Emergency Transboundary Outbreak Pest (ETOP) Situation Bulletin for May with a forecast through mid-July 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 May. No locusts were detected during extensive ground and aerial survey operations in southeastern part of Ethiopia. In eastern Egypt, late instar and immature adults formed several small groups in patched of green vegetation near the Red Sea coast and were treated on 2,275 ha during May. Overall ecological conditions remained dry, and no locusts were reported elsewhere in COR. The Western outbreak region (WOR) remained calm. In the Eastern outbreak region (EOR), a few spring-bred solitary adults were detected on the southwest coast of Pakistan.

Forecast: In COR, small-scale breeding is likely to commence in summer breeding areas in western Eritrea, and limited breeding may also occur in the interior of Yemen and perhaps in parts of eastern and northeast Ethiopia during the forecast period. In WOR, small-scale breeding is likely to commence in the summer breeding areas in northern Sahel region between Mauritania and Chad, but significant development is unlikely. In EOR, limited breeding may occur along both sides of the Indo-Pakistan border. Generally, poor rains will likely continue suppressing SGR developments through June, however, with the forecast for above normal rains from July to September, an increase in SGR presence is likely in Sahel Africa, the Horn and Yemen, as well as summer breeding areas in the EOR from October.

Red (Nomadic) Locust (*Nomadacris septemfasciata*) (NSE): With the rainy season ending and vegetation drying, few immature adult NSE are expected to be present in primary outbreak areas in Malawi, Mozambique, Tanzania, and Zambia. NSE populations were reported in southern Madagascar.

African Migratory Locust (*Locusta migratoria migratorioides) (AML*): Isolated to scattered population of AML persisted in Simalaha Plains in Zambia.

Malagasy locust (*Locust migratoria capito) (LMC*)**:** In Madagascar, aerial and ground survey and control operations continued against LMC (and NSE). As of May 20, 129,006 ha were treated from the day the campaign began.

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

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

Central American Locust, *Schistocerca piceiferons* **(**CAL): CAL remains calm in Mexico. Only limited mating and perhaps oviposition is likely in some areas where ecological conditions are favorable. Precipitation from hurricane Agatha will likely improve conditions for CAL to begin developing in several primary outbreak areas.

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

Italian (*CIT*), Moroccan (*DMA*), and **Asian Migratory Locusts (*LMI*)**: DMA hatching, and hopper development is in progress in all Central Asian countries and in Azerbaijan. There were no reports of CIT or LMI activities through mid-May.

Fall Armyworm *(Spodoptera frugiperda, J. E. Smith) (FAW)*: FAW infestations continued affecting maize and other cereal crops in several places in Ethiopia, Kenya, Tanzania, and Zimbabwe, where control operations were launched by the affected farmers with assistance from their respective line Ministries. The pest is expected cause continue causing damage to crops in other regions across the counties and regions it has invaded.

African Armyworm (*Spodoptera exempta*) (AAW): AAW outbreaks were reported in Ethiopia, Kenya, South Sudan, Tanzania, and Uganda where the pest was reported affecting maize and other cereal crops, and control operations were launched by the affected farmers and MoAs.

Quelea species (QSP): QSP outbreaks were reported in several districts in Kenya and Tanzania as well as provinces in Zimbabwe. The pest was reported attacking small grain cereal crops, including bulrush, millet, sorghum, and rice.

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/PHSs, 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 mai. Aucun criquet n'a été détecté au cours des vastes opérations de prospection terrestre et aérienne dans le sud-est de l'Éthiopie. Dans l'est de l'Égypte, des ailés de dernier stade et immatures ont formé plusieurs petits groupes dans des plaques de végétation verte près de la côte de la mer Rouge et ont été traités sur 2 275 ha en mai. Dans l'ensemble, les conditions écologiques sont restées sèches et aucun criquet n'a été signalé ailleurs dans la COR. La région occidentale de l'épidémie (WOR) est restée calme. Dans la région orientale du foyer (EOR), quelques ailés solitaires issus de la reproduction printanière ont été détectés sur la côte sud-ouest du Pakistan.

