

**Global Emergency Transboundary Outbreak Pests (GETOP) Situation
Bulletin for October with a forecast through mid-December 2024**
résumé end français est inclus

SUMMARY

The Desert Locust, *Schistocerca gregaria* (SGR¹): In October, the desert locust (SGR) situation remained relatively calm in most of the primary outbreak areas in the Central Outbreak Region (COR). Scattered adults, groups and hopper bands were detected in northern and eastern Sudan and treated on 75 ha. Scattered adults, a few hoppers and small groups were observed in Saudi Arabia, a few hoppers and adult groups were reported in the interior of Yemen; isolated adults were detected in southeast Egypt and northwestern Somalia. No locusts were detected in Ethiopia or Oman where surveys were conducted and no surveys were conducted and no locusts were reported in Eritrea and no reports were received from Djibouti, and elsewhere in COR at the time this bulletin was compiled. In the Western Outbreak Region (WOR), a few isolated adults and hoppers were reported in Chad, and low density adults were detected in Niger; isolated adults and hoppers were reported in Mauritania and a few adults were detected in southern Algeria. In the Eastern Outbreak Region (EOR), a few isolated adults were reported in India and Pakistan (Source: BHA/TPQ, FAO/DLIS, INPV/Algeria, ANLA/Chad, CNLCP/Mali, Mauritania, CNLAA/Morocco, CNLA/Niger, DLCO-EA, MPDLCU/Eritrea, PPD/Ethiopia, PPD/Oman, PPD/Sudan, DLIO/Yemen).

Forecast: In COR, adult groups and possibly a few small swarms will form and gradually move from the interior of Sudan to the Red Sea coast. Locust numbers will increase where rainfall occurred and winter breeding will commence in Sudan, Saudi Arabia, Eritrea, Yemen, and possibly southeast Egypt and northwest Somalia provided more rainfall occurs along the Red Sea coast and Gulf of Aden. In WOR, a few small groups could form in Mauritania and perhaps parts of northern Mali, Niger, and Chad. Limited control is likely in some countries. In WOR, with summer vegetation drying out in northern Sahel, a few small groups could form in northwest and central Mauritania, and perhaps in the Air Mountains of Niger, northeast Mali, and Chad. Some locusts could eventually move to southern and central Algeria. In EOR, with summer vegetation drying out, locust numbers will decrease along the Indo-Pakistan border and significant activities are unlikely. (Source: BHA/TPQ, FAO/DLIS, INPV/Algeria, ANLA/Chad, CNLCP/Mali, CNLA/Mauritania, CNLAA/Morocco, CNLA/Niger, PPD/Eritrea, PPD/Ethiopia, PPD/Oman, PPD/Sudan, DLIO/Yemen).

¹ Definitions of all acronyms and useful weblinks can be found on the last few pages of the bulletin.

Red (Nomadic) Locust, *Nomadacris septemfasciata* (NSE): NSE is expected to begin mating at the onset of the seasonal rains in the primary breeding areas.

African Migratory Locust, *Locusta migratoria migratorioides* (LMI - AML): Low density AML continued appearing in the Simalaha Plains in the Southern Province of Zambia. AML infestations were reported in Libya where the pest was reported affecting palm trees and other crops in the southern region.

Malagasy locust, *Locust migrator capito* (LMC): No locusts were reported.

Tree locust, *Anacridiums spp.* (ASP): No update was received at the time this report was compiled.

Central American Locust, *Schistocerca piceiferons* (CAL): No update was received.

South American Locust, *Schistocerca cancellata* (SAL): No update was received during this month.

Italian (CIT), Moroccan (DMA), and Asian Migratory Locusts (LMI): *Locust activities have ended in CCA region and wil remain so till next spring..*

Fall Armyworm, *Spodoptera frugiperda* (FAW): FAW infestations were reported in Malawi, Ethiopia. It is likely the pest is present in other countries where maize and other crops are under irrigation and/or in season.

African Armyworm, *Spodoptera exempta* (AAW): No AAW presence was reported.

Quelea species (QSP): QSP outbreaks were reported in Ethiopia, Kenya, Malawi, Tanzania, and South Sudan, and likely present in other areas where small grain crops are present.

Active ETOP surveillance, monitoring, information sharing, and timely preventive interventions remain critical to abate the threats ETOPs pose to food security and livelihoods of vulnerable people and communities and others.

