**57.5**	**17.2**	**58.5**

Locust control actions at the community level

At the community level, ground and aerial spraying of pesticides was the most commonly applied control method. Figure 6 presents households' perspectives on the extent of the usage of pesticides at community level.

Ground spraying – which has been carried out by the national military – has been recommended as an effective control method by the National Emergency Coordination Centre of the OPM. The soldiers are guided and assisted by the local community, which helps fetch water and locate the insects. The soldiers use torches to see the insects at night and spray them.

Figure 6. Extent of the usage of pesticides at community level (percentages of households indicating that …% of the land infested with desert locusts is treated with pesticides [aerial and/or ground spraying])



Source: FAO survey results, August–September 2020.

Effectiveness of control methods

Both ground and aerial control measures were undertaken to reduce locust populations and prevent them from spreading to new areas. Whenever possible and facilitated by surveillance and reporting, these measures aimed at neutralizing hopper bands on the ground before they could develop into adult swarms, to minimize the need for aerial spraying of conventional pesticides.

Table 18 presents households' perspectives on the effectiveness of the different control methods applied.

Table 18. Household perspectives on the effectiveness of desert locust control methods (percentages of households selecting a measure as the most effective one)

Region /district	Aerial spraying	Ground spraying	Pesticides	Bush burning	Drumming	Smoke	Other
Acholi	10.0	11.8	2.6	3.5	41.6	10.2	20.3
Agago	16.3	13.8	1.6	0.0	37.4	0.8	30.1
Kitgum	9.7	21.8	3.9	2.9	24.1	15.3	23.4
Lamwo	12.9	4.1	1.8	5.5	64.1	8.9	3.7
Pader	3.8	9.9	2.3	3.4	37.4	10.3	32.8
Karamoja	32.0	6.5	1.9	1.6	31.6	2.1	24.4
Abim	19.9	15.0	4.7	7.4	42.5	4.9	5.7
Amudat	0.0	0.8	0.8	0.0	34.7	0.0	63.6
Kaabong	58.5	13.3	0.0	0.0	1.3	0.7	26.2
Kotido	25.9	1.1	1.7	0.0	13.9	1.7	55.7
Moroto	85.4	0.4	0.4	0.4	6.9	0.0	6.5
Nabilatuk	18.8	4.7	2.3	0.0	74.2	0.0	0.0
Nakapiripirit	12.4	7.6	2.0	1.1	61.3	3.7	11.9
Napak	25.9	0.0	1.4	0.0	50.3	1.4	21.1
Lango	57.2	9.0	0.3	0.7	20.7	2.0	10.0
Otuke	57.2	9.0	0.3	0.7	20.7	2.0	10.0
Elgon	5.5	22.4	25.1	0.0	33.3	2.0	11.8
Bulambuli	0.0	20.0	28.0	0.0	44.0	8.0	0.0
Kween	5.7	24.1	24.1	0.0	41.8	0.7	3.5
Sironko	6.7	20.2	25.8	0.0	16.9	2.2	28.1
Teso	4.3	4.7	2.1	0.2	78.7	0.5	9.6
Amuria	3.7	1.1	0.4	0.0	90.7	0.7	3.3
Bukedea	0.0	0.8	5.7	0.0	69.4	0.4	23.7
Kapelebyong	1.4	0.0	0.0	0.0	95.9	2.7	0.0
Katakwi	10.2	11.9	1.7	0.8	73.3	0.8	1.3
Kumi	8.5	3.8	0.9	0.0	77.3	0.0	9.5
Ngora	2.2	7.4	0.4	0.2	88.2	0.0	1.6
Soroti	4.6	2.9	4.6	0.0	63.3	0.9	23.7
Total	**18.9**	**7.7**	**3.0**	**1.3**	**48.7**	**3.0**	**17.4**

Environmental damage by locust control methods

Desert locust control methods generally have both short- and long-term effects on the environment. For instance, chemical spraying may lead to air pollution and contamination of food crops (especially vegetables), whereas bush burning exposes soils to erosion and associated problems. Ground and aerial spraying of both synthetic chemical pesticides and biopesticides is likely to affect natural resources (including grasslands, swamps, rivers and lakes) and thus impact on the health of communities as well as on natural resources-based livelihoods.

Households were asked whether they thought the currently applied locust control methods would lead to any form of environmental damage (see Table 19).

Table 19. Household responses to the question of whether locust control methods would cause environmental damage (percentages of households replying no/yes)

Subregion	No	Yes
Karamoja	51.7	48.3
Acholi	60.0	40.0
Teso	74.6	25.4
Elgon	45.3	54.7
Lango	52.8	47.2
Total	**59.9**	**40.1**

Impact of the desert locust invasions on livelihoods and food security

Household perceptions of the impact of the desert locust invasions on livelihoods and food security

As demonstrated in previous sections, extensive areas of cropland and grazing land in north and north-east Uganda were damaged as a result of locust infestations, with severe consequences for agriculture-based livelihoods. Food security is chronically fragile in some of the affected communities, with approximately 277 000 people considered severely food insecure in the subregions of Karamoja and Teso (IPC, 2020).[12] Desert locust invasions pose a threat to food security not only because desert locusts multiply very fast and can destroy large acreages of cropland in a short period of time, but also because they discourage households from planting new crops, as they may eventually be destroyed by locusts anyhow.

Table 20 illustrates households' perceptions of the impact of desert locust invasions on livelihoods and food security; it shows that the impact on food security was greater than that on overall livelihoods across subregions. Subregions that rely more on staple crops (such as Acholi and Lango), are more heavily impacted in terms of livelihoods by desert locust invasions; regions with a greater diversity of crops (such as Elgon), and those with more diverse sources of livelihood (such as Teso and Karamoja), are likely to have been more resilient to the impacts of the invasions.

[12] Karamoja: 183 000, Teso: 250 000, Acholi: 150 000.

Table 20. Impacts of locust invasions between February and September 2020 on livelihoods and food security

Region /district	Households reporting an impact on their livelihood (% of total)	Households reporting an impact on food security (% of total)	Major crops affected by desert locust invasions (% of households indicating that a particular crop was affected)				
			Beans	Cassava	Maize	Millet	Sorghum
Acholi	81.8	91.4	1.4	7.3	40.0	29.3	13.8
Agago	88.0	86.4	1.3	5.2	29.4	45.1	8.5
Kitgum	79.4	93.8	0.8	10.0	46.0	19.7	15.5
Lamwo	77.1	90.4	1.9	5.8	31.2	35.3	17.9
Pader	88.4	94.3	0.9	9.0	60.2	15.6	6.6
Karamoja	76.0	94.9	3.6	0.9	37.5	3.4	45.5
Abim	92.6	97.5	3.2	0.7	14.6	8.4	54.0
Amudat	88.6	88.7	0.0	0.0	100.0	0.0	0.0
Kaabong	59.9	77.8	1.6	0.0	33.9	0.0	62.9
Kotido	67.0	98.1	4.2	0.0	34.3	3.2	54.5
Moroto	51.7	87.0	2.8	0.0	26.2	0.0	66.4
Nabilatuk	90.4	98.0	2.0	1.0	32.7	0.0	62.4
Nakapiripirit	87.5	93.7	7.2	0.0	78.4	0.0	11.4
Napak	96.6	95.7	1.1	9.6	37.2	1.1	34.0
Lango	84.1	89.2	7.4	30.9	10.9	27.4	1.3
Otuke	84.1	89.2	7.4	30.9	10.9	27.4	1.3
Elgon	73.5	88.4	3.7	2.9	55.9	0.0	0.0
Bulambuli	83.3	91.7	0.0	0.0	100.0	0.0	0.0
Kween	75.5	89.2	1.1	0.0	50.5	0.0	0.0
Sironko	68.0	84.8	12.1	12.1	54.5	0.0	0.0
Teso	71.8	92.3	1.7	43.8	17.5	10.2	9.2
Amuria	87.5	92.9	5.6	31.2	25.6	16.8	9.6
Bukedea	79.7	91.7	0.8	43.3	37.5	5.8	3.3
Kapelebyong	94.7	96.8	3.2	12.9	22.6	35.5	3.2
Katakwi	62.6	98.0	0.0	31.8	7.4	13.5	30.4
Kumi	81.3	93.7	0.0	56.4	14.9	5.3	1.1
Ngora	58.2	88.8	0.0	55.1	7.7	7.7	4.6
Soroti	70.5	90.3	4.1	48.7	17.9	7.2	6.2
Total	**76.5**	**92.7**	**2.7**	**15.0**	**32.4**	**13.8**	**23.3**

Integrated Food Security Phase Classification of areas affected by desert locust invasions

Most recent food security assessments and analyses that use the IPC tool have found Karamoja to be the most food-insecure subregion of Uganda, with worrying levels of acute and chronic malnutrition among children and women.[13] The 2018 IPC analysis found only 15 percent of the population in Karamoja to be in high acute food insecurity (IPC Phase 3 and above). By 2019, 36 percent of the analysed population was food insecure. The analysis for 2020 gives an overall classification to Karamoja of Crisis (IPC Phase 3), with 27 percent of the population (or 312 800 people) in Crisis (IPC Phase 3) or Emergency (IPC Phase 4), 41 percent in Stressed (IPC Phase 2) and 32 percent in Minimal/None (IPC Phase 1). All of Karamoja's districts were classified as being in Crisis (IPC Phase 3), except for Amudat and Karenga (Stressed – IPC Phase 2).

The Teso subregion is generally food secure. However, the food security situation in the subregion has lately become fragile. This is mostly the result of climatic changes, which have led to floods, water logging, unanticipated mid-season dry spells and the gradual loss of soil fertility. The IPC analysis of 2018 found that 8 percent of the population in Teso was food insecure. This percentage had risen to 17 percent by 2019. The Acholi and Lango subregions have largely been food secure since 2011, especially as a result of the ending of the Kony war. However, certain districts such as Lamwo, Pader and Otuke remain relatively food insecure due to low food production levels and increasing post-harvest losses.

Children living on their own (child-headed households), those in situations of abuse, orphans and working children are most vulnerable to food insecurity. Orphanhood increases as the age of children goes up; it ranges from 4 percent for children under four to 23 percent for children between 15 and 17 years of age. Acholi (19 percent), Karamoja (17 percent) and Lango (16 percent) have the highest incidence of orphanhood. The elderly and widows are also among those that are most vulnerable to food insecurity.

[13] The IPC is a set of tools and procedures to classify the severity and characteristics of acute food and nutrition crises, as well as chronic food insecurity, based on international standards. The core IPC parameters include consensus building, convergence of evidence, accountability, transparency and comparability.

Among the causes of food insecurity among vulnerable groups are:

- low food production due to a lack of agricultural land;
- high pre- and post-harvest losses;
- limited access to casual employment;
- conflicts and insecurity (especially cattle thefts);
- lack of agricultural inputs (e.g. seeds) and adequate production tools (e.g. ox-drawn ploughs, tractors, etc.); and
- increases in the prices of staple foods, combined with limited incomes.

Food availability

Food availability remains problematic in the Karamoja subregion and in some districts of the Acholi, Teso and Lango subregions. Adverse climatic changes and seasonal weather variations coupled with declining soil fertility have been among the main causes of a reduction in food production, which has led to low food availability for households. Poor agronomical practices in most of the communities and a decrease in the amount of agricultural land per household exacerbate the problem of low production.

Access to food

Food sources

This assessment found that 50 percent of households in Karamoja purchased their cereals and grains at markets. Meanwhile, most households in Teso (73 percent), Acholi (71 percent), Elgon (55 percent) and Lango (53 percent) produced their cereals and grains themselves (see Appendix II, Table M).

Sixty-eight percent of households in Karamoja purchased their roots and tubers at markets. Meanwhile, the majority of households in Teso (76 percent), Lango (64 percent), Acholi (60 percent) and Elgon (55 percent) produced their roots and tubers themselves (see Appendix II, Table M).

