

Emergency Transboundary Outbreak Pest (ETOP) Situation Bulletin for June with a forecast through mid-August 2022
résumé en français est inclus

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**¹): The desert locust (SGR) situation remained calm in the Central Ourt Outbreak Region (COR) during June. Only a few adults were detected in the River Nile region in Sudan, and some adults persisted in southeast Egypt during this month. In the Western outbreak region (WOR) a few adults were detected in central and southern Sahara of Algeria. No locusts were reported in the Eastern outbreak region (EOR).

Forecast: In COR, with the onset of the summer rains, small-scale breeding is likely in western Eritrea and the interior of Sudan and Yemen, and isolated breeding is likely in northeast Ethiopia. In WOR, small-scale breeding is likely in northern Mauritania, Mali, Niger, and Chad with the onset of the seasonal rains. In EOR, small-scale breeding is likely along both sides of the Indo-Pakistan borders at the foothills of the monsoon rains, but significant developments are not expected.

Red (Nomadic) Locust (*Nomadacris septemfasciata*) (NSE): NSE likely to develop with immature adults appearing in the primary outbreak areas in Malawi, Mozambique, Tanzania, and Zambia.

African Migratory Locust (*Locusta migratoria migratorioides*) (AML): Isolated to scattered population of African Migratory Locust (AML) persisted in Simalaha Plains, Zambia. No reports of the pest were received in Zimbabwe.

Malagasy locust (*Locust migratoria capito*) (LMC): In Madagascar, aerial and ground survey and control operations continued against LMC (and NSE).

Tree Locusts, *Anacridium spp.* (ASP): ASP activities were not reported during this month.

Central American Locust, *Schistocerca piceiferons* (CAL): CAL remains calm in Central America and only a few solitary hoppers and transient populations were detected in Mexico and Guatemala, respectively.

South American Locust, *Schistocerca cancellata* (SAL): No update was received at the time this bulletin was compiled.

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

Italian (CIT), Moroccan (DMA), and Asian Migratory Locusts (LMI): No updates were received, but DMA is expected to have continued developing in Central Asian and neighboring countries.

Fall Armyworm (*Spodoptera frugiperda*, J. E. Smith) (FAW): FAW infestations continued affecting maize and other cereal crops in Ethiopia, Kenya, Malawi and Tanzania, where control operations were launched by the affected farmers with assistance from their respective line Ministries.

African Armyworm (*Spodoptera exempta*) (AAW): AAW outbreaks were reported in Ethiopia and Kenya control operations were carried out by the affected farmers with assistance from the MoAs.

Quelea species (QSP): QSP outbreaks were reported in Ethiopia, Kenya Tanzania, Uganda and Zimbabwe where the pest was causing damage to millet, rice, sorghum and/or wheat. Aerial operations are launched by DLCO-EA in all countries in collaboration with the respective MoAs.

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 National MoA PPDs/DPVs/PHSSs, 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 (please refer to list of acronyms on the last pages). **End summary**

RÉSUMÉ

La situation du Criquet pèlerin (*Schistoseca gregaria* - SGR): La situation relative au criquet pèlerin (SGR) est restée calme dans la région centrale de l'Ourt (COR) en juin. Seuls quelques ailés ont été détectés dans la région du Nil au Soudan, et quelques ailés ont persisté dans le sud-est de l'Égypte au cours de ce mois. Dans la région ouest du foyer (WOR), quelques adultes ont été détectés dans le centre et le sud du Sahara algérien. Aucun Criquet pèlerin n'a été signalé dans la région orientale de la résurgence (EOR).

Prévisions: Dans le COR, avec le début des pluies estivales, une reproduction à petite échelle est probable dans l'ouest de l'Érythrée et l'intérieur du Soudan et du Yémen, et une reproduction isolée est probable dans le nord-est de l'Éthiopie. Dans la région WOR, une reproduction à petite échelle est probable dans le nord

de la Mauritanie, au Mali, au Niger et au Tchad avec le début des pluies saisonnières. Dans la région EOR, une reproduction à petite échelle est probable le long des deux côtés des frontières indo-pakistanaïses au pied des pluies de mousson, mais des développements significatifs ne sont pas attendus.

Criquet nomade (*Nomadacris septemfasciata* - NSE): NSE est susceptible de se développer avec des adultes immatures apparaissant dans les principales zones de foyer au Malawi, au Mozambique, en Tanzanie et en Zambie.