USAID/BHA/TPQ regularly monitors GETOPs in close collaboration with its global network of National MoA PPDs/DPVs/CNLA,/CNLAA/ANLA?CNLCP, PHSs, regional and international pest monitoring and control entities, FAO, CLCPRO, CRC, SWAC, DLCO-EA, and IRLCO-CSA, research centers, academia, private sector, civil

*societies, NGOs and others, and compiles and issues monthly analytical GETOP Bulletins (please refer to list of acronyms on the last few pages). **End summary***

RÉSUMÉ EN FRANÇAIS

La situation du Criquet pèlerin (*Schistocerca gregaria* SGR): En octobre, la situation du criquet pèlerin (SGR) est restée relativement calme dans la plupart des zones d'infestation primaires de la région grégarigène centrale (COR). Des adultes épars, des groupes et des bandes larvaires ont été détectés dans le nord et l'est du Soudan et traités sur 75 ha. Des adultes épars, quelques larves et de petits groupes ont été observés en Arabie saoudite, quelques larves et des groupes d'adultes ont été signalés à l'intérieur du Yémen ; des adultes isolés ont été détectés dans le sud-est de l'Égypte et le nord-ouest de la Somalie. Aucun criquet n'a été détecté en Éthiopie ou à Oman, où des prospections ont été menées, et aucun criquet n'a été signalé en Érythrée et aucun signalement n'a été reçu de Djibouti et d'ailleurs dans la COR au moment de la rédaction du présent bulletin. Dans la région grégarigène occidentale (WOR), quelques adultes et larves isolés ont été signalés au Tchad, et des adultes de faible densité ont été détectés au Niger ; des adultes et larves isolés ont été signalés en Mauritanie et quelques adultes ont été détectés dans le sud de l'Algérie. Dans la région grégarigène de l'Est (EOR), quelques adultes isolés ont été signalés en Inde et au Pakistan (Source: BHA/TPQ, FAO/DLIS, INPV/Algérie, ANLA/Chad, CNLCP/Mali, Mauritanie, CNLAA/Maroc, CNLA/Niger, DLCO-EA, PPD/Eritree, PPD/Ethiopia, PPD/Oman, PPD/Soudan, DLIO/Yemen).

Prévisions : Dans la région COR, des groupes d'ailés et peut-être quelques petits essaims se formeront et se déplaceront progressivement de l'intérieur du Soudan vers la côte de la mer Rouge. Les effectifs de criquets augmenteront là où il y a eu des précipitations et la reproduction hivernale commencera au Soudan, en Arabie saoudite, en Érythrée, au Yémen et peut-être dans le sud-est de l'Égypte et le nord-ouest de la Somalie, à condition que davantage de précipitations se produisent le long de la côte de la mer Rouge et du golfe d'Aden. Dans la région WOR, quelques petits groupes pourraient se former en Mauritanie et peut-être dans certaines parties du nord du Mali, du Niger et du Tchad. Une lutte limitée est probable dans certains pays. Dans la région WOR, avec le dessèchement de la végétation estivale dans le nord du Sahel, quelques petits groupes pourraient se former dans le nord-ouest et le centre de la Mauritanie, et peut-être dans les montagnes de l'Aïr au Niger, dans le nord-est du Mali et au Tchad. Certains criquets pourraient finalement se déplacer vers le sud et le centre de l'Algérie. Dans la région EOR, avec le dessèchement de la végétation estivale, les effectifs de criquets diminueront le long de la frontière indo-pakistanaise et des activités significatives sont peu probables. (Source : BHA/TPQ, FAO/DLIS, INPV/Algérie, ANLA/Tchad, CNLCP/Mali, CNLA/Mauritanie, CNLAA/Maroc, CNLA/Niger, MPDLCOÉrythrée, PPD/Éthiopie, PPD/Oman, PPD/Soudan, PPD/Yémen).

Criquet nomade (*Nomadacris septemfasciata* - NSE): Le NSE devrait commencer à s'accoupler au début des pluies saisonnières dans les principales zones de reproduction.

Criquet migrateur africain (AML/LMI): De faibles densités de criquets migrants ont continué à apparaître dans les plaines de Simalaha dans la province méridionale de la Zambie. Des infestations de criquets migrants ont été signalées en Libye, où le ravageur aurait affecté des palmiers et d'autres cultures dans la région sud.

Criquet migrateur capito, (LMC): Locust migrator capito (LMC) : Aucun criquet n'a été signalé.

Le criquet arborial, *Anacridium spp*: (ASP): Anacridiums spp. (ASP) : Aucune mise à jour n'a été reçue au moment de la rédaction de ce rapport.

Langosta Centroamericana, *Schistocerca piceiferons* (Criquet Amérique centrale (CAL): Aucune mise à jour n'a été reçue.

Criquet d'Amérique du Sud, *Schistocerca cancellata* (SAL): Aucune mise à jour n'a été reçue au cours de ce mois

Criquets italiens (CIT), marocains (DMA), Asian Migratory Locust (LMI): les activités acridiennes ont pris fin dans la région CCA et le resteront jusqu'au printemps prochain

Chenille Légionnaire d'automne (*Spodoptera frugiperda*, J. E. Smith) (FAW): des infestations de FAW ont été signalées au Malawi et en Éthiopie. Il est probable que le ravageur soit présent dans d'autres pays où le maïs et d'autres cultures sont irrigués et/ou en saison.

Chenille Légionnaire Africaine (*Spodoptera exempta*) (AAW): aucune présence de AAW n'a été signalée.

***Quelea spp* oiseaux (QSP):** des foyers de QSP ont été signalés en Éthiopie, au Kenya, au Malawi, en Tanzanie et au Soudan du Sud, et sont probablement présents dans d'autres zones où des cultures de céréales à petites céréales sont présentes.