Most households in the Karamoja and Acholi subregions purchased pulses and nuts at markets (61 percent and 56 percent of households, respectively). Households in Teso (63 percent), Elgon (58 percent) and Lango (51 percent) mostly produced pulses and nuts themselves (see Appendix II, Table N).

Households in the Elgon subregion mainly purchased their vegetables at markets (57 percent of households). In all other subregions, most households produced their own vegetables (Lango: 73 percent, Acholi: 65 percent, Teso: 60 percent, Karamoja: 42 percent) (see Appendix II, Table N).

Sixty-six percent of households in Karamoja purchased their meat at markets; 94 percent of them purchased fish there. The percentages for the other subregions stand at 86 percent (meat) and 88 percent (fish) in Teso, 50 percent (meat) and 90 percent (fish) in Acholi, 72 percent (meat) and 89 percent (fish) in Lango, and 96 percent (meat) and 98 percent (fish) in Elgon (see Appendix II, Table O).

Availability of food stocks in households

This assessment found that the proportion of households that had food stocks was highest in the Teso (67 percent), Acholi (66 percent) and Lango (63 percent) subregions (see Table 21). However, these percentages indicate that even in these subregions, over 30 percent of households did not have any food stocks at the time of the assessment and therefore relied on other sources to obtain food (e.g. markets, food aid and gifts from relatives) – which gives cause for concern. The situation in Karamoja was even more severe, as only 25 percent of households in this subregion indicated that they had some food stocks at the time of the assessment in September 2020. At that time, almost all maize had already been harvested, which means that the findings point to a food security crisis in this subregion in the near future. The most affected district in Karamoja was Kaabong, where only 8 percent of households had food stocks at the time of the assessment. In the subregions of Acholi, Elgon, Lango and Teso, the available food stocks of about 55 percent of households would last for two months (enough to take them to the "green harvest" of November) or more.[14] Only 7 percent of households in Kaabong had food stocks that would last at least two months. However, the sorghum harvest in Kaabong starts in late October, which means that the worrying food security situation in this district could be rectified.[15]

[14] The "green harvest" is the early harvest of crops (including *inter alia* maize, sorghum, millet or pulses) that are consumed fresh, rather than dried for storage.
[15] Indeed, the situation returned back to normal in October, albeit for a very short time (it takes three months before households become food-insecure again).

Table 21. Households with food stocks in September 2020
(percentage of total households)

Region/district	Households with food stocks	How long food stocks will last			
		Less than 1 month	1 month	2 to 3 months	More than 3 months
Karamoja	24.6	41.0	23.7	26.6	8.7
Abim	29.8	31.2	20.8	32.9	15.0
Amudat	14.5	38.9	22.2	33.3	5.6
Kaabong	7.5	71.4	21.4	3.6	3.6
Kotido	29.1	41.1	24.2	27.9	6.8
Moroto	25.0	57.4	27.7	9.6	5.3
Nabilatuk	24.1	50.0	23.5	23.5	2.9
Nakapiripirit	22.1	43.0	25.6	30.2	1.2
Napak	39.6	21.3	23.0	36.1	19.7
Acholi	66.0	19.2	14.4	30.6	35.8
Agago	77.7	18.7	11.3	30.0	40.0
Kitgum	76.9	18.3	16.1	34.1	31.5
Lamwo	43.3	30.7	21.5	28.1	19.6
Pader	89.2	8.7	8.0	30.0	53.2
Lango	63.4	12.6	17.4	37.2	32.8
Otuke	63.4	12.6	17.4	37.2	32.8
Teso	67.2	23.4	23.8	34.1	18.7
Amuria	65.1	52.5	22.7	21.5	3.3
Bukedea	72.5	17.0	22.5	38.5	22.0
Kapelebyong	81.3	36.1	18.0	34.4	11.5
Katakwi	51.0	26.1	15.0	34.6	24.2
Kumi	66.9	18.5	23.4	31.5	26.6
Ngora	69.5	12.3	29.1	40.3	18.3
Soroti	71.1	22.9	24.4	32.4	20.3
Elgon	59.3	19.6	25.6	41.8	14.1
Bulambuli	76.4	18.6	24.3	41.0	16.2
Kween	42.7	17.4	20.7	51.1	10.9
Sironko	50.0	28.0	40.0	28.0	4.0
Total	**50.2**	**24.3**	**20.9**	**32.7**	**22.0**

Food consumption and utilization

Number of meals eaten per day by households

The number of meals eaten per day is a proxy indicator for household food consumption. It also reveals household perceptions of food insecurity. Some studies disaggregate this indicator by gender when categorizing food secure and food insecure households.

This assessment revealed that overall, only 12 percent of households in areas affected by desert locusts consumed three or more meals a day. Forty-seven percent of households consumed two meals a day. Almost half the population (41 percent) consumed only one meal a day. The situation was direst in Karamoja, where 56 percent of households consumed only one meal a day. Based on this indicator, Abim, Kaabong and Kotido were the most food-insecure districts in Karamoja, with 78, 61 and 62 percent of households, respectively, consuming only one meal a day (see Table 22).

Table 22. Number of meals consumed by households per day (percentage of total households)

Region/district	Number of meals currently (September 2020) eaten daily			Number of meals eaten daily during bad seasons			Number of meals eaten daily during good seasons		
	1	2	>2	1	2	>2	1	2	>2
Karamoja	56.2	38.2	5.6	87.6	11.5	0.9	4.3	42.9	52.8
Abim	77.8	19.3	2.9	89.0	10.3	0.7	11.5	58.5	29.9
Amudat	35.2	57.6	7.2	57.6	41.6	0.8	9.6	58.4	32.0
Kaabong	60.8	36.5	2.7	96.0	3.7	0.3	0.5	34.9	64.5
Kotido	61.6	34.1	4.2	93.5	5.8	0.7	0.4	40.4	59.2
Moroto	37.1	59.4	3.4	93.4	6.6	0.0	5.3	66.8	27.9
Nabilatuk	53.2	41.8	5.0	78.0	21.3	0.7	2.1	16.3	81.6
Nakapiripirit	41.1	44.2	14.7	72.1	24.6	3.3	4.1	22.3	73.6
Napak	42.2	48.1	9.7	91.6	7.1	1.3	1.3	22.1	76.6
Acholi	40.5	53.9	5.6	83.2	15.8	1.0	2.0	63.3	34.6
Agago	43.9	51.7	4.4	93.6	6.4	0.0	1.7	56.8	41.6
Kitgum	41.0	53.7	5.2	89.5	10.5	0.0	2.2	64.5	33.3
Lamwo	39.2	54.2	6.6	71.7	25.9	2.4	2.2	66.2	31.5
Pader	39.0	55.6	5.4	89.5	10.2	0.3	1.7	62.4	35.9
Lango	36.8	56.1	7.1	77.9	20.8	1.3	0.6	45.7	53.7
Otuke	36.8	56.1	7.1	77.9	20.8	1.3	0.6	45.7	53.7
Teso	30.6	53.0	16.4	78.0	20.5	1.5	0.5	38.5	60.9

Amuria	29.5	55.4	15.1	68.0	31.3	0.7	0.0	35.3	64.7
Bukedea	20.7	62.9	16.3	75.3	23.9	0.8	0.0	37.1	62.9
Kapelebyong	57.3	40.0	2.7	84.0	16.0	0.0	1.3	41.3	57.3
Katakwi	51.7	35.0	13.3	82.0	15.7	2.3	1.3	43.0	55.7
Kumi	21.1	61.5	17.5	79.3	18.9	1.8	0.4	46.5	54.1
Ngora	29.1	53.6	17.3	80.5	18.0	1.5	0.2	46.0	53.8
Soroti	26.2	54.2	19.7	78.2	19.9	1.9	1.0	24.7	74.3
Elgon	7.5	41.3	51.2	41.3	50.2	8.5	0.7	17.0	82.3
Bulambuli	8.0	44.0	48.0	45.1	46.5	8.4	1.1	21.1	77.8
Kween	2.2	33.3	64.4	32.9	58.7	8.4	0.0	5.3	94.7
Sironko	18.0	52.0	30.0	50.0	41.0	9.0	1.0	32.0	67.0
Total	**40.8**	**46.9**	**12.3**	**79.8**	**18.5**	**1.7**	**2.3**	**44.0**	**53.7**

Household food consumption score

The food consumption score (FCS) is an index that was developed by WFP. It aggregates household-level data on the diversity and frequency of food groups consumed over the previous seven days, which are weighted according to the relative importance of the consumed food groups in terms of nutritional value. It classifies households as having a poor, borderline or acceptable FCS.

Overall, 48 percent of households in areas affected by desert locusts had an acceptable FCS, while 15 percent had a poor FCS. Slightly more female-headed households than male-headed households (18 vs 14 percent) had a poor FCS (see Table 23).

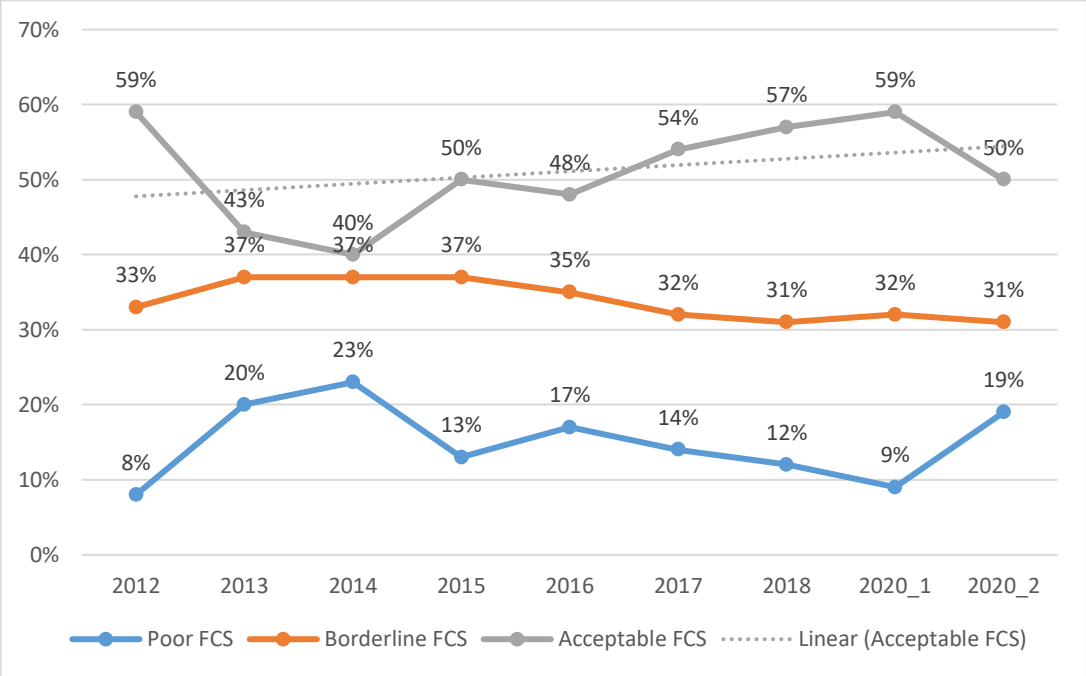
The Lango subregion had the most households with a poor FCS (19.3 percent of all households), followed by Karamoja (18.8 percent). The lowest proportion of households with a poor FCS was found in Elgon (6.7 percent). Meanwhile, the Elgon subregion had the highest proportion of households with an acceptable FCS (66.7 percent), followed by Teso (54.7 percent). The proportion of households with an acceptable FCS was lowest in Acholi. The most food-insecure district was Kaabong (in the Karamoja subregion), where 58.7 percent of households had a poor FCS. The most food-secure districts were Amudat (Karamoja) and Bulambuli (Elgon).

