

Emergency Transboundary Outbreak Pest (ETOP) Situation Bulletin for September with a forecast through mid-November 2021
 résumé en français est inclus

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**¹): In the central outbreak region (COR), locusts continued developing in eastern Ethiopia where more than 3,650 ha were treated against spring-bred immature swarms and hopper bands. There was also an indication that immature swarms began forming in the northeast (Afar and Amhara) and north (Tigray) regions where survey and control operations remained a challenge due to access. Swarms were reported in northern Somalia where 9,972 ha were controlled. Hopper bands formed in Djibouti. Swarms are forming in the interior of Yemen where control operations were limited to just 417 ha due to resistance from beekeepers. Small-scale breeding occurred in Sudan and 1,400 ha were treated against hoppers and adult groups. No locusts were reported in Eritrea or Oman and a few isolated adults were detected in southern Egypt. In the western outbreak region (WOR), local breeding formed scattered hoppers and adults in Mali and Chad. No locusts were reported in the eastern outbreak region (EOR) during this month. <http://www.fao.org/ag/locusts/en/info/info/index.html>

Forecast: In COR, more immature swarms will form in northern Ethiopia and move to the eastern part of the country, and adjacent areas in northern Somalia. Some swarms may move to the Red Sea coasts in Eritrea mature and begin breeding with the onset of the winter rains. A few small swarms may form in Djibouti and move to northern Somalia. Swarms will continue forming in the interior of Yemen, some may move west to the Red Sea coast and southwestern Saudi Arabia, while others may move to the Gulf of Aden coast for winter breeding with a few swarms likely crossing to northern Somalia and begin breeding at the foothills of winter rains. In WOR, significant developments are not likely, and the EOR region will remain calm during the forecast period. <http://www.fao.org/ag/locusts/en/activ/index.html>

Red (Nomadic) Locust (*Nomadacris septemfasciata*) (**NSE**): NSE concentrations and swarms persisted in Lake Chilwa/Lake Chiuta plains in Malawi and likely also in Buzi Gorongosa and Dimba plains in Mozambique as well as the Kafue Flats in Zambia.

African Migratory Locust: *Locusta migratoria migratorioides* (**LMI**): Isolated and LMI populations were reported in Southern and Western Provinces of Zambia.

¹ Definitions of all acronyms can be found at the end of the report.

No update was available elsewhere during this time; however, the pest may be present in adjacent areas in neighboring countries.

Malagasy locust (*Locust migratoria capito* – LMIC): LMIC activities are expected to have continued slowing down due to cold season weather. FAO/ECLO prepared an action plan for the next campaign season at the request of GoM.

Tree Locusts, *Anacridium spp.* (ASP): No ASP activities reported during this month.

Central American Locust, *Schistocerca piceiferons* (SPI)(CAL): CAL is at a low density in Mexico and Guatemala and very low in El Salvador, Honduras and Nicaragua during this month. There may be a slight increase from the second-generation during October-November 2021.

South American Locust, *Schistocerca cancellata* (SCA): No update was received, but SCA activities are expected to have continued in Argentina and adjacent areas.

Italian (CIT), Moroccan (DMA), and Asian Migratory Locusts (LMI): DMA, CIT and LMI activities are expected to have ended and/or significantly diminished in the CCA region.

Fall Armyworm (*Spodoptera frugiperda*, J. E. Smith) (FAW): FAW infestations were reported affecting irrigated maize in Malawi. No updates were received elsewhere during this time, but it is likely the pest has been a threat to maize crops where it has been detected.

African Armyworm (AAW) (*Spodoptera exempta*): AAW outbreak was not reported during this month.

Quelea spp. (QSP): QSP outbreaks were reported attacking irrigated wheat in Zimbabwe. The pest is expected to have affected small grain crops in other countries during this time.

Active surveillance, monitoring and timely preventive and curative control as well as timely sharing of information on ETPs remain critical to abate the threats ETOPs pose to food security and livelihoods of vulnerable communities.

USAID/BHA/TPQ regularly monitors ETOPs in close collaboration with its global network of PPDs/DPVs, regional and international pest monitoring and control entities, FAO, CLCPRO, CRC, DLCO-EA, and IRLCO-CSA, and research centers,

academia, private sector, NGOs and others and issues monthly analytical ETOP Bulletins to stakeholders. **End summary**

RÉSUMÉ

La situation du Criquet pèlerin (*Schistoseca gregaria* - SGR): Dans la région centrale de la résurgence (COR), les criquets ont continué à se développer dans l'est de l'Éthiopie où plus de 3 650 ha ont été traités contre des essaims immatures et des bandes larvaires reproduits au printemps. Il y avait également une indication que des essaims immatures ont commencé à se former dans les régions nord-est (Afar et Amhara) et nord (Tigré) où les opérations de prospection et de lutte restaient un défi en raison de l'accès. Des essaims ont été signalés dans le nord de la Somalie, où 9 972 ha ont été contrôlés. Des bandes larvaires se sont formées à Djibouti. Des essaims se forment dans l'intérieur du Yémen où les opérations de lutte ont été limitées à seulement 417 ha en raison de la résistance des apiculteurs. Une reproduction à petite échelle a eu lieu au Soudan et 1 400 ha ont été traités contre des larves et des groupes d'ailés. Aucun criquet n'a été signalé en Érythrée ou à Oman et quelques ailés isolés ont été détectés dans le sud de l'Égypte. Dans la région ouest de la résurgence (WOR), une reproduction locale a formé des larves et des ailés épars au Mali et au Tchad. Aucun criquet n'a été signalé dans la région de résurgence orientale (EOR) au cours de ce mois.
<http://www.fao.org/ag/locusts/en/info/info/index.html>

Prévisions: Dans la COR, davantage d'essaims immatures se formeront dans le nord de l'Éthiopie et se déplaceront vers la partie orientale du pays et les zones adjacentes dans le nord de la Somalie. Certains essaims pourraient se déplacer vers les côtes de la mer Rouge en Érythrée et commencer à se reproduire avec le début des pluies hivernales. Quelques petits essaims peuvent se former à Djibouti et se déplacer vers le nord de la Somalie. Des essaims vont continuer à se former dans l'intérieur du Yémen, certains peuvent se déplacer vers l'ouest vers la côte de la mer Rouge et le sud-ouest de l'Arabie saoudite, tandis que d'autres peuvent se déplacer vers la côte du golfe d'Aden pour la reproduction hivernale avec quelques essaims traverser probablement vers le nord de la Somalie et commencer à se reproduire à les contreforts des pluies hivernales. Dans WOR, des développements significatifs sont peu probables, et la région EOR restera calme pendant la période de prévision.
<http://www.fao.org/ag/locusts/en/info/info/index.html>

Criquet nomade (*Nomadacris septemfasciata*) (NSE): Criquet nomade (*Nomadacris septemfasciata*) (NSE) : des concentrations et des essaims de NSE ont persisté dans les plaines du lac Chilwa/lac Chiuta au Malawi et probablement aussi dans les plaines de Buzi Gorongosa et Dimba au Mozambique ainsi que dans les plaines de Kafue en Zambie.