Prévisions: Dans le COR, une reproduction à petite échelle va probablement commencer dans les zones de reproduction estivale de l'ouest de l'Érythrée, et une reproduction limitée peut également avoir lieu dans l'intérieur du Yémen et peut-être dans des parties de l'est et du nord-est de l'Éthiopie au cours de la période de prévision. Dans la région WOR, une reproduction à petite échelle va probablement commencer dans les zones de reproduction estivale du nord de la région du Sahel, entre la Mauritanie et le Tchad, mais un développement significatif est peu probable. Dans la région EOR, une reproduction limitée peut avoir lieu le long des deux côtés de la frontière indo-pakistanaise. En général, les faibles pluies continueront probablement à supprimer les développements de SGR jusqu'en juin, cependant, avec les prévisions de pluies supérieures à la normale de juillet à septembre, une augmentation de la présence de SGR est probable en Afrique sahélienne, dans la Corne et au Yémen, ainsi que dans les zones de reproduction estivale en Afrique. l'EOR à partir d'octobre.

Criquet nomade (*Nomadacris septemfasciata* - NSE): avec la fin de la saison des pluies et le dessèchement de la végétation, peu de NSE adultes immatures devraient être présents dans les principales zones de résurgence au Malawi, au Mozambique, en Tanzanie et en Zambie. Des populations de NSE ont été signalées dans le sud de Madagascar.

Criquet migrateur africain (AML/LMI): Une population isolée à dispersée d'AML a persisté dans les plaines de Simalaha en Zambie.

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). Au 20 mai, 129 006 ha ont été traités depuis le début de la campagne.

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 au Mexique. Seuls des accouplements et peut-être une ponte limités sont probables dans certaines zones où les conditions écologiques sont favorables. Les précipitations de l'ouragan Agatha amélioreront probablement les conditions pour que la CAL commence à se développer dans plusieurs zones d'épidémie primaires.

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): Des éclosions de DMA et un développement larvaire sont en cours dans tous les pays d'Asie centrale et en Azerbaïdjan. Il n'y a eu aucun rapport d'activités de CIT ou de LMI jusqu'à la mi-mai.

Chenille Légionnaire d'automne (Spodoptera frugiperda, J. E. Smith) (FAW): les infestations de FAW ont continué d'affecter le maïs et d'autres cultures céréalières dans plusieurs endroits en Éthiopie, au Kenya, en Tanzanie et au Zimbabwe, où des opérations de lutte ont été lancées par les agriculteurs touchés avec l'aide de leur filière respective Ministères. On s'attend à ce que le ravageur continue de causer des dommages aux cultures dans d'autres régions des comtés et des régions qu'il a envahis.

Chenille Légionnaire africaine (Spodoptera exempta) (AAW): des foyers d'AAW ont été signalés en Éthiopie, au Kenya, au Soudan du Sud, en Tanzanie et en Ouganda, où le ravageur a été signalé affectant le maïs et d'autres cultures céréalières, et des opérations de lutte ont été lancées par les agriculteurs et les MoA affectés.

***Quelea sppecis oiseaux* (QSP):** Espèce de Quelea (QSP): Des foyers de QSP ont été signalés dans plusieurs districts du Kenya et de Tanzanie ainsi que dans des provinces du Zimbabwe. Le ravageur a été signalé attaquant les cultures céréalières à petits grains, y compris le scirpe, le millet, le sorgho et le riz.

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 the 3rd dekad of May from 21-31, the Inter Tropical Front (ITF) moved north and south, comparable to its previous position over the western and eastern portions, respectively, anomalous to its northerly and southerly positions over the western and eastern portions, respectively. The western (10W-10E) portion of the ITF was located approximately at 14.7N, which was below the climatology position by 0.4 degree. The eastern (20E-35E) portion of the ITF was approximated at 11.8N, which was below the climatological position by 1.4 degree. Figure 1 displays the current position of the ITF relative to the long-term average position during the 3rd dekad of May and its previous position during the 2nd dekad of this month. 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, June 2022).

Figure 1.

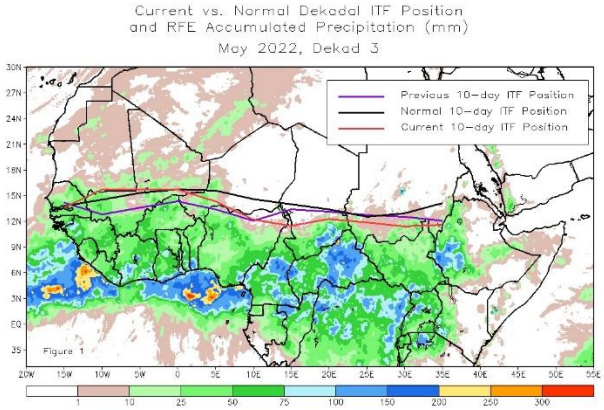


Figure 2.