Table 23. Food consumption scores (percentage of total households)

Region/district	Poor	Borderline	Acceptable	Mean FCS
Karamoja	18.8	31.5	49.7	37.9
Abim	18.8	54.4	26.9	31.0
Amudat	0.8	6.4	92.8	53.0
Kaabong	58.7	27.5	13.9	22.3
Kotido	19.5	29.9	50.6	37.2
Moroto	6.1	22.8	71.1	46.1
Nabilatuk	7.1	29.1	63.8	42.5
Nakapiripirit	5.3	23.4	71.3	47.4
Napak	9.7	27.9	62.3	44.1
Acholi	16.2	51.0	32.8	32.2
Agago	19.9	54.7	25.3	30.0
Kitgum	14.9	48.8	36.4	32.9
Lamwo	18.9	47.5	33.6	32.2
Pader	8.5	57.3	34.2	33.5
Lango	19.3	45.0	35.7	32.9
Otuke	19.3	45.0	35.7	32.9
Teso	11.0	34.3	54.7	39.3
Amuria	10.1	31.7	58.3	38.1
Bukedea	19.5	27.9	52.6	38.4
Kapelebyong	13.3	40.0	46.7	35.3
Katakwi	16.7	27.0	56.3	39.1
Kumi	6.5	38.2	55.3	39.7
Ngora	6.5	36.9	56.5	42.0
Soroti	10.7	37.9	51.5	38.1
Elgon	6.7	26.7	66.7	45.9
Bulambuli	1.1	25.5	73.5	47.3
Kween	10.7	27.6	61.8	45.1
Sironko	13.0	28.0	59.0	44.1
Sex of household head				
Female	18.3	37.0	44.6	35.7
Male	14.2	36.6	49.2	38.0
Total	**15.1**	**36.7**	**48.1**	**37.5**

Continuous assessments of food consumption scores are only available for the Karamoja and (more recently) Teso subregions. Overall, in Karamoja, the proportion of households with an acceptable FCS has gradually increased from 2012 to 2020, while that of households with a poor FCS has slightly declined over time (see Figure 7). This could reflect a responsiveness of FCS to interventions made to address food security challenges faced by households in this subregion.

Figure 7. Trends in food security scores in Karamoja, 2012–2020 (in percentage of households)



Note: 2020_1 is for the first half of 2020, 2020_2 is for the second half of 2020. 2020_2 is FCS in subcounties affected by desert locusts.

Source: FAO survey results, August–September 2020.

Household dietary diversity scores

The household dietary diversity score (HDDS) is a simple count of the number of food categories consumed in a household over the past 24 hours. The HDDS is based on 12 food groups; households are classified as having a low (less than 4.5 different food groups consumed), medium (4.5 to 6 different food groups) or high (more than six different food groups) HDDS.

Overall, only 20 percent of households in areas affected by desert locusts were found to have a high HDDS, while 43 percent had a low HDDS. There were more female-headed households with a low HDDS (49 percent) than male-headed households (41 percent) (see Table 24).

The Karamoja subregion had the most households with a low HDDS (54 percent), followed by Lango (48.5 percent). Meanwhile, the Elgon subregion had the lowest proportion of households with a low HDDS (14.5 percent). The Elgon subregion had the highest proportion of households with a high HDDS (43.2 percent), followed by Teso (26.7 percent), while the Karamoja subregion had the lowest proportion of households with a high HDDS. Of all the districts, Kaabong (in Karamoja) had the most households with a low HDDS (95.2 percent), whereas the mean HDDS was highest in the Sironko and Bulambuli Districts (in Elgon).

Table 24. Household dietary diversity scores (percentage of total households)

Region/district	Low HDDS (< 4.5)	Medium HDDS (4.5–6)	High HDDS (> 6)	Mean HDDS
Karamoja	54.0	33.6	12.4	4.4
Abim	38.6	47.0	14.5	5.0
Amudat	43.2	46.4	10.4	4.7
Kaabong	95.2	3.5	1.3	3.0
Kotido	75.3	20.6	4.1	3.5
Moroto	42.7	43.5	13.8	4.8
Nabilatuk	43.3	42.6	14.2	4.9
Nakapiripirit	22.3	44.2	33.5	5.8
Napak	35.7	50.0	14.3	5.1
Acholi	45.5	37.9	16.5	4.9
Agago	62.8	32.1	5.1	4.2
Kitgum	32.8	43.8	23.4	5.4
Lamwo	47.4	36.5	16.2	4.9
Pader	40.0	39.7	20.3	5.2
Lango	48.5	34.6	16.9	4.8
Otuke	48.5	34.6	16.9	4.8
Teso	33.0	40.3	26.7	5.3
Amuria	31.7	47.1	21.2	5.2
Bukedea	38.6	31.1	30.3	5.3
Kapelebyong	46.7	49.3	4.0	4.6
Katakwi	32.0	39.0	29.0	5.4
Kumi	37.1	38.2	24.7	5.1
Ngora	34.2	38.7	27.1	5.1
Soroti	25.5	43.5	31.0	6.4
Elgon	14.5	42.3	43.2	6.2
Bulambuli	9.5	48.4	42.2	6.2
Kween	19.1	39.1	41.8	6.0
Sironko	18.0	33.0	49.0	5.7
Sex of household head				
Female	49.2	34.3	16.5	4.7
Male	41.0	38.0	21.0	5.0
Total	**42.9**	**37.1**	**20.0**	**4.9**

Food stability

Reduced coping strategies index

The reduced coping strategies index (rCSI) is used to compare hardship faced by households by measuring the frequency and severity of households' food consumption behaviours in the face of food shortages. It is calculated using standard food consumption-based coping strategies.[16] Households are classified as having a low, medium or high rCSI.

Overall, only 1.8 percent of households in areas affected by desert locusts had a high rCSI, while the majority of households (62 percent) had a low rCSI. There were slightly more female-headed households employing a high rate of coping mechanisms (2.8 percent) than male-headed households (1.5 percent) (see Table 25).

The Karamoja subregion had the highest proportion of households with a high rCSI (2.3 percent), followed by Teso (1.7 percent). The Elgon subregion had the lowest proportion of households with a high rSCI (1.2 percent). Karamoja does not seem to have been severely affected in terms of food coping strategies employed at the time of the assessment.

[16] Among these strategies are: relying on less preferred or less expensive food, limiting portion sizes, reducing the number of meals eaten per day, borrowing food or relying on help from friends or neighbours, and restricting consumption by adults so that small children can eat.

Table 25. Food consumption-based coping strategies (percentage of total households with a low, medium or high rCSI)

Region/district	Low rCSI (< 18)	Medium rCSI (18–28)	High rCSI (> 28)	Mean rCSI
Karamoja	54.8	42.8	2.3	15.5
Abim	54.6	43.9	1.5	15.2
Amudat	83.2	16.0	0.8	8.2
Kaabong	37.6	56.8	5.6	19.5
Kotido	57.5	39.2	3.3	16.0
Moroto	61.5	37.4	1.1	14.4
Nabilatuk	44.0	55.3	0.7	16.4
Nakapiripirit	57.9	42.1	0.0	13.6
Napak	47.4	48.1	4.5	17.9
Acholi	61.2	37.4	1.3	13.4
Agago	67.9	31.1	1.0	11.6
Kitgum	54.0	44.9	1.1	14.6
Lamwo	62.7	35.5	1.8	13.2
Pader	60.3	38.6	1.0	14.1
Lango	61.0	37.4	1.5	13.4
Otuke	61.0	37.4	1.5	13.4
Teso	67.2	31.1	1.7	12.5
Amuria	73.7	25.9	0.4	12.3
Bukedea	61.4	33.9	4.8	13.2
Kapelebyong	56.0	42.7	1.3	15.3
Katakwi	55.3	41.0	3.7	16.1
Kumi	76.0	24.0	0.0	10.1
Ngora	75.3	23.5	1.3	10.3
Soroti	61.5	37.4	1.0	13.7
Elgon	79.5	19.3	1.2	9.5
Bulambuli	83.3	16.4	0.4	8.7
Kween	79.1	20.0	0.9	9.8
Sironko	70.0	26.0	4.0	10.7
Sex of household head				
Female	55.9	41.3	2.8	15.4
Male	63.7	34.8	1.5	14.1
Total	**62.0**	**36.2**	**1.8**	**13.7**

Livelihood coping strategies index

Livelihood-based coping strategies are behaviours adopted by households to cope with a continuous lack of food and/or the loss of income-generating activities in the medium to longer term. The livelihood coping strategies index measures the extent of livelihood coping that households need to use. Depending on the severity weights of the strategies adopted, households are classified as employing stress, crisis or emergency coping strategies. Stress coping strategies indicate a reduced ability to deal with future shocks due to a current reduction in resources or increase in debts. Stress coping strategies include selling household assets or goods, using savings, selling more animals than usual, borrowing or purchasing food on credit, and borrowing money. Crisis coping strategies include selling productive assets, withdrawing children from school, reducing expenses for health and education, harvesting immature crops, and consuming seed stocks. Emergency coping strategies include selling a house or land, begging and engaging in illegal income-generating activities such as theft or prostitution.

Overall, 28 percent of households in areas affected by desert locusts were using emergency coping strategies. More female-headed households (31.7 percent) were employing emergency coping strategies than male-headed households (27.1 percent) (see Table 26).

The Karamoja subregion had the highest proportion of households employing emergency coping strategies (36.4 percent), followed by Acholi (28.3 percent). The Elgon subregion had the lowest proportion of households employing emergency coping strategies. Of all the districts, Moroto and Nabilatuk had the highest proportions of households employing emergency coping strategies (58.9 and 58.2 percent, respectively). Meanwhile, Sironko district had the lowest proportion of households employing emergency coping strategies (9 percent).

Table 26. Livelihood coping strategies used by households (percentage of total households using coping strategies according to the livelihood coping strategies index)

Region/district	No coping strategies	Stress coping strategies	Crisis coping strategies	Emergency coping strategies
Karamoja	26.7	23.7	13.2	36.4
Abim	30.1	47.3	8.1	14.5
Amudat	45.6	17.6	4.8	32.0
Kaabong	38.9	18.4	6.9	35.7
Kotido	27.1	20.1	15.4	37.5
Moroto	10.9	8.2	22.0	58.9
Nabilatuk	21.3	9.2	11.3	58.2
Nakapiripirit	21.6	20.1	15.5	42.9
Napak	22.7	31.2	18.8	27.3
Acholi	14.2	31.2	26.2	28.3
Agago	12.2	33.4	39.2	15.2
Kitgum	12.1	27.8	26.7	33.3
Lamwo	20.3	37.6	13.4	28.6
Pader	6.1	19.7	39.7	34.6
Lango	16.0	36.8	22.9	24.2
Otuke	16.0	36.8	22.9	24.2
Teso	24.1	34.3	20.6	20.9
Amuria	21.6	37.4	13.7	27.3
Bukedea	41.0	25.5	26.7	6.8
Kapelebyong	21.3	49.3	5.3	24.0
Katakwi	9.7	36.7	33.3	20.3
Kumi	29.5	37.1	10.5	22.9
Ngora	30.9	37.6	11.8	19.6
Soroti	15.3	28.0	31.8	24.9
Elgon	27.2	39.3	16.2	17.3
Bulambuli	25.1	41.1	17.8	16.0
Kween	22.2	39.6	15.6	22.7
Sironko	44.0	34.0	13.0	9.0
Sex of household head				
Female	23.8	26.2	18.3	31.7
Male	22.5	31.5	18.9	27.1
Total	**22.8**	**30.3**	**18.8**	**28.1**

Conclusions and recommendations

Conclusions

The assessment discussed in this report aimed at establishing the magnitude of the 2020 desert locust invasion, as well as of its impact on the ongoing agricultural campaign and, more generally, on households' livelihoods. It measured key sociodemographic, socioeconomic and livelihood indicators (including food security indicators) of households in areas invaded by desert locusts. These insects pose a severe threat to agriculture-based livelihoods in Uganda, particularly in areas where food security is already fragile.

Uganda experienced four waves of desert locust invasions between February to September 2020, with all waves entering the country from Kenya. While the first wave of desert locusts attacked Uganda at a time when farmers were still preparing the first cropping season and thus largely failed to cause crop losses, subsequent waves coincided with the weeding and harvesting stages and resulted in significant damages.