Criquet migrateur africain (AML/LMI): Des populations isolées à dispersées de Criquet migrateur africain (AML) ont persisté dans les plaines de Simalaha, en Zambie. Aucun signalement du ravageur n'a été reçu au Zimbabwe.

Criquet migrateur capito, (ML/LMC): A Madagascar, les opérations de prospection et de lutte aériennes et terrestres se sont poursuivies contre le LMC (et la NSE).

Le criquet arborial, *Anacridium spp*: (ASP): Les activités de l'ASP n'ont pas été signalées au cours de ce mois.

Criquet Amérique centrale (CAL): CAL reste calme en Amérique centrale et seules quelques larves solitaires et populations transitoires ont été détectées au Mexique et au Guatemala, respectivement.

Criquet d'Amérique du Sud, *Schistocerca cancellata* (SAL): Aucune mise à jour n'a été reçue au moment de la rédaction de ce bulletin.

Criquets italiens (CIT), marocains (DMA), Asian Migratory Locust (LMI): Aucune mise à jour n'a été reçue, mais le DMA devrait avoir continué à se développer en Asie centrale et dans les pays voisins.

Chenille Légionnaire d'automne (*Spodoptera frugiperda*, J. E. Smith) (FAW): Les infestations de légionnaire d'automne ont continué d'affecter le maïs et d'autres cultures céréalières en Éthiopie, au Kenya, au Malawi et en Tanzanie, où des opérations de lutte ont été lancées par les agriculteurs touchés avec l'aide de leurs ministères de tutelle respectifs.

Chenille Légionnaire africaine (*Spodoptera exempta*) (AAW): Des foyers de peste porcine africaine (AAW) ont été signalés en Éthiopie et au Kenya. Des opérations de lutte ont été menées par les agriculteurs touchés avec l'aide des MoA.

Quelea specis oiseaux (QSP): Des foyers de QSP ont été signalés en Éthiopie, au Kenya, en Tanzanie, en Ouganda et au Zimbabwe, où le ravageur causait des dégâts au mil, au riz, au sorgho et/ou au blé. Les opérations aériennes sont lancées par DLCO-EA dans tous les pays en collaboration avec les MoA respectifs.

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 MoA / 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 (se référer à la liste des acronymes sur les dernières pages). Fin de résumé.

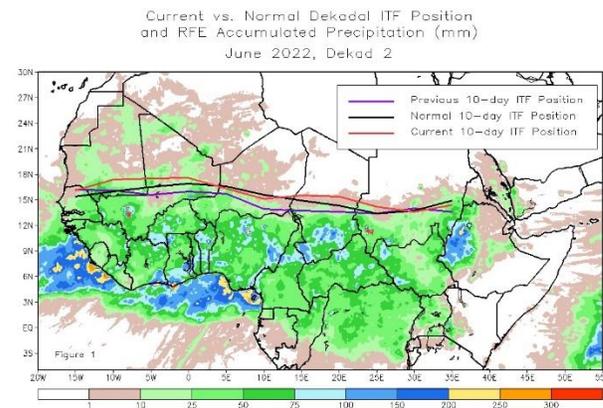
Note: All ETOP Bulletins, including previous issues can be accessed and downloaded on USAID Pest and Pesticide Monitoring website: [USAID Pest and Pesticide Monitoring](#)

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

Weather and Ecological Conditions

During 2nd dekad of June from 11-20, the Intertropical front (ITF) moved north, comparable to its previous position. This resulted in an overall anomalous northerly position. The western (10W-10E) portion of the ITF was located approximately at 16.8N, which was above the climatology position by 0.5 degree. The eastern (20E-35E) portion of the ITF was approximated at 14.4N, which was above the climatological position by 0.3 degree. Figure 1 displays the current position of the ITF relative to the long-term average position during the 2nd

dekad of June and its previous position during the 1st dekad of June.