La surveillance active des GETOP, le suivi, le partage d'informations et l'exécution d'interventions préventives en temps opportun restent essentiels pour réduire les

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

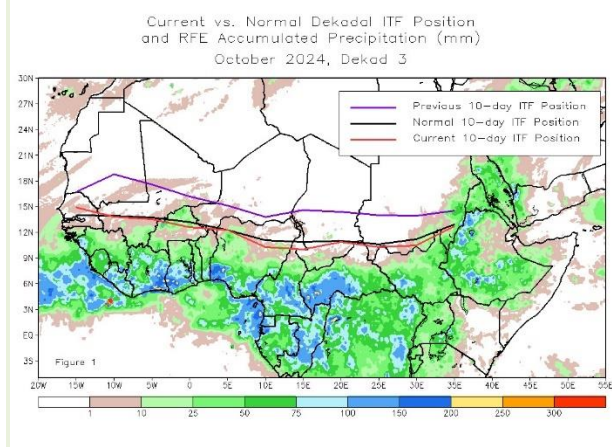
USAID / BHA / TPQ surveille régulièrement les GETOP en étroite collaboration avec son réseau mondial de PPD/DPV/PHS nationaux du MoA, les entités régionales et internationales de surveillance et de contrôle des ravageurs, la FAO, la CLCPRO, le CRC, la DLCO-EA et l'IRLCO-CSA, les centres de recherche, le milieu universitaire, le secteur privé, la société civile, les ONG et autres, et compile et publie des bulletins analytiques mensuels GETOP (veuillez vous référer à la liste des acronymes sur les dernières pages). Fin du résumé

Note: All previous and current GETOP Bulletins can be accessed here: [USAID Pest and Pesticide Monitoring](#)

Additional GETOP resources can be found on the last pages.

Weather and Ecological Conditions

During the third dekad of October from October 21-31, the Inter-Tropical Front (ITF) moved southward along its entire length compared to its previous position. The western (10W-10E) portion of the ITF was approximately 12.5N, which remained below the climatological position by 0.3 degrees. Also, at the eastern (20E-35E) portion, the ITF was approximated at 11.1N, which was below the long-term average position by 0.3 degrees. Figure 1



displays the current position of the ITF relative to the climatological

position during the 3rd dekad of October and its previous position during the 2nd dekad of October. Figures 2 and 3 are time series, illustrating the latitudinal positions for the western and eastern portions of the ITF, respectively, and their seasonal evolutions since the beginning of April 2024. Figures 2 and 3 are time series, illustrating the latitudinal positions for the western and eastern portions of the ITF, respectively, and their seasonal evolutions since the beginning of April 2024 (NOAA 11/2024).

Figure 2.

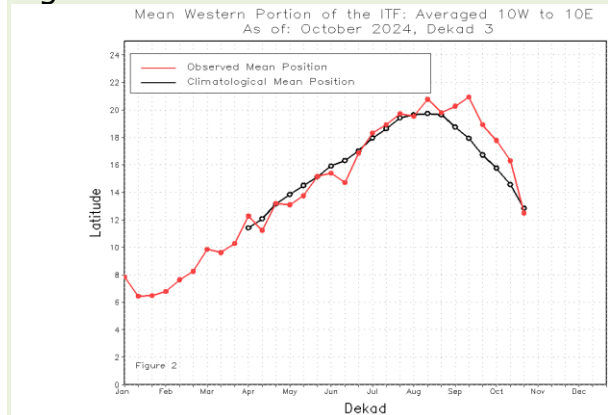
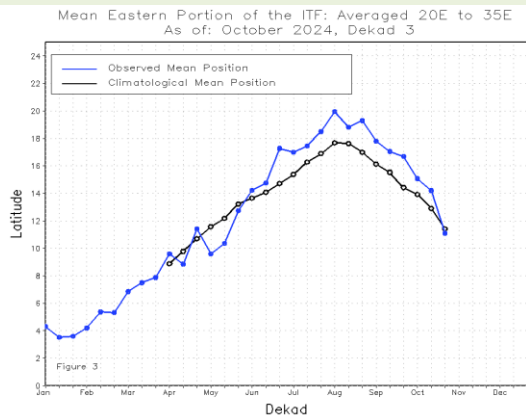


Figure 3.



From October 11-20, the ITF moved southward along its entire length compared to its previous position. The western (10W-10E) portion of the ITF was at approximately 16.3N, which remained well above the climatological position (as it has since late-August) by 1.7 degrees. Also, at the eastern (20E-35E) portion, the ITF was approximated at 14.2N, which was above the long-term average position (as it has been since June) by 1.3 degrees. This northward displacement helped result in continued above average rain over Sudan and South Sudan (NOAA, 11/2024).

The sub-seasonal dynamical models indicate below-normal rainfall in West Africa for November, while the seasonal models may suggest the opposite. A weakening of La Niña is anticipated. The main change from last month’s precipitation forecast is that wetter conditions are expected along the southern Red Sea, Gulf of Aden, and northern Somalia during the rest of October and at least the first half of November according to

some of the sub seasonal models. Dry conditions are likely to continue in East Africa and the Near East throughout the winter, with the Arabian Peninsula likely becoming dry by January. As a result, only small-scale breeding is expected in the Central Region during winter, followed by perhaps a few places in the Western, Central, and Eastern regions during the spring (FAO/DLIS).