Most of the communities visited for the assessment are agropastoral communities that engage in both crop and livestock production. Overall, 81 percent of households in the areas affected by desert locusts derived their livelihood mainly from crop production. Fifteen percent of the households surveyed for the assessment reported that over 75 percent of their cropland had been affected by desert locusts. Over 90 percent of households in communities affected by desert locusts were able to grow food and non-food crops during the first cropping season of 2020 (which is also the only cropping season in the Karamoja subregion).

Both during the first invasion in February/March 2020 and during subsequent attacks, swarms settled on grazing land where they found green vegetation. This affected the availability of grazing land for livestock. Households in the Acholi, Karamoja and Lango subregions reported to have had much of their grazing land affected by the locust invasion. Sixty-four percent of all households surveyed reported that changes in grazing land conditions had negatively impacted on the body condition of livestock, with the biggest impact reported in the Karamoja and Teso subregions. Reduced availability of grazing land resulted in livestock migration in all subregions (with the exception of the Lango subregion, where livestock migration was driven by a water shortage).

As of the time of data collection, the various waves of desert locusts had adversely affected agricultural livelihoods in eastern and northern Uganda by reducing crop production and destructing pastures for livestock, most notably from

May 2020 onward. The intermittent persistence of the locust swarms and the lack of effectiveness of the control operations undertaken in some communities contributed to the food losses.

The swarms that arrived in August and September 2020 coincided with the harvest period in the Karamoja subregion, as well as with the growing period in other subregions. While damages were limited by control operations and unfavourable conditions for breeding, it is still estimated that the food security and livelihoods of 749 515 households were affected. The assessment found a greater perceived impact on food security than on overall livelihoods across subregions. Subregions that rely more on staple crops (such as Acholi and Lango) were more heavily impacted in terms of livelihoods by desert locust invasions, while subregions with a greater diversity of crops (such as Elgon), and those with more diverse livelihood sources (such as Teso and Karamoja), were likely to have been more resilient to the impact of the different desert locust waves.

Food stocks were found to be highest in the Teso (67 percent), Acholi (66 percent) and Lango (63 percent) subregions. These percentages indicate that over 30 percent of households did not have any food stocks at the time of the assessment, and therefore relied on other sources to obtain food (e.g. markets, food aid and gifts from relatives). This finding gives cause for concern should any shock affecting markets and/or production occur. The situation in Karamoja was even more severe, as only 25 percent of households in this subregion indicated that they had some food stocks at the time of the assessment in September 2020. At that time, almost all maize had already been harvested, which means that the findings point to a food security crisis in this subregion in the near future. The finding that Karamoja is vulnerable to future shocks is reinforced by the low proportion among households affected by desert locusts of households consuming three or more meals per day, as well as by the worsening of FCS, HDDS and CSI scores. For example, more than one out of three households in areas affected by desert locusts had a low HDDS, and one out of four households were using emergency coping strategies as of September 2020.

In a bid to fight off the desert locusts, households adopted several mechanisms that they thought would help in the struggle. Noisemaking (including drumming) is the control method that is used most often by households. However, it is not a control measure that is officially recommended by MAAIF or FAO, which instead advocate the use of chemical or biological pesticides by trained technicians in accordance with internationally agreed guidelines to ensure safety for users, communities and the environment. The lack of knowledge of appropriate household and community control actions reflects the limited capacities of extension services – in terms of

knowledge and human resources – to provide technical assistance to households and communities. This has a direct effect on resilience to the current and future threats of migratory pests.

As long as there is desert locust activity in Kenya, Uganda remains at risk and thus on high alert. There is a critical need to improve Uganda's desert locust preparedness by strengthening the country's capacities for real-time surveillance, rapid verification and deployment of control teams upon confirmation of desert locust sightings. While Uganda was largely spared the scale of destruction experienced by other countries in the Horn of Africa, the country's 2020 desert locust invasion has highlighted the importance of maintaining preparedness for future desert locust invasions, as well as for other migratory pests and diseases that present a threat to the food security and livelihoods of communities relying on crop production and livestock keeping.

Desert locust preparedness (in terms of capacities for surveillance and control) requires infrastructure to safely store pesticides and well-maintained equipment to ensure that control operations are carried out with respect to international safety and health standards. In addition, extension staff must be trained in routine surveillance and the use of real-time information systems. Many of these resources are either transferable or adaptable to threats posed by other migratory pests and diseases. Thus, a holistic and integrated approach to preparedness is needed to safeguard the food security and livelihoods of vulnerable communities across Uganda.

Recommendations

Based on the findings of the assessment and on information collected from secondary sources, the following series of recommendations may help mitigate the impact on food security and livelihoods of desert locusts, and other future migratory pests that may affect Uganda:

District local governments:

- activate and ensure the functionality of existing district disaster management committees and district desert locust task forces;
- designate district desert locust focal persons for proper response coordination with national and regional stakeholders;
- conduct regular and well-coordinated desert locust surveillance using the eLocust platform to harmonize data at national and regional levels;
- mainstream natural hazards and disasters into district planning and reporting, with clearly defined outcomes and indicators that support districts to report into a national multi-hazard early warning system;
- increase efforts to improve local communities' desert locust preparedness and control and management capacities; and
- ensure timely reporting on desert locust invasions and their impact through community-based and national early warning systems.

Central government (Office of the Prime Minister and Ministry of Agriculture, Animal Industry and Fisheries):

- increase capacity building and training efforts for frontline staff at the subcounty level, and conduct refresher training sessions for district officials and Uganda People's Defence Force staff involved in desert locust control;
- support district local governments with emergency funds to increase community awareness, coordination and control efforts; provide shock-responsive financing to district local governments to ensure technical backstopping, coordination and community-driven responses;
- enhance the capacity of local governments to develop annual costed disaster and risk response plans aligned to community-based and national multi-hazard early warning systems;
- ensure well-coordinated surveillance of desert locust invasions and their impact on food security and other livelihood aspects; to this end, develop a disaster response data collection plan and software;
- assess the different desert locust control methods and technologies employed by communities, and incorporate viable methods into the national desert locust control plan;

- support the improvement of rangelands for grazing in the Karamoja and Teso subregions;
- procure equipment for desert locust control and surveillance; and
- provide emergency food security and livelihoods assistance to the most affected parishes, especially in the Abim, Kaabong and Otuke districts.

Agencies of the United Nations and non-governmental organizations:

- support national emergency food security and livelihoods assistance efforts and align actions to local needs;
- empower communities to produce and safely use biological pesticides for pest control, and boost communities' knowledge of common pests (including migratory pests such as desert locusts) and increase their awareness of the benefits and risks of pest control and management approaches;
- ensure continued capacity building for all stakeholders involved in desert locust surveillance and control at the community, district and national levels;
- conduct environmental and agroecological impact surveys to ascertain the impact of locust control technologies, especially aerial and ground spraying of pesticides;
- provide technical support to align community-based early warning systems to national systems linked to disaster risk reduction response plans.

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Appendices

Appendix I. List of subcounties and parishes included in the sampling frame

Karamoja subregion

	Subcounties	Parishes
ABIM	Abim	Atunga
	Abim Town	Wiawer
	Alerek	Loyoroit, Koya
	Morulem	Adea, Angolebwal, Aremo, Katabok West, Katabok
	Nyakwae	Pupu-Kamuya
AMUDAT	Amudat	Amudat, Loburin
KAABONG	Kaabong East	Lokolia, Losogolo
	Kaabong	Lobongia, Lokerui, Lomeris
	Kalapata	Kalapata, Lotim
	Kapedo	Kapedo
	Kathile	Narengepak
	Lolelia	Lolelia
KOTIDO	Nakapelimoru	Lookorok, Potongor, Watakau
	Panyangara	Loposa, Rikitae
	Rengen	Lokadeli, Lopuyo, Nakwakwa, Naponga
MOROTO	Rupa	Lobuneit, Mogoth, Nakadeli, Rupa
	Tapac	Tapac
NABILATUK	Lolachat	Lorukumo, Lotaruk, Natirae
	Lorengedwat	Narisae, Nathinyonoit
	Nabilatuk	Acegeretolim, Kalokwameri, Kosike, Nakobekobe
NAKAPIRIPIRIT	Moruita	Katabok, Moruita
	Namalu	Lokatapan, Loperot
NAPAK	Lokopo	Akalale, Apeitolim, Longalom
	Lopeei	Lopeei

Teso subregion

District	Subcounties	Parishes
AMURIA	Morungatuny	Morungatuny, Ogangai
	Orungo	Moruinera, Ogongora, Orungo
	Wera	Amolo, Angole, Sugur, Wera
BUKEDEA	Kolir	Kamutur, Kodiata
	Malera	Kabarwa, Kangole
KAPELEBYONG	Kapelebyong	Amemia, Kapelebyong, Kapelebyong
KATAKWI	Katakwi	Northern, Southern
	Magoro	Kamenu, Magoro
	Ngariam	Akisim, Kaikamosing, Pakwi
	Omodoi	Angodingod, Aparisia, Asuret
KUMI	Atutur	Akibui, Ariet
	Kanyum	Akisim, Ariet
	Nyero	Agurut, Ariet, Nyero, Odipai, Ogooma
NGORA	Kapir	Abatai, Agirigiroi, Kapir, Kokong, Koloin, Omuriana,
	Kobwin	Agule, Atoot, Kaderun, Kadok, Kobwin, Kodike,
	Mukura	Kokodu, Mukura
	Ngora	Agu, Kalengo, Kopege, Ngora, Oteteen, Tididiek
SOROTI	Arapai	Aloet, Arapai, Dakabela
	Gweri	Awaliwal, Dokolo, Gweri
	Tubur	Achuna, Aparisa, Palaet

Elgon subregion

District	Subcounties	Parishes
BULAMBULI	Bukhalu	Bunalwere, Bunambutye, Bungwanyi, Busabulo,
	Bwikhonge	Bunalwele, Bwikhonge
	Muyembe	Bumugoya
KWEEN	Kitawoi	Tabagon, Tarak, Terenpoy
	Kwosir	Kapngotiny, Kere, Tuikat, Yatui
SIRONKO	Bugitimwa	Lusagali
	Bukyambi	Bukama
	Butandiga	Mbaya

Acholi subregion

District	Subcounties	Parishes
AGAGO	Adilang	Orina
	Omot	Atece
	Paimol	Pacabol, Taa
	Patongo	Kal, Lakwa
KITGUM	Labongo-	Lukwar, Pajimo
	Mucwini	Akara, Bura, Pachua, Pajong
	Orom	Katwotwo
LAMWO	Agoro	Pawach, Potika, Pobar
	Madi-Opei	Pobura
	Padibe	Katum, Wangtit
	Padibe	Ywaya, Madi Kiloc, Lagwel
	Paloga	Bungu
PADER	Acholibur	Gem-Central, Gem-Onyot, Ogago
	Pader	Luna, Acoro

Lango subregion

District	Subcounties	Parishes
OTUKE	Ogwette	Atira, Ajur, Alir, Amunga, Acanpii
	Olilim	Alula, Olilim
	Orum	Abongorwot, Alangi, Anepmoroto, Ating

Appendix II. Statistical tables

Table A. Background characteristics of households and awareness and impact of COVID-19