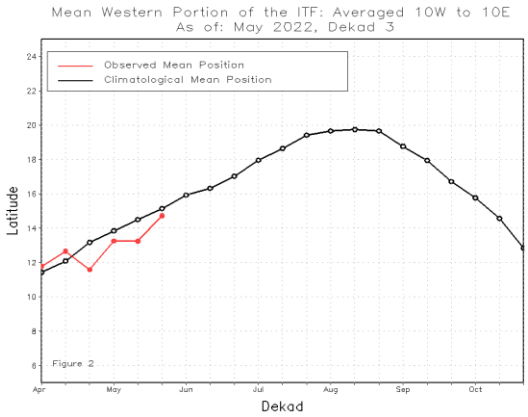
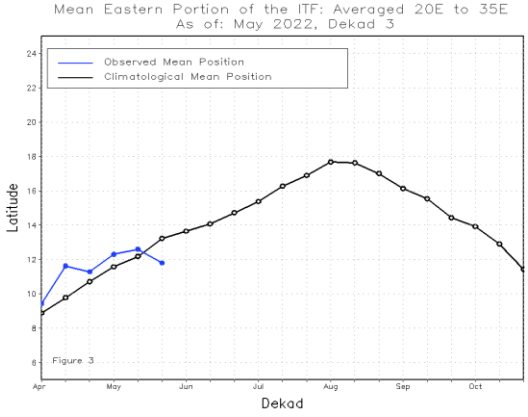


Figure 3.



During last week of May, in East Africa, rainfall was above-average over southwestern Ethiopia, Uganda, and the far northern Tanzania, while in the far southern Sudan below-average rainfall was reported. Rainfall was above-average over eastern Cameroon, northern Congo, CAR, central and northern DRC, and southeastern Chad during this period. Below-average rainfall was observed over western Cameroon, and parts of Equatorial Guinea and Gabon. In West Africa, above-average rainfall was observed over Senegal, parts of Guinea and Mali, Sierra Leone, Liberia, and Burkina Faso, while rainfall was below-average over parts of Ghana, Togo, Benin and Nigeria.

Forecast: Week-1 outlooks call for an increased chance for below-average rainfall over parts of West and East Africa, while above-average rainfall is likely over the far western West Africa and, and portions of Central Africa. Week-2 outlooks suggest an increased chance for below-average rainfall along the Gulf of Guinea coast, the far northern Nigeria and southern Niger, and western Ethiopia.

During the 2nd dekad of May, from 11-20, the Inter-Tropical Front (ITF) moved north relative to its previous position, which resulted in an overall anomalous northerly position, except at 10W and 10E. The western (10W-10E) portion of the ITF was located approximately at 13.2N, which was below the climatology position by 1.3 degree. The eastern (20E-35E) portion of the ITF was approximated at 12.6N, which was above the climatological position by 0.4 degrees. Figure 1 displays the current position of the ITF relative to the long-term average position during the 2nd dekad of May and its previous position during the 1st dekad of May.

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

Dry conditions prevailed in most of the **NSE** region and only some precipitation was reported during May in Mozambiaueq - 17 ml in Mafambisse (Buzi plain), 20 ml in Gorongosa (Gorongosa plain), 15 ml in Caia (Dimba plains), 22 ml Buzi, and 16 ml in Dimba.

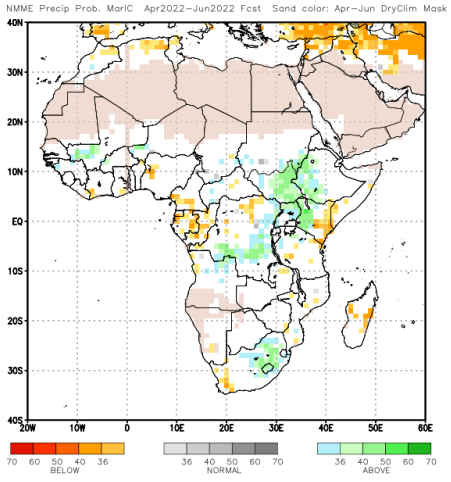
In CCA variable temperature and precipitation were observed during early May and previous period.

Some locust breeding areas in the Central America and perhaps Southern America regions are expected to have received good precipitation from hurricane Agatha during May.