Criquet migrateur africain: *Locusta migratoria migratorioides* (LMI): Des populations isolées et LMI ont été signalées dans les provinces du sud et de l'ouest de la Zambie. Aucune mise à jour n'était disponible ailleurs pendant cette période; cependant, le ravageur peut être présent dans les zones adjacentes des pays voisins.

Criquet migrateur capito, (LMIC): les activités des LMIC devraient avoir continué à ralentir en raison de la saison froide. La FAO/ECLO a préparé un plan d'action pour la prochaine campagne de campagne à la demande du GoM.

Le criquet arborial, *Anacridium spp*: (ASP): n'a pas été signalé au cours de ce mois.

Criquet Amérique centrale (CAL): Le CAL est à une faible densité au Mexique et au Guatemala et très faible au Salvador, au Honduras et au Nicaragua au cours de ce mois. Il pourrait y avoir une légère augmentation par rapport à la deuxième génération en octobre-novembre 2021.

Criquet d'Amérique du Sud, *Schistocerca cancellata* (SCA/SAL): Aucune mise à jour n'a été reçue, mais les activités de la SCA devraient se poursuivre en Argentine et dans les zones adjacentes.

Criquets italiens (CIT), marocains (DMA), Asian Migratory Locust (LMI): les activités du DMA, du CIT et du LMI devraient avoir pris fin et/ou considérablement diminué dans la région de la CCA.

Chenille Légionnaire d'automne (*Spodoptera frugiperda*, J. E. Smith) (FAW): des infestations de la chenille légionnaire d'automne ont été signalées affectant le maïs irrigué au Malawi. Aucune mise à jour n'a été reçue ailleurs pendant cette période, mais il est probable que le ravageur ait été une menace pour les cultures de maïs là où il a été détecté.

Chenille Légionnaire africaine (AAW): Légionnaire d'Afrique (AAW) (*Spodoptera exempta*) : Aucun foyer d'AAW n'a été signalé au cours de ce mois.

***Quelea spp. oiseaux* (QSP):** *Quelea spp.* (QSP) : Des foyers de QSP ont été signalés attaquant le blé irrigué au Zimbabwe. On s'attend à ce que le ravageur ait affecté les petites cultures céréalières dans d'autres pays pendant cette période.

La surveillance active, le suivi et les interventions préventives et curatives opportunes ainsi que le partage des information ETOP restent essentiels pour

réduire les menaces que les ETOP font peser sur la sécurité alimentaire et les moyens de subsistance des communautés vulnérables.

USAID / BHA / PSPM surveille régulièrement les ETOP en étroite collaboration avec son réseau de PPD / DPV nationaux, d'entités régionales et internationales de surveillance et / ou de lutte antiparasitaire, y compris la FAO/ECLO, la CLCPRO, le CRC, le DLCO-EA et l'IRLCO-CSA, et des centres de recherche, universités, secteur privé, ONG et autres et publie des Bulletins analytiques concis à l'intention des parties prenantes. Fin de résumé

Note: All ETOP Bulletins, including previous issues can be accessed and downloaded on USAID Pest and Pesticide Monitoring website: [USAID Pest and Pesticide Monitoring](#)

Additional resources for ETOPs can be found on the last pages of this Bulletin.

Weather and Ecological Conditions

From 21-30 of September, the Inert Tropical Front (ITF) moved further south compared to its 2nd dekad. The western (10W-10E) portion of the ITF was located approximately at 16.1N, which was south to the climatological position centered at 16.7N. This position of the ITF explains the decrease in rainfall across the northern and central parts of Senegal, and southern Mauritania. The eastern (20E-35E) portion of the ITF was located at 15.0N, which was north to the climatological position centered at 14.4N. It explains the above normal rainfall registered across northwestern Ethiopia, central Chad and eastern Sudan where rainfall should be seasonable (moderate) at this time of the year. Figure 1 shows the current position of the ITF relative to the long-term average position during the 3rd dekad of September and its previous position during the 2nd dekad of September. Figures 2 and 3 are time

series, illustrating the latitudinal values of the western and eastern portions of the ITF, respectively, and their seasonal evolutions since the beginning of April, 2021.

Figure 1.

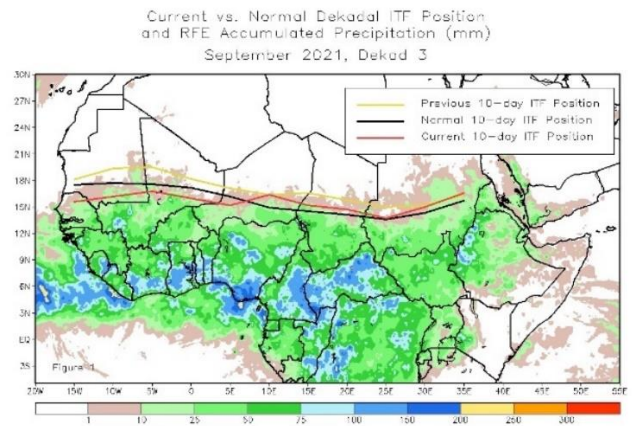


Figure 2.

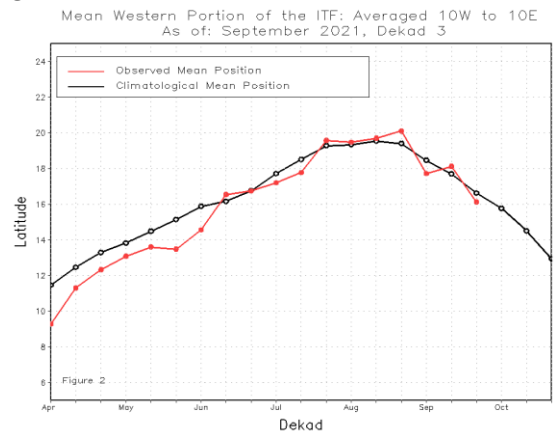
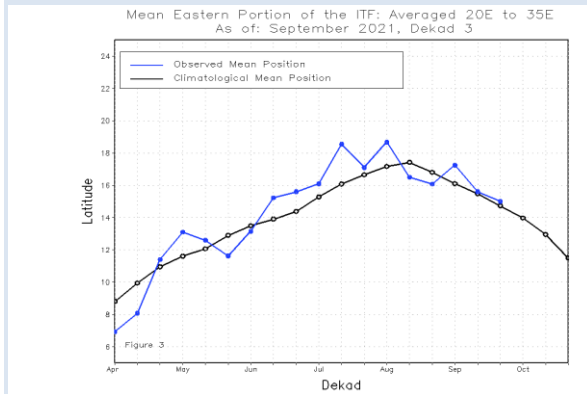


Figure 3.