Region/ district	Sex of household head (% of total households)		Household size (mean)	Mean age of household head (years)	Child/adult-headed households (% of total households)		Awareness of COVID-19 (% of total households)	Households whose livelihood was affected by COVID-19 (% of total households)	Proportion of livelihood affected by COVID-19			
	Female	Male			Child-headed	Adult-headed			0–25%	26–50%	51–75%	> 75%
Acholi	21.3	78.7	7	46	0.1	99.9	100.0	100.0	n/a	n/a	n/a	n/a
Agago	24.3	75.7	7	47	0.3	99.7	100.0	100.0	5.8	36.2	32.1	25.9
Kitgum	23.7	76.3	7	48	0.0	100.0	100.0	100.0	15.6	43.4	27.0	13.9
Lamwo	19.2	80.8	7	44	0.0	100.0	100.0	100.0	8.7	32.1	28.3	31.0
Pader	20.0	80.0	7	47	0.0	100.0	100.0	100.0	24.4	43.6	20.9	11.1
Karamoja	27.3	72.7	7	46	0.1	99.9	100.0	100.0	n/a	n/a	n/a	n/a
Abim	20.8	79.2	8	45	0.2	99.8	100.0	100.0	10.5	24.9	21.8	42.8
Amudat	10.4	89.6	6	38	0.0	100.0	100.0	100.0	0.0	36.6	24.4	39.0
Kaabong	24.3	75.7	7	47	0.3	99.7	100.0	100.0	66.7	33.3	0.0	0.0
Kotido	27.5	72.5	8	50	0.1	99.9	100.0	100.0	21.2	61.4	14.8	2.5
Moroto	44.8	55.2	6	44	0.3	99.7	100.0	100.0	56.4	33.6	7.3	2.7
Nabilatuk	32.6	67.4	8	45	0.0	100.0	100.0	100.0	38.3	40.4	21.3	0.0
Nakapiripirit	28.7	71.3	8	44	0.0	100.0	100.0	100.0	29.4	41.3	27.3	2.1
Napak	20.1	79.9	8	43	0.0	100.0	100.0	100.0	34.8	27.3	24.2	13.6
Lango	17.7	82.3	7	43	0.0	100.0	100.0	100.0	n/a	n/a	n/a	n/a
Otuke	17.7	82.3	7	43	0.0	100.0	100.0	100.0	7.6	20.7	33.9	37.8
Elgon	15.3	84.7	7	45	0.0	100.0	100.0	100.0	n/a	n/a	n/a	n/a
Bulambuli	16.7	83.3	7	46	0.0	100.0	100.0	100.0	5.3	39.4	32.5	22.8

Region/ district	Sex of household head (% of total households)		Household size (mean)	Mean age of household head (years)	Child/adult-headed households (% of total households)		Awareness of COVID-19 (% of total households)	Households whose livelihood was affected by COVID-19 (% of total households)	Proportion of livelihood affected by COVID-19			
	Female	Male			Child-headed	Adult-headed			0–25%	26–50%	51–75%	> 75%
Kween	9.3	90.7	7	42	0.0	100.0	100.0	100.0	11.7	41.7	20.0	26.7
Sironko	25.0	75.0	6	49	0.0	100.0	100.0	100.0	5.7	51.4	17.1	25.7
Teso	21.3	78.7	8	47	0.1	99.9	100.0	100.0	n/a	n/a	n/a	n/a
Amuria	21.9	78.1	8	45	0.4	99.6	100.0	100.0	13.3	29.7	34.0	23.0
Bukedea	24.1	76.9	8	47	0.0	100.0	100.0	100.0	7.1	39.3	22.9	30.7
Kapelebyong	28.0	72.0	8	45	1.3	98.7	100.0	100.0	4.1	16.2	35.1	44.6
Katakwi	28.0	72.0	8	47	0.0	100.0	100.0	100.0	5.6	38.1	25.4	31.0
Kumi	18.9	81.1	9	49	0.0	100.0	100.0	100.0	7.4	32.9	25.1	34.6
Ngora	20.5	79.5	9	50	0.0	100.0	100.0	100.0	5.8	28.3	30.4	35.5
Soroti	16.9	84.1	8	46	0.0	100.0	100.0	100.0	16.7	30.1	18.5	34.6

Table B. Highest education level attained by household heads (percentage of total households)

Region/district	No schooling at all (%)	Primary education (%)	Secondary education (%)	Post-secondary education (%)
Acholi	13.0	55.4	28.1	3.5
Agago	16.9	60.8	20.3	2.0
Kitgum	11.3	60.9	24.8	3.0
Lamwo	12.6	49.8	32.8	4.8
Pader	11.9	55.3	29.8	4.1
Karamoja	64.8	16.7	15.0	3.6
Abim	26.5	31.3	33.7	8.4
Amudat	85.6	9.6	4.8	0.0
Kaabong	86.4	10.1	2.7	0.8
Kotido	87.6	4.9	7.0	0.4
Moroto	82.5	8.8	6.9	1.9
Nabilatuk	76.6	17.0	5.7	0.7
Nakapiripirit	36.3	28.2	25.6	9.9
Napak	46.1	30.5	22.7	0.6
Lango	11.5	64.3	20.3	3.9
Otuke	11.5	64.3	20.3	3.9
Elgon	6.5	58.0	32.8	2.7
Bulambuli	5.8	54.9	36.4	2.9
Kween	5.8	54.2	36.9	4.1
Sironko	10.0	75.0	14.0	1.0
Teso	9.4	61.4	25.1	4.0
Amuria	10.4	61.9	24.1	3.6
Bukedea	10.8	64.9	22.7	1.6
Kapelebyong	14.7	61.3	22.7	1.3
Katakwi	12.3	52.7	28.3	6.7
Kumi	7.6	64.7	24.7	2.9
Ngora	7.3	62.9	25.8	4.0
Soroti	9.0	61.1	24.9	5.0

Table C. Magnitude of the locust invasion in affected subregions and districts

Region/district	Parishes affected				Parishes with locusts in the past 2 to 3 weeks (in %)	Parishes currently with locusts (in %)	Number of locust attacks in the past 7 months					
	No		Yes				1	2	3	4	5	6
	#	%	#	%								
Karamoja	2	4.0	48	96.0	9.8	7.0	19.9	45.1	29.2	4.9	0.7	0.1
Abim	0	0.0	10	100.0	10.5	10.2	2.8	36.8	56.0	3.5	0.7	0.2
Amudat	0	0.0	2	100.0	0.8	0.8	7.3	64.2	22.0	6.5	0.0	0.0
Kaabong	0	0.0	10	100.0	27.5	26.1	5.9	44.3	37.1	9.6	3.2	0.0
Kotido	1	12.5	7	87.5	3.5	0.9	43.2	46.9	7.4	2.4	0.0	0.0
Moroto	1	20.0	4	80.0	9.3	1.6	50.6	41.5	7.0	0.9	0.0	0.0
Nabilatuk	0	0.0	7	100.0	8.5	10.6	3.5	46.1	36.2	12.8	0.7	0.7
Nakapiripirit	0	0.0	4	100.0	3.6	4.6	2.8	42.5	45.0	9.0	0.8	0.0
Napak	0	0.0	4	100.0	20.1	0.0	12.2	70.1	17.7	0.0	0.0	0.0
Acholi	0	0.0	28	100.0	6.6	7.0	8.1	49.0	34.8	6.8	1.1	0.2
Agago	0	0.0	6	100.0	13.9	19.9	8.9	50.9	35.8	4.1	0.3	0.0
Kitgum	0	0.0	7	100.0	4.7	3.6	13.4	50.4	27.9	7.0	1.1	0.3
Lamwo	0	0.0	10	100.0	5.4	4.5	4.8	42.4	40.6	9.8	1.9	0.3
Pader	0	0.0	5	100.0	4.1	3.7	7.9	59.3	30.0	2.8	0.0	0.0
Lango	0	0.0	10	100.0	8.7	8.0	13.2	54.5	28.9	2.5	0.5	0.5
Otuke	0	0.0	10	100.0	8.7	8.0	13.2	54.5	28.9	2.5	0.5	0.5
Teso	5	7.7	60	92.3	3.2	1.0	45.0	46.4	8.4	0.1	0.0	0.0
Amuria	0	0.0	9	100.0	9.0	2.9	26.0	66.7	7.3	0.0	0.0	0.0
Bukedea	0	0.0	4	100.0	0.0	0.0	42.3	56.1	1.6	0.0	0.0	0.0
Kapelebyong	0	0.0	2	100.0	0.0	0.0	1.3	89.3	9.3	0.0	0.0	0.0
Katakwi	0	0.0	10	100.0	4.3	1.7	17.5	46.2	35.3	0.7	0.3	0.0
Kumi	1	11.1	8	88.9	2.9	0.4	74.2	25.8	0.0	0.0	0.0	0.0
Ngora	2	9.1	20	90.9	1.6	0.4	68.3	28.2	3.5	0.0	0.0	0.0
Soroti	2	22.2	7	77.8	4.1	1.0	39.9	55.1	4.7	0.3	0.0	0.0
Elgon	11	52.4	10	47.6	1.0	0.0	32.5	57.1	10.4	0.0	0.0	0.0
Bulambuli	9	81.8	2	18.2	1.1	0.0	28.0	36.0	36.0	0.0	0.0	0.0
Kween	2	28.6	5	71.4	0.9	0.0	21.8	66.0	12.2	0.0	0.0	0.0
Sironko	0	0.0	3	100.0	1.0	0.0	50.0	49.0	1.0	0.0	0.0	0.0

Table D. Crop production in the Acholi and Lango subregions during crop season 1 of 2020 (percentage of total households)

	Agago	Kitgum	Lamwo	Pader	Acholi	Otuke	Lango
Crops planted (any crop)	99.0	99.2	98.6	99.3	98.9	95.2	95.2
Main crops planted							
Maize	60.8	76.6	67.4	84.7	71.5	29.9	29.9
Sorghum	30.4	36.4	54.1	27.8	40.3	3.9	3.9
Rice	0.0	0.0	0.3	1.7	0.4	10.8	10.8
Millet	58.4	48.8	65.1	25.1	52.6	28.1	28.1
Sesame (simsim)	10.5	55.1	34.4	38.0	35.3	11.7	11.7
Groundnut	43.2	23.7	10.4	48.8	26.8	24.2	24.2
Sweet potatoes	1.0	10.7	4.8	7.1	5.9	3.9	3.9
Cassava	11.1	19.3	12.0	24.4	15.8	38.3	38.3
East Africa highland bananas	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beans	8.1	2.2	9.6	11.9	8.0	32.5	32.5
Cowpeas	5.1	3.0	0.5	1.0	2.0	21.0	21.0
Cotton	4.1	5.5	3.7	2.0	3.9	0.6	0.7
Crop production practice							
Rainfed	100.0	100.0	100.0	99.7	99.9	99.8	99.8
Irrigated	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Both	0.0	0.0	0.0	0.3	0.1	0.2	0.2
Main reason for not cultivating							
Drought/low rainfall	33.3	0.0	11.1	0.0	11.8	18.2	18.2
Inadequate inputs	33.3	0.0	22.2	50.0	23.5	22.7	22.7
Fear of locusts	0.0	0.0	0.0	50.0	5.9	9.1	9.1
Heavy floods	0.0	0.0	33.3	0.0	17.6	4.5	4.5
Lack of land	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Insufficient labour	0.0	0.0	0.0	0.0	0.0	4.5	4.5
Have alternative source of income	0.0	0.0	11.1	0.0	5.9	13.6	13.6
Sickness/inability/old age	33.3	66.7	11.1	0.0	23.5	18.2	18.2
Other	0.0	33.3	11.1	0.0	11.8	9.1	9.1

Table E. Crop production in the Karamoja subregion during crop season 1 of 2020 (percentage of total households)