Weather forecast April-June 2022 (NOAA, March 2022)

Africa:

The forecasts call for a slight to tilt in the odds to favor above-average rainfall over parts of the Greater Horn of Africa and South Africa through the northern hemisphere spring 2022.



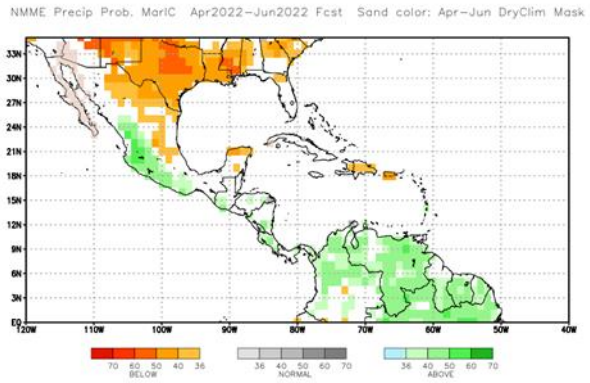
There is also a tilt in the odds to favor above-average rainfall across much of

the Sahel, extending into southern Sudan and western Ethiopia during the northern hemisphere summer 2022 (see map below).There is a slight to moderate tilt in the odds to favor below-average rainfall along the Gulf of Guinea coast, portions of Central Africa, and pockets of equatorial East Africa and Southern Africa (NOAA, March,2022).

Central America:

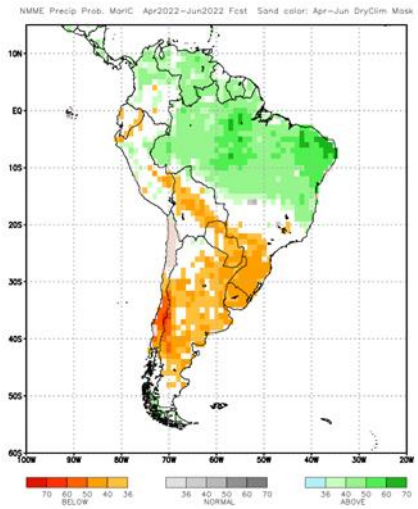
There is a slight to moderate tilt in the odds to favor below-average rainfall over parts of northern and eastern Mexico, and pockets of the Caribbean.

There is a slight tilt in the odds to favor above average rainfall over much of Central America.



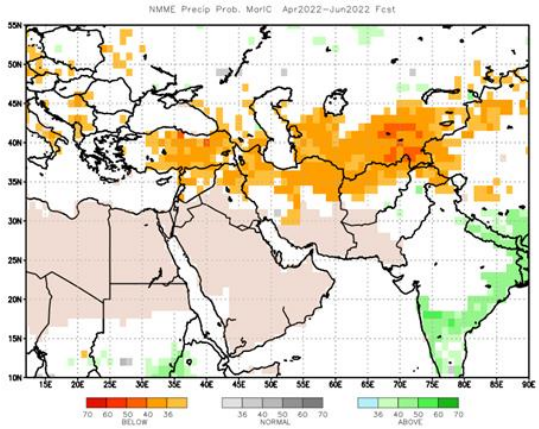
South America:

The forecasts call for a moderate tilt in the odds to favor above-average rainfall over northern South America. There is a moderate tilt in the odds to favor below-average rainfall over Southeast Brazil and the southern areas of South America



Central Asia, Middle East, and Southwest Asia:

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



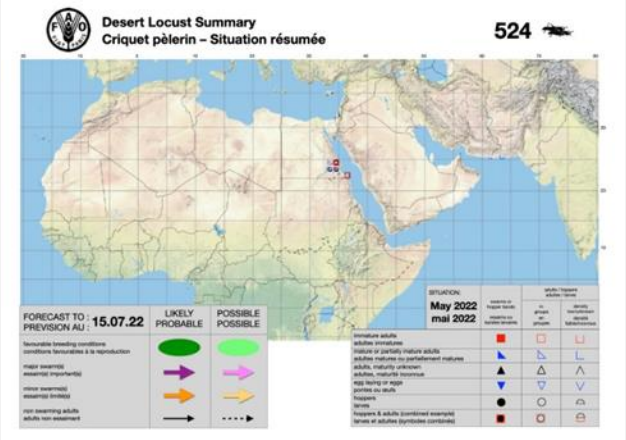
ETOP Proliferation and Climatic Factors

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

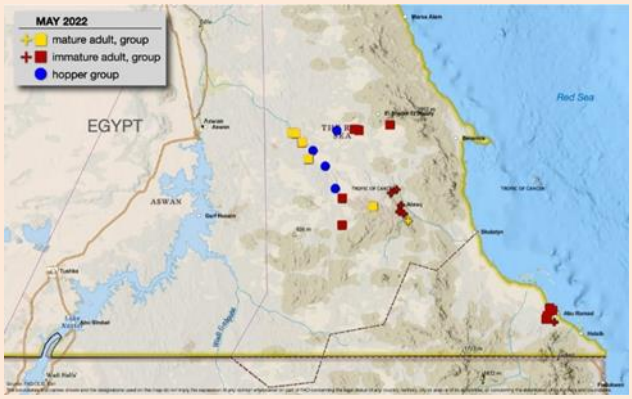
The **Desert Locust** (*Schistoseca gregaria* - **SGR**[2]): In COR, during May ground and aerial survey operations were undertaken in Fafan, Erer and Jarar Zones, as well as Kebridehar, Warder and Nogob Zones in eastern and southeastern parts of the Somali administrative region of Ethiopia, but locusts were not detected.



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

SGR situation during May (FAO-DLIS)

In Egypt, concentrations of 4th and 5th instar hoppers and immature adults formed several small groups in patches of green vegetation near the Red Sea coast and were treated on 2,275 ha during this month.



SGR presence in eastern Egypt during May 2022 (FAO-DLIS)

Forecast: Small-scale breeding is likely to commence in the summer breeding areas in western Eritrea, and limited breeding may also occur in the interior of Yemen and perhaps in parts of eastern and northeast Ethiopia. There is a limited risk of escapee adult groups moving south to cropping areas in the Nile Valley in northern Sudan during the forecast period.

SGR – WOR: No locusts were reported in WOR, and the situation remained calm throughout the region during May.

Forecast: Small-scale breeding is likely to commence in summer breeding areas in the northern Sahel region from Mauritania to Chad, but significant development is unlikely.

SGR - EOR: The EOR region remained calm and only a few spring-bred solitary adults were detected on the southwestern coast of Pakistan.

Forecast: Limited breeding may occur along both sides of the Indo-Pakistan border.

Note: *Most summer breeding areas are likely to receive above-normal rains from 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): With the rainy season ending and vegetation drying, only few immature adult NSE were expected to be present in primary outbreak areas - Lake Chilwa/Lake Chiuta plains, Mpatsanjoka Dumbo in Malawi; Buzi Gorongosa plains, Dimba plains in Mozambique; Ikuu Katavi plains, Malagarasi Basin and Wembere plains in Tanzania; and Kafue Flats in Zambia.

Forecast: NSE will likely concentrate and form swarms in Lake Chilwa/Lake Chiuta plains, Mpatsanjoka Dambo, Kafue Flats, Iku-Katavi plains, Wembere plains and Malagarasi Basin, Buzi Gorongosa, Dimba plains during the forecast period.

Availing resources remain critical for IRLCO–CSA and its national partners to undertake timely surveillance and control interventions to prevent negative impacts on food security and livelihoods of tens of thousands of farmers and herders.

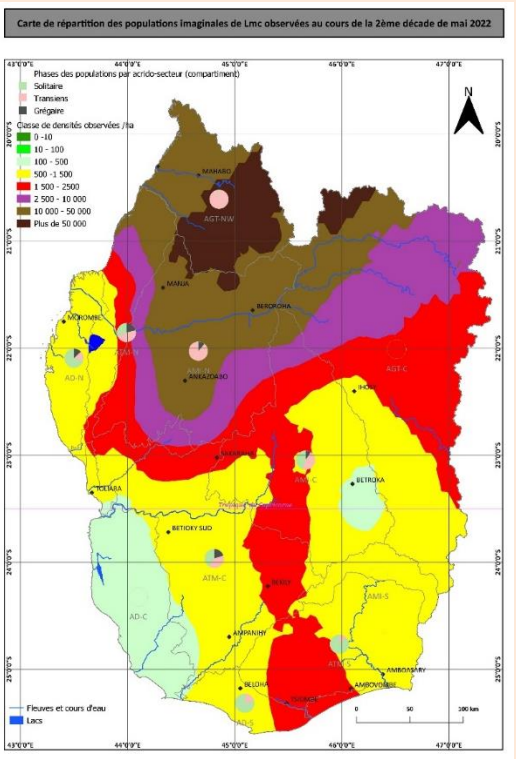
African Migratory Locust (AML): Isolated, scattered AML populations were reported in Simalaha Plains in Zambia, but no reported were received elsewhere during this month.