From 11-21 September, the ITF was located along its climatological position. The western (10W-10E) portion of the ITF was located approximately at 18.1N, which was north to the climatological position centered at 17.9N. This position of the ITF explains the increase of rainfall across the far northern part of Senegal, southern Mauritania and southern Niger. The eastern (20E-35E) portion of the ITF was located at 15.6N, which was north to the climatological position centered at 15.5N. This position could explain the continuation of rainfall across central Chad, central Sudan, Eritrea and northwestern Ethiopia. Figure 1 shows the current position of the ITF relative to the long-term average position during the 2nd dekad of September and its previous position during the 1st dekad of September (NOAA).

From 01-10 September, the western part of the Inter-tropical front (ITF) moved significantly to the south compared to its previous dekad position. In contrast, the eastern part of the ITF moved slightly to the north compared to its previous dekad position. The western portion of the ITF (10W-10E) was located approximately at 18.1N, which was south to the climatological position centered at 18.8N. This position of the ITF explains the attenuation of rainfall across the far

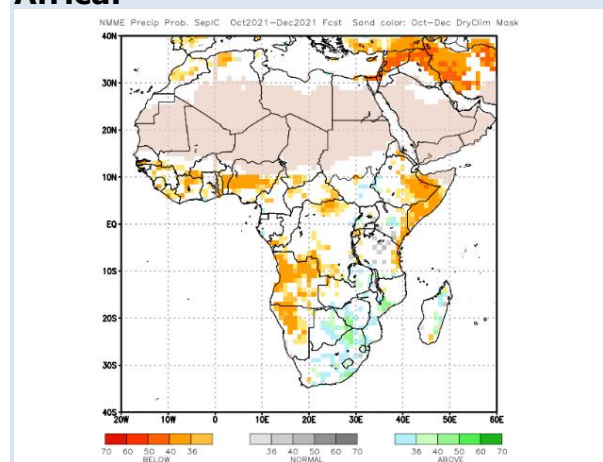
northern part of Senegal, southern Mauritania, and central Niger. The eastern portion of the ITF (20E-35E) was located at 16.5N, which was north to the climatological position centered at 16.1N. This position could explain the increase of rainfall across central Chad, central Sudan, Eritrea and northwestern Ethiopia during 1st dekad of September (NOAA, 9/21).

The **NSE** region, weather conditions remained dry and vegetation burning intensified in the outbreak areas causing the locusts to concentrate and form swarms and groups in unburnt areas (IRLCO-CSA).

CCA Region: Significant weather anomalies were not observed in CCA region.

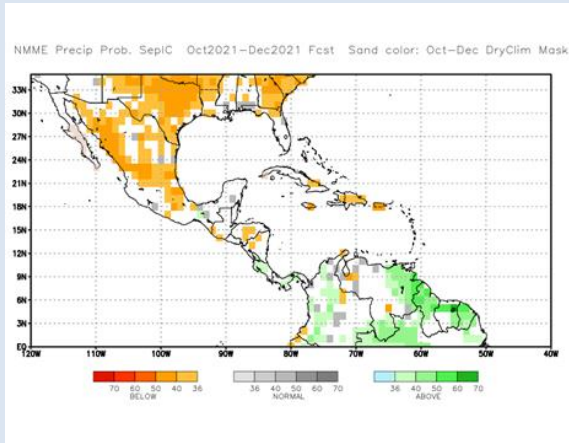
Weather forecast for October through December 2021 (NOAA, 9/21)

The forecast calls for a slight to moderate tilt in the odds to favor below-average rainfall in parts of the Gulf of Guinea region during this time. There is also a slight to moderate tilt in the odds to favor below-average rainfall in the western portions of **Southern Africa**, parts of DRC, and much of equatorial **East Africa**.

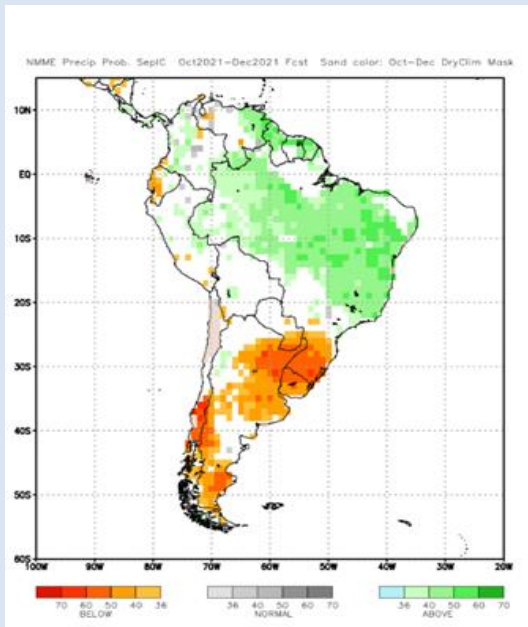


There is a slight tilt in the odds to favor

below-average rainfall over the central sector of **Central America**.

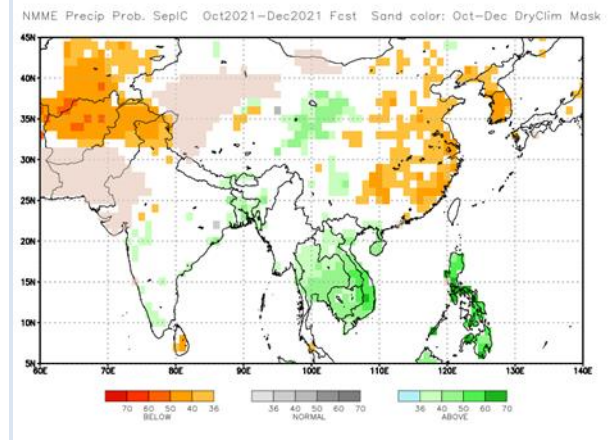


The forecasts call for a moderate tilt in the odds to favor above-average rainfall over the northern portions of **South America**.