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

2022 NOAA, 6/22). Figure 1.

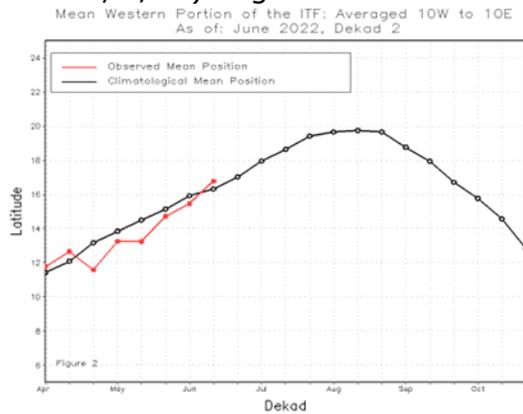
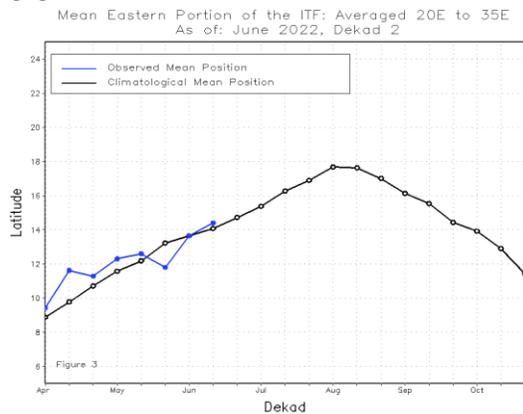
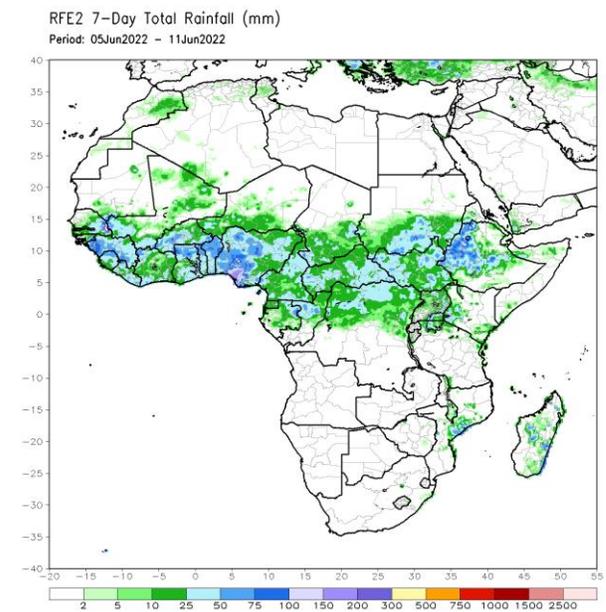


Figure 3.



During the 1st dekad of June, 2022, in East Africa, rainfall was above-average over parts of western and central Ethiopia, eastern South Sudan, and Sudan, while below-average rainfall was observed over western South Sudan and a small part of southwestern Ethiopia. In Central Africa, rainfall was above-average over parts of Congo, Gabon, and eastern Chad. Below-average rainfall was observed over Cameroon, DRC, CAR, parts of Congo, and much of Chad. In West Africa, above-average rainfall was observed over Guinea, Sierra Leone, parts of western Mali, eastern Senegal, Burkina Faso, northern Ghana, Togo, Benin and western Nigeria. Meanwhile, rainfall was below-average over Liberia, Cote D'Ivoire, southwestern Ghana, eastern Nigeria, and parts of southern Mali (see map below, NOAA,

June 2022).



Forecast Week-1 (2nd dekad) outlook calls for an increased chance for below-average rainfall over parts of the central Sahel, and portions of East Africa, including Uganda Southern South Sudan and central Ethiopia. Meanwhile, above-average rainfall is likely over the Gulf of Guinea Countries, as well as CAR in Central Africa. Week-2 outlook suggests an increased chance for below-average rainfall over parts of the central Sahel, and portions of East Africa, including Uganda southern South Sudan and southwestern Ethiopia, while above-average rainfall is likely over parts West Africa stretching from Guinea through Benin, as well as eastern Ethiopia.

In **EOR**, dry and unfavorable conditions persisted with no significant precipitation recorded.

Dry conditions prevailed in most of the **NSE** regions during June except for some rain received in a few locusts breeding places in Mozambique - Mafambisse (Buzi plain) 30.0, Gorongosa (Gorongosa plain)

26.0, Caia (Dimba plains) 31.0, Buzi 27.0 and Dimba 3300.ml.

In CCA variable temperature and precipitation were observed during early May and previous period.

Level of precipitation over the past months has been generally below average in the Central America and South America locust breeding regions except from hurricane Agatha during May.