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 May

20th, more than 129,006 ha in total have been treated both by ground means and through aerial operations.

Forecast: Aerial and ground survey and control operations continue in affected areas, including Manja, Morondava, Malaimbandy and Belo-sur-Tsiribihina, etc. *With ecological conditions drying and temperatures decreasing, adults will begin moving in search of green vegetation mainly along water catchment towards Sakanavaka, Sahena, Haut-Fiherenana and Lambosy, to go up to Haut-Mangoky, Ikalamavony and West of Itremo, Mangataboahangy – Mandrosonoro.*



LMC populations during the 2nd dekad of May in Madagascar (FAO-Antananarivo)

Active and timely surveillance, monitoring, preparedness, and interventions remain critical to minimize significant locust developments and avert potential threats they pose to food security and livelihoods of vulnerable communities that have already been affected by multiple stressors, including prolonged drought, etc. (BHA/TPQ).

NOTE: *The Malagasy locust campaign has been generously funded through contributions from the Government of Germany (USD 1.M) and the UNFAO (USD 600,000 (FAO) and through a project from the World Bank (USD 6.8 M)* ***END NOTE****.*

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. Limited mating and perhaps oviposition is likely in some areas where ecological conditions are favorable, but hatching has not been reported during this month. The rain that was brought by hurricane Agatha will likely trigger CAL development in areas where ecological conditions were dry for the most part.

Forecast: With the seasonal rains commencing in some parts of Mexico and the CA region, and precipitation increased from hurricane Agatha, first generation solitary and transient individuals are expected to begin appearing during the forecast.

[***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-plague-northern-province.*

Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Caucasus and Central Asia (CCA): DMA hatching, and hopper development is in progress in all Central Asian countries and in Azerbaijan. There were no reports of the CTI or LMI development in CCA region through mid-May. As of the beginning of the current campaign through mid-May, more than 138,00 ha were reported controlled in CCA, 37% lower than areas treated this time last year.
Forecast: DMA hatching will start in Georgia and the Russian Federation (RF) and fledging, and mating will occur in the southern CA countries. CIT hatching will start in all Caucasus and Central Asia (CCA) countries. Migratory Locust (LMI) hatching may commence in Azerbaijan, Kazakhstan, southern RF, Turkmenistan, and Uzbekistan at the end of the forecast period.

Fall armyworm (FAW): FAW infestations were reported in 11 zones and 42 districts of Oromia, Southern and Gambella Administrative regions. 32,701 ha of maize crop was reported affected. Cultural and chemical control operations were carried out on 4,006 and 7,070 ha respectively. 4006 liters of insecticides were used. FAW infestations were also reported affecting early planted maize the main maize growing areas in Kenya affecting mainly early planted crop.

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): In Ethiopia, AAW outbreaks were reported in 14 zones and 42 districts in four administrative regions, i.e., Oromia, Southern, Southwestern and Gambella where 52.209 ha of millet, rice, sorghum, Teff, and wheat were reported infested. Chemical and cultural control operations covered 22,812 ha (11,637 ha by chemical means and 11,271 ha through cultural practices).

In Kenya, AAW infestations continued to be a problem where the pest was reported in the eastern parts of the country, the Western, Central and the Rift Valley regions, with new infestations in the northern Rift Valley (Baringo). Control operations continued with technical and material support from the MoA. With crop growth stages continuing and control infestations launched, AAW infestations are expected to decrease progressively.

AAW infestations were reported in Handeni, Korogwe, Muhenza, and Pangani districts in Tanzania where MoA provided technical and material support (6,250 liters of pesticides) to the affected farmers.

In Uganda, localized AAW infestations continued in the central parts of the country during early May, and ground control operations were in progress with technical and material support from the MoA; 95% of the infested areas were reported controlled by the end of May.