	Abim	Amudat	Kaabong	Kotido	Moroto	Nabilatuk	Nakapiripirit	Napak	Karamoja
Crops planted (any crop)	94.8	93.6	94.4	97.5	83.3	95.0	80.7	100.0	92.3
Main crops planted									
Maize	29.9	93.6	56.3	51.5	46.9	37.6	71.8	63.0	51.7
Sorghum	70.9	20.0	85.9	93.2	71.4	93.6	21.3	76.0	71.1
Rice	0.3	0.0	0.0	0.0	0.0	0.0	5.1	0.0	0.8
Millet	30.6	0.0	4.8	32.0	0.0	0.0	0.5	3.2	15.3
Sesame (simsim)	40.3	0.0	0.8	9.2	0.0	0.0	0.5	12.3	11.3
Groundnut	32.4	0.8	8.0	20.6	0.8	6.4	12.7	24.7	16.3
Sweet potatoes	7.2	0.0	0.3	0.5	0.0	0.7	3.6	4.5	2.4
Cassava	11.7	0.0	0.8	0.0	0.0	0.7	6.6	22.1	4.6
East Africa highland bananas (matooke)	0.2	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.2
Beans	22.2	18.4	18.9	34.1	20.2	24.8	44.2	13.0	26.8
Cowpeas	6.7	1.6	5.1	16.1	15.9	10.6	2.0	31.8	10.8
Cotton	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0
Crop production practice									
Rainfed	100.0	100.0	100.0	99.7	100.0	100.0	99.7	100.0	99.9
Irrigated	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Both	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.1
Main reason for not cultivating									
Drought/low rainfall	0.0	0.0	4.8	0.0	1.6	0.0	0.0	0.0	0.9
Inadequate inputs	6.7	37.5	14.3	21.1	41.3	28.6	5.6	0.0	20.1
Fear of locusts	20.0	12.5	52.4	5.3	14.3	14.3	28.2	0.0	22.4
Heavy floods	0.0	0.0	4.8	21.1	1.6	28.6	9.9	0.0	6.8
Lack of land	26.7	37.5	0.0	10.5	12.7	28.6	45.1	0.0	25.1
Insufficient labour	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.5
Have alternative source of income	6.7	0.0	0.0	0.0	0.0	0.0	4.2	0.0	2.3
Sickness/inability/old age	33.3	12.5	14.3	36.8	27.0	0.0	2.8	0.0	18.3
Other	6.7	0.0	9.5	5.3	1.6	0.0	2.8	0.0	3.7

Table F. Crop production in the Teso and Elgon subregions during crop season 1 of 2020 (percentage of total households)

	Amuria	Bukedea	Kapelebyong	Katakwi	Kumi	Ngora	Soroti	Teso	Bulambuli	Kween	Sironko	Elgon
Crops planted (any crop)	95.7	98.0	97.3	97.0	99.3	99.5	97.3	97.9	98.9	96.4	97.0	97.7
Main crops planted												
Maize	28.1	59.8	45.3	12.0	39.3	28.4	32.0	32.4	95.6	77.3	78.0	85.8
Sorghum	23.4	27.5	16.0	62.0	14.1	22.0	14.6	25.3	0.0	0.0	0.0	0.0
Rice	6.5	1.6	0.0	4.7	6.9	2.7	1.9	3.6	5.5	0.0	1.0	2.7
Millet	21.9	17.9	18.7	27.7	12.7	18.2	16.1	18.8	2.2	0.0	0.0	1.0
Sesame (simsim)	7.9	0.4	5.3	6.7	0.0	2.0	7.5	4.3	0.0	0.0	0.0	0.0
Groundnut	56.1	60.6	46.7	82.7	87.3	71.3	62.8	69.0	12.7	0.0	2.0	6.2
Sweet potatoes	14.4	8.8	4.0	23.3	26.9	35.8	27.8	24.4	4.4	0.4	2.0	2.5
Cassava	51.8	62.5	32.0	40.3	76.4	68.0	57.9	59.2	8.7	0.0	22.0	7.7
East Africa highland bananas	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	6.5	5.8	25.0	9.3
Beans	24.8	8.4	6.7	1.0	3.3	1.1	11.5	7.6	83.6	17.3	82.0	58.5
Cowpeas	8.6	18.7	38.7	6.0	9.8	21.5	10.9	14.3	1.1	1.8	0.0	1.2
Cotton	0.0	0.0	1.3	0.0	0.4	0.2	0.0	0.1	3.3	0.0	0.0	1.5
Crop production practice												
Rainfed	100.0	100.0	100.0	99.7	97.8	98.9	100.0	99.4	100.0	100.0	99.0	99.8
Irrigated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Both	0.0	0.0	0.0	0.3	2.2	1.1	0.0	0.6	0.0	0.0	1.0	0.2
Main reason for not cultivating												
Drought/low rainfall	16.7	20.0	0.0	25.0	0.0	33.3	7.7	15.6	0.0	0.0	0.0	0.0
Inadequate inputs	25.0	0.0	0.0	12.5	0.0	0.0	15.4	13.3	33.3	87.5	33.3	64.3
Fear of locusts	0.0	0.0	0.0	0.0	50.0	0.0	7.7	4.4	0.0	0.0	0.0	0.0
Heavy floods	0.0	20.0	0.0	0.0	0.0	0.0	7.7	4.4	0.0	0.0	0.0	0.0
Lack of land	8.3	0.0	0.0	25.0	0.0	0.0	7.7	8.9	33.3	12.5	33.3	21.4
Insufficient labour	16.7	20.0	50.0	0.0	0.0	0.0	30.8	17.8	0.0	0.0	0.0	0.0
Have alternative source of income	0.0	20.0	0.0	12.5	0.0	0.0	7.7	6.7	0.0	0.0	0.0	0.0
Sickness/inability/old age	8.3	0.0	50.0	12.5	0.0	33.3	7.7	11.1	33.3	0.0	33.3	14.3
Other	25.0	20.0	0.0	12.5	50.0	33.3	7.7	17.8	0.0	0.0	0.0	0.0

Table G. Estimated acreage (in hectares) and production (in tonnes) during crop season 1 of 2020 in the Acholi and Lango subregions

		Agago	Kitgum	Lamwo	Pader	Acholi	Otuke	Lango
Maize	Total acreage	55.8	70.5	98.1	70.5	294.9	28.1	28.1
	Production	126.8	160.2	222.7	160.1	669.8	97.5	97.5
Sorghum	Total acreage	22.5	29.3	75.3	17.1	144.1	3.0	3.0
	Production	33.7	43.8	112.7	25.6	215.9	3.9	3.9
Rice	Total acreage	0.0	0.0	0.6	1.8	2.5	14.6	14.6
	Production	0.0	0.0	1.6	4.5	6.1	39.1	39.1
Millet	Total acreage	41.5	44.9	82.6	63.6	232.2	25.1	25.1
	Production	56.1	60.7	111.1	86.0	313.9	23.2	23.2
Sesame (simsim)	Total acreage	7.7	52.9	55.4	30.1	146.1	10.9	10.9
	Production	5.8	40.2	42.0	22.8	110.8	11.0	11.0
Groundnut	Total acreage	27.8	14.2	11.9	30.5	84.3	21.1	21.1
	Production	27.4	14.1	11.7	30.1	83.4	20.9	20.9
Sweet potatoes	Total acreage	0.4	3.9	2.5	1.7	8.6	1.6	1.6
	Production	1.7	16.4	10.6	7.2	35.8	6.5	6.5
Cassava	Total acreage	8.4	13.8	15.7	13.8	51.7	36.8	36.8
	Production	55.5	91.1	103.3	90.7	340.7	276.0	276.0
East Africa highland bananas (matooke)	Total acreage	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Production	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beans	Total acreage	5.0	1.7	12.6	6.2	25.4	27.2	27.2
	Production	6.8	2.3	17.1	8.3	34.6	34.2	34.2
Cotton	Total acreage	3.5	3.4	5.7	1.1	13.8	0.4	0.4
	Production	n/d	n/d	n/d	n/d	n/d	n/d	n/d

Source: **Uganda Bureau of Statistics**. 2018. *Annual agricultural survey 2018 report*. Kampala.

Table H. Estimated acreage (in hectares) and production (in tonnes) during crop season 1 of 2020 in the Karamoja subregion

		Abim	Amudat	Kaabong	Kotido	Moroto	Nabilatuk	Nakapiri-pirit	Napak	Karamoja
Maize	Total acreage	37.8	25.2	23.6	53.7	30.8	10.8	87.0	15.1	284.2
	Production	117.4	78.1	73.3	166.7	95.5	33.5	269.7	47.0	881.2
Sorghum	Total acreage	89.5	3.4	38.0	150.6	55.2	38.2	20.0	19.0	413.8
	Production	122.1	4.6	51.9	205.4	75.2	52.1	27.3	25.9	564.5
Rice	Total acreage	0.5	0.0	0.0	0.0	0.0	0.0	12.1	0.0	12.6
	Production	n/d	0.0	0.0	0.0	0.0	0.0	n/d	0.0	n.d.
Millet	Total acreage	29.2	0.0	2.1	35.0	0.0	0.0	0.2	0.6	67.1
	Production	34.0	0.0	2.4	40.7	0.0	0.0	0.3	0.7	78.1
Sesame(simsim)	Total acreage	51.6	0.0	0.2	16.0	0.0	0.0	0.3	2.2	70.3
	Production	31.5	0.0	0.1	9.8	0.0	0.0	0.2	1.3	42.9
Groundnut	Total acreage	37.4	0.2	2.9	19.0	0.3	1.4	9.7	5.5	76.4
	Production	46.2	0.2	3.5	23.5	0.4	1.8	12.0	6.8	94.3
Sweet potatoes	Total acreage	5.5	0.0	0.1	0.5	0.0	0.2	1.8	0.8	8.8
	Production	24.5	0.0	0.4	2.2	0.0	0.7	7.7	3.8	39.3
Cassava	Total acreage	12.9	0.0	0.2	0.0	0.0	0.3	3.6	6.5	23.6
	Production	54.8	0.0	0.9	0.0	0.0	1.4	15.2	27.4	99.6
East Africa highland bananas (matooke)	Total acreage	0.3	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.7
	Production	0.0	0.0	0.0	0.0	0.0	0.0	n/d	0.0	n.d.
Beans	Total acreage	24.7	2.3	6.6	32.0	9.8	5.9	33.3	2.3	116.8
	Production	34.8	3.2	9.3	45.0	13.8	8.4	46.9	3.2	164.5
Cowpeas	Total acreage	0.0	0.0	0.5	0.6	0.0	0.3	0.0	0.8	2.2
	Production	0.0	0.0	n/d	n/d	0.0	n/d	0.0	n/d	n.d.
Cotton	Total acreage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
	Production	0.0	0.0	0.0	0.0	0.0	0.0	0.0	n/d	n.d.

Source: Uganda Bureau of Statistics. 2018. *Annual agricultural survey 2018 report*. Kampala.

Table I. Estimated acreage (in hectares) and production (in tonnes) during crop season 1 of 2020 in the Elgon subregion

		Bulambuli	Kween	Sironko	Elgon
Maize	Total acreage	56.3	27.8	8.3	92.3
	Production	173.7	85.7	25.8	285.1
Sorghum	Total acreage	0.0	0.0	0.0	0.0
	Production	0.0	0.0	0.0	0.0
Rice	Total acreage	1.8	0.0	0.0	1.9
	Production	4.9	0.0	0.1	5.0
Millet	Total acreage	0.6	0.0	0.0	0.6
	Production	0.9	0.0	0.0	0.9
Sesame (simsim)	Total acreage	0.0	0.0	0.0	0.0
	Production	0.0	0.0	0.0	0.0
Groundnut	Total acreage	2.8	0.0	0.1	3.0
	Production	4.2	0.0	0.2	4.4
Sweet potatoes	Total acreage	1.2	0.2	0.1	1.5
	Production	5.9	0.8	0.7	7.4
Cassava	Total acreage	1.9	0.0	2.0	3.9
	Production	14.1	0.0	14.5	28.6
East Africa highland bananas (matooke)	Total acreage	1.3	1.0	2.1	4.4
	Production	14.0	10.3	21.5	45.8
Beans	Total acreage	27.1	3.8	8.9	39.8
	Production	42.1	6.0	13.8	61.9
Cowpeas	Total acreage	0.0	0.0	0.0	0.0
	Production	0.0	0.0	0.0	0.0
Cotton	Total acreage	1.5	0.0	0.0	1.5
	Production	n/d	0.0	0.0	n/d

Source: Uganda Bureau of Statistics. 2018. *Annual agricultural survey 2018 report*. Kampala.