In **NSE**, light precipitation was recorded in some primary breeding areas – Dimba, Mozambique (7.0 mm), and in Tanzania, Wembere Plain (58.0 mm), Malagarasi (55.16 mm) and Rukwa Valley (10.7 mm). TTraces or no precipitation were reported in other NSE countries (IRLCO-CSA).

Central Asia (CCA):

https://www.cpc.ncep.noaa.gov/products/international/casia/casia_hazard.pdf

Detailed Accounts of Monthly GETOP Situation and Forecast for the Next Six Weeks

The **Desert Locust** (*Schistocerca gregaria* - **SGR²**): In COR, limited SGR activities were reported in Sudan, Saudi Arabia and Yemen.

In **Sudan**, the SGR situation is developing due to heavy rains that caused floods in different states during the summer rainy season. In October, surveys were conducted in Northern, River Nile, Kassala states as well as in summer breeding belt in the Red Sea

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

state covering 97,950 ha. Breeding and gregarious groups were detected in Swarit in north Sufiya, Al-shapapit east Atbara River and Sheikh Tahir in south Toker, mature/immature gregarious and solitarious adult groups were reported in several locations in the Red Sea state, Northwest kassala state and west Berber/Algrain (Baiyuda Desert) in River Nile and 1st to 5th instar hopper bands/groups and fledgling were observed. Control operations treated mature/immature groups and hopper bands/groups on 75 ha in west Berber and Algrain. Elsewhere, scattered solitarious and gregarious adults were found in many locations (PPD/Sudan).

In **Ethiopia**, the SGR situation remained calm during October. Surveys covered 12,100 ha in the Afar region, in Chifra, Dupti, Yalo, and Ewa. Light to moderate rainfall occurred during early October resulting in annual and perennial vegetation remain green. However, warmer temperatures in mid-month led to drying of soil moisture levels in surveyed areas. The SGR situation is expected to remain calm in November. However, monitoring is required due to the presence of suitable ecological conditions and the potential for locust migration from neighboring areas where conditions are favorable for locust, especially from winter breeding areas. Figure 4.



SGR situation in October 2024 (Source: FAO /ECLLO).

In **Eritrea**, survey was not conducted and SGR was not reported during this month (PPD/Eritrea).

Low numbers of hoppers and adults were detected on the Red Sea coast of Saudi Arabia. No locusts were reported in Djibouti, Jordan, Kenya, Kuwait, Oman, South Sudan, Tanzania or Uganda during this month (Source: FAO/ECLLO/DLIS, PPD/Eritrea, PPD/Ethiopia, PPD/Oman, PPD/Sudan).

In **Yemen**, on 12th and 18th a few small mature and immature transient adult groups and low numbers of late instar solitarious and transiens hoppers were reported at two sites east of Marib city mainly in Al-Marda and Al-Argeen. A few immature and mature solitarious adults were reported in the interior of Hadhramout mainly in east and northeast Sayun. A few immature and mature solitarious DL adults were reported in a few locations on the coast of Abyan province mainly northwest Zinjiba. DLIO/Yemen reported that no surveys have been conducted since June 2024 due to lack of resource.

Forecast: As vegetations dries out, adult groups and possibly a few small swarms will form and gradually move from the interior of Sudan to the Red Sea coast. Locust numbers will increase where rainfall occurred and winter breeding will commence in Sudan, Saudi Arabia, Eritrea, Yemen, and possibly southeast Egypt and northwest Somalia provided more rainfall occurs in winter breeding areas along the Red Sea coast and Gulf of Aden. Should favorable conditions prevail and locusts develop in northwest Somalia, some limited migration to adjacent areas in eastern

Ethiopia could occur if unabated. In Oman, vegetation started greening in areas where rainfall occurred in Al Dhahirah, Al Sharqiyah likely creating favorable conditions, should conditions remain favorable, a few SGR may appear during the forecast period. Survey and monitoring should be maintained in all front line countries (Sources: BHA/TPQ, FAO/ECLO, PPD/Eritrea, PPD/Ethiopia, PPD/Oman, PPD/Sudan, DLIO/Yemen).

SGR – WOR: The SGR situation is generally calm. In **Chad**, ecological conditions are unfavorable for SGR development and breeding in the gregarious areas. Only some isolated low density maturing and mature solitary adults mixed with 4th instar solitary hoppers were detected south of Salal and south-east of Kalai, but they are not expected to pose a threat in November (ANLA/Chad).

In **Niger**, precipitation was not recorded in summer breeding and gregarization areas in October, but ecological conditions are favorable in northern areas from previous rains. A survey team was deployed to Ténéré sector (South Temerit) and covered 12,310 ha in 39 sites. A few mature and immature solitary adults (at 16-300 insects/ha) and 3rd to 5th instar hoppers were observed in about 65% of the sites. Overall, the situation remained generally calm (CNLA/Niger).