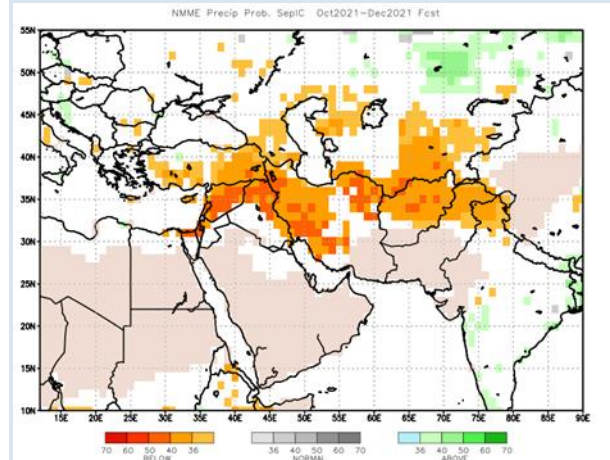


There is a slight to moderate tilt in the odds to favor above-average rainfall over

Southeast Asia.



There is a moderate tilt in the odds to favor-below-average rainfall over much of **Central Asia**.



ETOP proliferation vis-a-vis climate factors

Note: Climate change induced weather anomalies contribute to an ecological shift in ETOP habitats, and thereby altering risks in the outbreaks and resurgence of existing ETOPs and/or the emergence of new and invasive pest species. The frequency, extent and payload of ETOP appearances, prevalence, and upsurges are partially attributed to the changes in the weather patterns - extensive, and above normal rainfall partly associated with the

occurrence of multiple cyclones or persistent drought, that significantly impact pest proliferation causing additional stresses to food security and livelihoods of the most vulnerable communities and populations – case in point: multiple cyclones that occurred in the western Indian Ocean, in the Arabian Peninsula and the Horn of Africa region in less than two years, from May 2018 to December 2019, lead to major SGR upsurges and outbreaks that continued impacting the COR region through 2021 http://www.cpc.ncep.noaa.gov/products/international/casia/casia_hazard.pdf **End note.**

Detailed Accounts of ETOP Situation and a Forecast for the Next Six Weeks are provided below

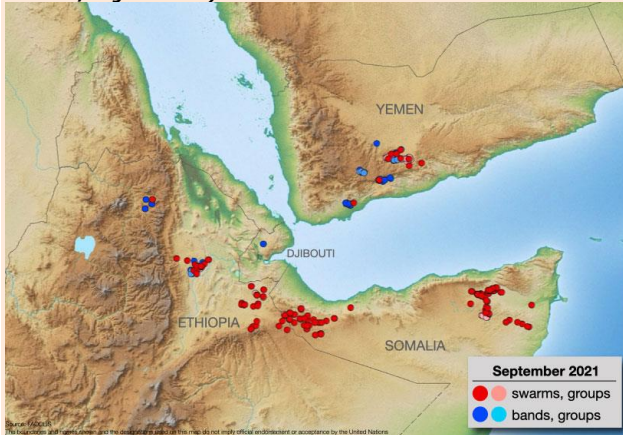
The **Desert Locust** (*Schistoseca gregaria* - **SGR²**): In the central outbreak region (COR), locusts continued to develop in the Horn of Africa in the COR. During late September, immature swarms were sighted in eastern Ethiopia between Dire Dawa, and Jigijiga and immature swarms and late instar hopper bands were detected in Mille, Adaar and Telalak districts in southern parts of Afar region. Aerial and/or ground survey and control operations were undertaken, and locusts were treated on more than 3,567 ha during this month. Immature swarms and hoppers were sighted in northeastern Amhara and northern Tigray regions, but details were not available as ground or aerial access is not possible, a situation which allowed unabated egg laying and hopper developments and leading to fledging and swarm formations possibly over large areas. In Djibouti, the SGR situation remained largely calm except a few 5th instar hopper bands that were detected in 1 ha in Souda during surveys

² Definitions of all acronyms can be found at the end of the report.

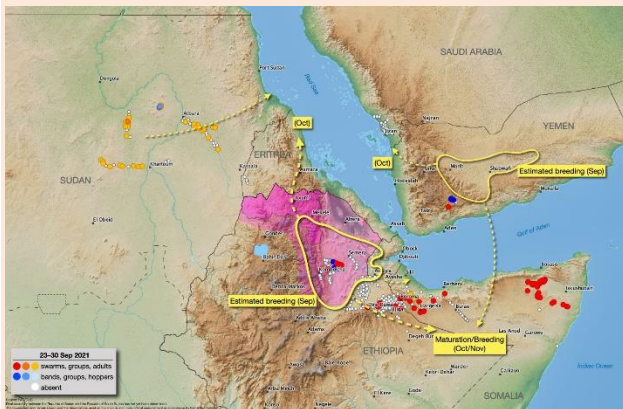
that covered 320 ha in Tadjourah development subregion, but treatment was not necessary. Immature swarms from previous breeding were detected and controlled on 9,972 ha in northern Somalia. Small-scale breeding occurred in Sudan where hopper bands and adult groups were controlled on 1,400 ha. In Eritrea, survey was conducted in summer breeding areas in western lowland around Teseney and Golij sub-regions during late September, but no locusts were seen. Locusts were not detected (by farmer scouts) in winter breeding areas on the Red Sea coastal in Eritrea as well and no locusts were reported in Oman and only a few isolated adults were detected in southern Egypt. Swarms have formed in the interior of Yemen and control operations only treated 417 ha during this month due to resistance from beekeepers (BHA/TPQ, DLCO-EA, DLMCC/Yemen, FAO-DLIS, LLC/Oman, PPD/Eritrea, PPD/Ethiopia, PPD/Sudan, SPPV/Djibouti).

Forecast: In COR, more immature swarms will form in northern Ethiopia and move to the eastern part of the country, and adjacent areas in northern Somalia. Some swarms may also move to the Red Sea coasts in Eritrea where they will mature and begin breeding with the onset of winter rains. In Djibouti there may be swarms arriving from neighboring areas in Ethiopia and northwestern Somalia, but since ecological conditions will likely remain dry, no major development is expected. Swarms will continue forming in the interior of Yemen, and some may move west to the Red Sea coast and southwestern Saudi Arabia, while others could move to the Gulf of Aden coast for winter breeding with a few swarms likely crossing over to northern Somalia and begin breeding at the foothills of winter rain. The situation in Oman is unclear given the torrential rains from cyclone

Sheehan Gulab that made a landfall on October 3rd drenched the northeastern parts of the country (BHA/TPQ, DLMCC/Yemen, FAO-DLIS, LLC/Oman, PPD/Eritrea, PPD/Ethiopia, PPD/Sudan, SPPV/Djibouti).



SGR situation in September (FAO-DLIS)



Locust situation and forecast (FAO-DLIS, 10/1).

SGR – WOR: Although ecological conditions were favorable in the primary outbreak areas in Mali, Mauritania, Morocco (where localized thunderstorms caused moderate rainfall in the southern provinces), and Niger, no major population were reported in these countries or elsewhere, and surveys detected only some breeding scattered solitary adults in Kindal region in Mali during this month (ANLP/Chad, CNLA/Tunisia, CNLAA/Mauritania, CNLAA/Morocco, CNLCP/Mali, FAO-DLIS, NCDLC/Libya).