Table J. Estimated acreage (in hectares) and production (in tonnes) during crop season 1 of 2020 in the Teso subregion

		Amuria	Bukedea	Kapele-byong	Katakwi	Kumi	Ngora	Soroti	Teso
Maize	Total	8.9	28.5	6.2	6.6	14.9	23.7	16.4	105.3
	Production	22.0	70.1	15.2	16.3	36.7	58.2	40.4	259.0
Sorghum	Total	7.8	12.7	1.8	33.2	4.8	15.2	6.1	81.6
	Production	10.7	17.4	2.5	45.6	6.6	20.8	8.4	111.9
Rice	Total	3.0	0.8	0.0	3.4	3.4	2.8	1.2	14.6
	Production	7.9	2.2	0.0	9.2	9.2	7.5	3.2	39.2
Millet	Total	7.2	7.4	2.2	14.9	5.5	12.3	14.8	64.4
	Production	8.6	8.8	2.6	17.6	6.5	14.5	17.5	76.3
Sesame (simsim)	Total	3.3	0.2	0.8	3.0	0.0	2.1	4.1	13.5
	Production	2.6	0.1	0.6	2.4	0.0	1.6	3.2	10.6
Groundnut	Total	25.9	30.4	5.8	65.2	37.1	64.9	73.3	302.6
	Production	25.6	30.0	5.8	64.5	36.7	64.2	72.5	299.1
Sweet potatoes	Total	4.6	2.9	0.2	9.4	8.9	24.2	13.3	63.5
	Production	18.3	11.4	0.8	37.1	35.2	96.0	52.8	251.6
Cassava	Total	20.9	31.2	4.7	25.9	33.7	60.7	30.9	208.0
	Production	114.5	170.4	25.8	142.0	184.3	332.1	168.9	1138.0
East Africa highland bananas (matooke)	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Production	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
Beans	Total	9.4	2.9	0.7	0.3	1.5	0.6	5.3	20.8
	Production	11.4	3.5	0.8	0.4	1.9	0.7	6.5	25.2
Cowpeas	Total	0.5	0.7	0.3	0.6	0.0	0.3	0.0	2.5
	Production	n/d	n/d	n/d	n/d	0.0	n/d	0.0	n/d
Cotton	Total	0.0	0.0	0.3	0.0	0.2	0.2	0.0	0.6
	Production	0.0	0.0	n/d	0.0	n/d	n/d	0.0	n/d

Source: Uganda Bureau of Statistics. 2018. *Annual agricultural survey 2018 report*. Kampala.

Table K. Impact of desert locust invasions on grazing land

Region/district	Households whose grazing land was affected (% of total households)	Proportion of grazing land affected (% of affected households)					Type of pasture most affected (% of affected households)				
		< 10%	10 – 25%	25 – 50%	50 – 75%	> 75%	Crop residues	Grasses	Shrubs	Forage trees	Other pasture types
Acholi	43.0	7.1	21.6	38.0	28.8	4.0	3.9	37.8	4.0	26.8	27.0
Agago	38.3	7.5	22.6	28.3	36.8	4.7	0.0	53.8	0.0	38.7	7.5
Kitgum	44.9	12.7	22.3	38.2	22.3	3.8	3.8	28.0	10.8	45.2	12.1
Lamwo	39.3	2.2	19.0	44.4	29.7	4.3	1.7	56.9	2.2	3.0	35.3
Pader	52.8	8.7	24.0	34.7	28.7	3.3	10.0	7.3	2.7	36.0	43.3
Karamoja	42.2	3.9	14.1	32.9	36.5	12.8	1.7	28.3	7.7	20.4	41.7
Abim	54.6	3.2	7.6	39.2	41.4	7.9	4.7	20.1	1.1	4.3	69.8
Amudat	20.3	0.0	20.0	40.0	32.0	8.0	12.0	24.0	0.0	44.0	20.0
Kaabong	27.0	2.0	3.0	18.8	65.3	9.9	0.0	32.7	6.9	58.4	2.0
Kotido	37.3	1.9	6.1	24.1	52.1	15.7	0.0	51.3	16.5	2.3	29.9
Moroto	45.2	6.5	25.8	45.2	14.8	6.5	0.0	33.5	7.1	32.9	25.2
Nabilatuk	53.0	4.2	12.7	32.4	16.9	33.8	0.0	18.3	5.6	35.2	40.8
Nakapiripirit	42.1	4.5	21.9	30.3	19.4	21.9	1.9	13.6	11.0	39.6	33.8
Napak	62.3	8.8	24.1	36.3	27.5	3.3	0.0	7.7	2.2	7.7	82.4
Lango	41.6	5.1	11.4	26.1	32.4	24.4	0.0	62.3	2.3	18.9	16.6
Otuke	41.6	5.1	11.4	26.1	32.4	24.4	0.0	62.3	2.3	18.9	16.6
Elgon	34.5	7.7	59.3	24.2	6.6	2.2	6.6	83.5	0.0	7.7	2.2
Bulambuli	24.0	0.0	66.7	33.3	0.0	0.0	50.0	50.0	0.0	0.0	0.0
Kween	50.3	9.7	63.9	22.2	4.2	0.0	0.0	88.9	0.0	8.3	2.8
Sironko	13.5	0.0	30.8	30.8	24.1	15.4	24.1	69.2	0.0	7.7	0.0
Teso	25.9	9.7	35.7	34.2	16.8	3.7	1.5	48.3	3.7	35.1	11.2
Amuria	23.0	4.9	23.0	55.7	14.1	3.3	4.9	50.8	0.0	29.5	14.8
Bukedea	12.6	0.0	19.4	51.6	25.8	3.2	0.0	51.6	6.5	22.6	16.1
Kapelebyong	12.2	0.0	22.2	44.4	33.3	0.0	0.0	100.0	0.0	0.0	0.0
Katakwi	44.9	6.3	28.9	28.9	24.2	11.7	2.3	21.1	2.3	62.5	11.7
Kumi	22.2	19.6	54.9	19.6	3.9	2.0	0.0	72.5	15.7	3.9	7.8
Ngora	20.9	21.3	52.8	24.1	1.9	0.0	0.9	57.4	4.6	21.3	15.7
Soroti	34.1	4.6	31.5	38.5	25.4	0.0	0.8	52.3	0.8	40.0	6.2
Total	**37.3**	**6.1**	**21.3**	**33.7**	**29.3**	**9.2**	**2.3**	**39.0**	**5.3**	**24.4**	**28.7**

Table L. Actions taken by households to fight desert locusts

	Locust control method (% of total households applying the measure)								Household members involved in locust control (% of households reporting that a category is involved)				
Region/district	Insecticide	Bio pesticide	Smoke	Noise-making	Pre-mature crop harvesting	Drumming	Other ways	Do nothing	Children (< 18 years)	Women	Men	Elderly	Youths
Acholi	4.5	0.2	11.9	27.9	1.0	34.2	5.0	52.0	74.1	72.6	62.4	8.0	56.6
Agago	0.7	0.4	0.4	15.1	0.0	17.2	7.4	79.6	82.4	74.5	47.1	2.0	33.3
Kitgum	15.4	0.3	26.3	39.4	3.4	38.8	7.3	36.0	68.3	79.0	71.4	7.6	62.5
Lamwo	0.6	0.2	9.7	27.7	0.0	37.0	0.6	51.5	78.4	68.3	59.7	11.9	55.8
Pader	4.1	0.0	10.2	2 6.6	1.0	38.9	9.2	45.7	67.3	70.1	59.2	3.4	57.1
Karamoja	1.7	0.1	4.8	23.2	0.1	25.6	2.3	65.9	63.9	60.6	50.7	20.1	56.0
Abim	3.3	0.2	3.7	13.4	0.5	19.0	1.9	72.8	54.6	68.8	70.0	45.8	59.2
Amudat	0.8	0.0	0.0	22.0	0.0	26.8	2.4	62.6	52.0	49.0	41.2	0.0	28.4
Kaabong	0.0	0.0	0.8	0.3	0.0	0.3	0.3	98.7	42.2	39.1	40.6	5.2	80.7
Kotido	0.3	0.0	6.0	15.1	0.0	11.9	1.7	82.4	69.8	31.2	24.3	24.3	32.3
Moroto	1.8	0.6	1.2	21.9	0.3	12.3	4.4	73.7	45.9	53.4	59.4	21.8	30.8
Nabilatuk	0.0	0.0	8.1	69.1	0.0	89.7	0.7	0.0	90.0	95.4	60.8	13.8	82.3
Nakapiripirit	2.9	0.0	9.9	50.5	0.0	67.7	3.9	19.5	79.2	87.8	62.2	9.6	70.5
Napak	6.1	0.7	8.8	47.6	0.0	40.8	3.4	44.2	62.4	83.2	69.3	25.7	72.3
Lango	1.2	0.2	5.5	20.3	0.0	27.6	2.6	67.0	82.4	77.9	68.4	13.2	43.4
Otuke	1.2	0.2	5.5	20.3	0.0	27.6	2.6	67.0	82.4	77.9	68.4	13.2	43.4
Elgon	40.5	1.1	3.3	28.6	0.0	34.9	7.8	17.1	25.8	44.7	68.4	7.4	34.4
Bulambuli	48.0	0.0	12.0	20.0	0.0	40.0	0.0	0.0	16.0	44.0	84.0	4.0	40.0
Kween	48.3	0.0	2.0	39.5	0.0	49.0	5.4	6.8	26.8	57.7	69.7	9.9	39.4
Sironko	26.8	4.1	4.1	14.4	0.0	12.4	13.4	37.1	27.3	20.8	61.0	3.9	23.4
Teso	1.6	0.3	3.6	59.8	0.0	77.8	2.4	17.4	69.7	76.3	59.4	19.7	65.8
Amuria	0.4	0.0	2.9	68.0	0.0	89.0	0.7	8.5	61.9	77.7	54.0	11.7	69.8
Bukedea	4.1	1.6	2.0	41.1	0.0	80.1	4.5	9.3	47.9	56.4	71.4	11.5	54.3
Kapelebyong	0.0	0.0	16.0	94.7	0.0	98.7	0.0	1.3	98.6	74.3	68.9	13.5	86.5
Katakwi	4.1	1.0	8.3	79.6	0.0	86.2	0.0	12.5	70.3	58.1	40.1	25.8	72.8
Kumi	2.5	0.0	2.5	42.7	0.0	65.6	2.9	28.2	69.9	85.7	61.7	27.6	58.7
Ngora	0.4	0.0	1.8	54.8	0.0	76.4	0.4	20.3	74.4	86.0	54.7	22.8	61.4
Soroti	1.3	0.0	2.3	61.6	0.0	67.4	7.0	25.1	78.9	87.2	78.9	18.8	72.2
Total	**3.8**	**0.3**	**6.0**	**34.8**	**0.3**	**42.9**	**3.2**	**47.1**	**66.2**	**68.4**	**57.5**	**17.2**	**58.5**