In **Algeria**, two ground survey teams were deployed in Adrar and Tamanrasset in October and detected isolated low density solitary mature and immature adults in Tamanrasset. Heavy rains created favorable ecological conditions in summer breeding areas in northern Niger and Mali and moving towards spring

breeding areas, ideal to invade the wadis and agricultural areas in the far south and southwest and Hoggar regions of Algeria where vegetation is green in agricultural areas and in wadis that received rain. Surveys are scheduled for November and December in the far south to assess potential locusts crossing from adjacent areas in northern Niger and Mali (INPV/Algeria).

Unusually heavy rains fell in western and northern parts of **Morocco** on 15 and 16 October where the ground was over saturated and caused heavy flooding and various size ponds in desert areas. Insignificant locust presence has been reported in the wilaya of Tamanrasset and green vegetation was reported within irrigated agricultural perimeters and in wadis where rainfall occurred. Nevertheless, overall, the SGR situation is generally calm at the moment (CNLAA/Morocco).

In **Mali**, ecological conditions remained favorable in the gregarious areas for SGR reproduction and development, but no locusts were reported during this month. The head of the Information, Communication and Documentation Department of the National Center for Desert Locust Control participated in a joint survey mission in Mauritania from 1-10 October 2024 to monitor desert locust using drones. From October 28 to November 1, 2024, CNLA organized a training session on survey techniques using drones for CNLA survey team and the Plant Protection Offices in Katibougou. The training was funded by the CLCPRO to further strengthen the national capacity for locust operations (CNLA/Mali).

In **Mauritania**, the survey team observed a few isolated mature and immature adults and scattered hoppers

South of Adrar, North-East Trarza, and to a less extent in Brakna and Tagant. Ecological conditions are improving in the central and northern areas and deteriorating in the south and locusts are expected to move towards these areas in search of better conditions to develop and possibly breed. Thus, small-scale breeding is likely in the central and northwestern parts of the country during the forecast period.

Forecast: In WOR, generally, locust numbers are expected to decline during the forecast period with ecological conditions remaining unfavorable in most places. In Morocco where heavy rains were recorded, some locust presence is likely in areas where they often appear and breed (Source: BHA/TPQ, FAO/DLIS, INPV/Algeria, ANLA/Chad, CNLCP/Mali, CNLA/Mauritania, CNLAA/Morocco, CNLA/Niger).

SGR - EOR: A few isolated adults were detected in summer breeding areas in India and Pakistan during this month.

Forecast: With summer vegetation drying out, locust numbers will decrease along the Indo-Pakistan border and hence significant development is unlikely (Source: FAO/ECLC).

Active surveillance and timely preventive interventions always remain critical to abate any potential threats.

SGR threats can be abated with coordinated and planned monitoring, surveillance and preventive control interventions led by the National/PPD and/or the SGR unit in collaboration with relevant national and regional organizations, adequate resources [by host authorities and partners] coupled

with deterrence of unnecessary anthropogenic anomalies (e.g., conflicts, security incidences, blockage of transportation arteries, delayed resource release, potential asset diversions, etc.).

Red (Nomadic) Locust (NSE):

Although significant NSE activities were not observed, mating is expected to have commenced in some primary outbreak areas where precipitation occurred - Wembere, Malagarasi and Rukwa plains in Tanzania; Buzi-Gorongosa and Dimba plains in Mozambique. The pest is expected to be present in primary breeding areas in Malawi and Zambia as well (RLCO-CSA).

Forecast: NSE mating and breeding is expected to increase in primary breeding areas in Tanzania, Mozambique, Malawi and Zambia. Mating, hatching and formation of hopper bands is expected in November/December and well into January 2025 with ecological conditions improving. Active surveillance and monitoring remain critical (BHA/TPQ, IRLCO-CSA).

African Migratory Locust (AML - LMI):

Low density AML populations persisted in Simalaha plains, Zambia. continued to be present in the Simalaha Plains in Kazungula District in the Southern Province of Zambia. AML swarms were reported invading and damaging palm trees and other crops in Tazirbu, Sabha, Tarhuna, Bani Walid, and Wadi Taraghin in southern Libya where rainfall was reported during previous months (IRLCO-CSA, NCDLC/Libya).

Forecast: AML will likely develop with ecological conditions improving. Regular monitoring remains critical for early detection and timely interventions (BHA/TPQ, IRLCO-CSA).

Malagasy locust (*Locust migratoria capito* – LMC): LMC activities were not reported during this month.

Tree Locust (*Anacridium spp.*): No update was received.

Active monitoring and surveillance remain critical to plan timely preventive interventions and abate the threats the ETOPs

Elegant grasshopper (*Zonocerus elegans* (ZEL): No update was received.

Central American Locust - *Schistocerca piceifrons* (CAL): No update was received.

[Note: *CAL is a serious pest in 10 regions 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, and several species of 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://test.senasa.gov.ar/langostas/>

Italian (CIT), Moroccan (DMA) and Migratory (LMI): Locust activities have ended in the CCA regions. Close to 4.3 million ha were reported treated during 2024 locust season, nearly 60% higher than the 2.7 million ha treated during 2023 (FAO/ECLO).