Forecast: In WOR, significant developments are not expected during the forecast period (ANLP/Chad, CNLA/Tunisia, CNLAA/Mauritania, CNLAA/Morocco, CNLCP/Mali, FAO-DLIS, NCDLC/Libya).

SGR - EOR: The region remained calm, and no locusts were reported in Afghanistan, India, Iran, or Pakistan during this month (FAO-DLIS).

Forecast: Significant developments are not likely in the EOR during the forecast period (FAO-DLIS).

NOTE: *Though at an early stage, innovative technologies, such as drones, for high-resolution images in remote sensing is being explored. On trial bases, use of drones for locust monitoring, and control in localized and sensitive and hard to reach areas showed promising results. While the range of agricultural oriented drones may be limited for large-area pest control purposes, there are interests among countries and partners to work on several parameters associated with such technologies, including air space access protocols and other issues. Crowd sourcing and cloud sourcing for data collection, sharing, etc. is another effort that can be of value to ETOP operations. Dynamic population modeling and biotope modeling, from CIRAD and ICIPE, respectively, and accounting for associated parameters such as soil moisture, vegetation, etc. will likely contribute to better understand ETOP – DL phenology, ecology, habitat range, etc. **End note.***

Red (Nomadic) Locust (NSE): NSE concentrations and swarms persisted in Lake Chilwa/Lake Chiuta plains in Malawi and are believed to have persisted in Buzi Gorongosa and Dimba plains in Mozambique as well as the Kafue Flats in

Zambia. NSE was not reported in Kenya or Zimbabwe during this month (IRLCO-CSA).

Forecast: NSE will start breeding with the onset of the seasonal rain that is expected to commence in November/December 2021. Owing to the presence of considerable amount of residual parental populations in the primary outbreak areas, there is a high risk of successful breeding which could form significant number of hopper bands during January/February 2022. If left uncontrolled the hopper bands will fledge and form swarms (April/May 2022) that could threaten cultivated crops and pasture locally as well as in neighboring countries. There is an urgent need to have the necessary resources made available before the rains make most of the roads impassable and hence pre-positioning the necessary resources remain imperative for a successful abatement of the threat (BHA/TPQ, IRLCO-CSA).

African Migratory Locust (LMI): Isolated low density LMI populations were reported in Sioma and Kazungula districts of Western and Southern Provinces of Zambia, respectively and monitoring was in progress at the time this bulletin was compiled. Although additional information was not available at the time this Bulletin was compiled, it is likely the pest is present in adjacent areas in neighboring countries during this time (BHA/TPQ, IRLCO-CSA).

Malagasy locust (Locust migratoria capito – LMIC): Drought and cold winter season are expected to have slowed down locust developments and movements in previously invaded areas in the southern region in Madagascar. It

is to be recalled that COVID-19 related travel restrictions affected timely staff and material distributions to the affected areas during the early to mid-2021. In anticipation of the next breeding cycle that will follow the beginning of the seasonal rains from October 2021 on, and at the request of MoA/Madagascar, FAO-ECLC has prepared a joint action plan for the next campaign. The action plan focuses on four key components - 1. *Improve monitoring capacity and analysis of the locust situation*, 2. *Strengthen locust control capacity*, 3. *Protect human health safety and the environment as well as* 4. *coordinate and assess the action plan*. Resources have been pledged by the Government of Germany to support the proposed action plan (FAO-ECLC). BHA/TPQ and the Geo team will continue monitoring the situation in collaboration with field staff and provide updates advice as often as necessary.

Active surveillance, monitoring, preparedness and timely preventive and curative interventions are critical to avert significant locust developments and the potential threat they pose to food security and livelihoods of vulnerable communities (BHA/TPQ).

Central American Locust - Schistocerca piceifrons (SPI/CAL): SPI (CAL): CAL is at a low density in Mexico and Guatemala and very low in El Salvador, Honduras and Nicaragua during this month. There may be a slight increase from the 2nd generation sometime in October-November 2021. [Note: Back in May, patches of early nymphs - see picture below - were detected in Central America (CA) and begun developing following the seasonal rain] (Poot-Pech).

Forecast: There may be some aggregation in CA, but significant gregarization of adult groups and swarm formations are unlikely during November. In Mexico and CA in general, preventive control strategies are available at the solitary level using *Metarhizium acridium* and chemical control (Pech).

[**Note:** *CAL* is a pest of economic importance in Mexico and in CA in general and it is known to attack hundreds of species of plants of economic importance, including agave, banana, beans, corn, cotton, peanut, rice, sesame, soybean, sorghum, sugarcane, several fruit trees].



SENESA, Pech – SENESA, Mexico)

South American Locust, *Schistocerca cancellata* (SCA) (a.k.a. Flying lobster): With favorable ecological conditions in place, this species is expected to have continued developing in Argentina where surveillance and control operations are expected to have continued in the outbreak and invasion areas (BHA/TPQ). <https://www.voanews.com/americas/argentina-battles-locust-plague-northern-province>.

In **Mexico**, patches of the Giant Grasshopper, *Tropidacris cristata* were observed previously in coffee crops, but additional update was not available at the time this Bulletin was compiled is not available (Pech).

Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Caucasus and Central Asia (CCA): No update was received at the time this Bulletin was compiled, but DMA and CIT activities are expected to have declined while egg laying of LMI continued in the Caucasus.

Forecast: Overall the locust situation will continue declining in the regions as a whole during the forecast period and some will disappear till next spring (BHA/TPQ) <http://www.fao.org/locusts-cca/en/>

Fall armyworm (FAW): FAW outbreaks were reported affecting irrigated maize in all 8 Agricultural Development Divisions in Malawi, the most affected areas being districts bordering Lake Malawi and Shire Valley. No reports were received from other countries, however, the pest is likely present in other maize growing countries in Africa, Asia and/or elsewhere where maize crops are in season or are under irrigation schemes (BHA/TPQ, IRLCO-CSA).