ETOP Proliferation and Climatic Factors

Note: Climate change induced weather anomalies contribute to an ecological shift in ETOP habitats, triggering risks in the outbreaks and resurgence of ETOPs and/or the emergence of new and invasive pest species. The frequency, extent and payload of ETOP prevalence, appearances, 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 presence, proliferation causing additional stresses to food security and livelihoods of 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 within a time span of 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 Monthly ETOP Situation and Forecast for the Next Six Weeks

The **Desert Locust** (*Schistoseca gregaria* - **SGR**²): In COR, the SGR situation remained calm during June. Only low numbers of adults persist in southeast Egypt and a few immature and mature adults were detected in the River Nile region in Sudan.

Forecast: Small-scale breeding will occur in western Eritrea and the interior of Sudan and Yemen with the onset of the summer rains, and isolated breeding may occur in northeast Ethiopia. Overall, locust numbers are expected to remain low in all breeding areas, and significant developments are unlikely.

SGR – WOR: In WOR, only a few adults were detected in central and southern Sahara of Algeria, and no locusts were reported elsewhere in the region during this month.

Forecast: Small-scale breeding is likely in northern Mauritania, Mali, Niger, and Chad with the onset of the summer rains. Locust numbers are expected to remain low, and significant developments are unlikely.

SGR - EOR: The EOR region remained calm, and no locusts were reported during June.

Forecast: Small-scale breeding will occur along both sides of the Indo-Pakistan borders with the onset of the monsoon rains, but locust numbers are expected to remain low.

Note: Most summer breeding areas are likely to receive above-normal rains from

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

July to September due to a persistent La Niña and a negative Indian Ocean Dipole that are expected to be related to high level of precipitation (FAO-DLIS). **End note.**

NOTE – Innovative Technologies for ETOP Surveillance, Early Warning and Forecasting for Stronger and Effective ETOP Management: Though at a relatively early stage for ETOP interventions, innovative technologies, such as drones, for high-resolution images in remote and hard-to-reach inaccessible areas are being explored. On trial bases, use of drones for locust monitoring, and surgical and localized control in sensitive, and hard to reach areas showed promising results. While the range of agriculture-oriented drones may be limited for large-scale area-wide ETOP interventions, such as tackling massive swarms and hopper bands, countries and partners have expressed interests to pursue supporting work on key parameters associated these technologies, including air space access protocols and other issues. Crowd and cloud sourcing for data collection, sharing, etc. are another set of assets that can be of great value for ETOP operations. Dynamic population and biotope modeling, from CIRAD and ICIPE, respectively, and accounting for associated parameters such as soil moisture, vegetation index, etc. that involved multiple partners – USAID, Penn-FAO, NOAA, NASA, CIRAD, ICIPE, National and International Research institutions, academia, private sector, and many more will certainly contribute to better understand ETOP – DL phenology, ecology, habitat range, etc. with an ultimate goal to manage them safely and effectively. **End note.**

Red (Nomadic) Locust (NSE): NSE immature adults were expected to be present in all primary outbreak areas.

Forecast: As vegetation continuous drying out, locusts will be forced to concentrate and start forming swarms. Swarms are likely to develop in Lake Chilwa/Lake Chiuta plains, Mpatsanjoka Dambo in Malawi; Kafue Flats in Zambia; Iku-Katavi plains, Wembere plains and Malagarasi Basin in Tanzania; Buzi Gorongosa, Dimba plains in Mozambique. Ministry of Agriculture Tanzania and IRLCO–CSA will undertake survey operations in Red Locust outbreak areas located in Tanzania early July 2022.

IRCO-CSA continues its appeals to its member states for resources to undertake timely survey and control operations so as to prevent swarms from forming and posing a threat to food security of affected communities.

African Migratory Locust (AML):

Isolated, scattered AML populations were reported in Simalaha Plains in Zambia, but no reported were received elsewhere during this month.

Forecast: AML may begin appearing in the southern regions during the forecast period, but significant development is not likely.

Malagasy locust (Locust migratoria capito – MLC): The campaign against LMC and NSE continued and through.

Forecast: Aerial and ground survey and control operations continue in affected areas. Active and timely surveillance, monitoring and preventive interventions remain essential to minimize locust threats to food security and livelihoods of vulnerable communities.

BHA/TPQ continuous monitoring the situation in collaboration with FAO and field staff and provide updates and advice.