Forecast: The locust situation will remain clam until next spring.

Fall armyworm (FAW): FAW infestation continued in southern and southwest regions in Ethiopia. Severe FAW infestations were reported in irrigated maize in Lilongwe, Kasungu, Machinga, Mzuzu, Blantyre, Shirevalley, Salima and Karonga ADDs Malawi; Moderate infestation was reported in the Western region of Kenya. Affected farmers carried out control with technical and material assistance from MoA. Mild infestations are likely in other member states (DLCO-EA, PPD/Ethiopia, IRLCO-CSA).

Forecast: Fall armyworm infestations are likely to appear and increase with the beginning of the cropping season sometime in November into December in many frontline countries..

NOTE: *FAW has become a resident pest in several countries which it has invaded since 2016 (the first time it was reported on the African continent) and continued threatening crops on the continent thereafter. Between 2018 and 2020, FAW was recorded from South Asia, Southeast Asia, East Asia, and Pacific/Australia and continued thereafter. END NOTE*

Active surveillance, monitoring, reporting, and timely preventive interventions remain critical to abate major crop damage.

FAO-led Global Action for Fall Armyworm Control

NOTE: The Food and Agriculture Organization and CIT engagements in a transformative, coordinated Global Action for Fall Armyworm Control (GAFC) which was launched in December 2019 as an urgent response to the rapid spread of FAW. GAFC was intended to be implemented in 65 [target] countries across Africa, Near East and Asia-Pacific from 2020 to 2022: [FAO GLOBAL ACTION FOR FAW CONTROL](#)

BHA/TPQ collaborated with partners to benefit farming communities and host-countries with the intention to scale up and spread gains across FAW prone regions, consistent with the spirit of GAFC and host-country strategies. These initiatives are built on experiences gained over the past several years, including outcomes of projects and programs supported through USAID legacy OFDA, legacy BFS, national partners, CGIARs, FAO, and several other entities.

Note: Several species of natural enemies of FAW have been identified across different countries and regions and their efficacy, effectiveness, environmental impacts, safety, and other relevant parameters have been tested. Some have been in use in an IPM toolbox. For instance, a package of biological control for FAW was demonstrated in a video clip from Syria that *Trichogramma pretiosum*, an egg parasitoid, can be mass released to control the FAW egg populations. Bacterial insecticide, such as *Bacillus thuringiensis* is sprayed four to five days after a *Trichogramma pretiosum* parasitoid was released to control any surviving FAW larvae. The third component in the package was mass release of a larval parasitoid,

Habrobracon hebetor, that further disrupts the life cycle of FAW. Other environmentally friendly and safer alternatives are also being tried and utilized to prevent and mitigate FAW damage in many countries across the globe. End note.

African Armyworm (*Spodoptera exempta*, Walker) (AAW): AAW was not reported in the southern or eastern regions during this month.

Forecast: AAW is likely to begin appearing in some IRLCO-CSA member states at the onset of the seasonal rains. Armyworm monitoring units and communities are encouraged to maintain monitoring and timely response interventions (BHA/TPQ, IRLCO-CSA).

Quelea species (QSP): QSP outbreaks were reported in Kibaha and Bagamoyo Districts in Coastal Region and Mvomero and Kilosa Districts in Morogoro Region in Tanzania. Tanzania Plant Health and Pesticide Authority in collaboration with DLCO-EA carried out aerial control operations. In Ethiopia, DLCO-EA in collaboration with MoA continued with aerial control operations in Amhara and Oromia regions. In Kenya, small flocks of QSP infestations were reported in irrigation schemes in Kiriya County where rice crops are at a vulnerable stage and the pest will increase and pose a threat during the forecast period. QSP infestation was reported the Upper Nile State, Thyara Scheme, Renk scheme, Kal Agang Kodok, Wal cana and QSP roots were confirmed at Renk north, Mazalat canal, Gazera, Abokhdera and Jabalan in South Sudan near the border with Sudan. DLCO-EA deployed a spray aircraft for control. QSP was reported attacking rice in Karonga agricultural development district in Malawi (DLCO-EA, IRLCO-CSA).

Forecast: QSP will continue being a problem to small-grain crops in several regions. Active monitoring and surveillance remain critical to prevent crop damage (BHA/TPQ, DLCO-EA, IRLCO-CSA).

QSP prone countries are always encouraged to share with neighboring countries and relevant regions information on the pest situation, actions undertaken as well as follow up plans.

Facts: QSP can travel ~100 km/day in search of food. An adult QSP can consume 3-5 grams of small grains 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 – enough to feed 12,000-20,000 people/day.

Rodents: No update was received during this month, but the pest remains a perennial problem to pre- and post-harvest crops across various regions.

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 or animal consumption; rats are also zoonotic - diseases vectors and transmitters.

Coconut rhino beetle (CRB) (Oryctes rhinoceros – CRH): No update was received on CRB in the Republic of Marshall Islands at the time this bulletin was compiled.

CRB was reported in **Vanuatu** a few months ago, but no additional information was received at the time this bulletin was compiled.