Forecast: FAW is likely to continue affecting rain-fed and/or irrigated maize and other cereal crops across sub-Saharan Africa, Asia, the Pacific Regions and elsewhere during the forecast period. *Active monitoring, surveillance, reporting, and timely control interventions remain critical to prevent any major damage to crops that can severely affect food security and economic well-being of resource challenged peoples and communities across FAW prone countries (BHA/TPQ).*

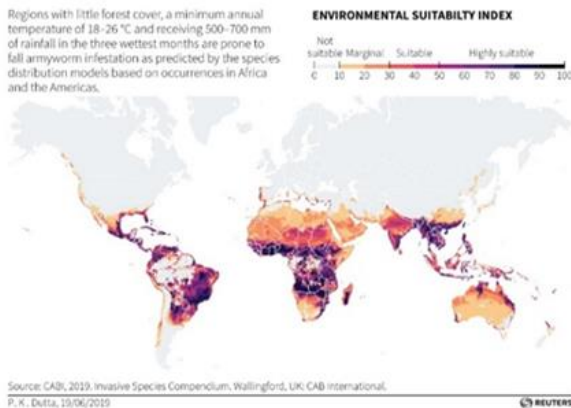
NOTE: The Food and Agriculture Organization of the United Nations (FAO) engaged in a transformative, coordinated Global Action for Fall Armyworm Control (GAFC). With an estimated total budget of USD 500 million (USD 450 million for

the Global Action and USD 50 million for Global Coordination), GAFC is planned to be implemented in 65 [target] countries across Africa, Near East and Asia-Pacific from 2020 to 2022.

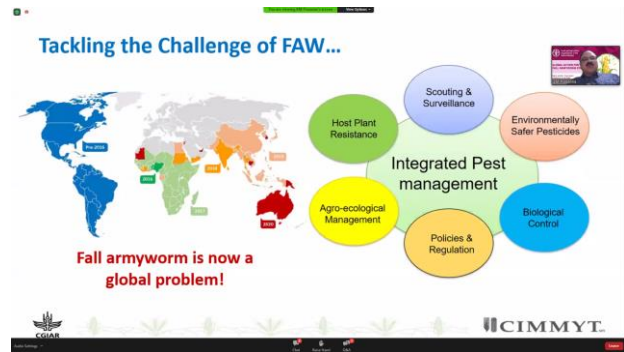
The GAFC is a pioneering initiative that aims to take radical, direct, and coordinated measures to fight FAW at a global level with the 3 key objectives to:

1. Establish a global coordination and regional collaboration on monitoring, early warning, and intelligent pest management of FAW:
2. Reduce crop losses caused by FAW and
3. Reduce the risk of further spread of FAW to new areas (Europe and South Pacific).

Areas suitable to Fall Armyworm



BHA/TPQ is working with various partners on innovative intervention projects to benefit small-scale farming communities in affected countries with the intention to scale-up gains across different FAW prone regions and consistent with the spirit of GAFC. These initiatives build on experiences gained over the past several years, including outcomes of projects and programs supported through legacy OFDA, legacy BFS, CGIARs, FAO, national partners, and several other entities.



(Source: Prasanna, 2021)

Note: Several species of natural enemies of FAW have been identified in Ethiopia, Kenya, Tanzania, Madagascar, India and elsewhere and are under rigorous investigations to determine their efficacy, effectiveness, environmental impacts, safety, and other relevant parameters before they are released for extensive use. **End note.**

African Armyworm (AAW): AAW was not reported in outbreak and/or invasion areas during this month (BHA/TPQ, IRLCO-CSA).

Forecast: Significant AAW appearance is not likely during the forecast period. However, with the onset of the seasonal rain in the making, it is critical trap operators replenish their traps and begin closely monitoring and situation and inspecting their traps accordingly (BHA/TPQ, IRLCO-CSA).

Note: Legacy OFDA developed printable and web-based interactive maps for AAW: <http://usaid.maps.arcgis.com/apps/View/index.html?appid=8ff7a2eefbee4783bfb36c3e784e29cb> BHA/TPQ is considering a similar map for the CBFAMFEW countries.

Quelea species (QSP): In the IRLCO-CSA member states, QSP outbreaks were reported affecting irrigated wheat growing Provinces in Zimbabwe, but

details were not available at the time this Bulletin was compiled and QSP activities were not reported in other IRLCO-CSA member states during this time. The likelihood of QSP affecting in-season and/or irrigated small grain crops across regions and continents is likely (BHA/TPQ, IRLCO-CSA).

Forecast: QSP outbreaks are likely to continue being a problem to in-season and/or irrigated small grain cereal growing areas (BHA/TPQ, IRLCO-CSA).

Facts: QSP can travel ~100 km/day in search of food. An adult QSP can consume 3-5 grams of small grain and destroy the same amount each day. A medium density QSP colony can contain up to a million or more birds and is capable of consuming and destroying 6,000 kg to 10,000 kg of seeds/day – amount enough to feed 12,000-20,000 people/day (TPQ/P&PM).

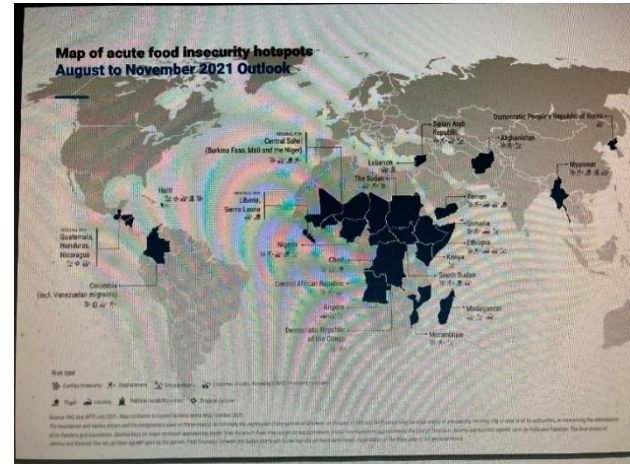
Rodents: No update was received during this month, but it is likely that the pest continues being a problem to pre- and post-harvest crops and produce across regions and will remain being a problem (BHA/TPQ).

FACTS: On average, an adult rat can consume 3-5 gm of food (grain, etc.) per day; a population of 200 rats/ha (a very low density/unit area) can consume a quantity enough to feed an adult sheep/day, not to mention the multiple times that amount of food the rats can damage, destroy, and contaminate making it unfit for human consumption; rats are also zoonotic diseases vectors and transmitters.

NOTE: Acute food insecurity hotspots outlook – the below map shows several countries and regions that are exposed to and/or are food insecure and vulnerable

to ETOP invasions, including locusts, FAW and several other stressors, such as drought, COVID pandemic, flooding, conflicts, etc. (Map source: FAO-WFP, August to November 2021 prediction).

END NOTE



All ETOP front-line countries must maintain regular monitoring and surveillance operations as well as launch control interventions in a timely manner. Regular crop scouting is critical to avoid damage /losses. Invasion countries must also remain on alert. Regional and national ETOP entities - DLCO-EA, IRLCO-CSA, DLCCs, DLMCC, CNLAs, ELOs, National DPVs and PPDs, etc., are encouraged to continue sharing ETOP information with stakeholders, including neighboring countries, and humanitarian and development partners, etc., as often as possible. Lead farmers, field scouts, community forecasters and others must remain vigilant and report ETOP detections to relevant authorities in their jurisdiction as quickly and as often as possible.