Central American Locust -

Schistocerca piceifrons (CAL): CAL situation remains calm in Mexico and Central America as a whole largely due to low precipitation during this season. Only solitary hoppers were detected in Mexico and a few transient gregarious populations were reported in Guatemala.

Forecast: Should the seasonal rains improve in primary outbreak areas in CA during the coming months, CAL populations could gradually increase.

[**Note:** CAL is a serious pest in 10 states in Mexico (Campeche, Chiapas, Hidalgo, Oaxaca, San Luis Potosí, Tabasco, Tamaulipas, Veracruz, Quintana Roo and Yucatán - MoA/México), and in CA region, 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 (Pech, CESVY-SENASICA, Mexico)

South American Locust, Schistocerca cancellata (SAL) (a.k.a. Flying lobster): No update was received at the time this bulletin was compiled.

<https://www.voanews.com/americas/argentina-battles-locust-plaque-northern-province>.

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. However, DMA hatching, and hopper development is expected to be in progress in all Central Asian and some Caucus countries. CTI or LMI are also

expected to have gradually begun appearing in the primary outbreak areas in the regions.

Forecast: DMA will continue developing across the CAC regions, and CIT hatching will continue in all Caucasus and Central Asia (CCA) countries while Asian Migratory Locust (LMI) will begin hatching the Caucus region, but no major development is expected.

Fall armyworm (FAW): FAW infestations were reported in 23 zones and 111 districts of Oromia, SNNPR, and Southwestern and Gambella Administrative regions in Ethiopia. The pest was reported affecting 117,817 ha of maize crop. Control operations were carried out on 66,441 ha – 14,306 with pesticides and 52,104 ha with cultural means. FAW was also reported causing damage to maize crop in Western, Rift Valley and Central regions in Kenya. In Malawi, mild infestations of the pest were reported in irrigated maize across the country, and affected farmers carried out control with material and technical support from the Ministries of Agriculture.

FAW is expected to have continued causing damage to crops across other parts of the world where it had invaded since its first ever detection on the African continent in early 2016.

FORECAST: FAW infestations will likely continue in irrigated and seasonal maize, sorghum and other cereal growing regions across sub-Saharan Africa, Asia, and elsewhere during the forecast period.

FAO-led Global Action for Fall Armyworm Control

NOTE: The Food and Agriculture Organization of the United Nations (FAO)

is actively engaged in a transformative, coordinated Global Action for Fall Armyworm Control (GAFC) which it launched in December 2019 as an urgent response to the rapid spread of FAW. GAFC is intended to be implemented in 65 [target] countries across Africa, Near East and Asia-Pacific from 2020 to 2022: [FAW Secretariat, Global Action on FAW Control](#).

GAFC is a pioneering initiative that aims to take radical, direct, and coordinated measures to fight FAW at a global level. Its 3 key objectives are: 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).

BHA/TPQ is working closely with various partners in implementing projects that are to benefit farming communities and host-gov partners with the intention to scaling up and spreading gains across different FAW prone regions, 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, national partners, CGIARs, FAO, 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 (Spodoptera exempta, Walker) (AAW): AAW infestations were reported in several countries. In Ethiopia, outbreaks continued in Oromia, SNNPR, Amhara, Sidama, Benishangul and Gambella administrative regions, where 37 zones and 185 districts have been affected. 265,585 ha of millet, wheat, Teff, maize and sorghum crops and grazing land were reported infested. Both cultural and chemical means of control covered an estimated 157,459 ha (76,337 cultural and 81,122 chemical). In Kenya, new outbreaks of AAW were reported in Nakuru and Samburu counties, and control operations were ongoing with the support of the PP&FSD.

Forecast: With its northward migration following the ITF trajectory, AAW infestations will be gradually winding down in Kenya and southern regions of Ethiopia while it will likely begin appearing and increasing in the northerly parts of the country and perhaps southern Eritrea. Surveillance and timely preventive interventions remain critical to minimize any crop or pasture damage the pest could cause.

Active monitoring, reporting and timely control interventions remain critical to avert any major threat/damage to food security and livelihoods of affected communities.