Red spider mite (RSM) (Tetranychus utricae (TUT) Koch, a tiny but devastating sucking fruit and vegetable pest, was reported invading fruits and vegetables in northern Libya. The pest was reported causing serious economic distress to fruit and vegetable producing farmers. RSM (TUT), a common pest in fruit and vegetable growing areas in the country, has become increasingly damaging primarily due to climate change – rising temperatures and drought.

All GETOP front-line countries are encouraged to maintain regular monitoring and surveillance as well as preventive interventions in a timely manner. Regular crop scouting is critical to avoid damage/losses. Invasion countries must remain 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 and reports with stakeholders, including neighboring countries, and humanitarian and development partners, etc., as early and often as possible. Lead farmers, field scouts, community forecasters and others must remain vigilant and report ETOP detections to relevant authorities in their jurisdictions as quickly as possible. Strong surveillance, monitoring and quarantine enforcement remain critical to prevent invasive pest species.

NOTE – Advanced Technologies for GETOP Surveillance, Early Warning and Forecasting Enhance Effective GETOP Management: Innovative technologies, such as drones, for high-resolution images in remote and hard-to-

reach inaccessible areas are being explored. Drones for locust monitoring, and localized control in sensitive, and hard to reach areas continuous improving showing promising results. While the range of agriculture-oriented drones may be limited for large-scale area-wide ETOP interventions, such as massive swarms and hopper bands, countries and partners have expressed interests to support work on key parameters associated with these technologies.

Crowd and cloud sourcing for data collection, sharing, etc. are another set of assets that can be of value for GETOP. 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 with a goal to manage them safely and effectively. **End note.**

ETOP Proliferation and Climatic Factors

Note: Climate impacted 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 [into 2022] End note; Scientific review of the impact of climate change on plant pests – A global challenge to prevent and mitigate plant pest risks in agriculture, forestry, and ecosystems. Rome. FAO on behalf of the IPPC Secretariat <https://www.fao.org/documents/card/en/c/cb4769en>.

BHA's Contributions to ETOP Abatement Interventions

USAID/BHA/TPQ continues its effort in strengthening national and regional capacity in GETOP prone countries across regions. The supports for GETOPs include projects on FAW in Eastern Africa, Southern Africa and the Horn, locusts and grasshoppers in West Africa, desert locusts in the Red Sea region, the Horn of Africa,, as well as locusts in the Caucasus and Central Asia (CCA) regions.

In eastern, southern and the Horn of Africa, a DRR project that targeted on community based FAW monitoring forecasting and early warning was implemented and just recently concluded (Ethiopia, Malawi, Rwanda, Uganda, and Zambia) in collaboration with the International Center for Insect Physiology and Ecology [ICIPE](#) in close collaboration with participating countries.

In the Caucus and Central Asia region, where tens of millions of farmers and herders are affected by three major locust species, BHA is co-funding a multi-year DRR project. The project is being

implemented under the management of FAO in close collaboration with affected countries in the regions [BHA CCA Locust Support](#).

BHA/TPQ/FSL also co-sponsors a multi-year DRR locust project through the FAO in the CRC region with a focus on strengthening surveillance, monitoring, early detection, and early warning as well as management of the SGR to improve food security and livelihoods of tens of millions of vulnerable communities.

USAID/BHA/TPQ/FSL supports operational research through Arizona State University on integration of alternative locust and grasshopper management tools into community and National Plant Protection Departments practices. This project is being implemented in West Africa in collaboration with Senegal/PPD, University of Gaston Berker University, St Lous, Senegal, CIRAD, French Institute of Development Research (IRD).

Note: A sustainable Pesticide Stewardship (SPS) can contribute to strengthening pesticide delivery system (PDS) at the national and regional levels. A viable and effective SPS can be established by linking 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 integrated pest management (IPM) approach - the Agency policies, and procedures - to help minimize health risks and protect the environment from misuse and mismanagement of pesticides, pesticide

containing materials and empty containers, and improve safer and effective pest pesticide management interventions. An informed procurement decisions and use of pest management products as well as judiciously executed triangulations of surplus stocks are worth considering.

Inventory of Strategic Pesticide Stocks for SGR Control

In October, the SGR strategic pesticide stocks were barely utilized and there was a minor change for the month (75 ha were treated with 150 l in Sudan).

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

Country	Quantity l/kg
Algeria	1,184,666~
Burkina Faso	2,572~
Chad	56,220 + 169 bio-p
Egypt	6,989 ULV, 9,978~
Eritrea	7,555 Fenitrothion 64 ULV
Ethiopia	29,260~
Libya	24,930~
Kenya	?
Madagascar	9,335~
Mali	239 bio-p
Mauritania	32,000 l Chlorpyrifos 240 ULV + 310,5 kg Novacrid®.
Morocco	3,375,082~
Niger	56,350 Pyrical 480 UL and 240UL,Fenical 400 UL)+ 210 kg MAC
Oman	5,000~
Saudi Arabia	?
Senegal	154,372~
Somalia	?
Sudan	910 EC
South Sudan	?
Tunisia	62,200 ^{OB} +200 ^{OBML} +1,025 ^L V~