Table M. Household sources of cereals/grains, roots and tubers

Region/district	Source of cereals/grains consumed by households (% of total households)						Source of roots and tubers consumed (% of total households)				
	Exchange of labour for food	Own production	Gift from family/ relatives/friends	Market (purchase with cash)	Market (purchase on credit)	Other	Exchange of labour for food	Own production	Market (purchase with cash)	Market (purchase on credit)	Other
Karamoja	3.9	38.9	1.6	50.0	0.7	4.9	4.2	19.9	67.9	1.2	6.8
Abim	4.1	38.3	1.3	54.1	1.5	1.8	3.5	27.0	62.6	1.6	5.3
Amudat	1.7	57.1	0.8	38.7	0.0	1.7	0.0	0.0	90.9	0.0	9.1
Kaabong	5.8	13.0	2.3	74.8	2.0	2.0	7.7	15.4	64.1	0.0	12.8
Kotido	7.4	64.5	1.2	14.7	0.1	12.1	11.6	11.6	68.5	2.1	6.2
Moroto	0.5	27.8	3.7	64.7	0.3	2.9	0.0	0.8	94.9	0.0	4.2
Nabilatuk	0.0	17.7	0.7	75.2	0.0	6.4	0.0	0.0	85.7	0.0	14.3
Nakapiripirit	1.0	19.9	0.8	76.7	0.5	1.0	0.9	22.9	68.8	1.8	5.5
Napak	6.3	55.2	0.7	32.9	1.4	3.5	3.2	41.9	37.1	0.0	17.7
Acholi	4.5	71.2	1.0	22.5	0.0	0.8	3.0	60.2	33.9	0.1	2.8
Agago	1.1	70.5	0.4	27.4	0.0	0.7	1.1	66.3	31.5	0.0	1.1
Kitgum	5.8	81.4	0.6	11.1	0.0	1.1	2.6	75.1	19.2	0.0	4.1
Lamwo	6.8	56.9	1.9	33.2	0.0	1.1	4.9	48.0	43.4	0.2	3.5
Pader	1.4	89.1	0.3	9.2	0.0	0.0	0.6	64.8	32.1	0.0	2.5
Lango	0.3	53.4	1.0	43.4	0.3	1.6	2.2	63.9	32.0	0.7	1.2
Otuke	0.3	53.4	1.0	43.4	0.3	1.6	2.2	63.9	32.0	0.7	1.2
Teso	1.0	72.6	1.0	23.6	0.6	1.2	1.2	77.5	17.7	0.3	3.3
Amuria	1.2	78.0	1.2	19.5	0.0	0.0	0.8	88.4	9.5	0.0	1.2
Bukedea	0.0	71.3	1.0	26.2	1.0	0.5	2.6	62.2	27.0	0.5	7.7
Kapelebyong	3.0	85.1	0.0	9.0	0.0	3.0	4.8	67.7	24.2	0.0	3.2
Katakwi	1.2	54.1	0.8	40.6	4.1	1.2	2.2	45.7	46.7	1.6	3.8
Kumi	0.0	77.2	0.5	19.8	0.0	2.5	1.9	83.7	11.5	0.0	3.0
Ngora	1.3	71.6	1.8	23.7	0.0	1.6	0.6	87.8	9.5	0.0	2.2
Soroti	0.9	80.4	0.6	17.1	0.0	0.9	0.5	76.5	19.0	0.2	3.8
Elgon	0.0	54.5	0.6	44.2	0.4	0.4	1.5	55.2	40.6	0.2	2.5
Sironko	0.0	37.8	1.2	59.8	1.2	0.0	0.0	67.1	29.4	0.0	3.5
Bulambuli	0.0	75.6	0.4	24.0	0.0	0.0	0.8	49.8	46.1	0.4	2.9
Kween	0.0	31.6	0.5	66.3	0.5	1.1	4.1	56.6	38.8	0.0	1.5
Total	**2.9**	**56.2**	**1.2**	**36.6**	**0.5**	**2.6**	**2.2**	**60.1**	**33.7**	**0.4**	**3.5**

Table N. Household sources of pulses/nuts and vegetables

	Sources of pulses/nuts consumed by households (% of total households)						Sources of vegetables consumed by households (% of total households)							
Region /district	Exchange of labour for food	Own production	Gift from family/ relatives/ friends	Market (purchase with cash)	Borrowed	Other	Own production	Begging for food	Borrowed	Gathering	Gift from family/ relatives/ friends	Market (purchase with cash)	Market (purchase on credit)	Other
Karamoja	4.2	26.4	2.5	61.2	4.1	2.5	42.2	1.5	3.9	32.5	1.4	17.7	0.3	0.5
Abim	2.2	24.4	2.0	68.3	2.0	1.0	54.4	0.2	4.9	10.1	0.5	29.2	0.2	0.5
Amudat	0.0	6.5	0.0	89.1	4.3	0.0	7.3	1.2	6.1	35.4	1.2	48.8	0.0	0.0
Kaabong	9.7	5.3	4.4	68.1	2.7	9.7	27.2	1.7	1.0	59.5	1.7	7.8	0.7	0.3
Kotido	10.6	40.3	2.3	38.2	5.7	2.9	62.0	3.0	3.4	25.1	1.6	3.6	0.4	0.8
Moroto	0.0	8.2	0.7	90.3	0.4	0.4	33.6	1.9	9.8	31.2	3.5	19.5	0.0	0.5
Nabilatuk	0.0	2.9	2.0	85.3	4.9	4.9	12.6	0.0	1.6	70.9	0.8	14.2	0.0	0.0
Nakapiripirit	0.8	29.5	1.4	65.4	1.1	1.7	21.4	0.5	0.0	45.8	0.0	31.8	0.3	0.3
Napak	2.6	50.0	12.9	21.6	6.0	6.9	44.3	1.3	4.0	38.9	1.3	9.4	0.0	0.7
Acholi	3.3	37.9	1.0	56.0	1.0	0.7	65.2	0.5	1.8	20.3	1.7	9.8	0.0	0.7
Agago	1.4	47.9	0.5	49.3	0.5	0.5	73.7	0.0	2.5	9.4	0.4	14.0	0.0	0.0
Kitgum	2.6	33.3	1.3	59.6	2.2	0.9	74.8	0.6	0.9	16.9	1.1	5.4	0.0	0.3
Lamwo	5.8	25.6	1.7	64.7	1.1	1.1	62.8	0.6	1.0	18.7	4.1	12.6	0.0	1.1
Pader	2.0	51.4	0.4	45.8	0.4	0.0	50.5	0.7	3.8	38.2	0.7	5.1	0.0	1.0
Lango	2.4	50.8	0.7	44.6	0.7	0.7	73.3	0.3	2.6	12.6	0.3	11.1	0.0	0.0
Otuke	2.4	50.8	0.7	44.6	0.7	0.7	73.3	0.3	2.6	12.6	0.3	11.1	0.0	0.0
Teso	1.2	63.0	1.6	31.5	2.0	0.7	59.6	1.6	9.2	10.7	3.5	14.6	0.1	0.7
Amuria	0.8	65.6	0.8	30.8	1.6	0.4	52.9	0.0	11.0	6.8	0.0	28.9	0.0	0.4
Bukedea	3.9	68.9	0.6	24.4	1.7	0.6	64.0	0.0	1.7	11.9	0.4	22.0	0.0	0.0
Kapelebyong	1.6	66.7	0.0	23.8	7.9	0.0	48.5	0.0	8.8	35.3	0.0	7.4	0.0	0.0
Katakwi	2.1	51.5	1.3	41.4	2.1	1.7	50.8	3.3	11.4	16.1	2.0	15.4	0.3	0.7
Kumi	0.4	70.8	0.9	27.0	0.4	0.4	56.3	5.2	10.0	14.8	0.4	12.2	0.0	1.1
Ngora	1.1	70.1	0.9	26.1	1.3	0.4	65.5	1.7	8.5	11.4	4.0	7.0	0.2	1.7
Soroti	0.0	52.8	4.3	39.3	3.0	0.8	63.5	0.2	10.9	2.1	9.8	13.4	0.0	0.0
Elgon	0.0	57.7	0.6	40.4	0.8	0.4	30.0	0.2	0.9	9.6	1.2	57.4	0.2	0.5
Bulambuli	0.0	72.8	0.4	24.9	1.6	0.4	25.6	0.0	1.5	15.4	1.1	55.3	0.0	1.1
Kween	0.0	28.7	0.0	70.7	0.0	0.7	27.6	0.5	0.5	4.7	1.4	65.0	0.5	0.0
Sironko	0.0	64.7	2.9	32.4	0.0	0.0	48.4	0.0	0.0	4.3	1.1	46.2	0.0	0.0
Total	**2.6**	**44.2**	**1.7**	**48.1**	**2.0**	**1.3**	**52.8**	**1.1**	**4.7**	**20.8**	**2.0**	**17.9**	**0.1**	**0.6**

Table O. Household sources of meat and fish

Region /district	Sources of meat consumed by households (% of total households)							Sources of fish consumed by households (% of total households)						
	Exchange of labour for food	Own production	Hunting	Gift from family/ relatives/ friends	Market (purchase with cash)	Market (purchase on credit)	Borrowed	Other	Exchange of labour for food	Own production	Fishing	Market (purchase with cash)	Market (purchase on credit)	Other
Karamoja	1.5	21.9	0.4	6.7	65.8	0.4	3.0	0.4	0.6	0.4	2.6	93.6	0.9	1.9
Abim	0.0	7.2	0.0	1.2	90.4	1.2	0.0	0.0	0.0	0.0	1.6	93.4	1.6	3.3
Amudat	0.0	54.3	11.4	5.7	20.0	0.0	8.6	0.0	0.0	33.3	0.0	66.7	0.0	0.0
Kaabong	0.0	38.5	0.0	4.2	52.1	2.1	2.1	1.0	5.6	0.0	0.0	88.9	0.0	5.6
Kotido	3.9	21.3	0.0	6.8	63.4	0.3	4.2	0.0	2.0	0.0	0.0	96.0	0.0	2.0
Moroto	0.0	17.6	0.0	8.4	70.0	0.0	3.6	0.4	0.0	0.0	2.7	95.1	0.5	1.6
Nabilatuk	2.5	20.0	0.0	15.0	60.0	0.0	2.5	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Nakapiripirit	0.0	20.2	0.0	1.0	76.9	0.0	0.0	1.9	0.0	2.0	3.9	90.2	2.0	2.0
Napak	0.8	22.2	0.0	11.1	64.3	0.0	1.6	0.0	0.0	0.0	10.3	87.2	2.6	0.0
Acholi	1.8	39.2	3.5	3.5	49.9	0.9	0.0	1.2	1.7	0.7	5.6	89.7	1.1	1.2
Agago	0.0	28.3	0.0	0.0	67.9	3.8	0.0	0.0	0.9	0.0	8.7	87.8	0.9	1.7
Kitgum	2.1	51.0	5.2	4.1	36.5	0.0	0.0	2.1	0.5	0.5	7.1	89.0	1.1	1.6
Lamwo	2.2	33.8	4.3	5.8	51.8	0.7	0.0	1.4	4.1	1.2	2.2	91.0	1.2	1.2
Pader	2.0	44.1	2.0	2.0	51.0	0.0	0.0	0.0	0.0	0.0	10.4	88.7	0.9	0.0
Lango	0.0	26.0	0.0	1.0	72.0	1.0	0.0	0.0	0.0	4.1	5.5	89.0	0.0	1.4
Otuke	0.0	26.0	0.0	1.0	72.0	1.0	0.0	0.0	0.0	4.1	5.5	89.0	0.0	1.4
Teso	0.5	11.9	0.0	0.9	86.0	0.5	0.2	0.2	0.0	1.5	9.5	88.0	0.6	0.4
Amuria	0.0	15.7	0.0	0.0	84.3	0.0	0.0	0.0	0.0	4.7	7.4	87.9	0.0	0.0
Bukedea	0.0	7.5	0.0	2.5	90.0	0.0	0.0	0.0	0.0	2.3	8.0	89.8	0.0	0.0
Kapelebyong	0.0	5.6	0.0	0.0	94.4	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Katakwi	1.4	15.9	0.0	0.0	81.2	1.4	0.0	0.0	0.0	3.7	11.2	82.1	3.0	0.0
Kumi	1.3	10.3	0.0	2.6	85.9	0.0	0.0	0.0	0.0	0.0	4.3	95.7	0.0	0.0
Ngora	0.0	13.0	0.0	1.1	85.3	0.5	0.0	0.0	0.0	0.6	13.2	85.4	0.6	0.3
Soroti	0.6	9.7	0.0	0.6	87.5	0.6	0.6	0.6	0.0	0.5	10.4	86.9	0.5	1.6
Elgon	0.0	4.1	0.0	0.5	96.4	0.0	0.0	0.0	0.0	0.0	2.0	98.0	0.0	0.0
Bulambuli	0.0	1.0	0.0	1.0	98.0	0.0	0.0	0.0	0.0	0.0	2.3	97.7	0.0	0.0
Kween	0.0	6.3	0.0	0.0	93.8	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Sironko	0.0	3.4	0.0	0.0	96.6	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Total	**1.1**	**20.3**	**0.7**	**4.0**	**71.7**	**0.5**	**1.4**	**0.4**	**0.6**	**1.1**	**6.6**	**90.0**	**0.8**	**0.9**

Saving livelihoods saves lives

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