Strong surveillance, monitoring and quarantine enforcement remain critical to prevent invasive pest species.

BHA's Contributions to ETOP Abatement Interventions

USAID/BHA/TPQ is supporting operational research through a DRR with Arizona State University to develop a tool to manage the Senegalese grasshopper (OSE) with a vision for translating the usability of these tools across regions and perhaps across continents.

OSE is a notorious pest of cereal and vegetable crops and pasture and causes serious damage to small-holder farmers across wide geographic coverage extending from the Canneries to Cape Verde to nearly all sub-Saharan Africa regions to India and beyond. This pest occurs more frequently than several other grasshopper/locust species and is a constant threat to farmers and pastoralists.

USAID/BHA/TPQ will continue its support through a DRR project to strengthen national and regional capacity of the Caucasus and Central Asia (CCA) countries that are constantly affected by three major locust species – Moroccan locust, Italia locust and the Migratory locust. These locusts affect food security and livelihoods of more than 25 million people across CCA regions.

USAID/BHA/TPQ continues with its efforts and supports for applied/operational research in testing, improving, and expanding innovative technologies to help minimize the impacts of ETOPs on food security and livelihoods of vulnerable peoples and communities across low-income countries and regions and promotes and encourages collaboration among countries and potential partners.

The online Pesticide Stock Management System (PSMS) that was developed by FAO with financial assistance from

donors, including USAID Legacy OFDA, that continued benefiting participating countries across the globe was halted due to an IT issue - internet security and server switch. FAO is working on reinstating the system. Thanks to the system, SGR frontline countries and others had been able to effectively manage their strategic [pesticide] stocks and avoid unnecessary accumulations of unusable stocks and empty containers.

Note: A sustainable Pesticide Stewardship (SPS) can contribute to strengthening pesticide delivery system (PDS) at the national and regional levels. A viable SPS can be effectively established by linking key stakeholders across political boundaries and geographic regions. A strong and viable PDS can effectively reduce pesticide related human health risks, minimize environmental pollution, reduce pest control costs, improve food security, and contribute to the national economy. **End note.**

BHA/TPQ promotes an IPM approach, consistent with the Agency policies and procedures, to help minimize health risks and environmental contamination associated with misuse and management of pesticides. An informed procurement and judiciously executed triangulations of surplus usable stocks between countries is worth considering.

Inventory of Strategic Pesticide Stocks for SGR Control

During September, aerial and ground operations treated 3,657 ha in Ethiopia, 9,972 ha in Somalia, 1,400 ha in Sudan and 417 ha in Yemen (BHA/TPQ, FAO-DLIS, PPD/Ethiopia).

Table 1. Estimated inventory of strategic SGR Pesticide Stocks in frontline and invasion countries.

Country	Quantity, l/kg*
Algeria	1,186,034~
Chad	65,270
Egypt	10,253 ULV, 45,796~
Eritrea	10,750~
Ethiopia	110,543~
Libya	24,930~
Kenya	
Madagascar	206,000~ + 100,000 ^D
Mali	3,540~
Mauritania	39,803~
Morocco	3,412,374 ^D
~Niger	75,701~
Oman	5,000
Saudi Arabia	23,379~
Senegal	156,000~
Somalia	
Sudan	103,482~
South Sudan	
Tunisia	62,200 obsolete
Uganda	
Yemen	10,000; 180 kg GM

*Includes different pesticides and formulations - ULV, EC and dust.

~ data may not be current.

^D = Morocco donated 100,000 l of pesticides to Madagascar and 10,000 l to Mauritania in 2015 through triangulation

^D = In 2013 Morocco donated 200,000 l to Madagascar

^D = Saudi donated 10,000 to Yemen and pledged 20,000 l to Eritrea

^{DM} = Morocco donated 30,000 l of pesticides to Mauritania

GM = *GreenMuscle*TM (fungal-based biological pesticide, e.g., NOVACRID)

LIST OF ACRONYMS

AAW *African armyworm (Spodoptera exempta)*

AELGA *Assistance for Emergency Locust Grasshopper Abatement*

AFCS *Armyworm Forecasting and Control Services, Tanzania*

AfDB *African Development Bank*

AGRA *Agricultural Green Revolution in Africa*

AME *Anacridium melanorhodon (Tree Locust)*

APLC *Australian Plague Locust Commission*

APLC *Australian Plague Locust Commission Bands groups of hoppers marching pretty much in the same direction*

ASARECA *Association for Strengthening Agricultural Research in Eastern and Central Africa*

BHA *Bureau for Humanitarian Assistance*

CABI *Center for Agriculture and Biosciences International*

CAC *Central Asia and the Caucasus*

CBAMFEW *Community-based armyworm monitoring, forecasting and early warning*

CERF *Central Emergency Response Fund*

CIT *Calliptamus italicus (Italian Locust)*

CLCPRO *Commission de Lutte Contre le Criquet Pélerin dans la Région Occidentale (Commission for the Desert Locust Control in the Western Region)*

CNLA(A) *Centre National de Lutte Antiacridienne (National Locust Control Center)*