Uganda	?
Yemen	8,528~, 172.35kg ^{GM~}
<p>*Stocks may include different pesticides and formulations - ULV, EC, etc. Bio-p = biopesticide ~ data may not be current. ? = data not available ^{MAC} = <i>Metarhizium acridum</i> – biopesticide, e.g., NOVACRID® (Elefant Vert), Green Muscle) ^{OB} = obsolete ^{ML} = malathion ^{LV} = Larvos Pyrical = chlorpyrifos-ethyl Fenical = fenitrothion</p>	

LIST OF ACRONYMS

- AAW African armyworm (*Spodoptera exempta*)
- AELGA Assistance for Emergency Locust Grasshopper Abatement (formerly Africa Emergency Locust and Grasshopper Assistance)
- 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 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 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
- CRB Coconut rhino beetle (*Oryctes rhinoceros* – ORH)
- 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 the same phenology as mature adults, but lacks fully developed reproductive organs to breed	MoAI	Ministry of Agriculture and Irrigation
GM	GreenMuscle® (a <i>Metharhizium</i> fungal-based biopesticide); NOVACRID, Green Guard	MoARD	Ministry of Agriculture and Rural Development
ha	hectare (= 10,000 sq. meters, about 2.471 acres)	MPDLCU	Migratory Pest and Desert Locust Control Unit
ICAPC	IGAD's Climate Prediction and Application Center	NALC	National Agency for Locust Control
IGAD	Intergovernmental Authority on Development (Horn of Africa)	NCDLC	National Center for the Desert Locust Control, Libya
IRIN	Integrated Regional Information Networks	NOAA (US)	National Oceanic and Aeronautic Administration
IRLCO-CSA	International Red Locust Control Organization for Central and Southern Africa	NPS	National Park Services
ITCZ	Inter-Tropical Convergence Zone	NSD	Republic of North Sudan
ITF	Inter-Tropical Convergence Front = ITCZ)	NSE	<i>Nomadacris septemfasciata</i> (Red Locust)
FAO-DLIS	Food and Agriculture Organizations' Desert Locust Information Service	OFDA	Office of U.S. Foreign Disaster Assistance
Hoppers	young, wingless locusts/ grasshoppers (Latin synonym = nymphs or larvae)	PBB	Pine Bark Beetle (<i>Dendroctonus</i> sp.: Curculionidae – true weevils)
JTWC	Joint Typhoon Warning Center	PHD	Plant Health Directorate
Kg	Kilogram (~2.2 pound)	PPD	Plant Protection Department
L	Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)	PPM	Pest and Pesticide Management
LCC	Locust Control Center, Oman	PPSD	Plant Protection Services Division/Department
LPA	<i>Locustana pardalina</i>	PRRSN	Pesticide Risk Reduction through Stewardship Network
LMC/ML	<i>Locusta migratoriacapito</i> (Malagasy locust)	QSP	<i>Quelea</i> species (Red Billed <i>Quelea</i> bird, etc.)
<i>Metarhizium acridum</i>	(a fungal entomopathogen used for locust and grasshopper control, e.g., NOVACRID (Benin isolate; Green Muscle (Niger and CIRO isolates); The entomopathogen was formerly named <i>M. anisopliae</i> var <i>acridum</i> and before that it was referred to as <i>M. flavoveridea</i> and <i>Metarhizium</i> sp.)	SAL	South American (Locust <i>Schistocerca cancellata</i>)
MoAFSC	Ministry of Agriculture, Food Security and Cooperatives	SARCOF	Southern Africa Region Climate Outlook Forum
		SGR	<i>Schistoseca gregaria</i> (the Desert Locust)
		SSD	Republic of South Sudan
		SPB	Southern Pine Beetle (<i>Dendroctonus frontalis</i>) – 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)
		TPHPA	Tanzania Plant Health and Pesticide Authority (TPHPA)
		TPQ	Technical and Program Quality

Triangulation Transfer of donated pesticides from countries with large inventories with no immediate need to countries with immediate need through a third party negotiation and shipments, etc. Usually, FAO plays the third-party role in the case of locust and other emergency pests.

TUT Red spider mite (*Tetranychus utricae* (Koch))

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 has emerged as a relatively new, dry season pest, largely associated with the destruction of its natural habitat through deforestation, land clearing for agricultural and other development efforts and climate anomalies.

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

Additional resources on GETOPs

USAID/BHA Pest and Pesticide Monitoring and GETOP Bulletins: [USAID/BHA PPM](#)
USAID Pest Management Guidelines

[USAID PMG](#)
[US EPA IPM](#)

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

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](#)

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](#)

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

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

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

ASU Locust and Grasshopper: [HopperWiki](#)

FAW:

USAID FtF FAW [USAID FAW](#)

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](#)

FAW management animation SAWBO

[FAW Management Animation](#)

[FAW GAFC Map 2022](#)

[CABI on FAW](#)

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

AAW:

[Armyworm](#)

Famine Early Warning System Network

[FEWS NET](#)

NOAA Climate Prediction Center [NOAA](#)

[CPC](#)