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): QSP outbreaks were reported in several countries in the Horn and Eastern Africa. In Ethiopia, QSP outbreaks were reported in Konso and Derashe in SNNPR, and deployment of aerial operations were under preparation at the time this bulletin was compiled. In Kenya, outbreaks were reported in Narok and Kisumu counties where the birds were causing damage to wheat (in Narok) and rice (in Kisumu). Aerial control operations were launched in Kisumu by DLCO-EA in conjunction with MoA. Ground control operations were launched by MoA/PPD in Narok. In Tanzania, QSP infestations were reported in rice, sorghum, and millet in Dodoma, Morogoro, Mbeya, Manyara, Shinyanga, Singida and Tabora regions where DLCO-EA air asset was deployed to control the pest. In Uganda, QSP activities were reported in paddy rice in Bulambuli district. Other bird species were also detected in wheat fields in Kapcorwa district, but the level of damage has yet to be determined.

Forecast: QSP infestations will likely continue being a problem to small grain cereal growers in Tanzania, Kenya, and Zimbabwe.

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.

Rodents: No update was received during June, but the likelihood of the pest continuing being a problem to pre- and post-harvest crops and produce across regions remains being a problem.

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.

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 (ASU) 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 continues its efforts in strengthening national and regional capacity in ETOP (including SGR FAW, etc.) prone countries in several regions across the globe.

In addition to the OSE project that is being implemented in West Africa by ASU and partnering with experts from target countries in the region as well as international experts, BHA is also supporting DRR projects in Eastern Africa, the Horn, the Red Sea region, Caucasus, and Central Asia (CCA) countries. These projects focus on surveillance, monitoring, and management of ETOP of economic importance, among others. In Eastern Africa and the Horn, the multi-year DRR project targets FAW and is being implemented under the leadership of the International Center for Insect Physiology and Ecology [ICIPE](#) in close collaboration with participating countries. In the CCA region, where more than 25 million farmers and herders are constantly affected by three major locust species – Moroccan locust, Italian locust and the Migratory locust) - BHA is funding a multi-year DRR project. The project is being implemented in close collaboration with the affected countries under the

leadership of UNFAO [BHA CCA Locust Support](#).

USAID/BHA/TPQ continues with its efforts and promote and support applied/operational and DRR 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. Through these efforts, potential spread of the ETOPs to other countries can be minimized.

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 with an improved and user-friendly mode. 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 May, strategic pesticide stocks (SPS) remained the same except in Egypt where control operations treated some 2,275 ha during this month.

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, 43,181~
Eritrea	10,750~
Ethiopia	110,113~
Libya	24,930~
Kenya	?
Madagascar	9,335~+
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
 + = other MoA stocks are not included
 ? = data not available
 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)*
- AML *African Migratory (Locust Locusta migratoria migratorioides)*
- 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 (USAID)*
- CABI *Center for Agriculture and Biosciences International*
- CAL *Central American Locust Schistocerca piceifrons piceiferons*
- CBAMFEW *Community-based armyworm monitoring, forecasting and early warning*
- CCA *Caucasus and Central Asia*
- CERF *Central Emergency Response Fund*
- CIT *Calliptamus italicus (Italian Locust)*
- CLCPRO *Commission de Lutte Contre le Criquet Pèlerin dans la Région*