COR *Central SGR Outbreak Region*

CPD *Crop Protection Division*

CRC *Commission for Controlling Desert Locust in the Central Region*

CTE *Chortoicetes terminifera (Australian plague locust)*

DDLC *Department of Desert Locust Control*

DLCO-EA *Desert Locust Control Organization for Eastern Africa*

DLMCC	Desert Locust Monitoring and Control Center, Yemen	L	Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)
DMA	<i>Dociostaurus maroccanus</i> (Moroccan Locust)	LCC	Locust Control Center, Oman
DPPQS	Department of Plant Protection and Quarantine Services, India	LMC	<i>Locusta migratoriacapito</i> (Malagasy locust)
DPV	Département Protection des Végétaux (Department of Plant Protection)	LMI	<i>Locusta migratoria migratorioides</i> (African Migratory Locust)
ELO	EMPRES Liaison Officers –	LPA	<i>Locustana pardalina</i>
EMPRES	Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases	MoAFSC	Ministry of Agriculture, Food Security and Cooperatives
EOR	Eastern SGR Outbreak Region	MoAI	Ministry of Agriculture and Irrigation
ETOP	Emergency Transboundary Outbreak Pest	MoARD	Ministry of Agriculture and Rural Development
Fledgling	immature adult locust /grasshopper that has pretty much the same phenology as mature adults, but lacks fully developed reproductive organs to breed	NALC	National Agency for Locust Control
GM	GreenMuscle® (a fungal-based biopesticide); NOVACRID, Green Guard	NCDLC	National Center for the Desert Locust Control, Libya
ha	hectare (= 10,000 sq. meters, about 2.471 acres)	NOAA (US)	National Oceanic and Aeronautic Administration
ICAPC	IGAD’s Climate Prediction and Application Center	NPS	National Park Services
IGAD	Intergovernmental Authority on Development (Horn of Africa)	NSD	Republic of North Sudan
IRIN	Integrated Regional Information Networks	NSE	<i>Nomadacris septemfasciata</i> (Red Locust)
IRLCO-CSA	International Red Locust Control Organization for Central and Southern Africa	OFDA	Office of U.S. Foreign Disaster Assistance
ITCZ	Inter-Tropical Convergence Zone	PBB	Pine Bark Beetle (<i>Dendroctonus</i> sp. – true weevils)
ITF	Inter-Tropical Convergence Front = ITCZ)	PHD	Plant Health Directorate
FAO-DLIS	Food and Agriculture Organizations’ Desert Locust Information Service	PHS	Plant Health Services, MoA Tanzania
Hoppers	young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)	PPD	Plant Protection Department
JTWC	Joint Typhoon Warning Center	PPM	Pest and Pesticide Management
Kg	Kilogram (~2.2 pound)	PPSD	Plant Protection Services Division/Department
		PRRSN	Pesticide Risk Reduction through Stewardship Network
		QSP	<i>Quelea</i> species (Red Billed <i>Quelea</i> bird)
		SARCOF	Southern Africa Region Climate Outlook Forum
		SCA	<i>Schistocerca cancellata</i> (South American Locust)
		SFR	<i>Spodoptera frugiperda</i> (SFR) (Fall armyworm (FAW))
		SGR	<i>Schistoseca gregaria</i> (the Desert Locust)
		SPI	<i>Schistocerca piceifrons piceiferons</i> (Central American Locust)

SSD *Republic of South Sudan*
SPB *Southern Pine Beetle (Dendroctonus frontalis) – true weevils*
SWAC *Southwest Asia DL Commission*
PBB *Pine Bark Beetle*
PSPM *Preparedness, Strategic Planning and Mitigation (formerly known as Technical Assistance Group - TAG)*
TPQ *Technical Program and Quality Triangulation The process whereby pesticides are donated by a country, with large inventories, but often no immediate need, to a country with immediate need with the help of a third party in the negotiation and shipments, etc. Usually, FAO plays the third-party role in the case of locust and other emergency pests.*
UF *University of Florida*
USAID *the United States Agency for International Development*
UN *the United Nations*
WOR *Western SGR Outbreak Region*
ZEL *Zonocerus elegans, the elegant grasshopper*
ZVA *Zonocerus variegatus, the variegated grasshopper, is emerging as a relatively new dry season pest, largely due to the destruction of its natural habitat through deforestation, land clearing, etc. for agricultural and other development efforts and due to climate anomalies*

Point of Contact:

For additional information or questions, comments, or suggestions, etc., please reach out to:

Yeneneh T. Belayneh, PhD
Senior Technical Advisor and Project Manager, USAID/BHA/TPQ:
ybelayneh@usaid.gov

Tel.: + 1-703-362-5721 (mobile)

To learn more about our activities and programs, please, visit our website:

[USAID/BHA PPM Web](#)

Additional resources on SGR and other ETOPs

SGR

USAID Pest Monitoring: [USAID/BHA PPM Web](#)

Archived ETOP Bulletins:

<https://www.usaid.gov/what-we-do/working-crises-and-conflict/responding-times-crisis/how-we-do-it/humanitarian-sectors/agriculture-and-food-security/pest-and-pesticide-monitoring/archive>

UN/FAO Desert Locust Watch

<http://www.fao.org/ag/locusts/en/info/info/index.html>

FAO Locust Hub

<https://locust-hub-hqfao.hub.arcgis.com/>
FAO Locust Emergency Appeal for Greater Horn of Africa and Yemen
http://www.fao.org/fileadmin/user_upload/emergencies/docs/Greater%20Horn%20of%20Africa%20and%20Yemen%20%20Desert%20locust%20crisis%20appeal%20%20May%202020.pdf

<http://www.fao.org/emergencies/crisis/desertlocust/en/>

FAO visuals on SGR

<http://tv.fao.org/>

FAO Desert Locust Crisis

<http://www.fao.org/emergencies/crisis/desertlocust/en/>

<http://www.fao.org/ag/locusts/en/info/info/index.html>

CIT, DMA and LMI – FAO-PPPD

<http://www.fao.org/locusts-cca/en/>

DLCO-EA

<http://www.dlco-ea.org/final/index.php/about-us>

FAO/Central Region Locust Control Commission

<http://desertlocust-crc.org/Pages/index.aspx?CMSId=8&lang=EN>

FAO/Western Region Locust Control Commission

<http://www.fao.org/clcpro/fr/>

FAO Locust Watch - Central Asia and Caucasus

<http://www.fao.org/locusts-cca/en/>

IGAD Climate Predication and Application Centres

<https://www.icpac.net/news/desert-locust-projection-october-2020/>

USAID supports for locust operations in the CAC Region:

<http://www.fao.org/locusts-cca/programme-and-donors/projects-donors/en/>

FAO SGR Response Overview Dashboard

<http://www.fao.org/locusts/response-overview-dashboard/en/>

FAO Locust Hub

<https://locust-hub-hqfao.hub.arcgis.com/>
<http://www.fao.org/ag/locusts/en/activ/DLIS/eL3suite/index.html>

FAW

USAID FtF FAW

<https://www.agrilinks.org/post/fall-armyworm-africa-guide-integrated-pest-management>

<http://www.cabi.org/isc/datasheet/29810>

<http://www.fao.org/emergencies/resources/maps/detail/en/c/1110178/>

USAID FAW PEA/PERSUAP

<https://ecd.usaid.gov/repository/pdf/50065.pdf>

FAO FAW Monitoring and Early warning System

<http://www.fao.org/3/CA1089EN/ca1089en.pdf>

FAO-USAID Global Action for FAW Control webinars <http://www.fao.org/fall-armyworm/education/webinars/en/>

FAO NURU FAW Application

<http://www.fao.org/news/story/en/item/1141889/icode/>

<https://acbio.org.za/sites/default/files/documents/BT%20Maize%20Fall%20Army%20Worm%20report.pdf>

<https://www.invasive-species.org/wp-content/uploads/sites/2/2019/03/Fall-Armyworm-Evidence-Note-September-2017.pdf>

FAW management animation SAWBO

<https://sawbo-animations.org/video.php?video=//www.youtube.com/embed/5rxlpXEK5g8>

AAW

<http://www.armyworm.org/latest-armyworm-forecast-irlco-csa-oct-2018/>

FEWS NET

<https://fews.net/>

NOAA CPC

<https://www.cpc.ncep.noaa.gov/products/international/itf/itcz.shtml>