AAW outbreaks were reported in South Sudan where maize fields were reported severely affected as of April 30 in Mundri East and West Counties of Western Equatoria State. According to a rapid field assessment jointly conducted by FAO/SSD and the State MinAgri in Western Equatoria, all locations the team visited were reported affected by AAW. Damages were mostly caused to cereal crops (maize and sorghum) and some emerging g and seedlings of groundnut in Mundri East (Kasiko Boma, Biti, and Bishop Gwynne area) and Mundri Centre County (Bangolo Payam). More than 90% of the crops were reported destroyed as most of them were at an early and most vulnerable stages. i.e., emerging/seedling stages. The pest was also detected pupating and adults appearing, a situation that could lead to another wave of larval infestations provided ecological conditions remain favorable. Some 1,700 households were reported affected by AAW in Mundri East. In Mundri West some 12,000 HH were reported affected. Reports of recent AAW outbreak were received from Kapoeta. The FAO field team continued monitoring the situation and will provide updates (FAO/SSD).

Forecast: There is a likelihood of AAW infestations continue attacking young,

late planted and irrigated maize and other cereal crops and pasture in several countries. AAW will likely decrease In some countries where ecological and climatological conditions become unfavorable.

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/Viewer/index.html?appid=8ff7a2eefbee4783bfb36c3e784e29cb BHA/TPQ is considering a similar map for the CBFAMFEW countries.*

***Quelea* species (QSP):** QSP infestations were reported in Narok, and Kisumu Counties in Kenya were preparations for field assessments and control operations were underway. In Tanzania, sizeable flocks of QSP were reported damaging bulrush, millets, sorghum, and rice crops in Dodoma, Geita, Kilosa, Kishapu, Kondoa, Manyara, Mbarali, Mbeya, Morogoro, Mvomero, Sengerema, Shinyanga Rural and Tabora regions. A DLCO-EA aircraft controlled 515 ha of roosting sites. Small QSP populations were reported attacking parry rice in Bulambuli district in Uganda. In Zimbabwe, the pest was reported attacking sorghum and millet in Mashonaland Central and Matabeleland North Provinces. Joint control operations were carried out by Zimbabwe and Botswana in Matebeleland North Province. No QSP infestations were reported in Ethiopia, and no reports were received elsewhere in the region during this month.

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 May, but it is likely that the pest continued being a problem to pre- and post-harvest crops and produce across regions and will likely remain 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, Italia 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 availableGM = *GreenMuscle*™ (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 Criquett 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
DMA Dociostaurus maroccanus (Moroccan Locust)
DPPQS Department of Plant Protection and Quarantine Services, India
DPV Département Protection des Végétaux (Department of Plant Protection)
ELO EMPRES Liaison Officers –
EMPRES Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases
EOR Eastern SGR Outbreak Region
ETOP Emergency Transboundary Outbreak Pests
FAW Spodoptera frugiperda (SFR) (Fall armyworm (FAW)
Fledgling immature adult locust /grasshopper that has pretty much the same phenology as mature adults, but lacks fully developed reproductive organs to breed
GM GreenMuscle® (a fungal-based biopesticide); NOVACRID, Green Guard
ha hectare (= 10,000 sq. meters, about 2.471 acres)
ICAPC IGAD's Climate Prediction and Application Center
IGAD Intergovernmental Authority on Development (Horn of Africa)
IRIN Integrated Regional Information Networks
IRLCO-CSA International Red Locust Control Organization for Central and Southern Africa
ITCZ Inter-Tropical Convergence Zone
ITF Inter-Tropical Convergence Front = ITCZ)
FAO-DLIS Food and Agriculture Organizations' Desert Locust Information Service
Hoppers young, wingless locusts/ grasshoppers (Latin synonym = nymphs or larvae)
JTWC Joint Typhoon Warning Center
Kg Kilogram (~2.2 pound)
L Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)
LCC Locust Control Center, Oman
LPA Locustana pardalina
LMC/ML Locusta migratoriacapito (Malagasy locust)
MoAFSC Ministry of Agriculture, Food Security and Cooperatives
MoAI Ministry of Agriculture and Irrigation

MoARD *Ministry of Agriculture and Rural Development*
NALC *National Agency for Locust Control*
NCDLC *National Center for the Desert Locust Control, Libya*
NOAA (US) *National Oceanic and Aeronautic Administration*
NPS *National Park Services*
NSD *Republic of North Sudan*
NSE *Nomadacris septemfasciata (Red Locust)*
OFDA *Office of U.S. Foreign Disaster Assistance*
PBB *Pine Bark Beetle (Dendroctonus 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 Unites 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:
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 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 Predication 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