	<i>Occidentale</i> (Commission for the Desert Locust Control in the Western Region)	IGAD	Intergovernmental Authority on Development (Horn of Africa)
CNLA(A)	Centre National de Lutte Antiacridienne (National Locust Control Center)	IRIN	Integrated Regional Information Networks
COR	Central SGR Outbreak Region	IRLCO-CSA	International Red Locust Control Organization for Central and Southern Africa
CPD	Crop Protection Division	ITCZ	Inter-Tropical Convergence Zone
CRC	Commission for Controlling Desert Locust in the Central Region	ITF	Inter-Tropical Convergence Front = ITCZ)
CTE	<i>Chortoicetes terminifera</i> (Australian plague locust)	FAO-DLIS	Food and Agriculture Organizations' Desert Locust Information Service
DDLC	Department of Desert Locust Control	Hoppers	young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)
DLCO-EA	Desert Locust Control Organization for Eastern Africa	JTWC	Joint Typhoon Warning Center
DLMCC	Desert Locust Monitoring and Control Center, Yemen	Kg	Kilogram (~2.2 pound)
DMA	<i>Dociostaurus maroccanus</i> (Moroccan Locust)	L	Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)
DPPQS	Department of Plant Protection and Quarantine Services, India	LCC	Locust Control Center, Oman
DPV	Département Protection des Végétaux (Department of Plant Protection)	LPA	<i>Locustana pardalina</i>
ELO	EMPRES Liaison Officers -	LMC/ML	<i>Locusta migratoriacapito</i> (Malagasy locust)
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 Pests	MoARD	Ministry of Agriculture and Rural Development
FAW	<i>Spodoptera frugiperda</i> (SFR) (Fall armyworm (FAW))	NALC	National Agency for Locust Control
Fledgling	immature adult locust /grasshopper that has pretty much the same phenology as mature adults, but lacks fully developed reproductive organs to breed	NCDLC	National Center for the Desert Locust Control, Libya
GM	GreenMuscle® (a fungal-based biopesticide); NOVACRID, Green Guard	NOAA (US)	National Oceanic and Aeronautic Administration
ha	hectare (= 10,000 sq. meters, about 2.471 acres)	NPS	National Park Services
ICAPC	IGAD's Climate Prediction and Application Center	NSD	Republic of North Sudan
		NSE	<i>Nomadacris septemfasciata</i> (Red Locust)
		OFDA	Office of U.S. Foreign Disaster Assistance
		PBB	Pine Bark Beetle (<i>Dendroctonus</i> sp. - true weevils)
		PHD	Plant Health Directorate
		PHS	Plant Health Services, MoA Tanzania
		PPD	Plant Protection Department
		PPM	Pest and Pesticide Management

PPSD Plant Protection Services
Division/Department

PRRSN Pesticide Risk Reduction
through Stewardship Network

QSP *Quelea species (Red Billed Quelea
bird, etc.)*

SAL South American (*Locust Schistocerca
cancellata*)

SARCOF Southern Africa Region
Climate Outlook Forum

SGR *Schistoseca gregaria (the Desert
Locust)*

SSD Republic of South Sudan

SPB Southern Pine Beetle
(*Dendroctonus frontalis*) – true
weevils

SWAC Southwest Asia DL Commission

PBB Pine Bark Beetle

PHS Plant Health Services

PSPM Preparedness, Strategic Planning
and Mitigation (formerly known as
Technical Assistance Group - TAG)

TPQ Technical Program 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

[USAID PM Guidelines](#)

Point of Contact:

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To learn more about our activities and
programs, please, visit our PPM website:
[USAID/BHA PPM](#)

Additional resources on ETOPs

USAID/BHA Pest and Pesticide Monitoring
and ETOP Bulletins: [USAID/BHA PPM](#)

USAID/BHA Archived ETOP Bulletins
[Archived ETOP Bulletins](#)

USAID Pest Management Guidelines
[USAID PM Guidelines](#)

[US EPA IPM](#)

SGR:

UN/FAO Desert Locust (SGR) Watch [FAO
Desert Locust Watch](#)

FAO Locust Hub [SGR HUB](#)

FAO Locust Emergency Appeal for Greater
Horn of Africa and Yemen [SGR Appeal for
GHA and Yemen](#)

FAO Desert Locust Crisis [SGR Crisis](#)

The Desert Locust Control Organization for Eastern Africa [DLCO-EA](#)

FAO/Central Region Commission for the SGR Control [SGR CRC](#)

FAO/Western Region Commission for SGR Control [SGR CLCPRO](#)

FAO SGR Response Overview Dashboard [FAO SGR Dashboard](#)

IGAD Climate Prediction and Application Centres [ICPAC Climate SGR](#)

CCA Locusts:

FAO Locust Watch – Caucasus and Central Asia [CAC Locust Watch](#)

USAID/BHA supports for locust operations in the CCA Region [BHA CCA Locust Support](#)

FAW:

USAID FtF FAW [USAID FAW](#)

CABI on Invasive species [Invasive Species Compendium](#)

USAID FAW PEA/PERSUAP [FAW PERSUAP](#)

FAO FAW Monitoring and Early warning System [FAW EW&M](#)

FAO-USAID Global Action for FAW Control webinars [GAFC](#)

FAO NURU FAW Application [Nuru the talking app for FAW](#)

[CABI on FAW](#)

FAW management animation SAWBO [FAW Management Animation](#)

AAW:

[Armyworm](#)

Famine Early Warning System Network [FEWS NET](#)

NOAA Climate Prediction Center [NOAA CPC](#)