

**Emergency Transboundary Outbreak Pest (ETOP) Situation Bulletin for
December 2020 with a forecast through mid-February 2021**
résumé en français est inclus

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**¹): SGR continued further developing and spreading in the central outbreak region (COR) where numerous hoppers and swarms were forming in northern and central Somalia and spread to southeastern Ethiopia and reached northern Kenya from the 3rd decade of December. Swarms were further spreading to southwestern Ethiopia, northeastern Kenya, and some were detected on the coastal areas in Lamu Kenya. Breeding and swarm formations continued during December on the Red Sea coastal areas in Sudan, Eritrea and Saudi Arabia. During this month, control operations treated close to 336,070 ha, mostly in greater eastern Africa (210,673 ha in Ethiopia, 39,101 ha in Somalia, 18,873 ha in Sudan, 1,336 in Kenya and 1,780 ha in Eritrea) and Saudi Arabia (61,075 ha). In the western outbreak region (WOR), largely remained calm and only some 3,000 ha were treated in **Mauritania, Niger** and **Algeria during** December. The eastern outbreak region (EOR) remained calm and only some adult groups were reported in southwest coast of **Iran**.

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

Forecast: In COR, swarms from northern and central Somalia and eastern Ethiopia will continue spreading to southern **Ethiopia** and northern and eastern **Kenya**, and mature and lay eggs giving rise to hoppers and bands by late January. In northern and northeastern **Somalia** hatching is underway from eggs that were laid in areas affected by Cyclone Gati and form hopper bands and continue until about mid-January; swarms will start to form from early February on. In **Saudi Arabia**, swarms laid eggs on the Red Sea coast causing hopper bands, and swarms that reached the interior areas of the country will mature and begin breeding as the temperatures rise. Small-scale breeding will continue on the coastal areas in **Sudan** and **Eritrea** and cause hatching and hopper group and band formations in the coming weeks. In **Yemen**, scattered adults present along the Red Sea and Gulf of Aden coasts and likely breed and result in a new generation of hopper groups and bands. Locust numbers will increase and swarms will further spread into southwestern Ethiopia, northern Kenya and parts of Somalia; intensive monitoring and control operations remain critical to avert any major threats and minimize damage to crops and pasture in the months to come. In EOR, adult groups will breed in southwest **Iran** with the rise in temperatures. In WOR, small-scale breeding is likely in northwest Mauritania, northern Niger and southern Algeria during the forecast period.

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

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

Red (Nomadic) Locust (*Nomadacris septemfasciata*) (**NSE**): Mating and egg laying occurred in primary outbreak areas where the seasonal rains continues improving breeding conditions.

African Migratory Locust: *Locusta migratoria migratorioides* (**LMI**): Small scale infestations of LMI were reported in Zambia and Zimbabwe. A similar situation is likely in neighboring countries.

Tree Locusts, *Anacridium spp.* (**ASP**): No report on ASP during this month.

Central American Locust, *Schistocerca piceiferons* (**SPI**): No update was received, but it is likely SPI persisted in Central American.

South American Locust, *Schistocerca cancellata* (**SCA**): SCA hopper bands were detected and controlled in Salta, Jujuy, Tucuman and Santiago del Estero Provinces in Argentina.

Italian (CIT), Moroccan (DMA), and Asian Migratory Locusts (LMI): DMA, CIT and LMI activities ended in CAC and the situation will remain calm till spring.

Fall Armyworm (*Spodoptera frugiperda*) (**FAW**): FAW was reported in Arumeru Region in Tanzania and a similar situation is likely in other countries where maize is in season and irrigation is in progress.

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

Quelea spp. (QSP): QSP outbreaks were reported in several regions of Tanzania where control operations treated infestations on 9 roosting sites.

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

USAID/OFDA/PSPM regularly monitors ETOPs in close collaboration with its network of national PPDs/DPVs, regional and international pest monitoring and/or control entities, including FAO, CLCPRO, CRC, DLCO-EA, and IRLCO-CSA, and research centers, academia, private sector, NGOs and others and issues concise, analytical Bulletins to stakeholders. **End summary**

RÉSUMÉ

La situation du Criquet pèlerin (*Schistoseca gregaria* - SGR): Le SGR a continué à se développer et à se propager dans la région centrale de l'épidémie (COR) où de nombreux larves et essaims se formaient dans le nord et le centre de la Somalie et se sont propagés au sud-est de l'Éthiopie et ont atteint le nord du Kenya à partir de la 3ème décennie de décembre. Des essaims se propageaient davantage vers le sud-ouest de l'Éthiopie, le nord-est du Kenya, et certains ont été détectés sur les zones côtières de Lamu au Kenya. La reproduction et les formations d'essaims se sont poursuivies en décembre dans les zones côtières de la mer Rouge au Soudan, en Érythrée et en Arabie saoudite. Au cours de ce mois, les opérations de lutte ont traité près de 336 070 ha, principalement dans la grande Afrique orientale (210 673 ha en Éthiopie, 39 101 ha en Somalie, 18 873 ha au Soudan, 1 336 au Kenya et 1 780 ha en Érythrée) et en Arabie saoudite (61 075 ha). Dans la région ouest du foyer (WOR), le calme est resté en grande partie calme et seuls 3 000 ha environ ont été traités en Mauritanie, au Niger et en Algérie en décembre. La région orientale de l'épidémie (EOR) est restée calme et seuls quelques groupes d'ailés ont été signalés sur la côte sud-ouest de l'Iran. <http://www.fao.org/ag/locusts/en/info/info/index.html>

Prévisions: Au COR, les essaims du nord et du centre de la Somalie et de l'est de l'Éthiopie continueront de se propager vers le sud de l'Éthiopie et le nord et l'est du Kenya, et arriveront à maturité et pondront des œufs, donnant naissance à des larves et à des bandes d'ici la fin janvier. Dans le nord et le nord-est de la Somalie, des éclosions sont en cours à partir d'œufs pondus dans les zones touchées par le cyclone Gati et forment des bandes larvaires et se poursuivent jusqu'à la mi-janvier environ; des essaims commenceront à se former à partir de début février. En Arabie saoudite, des essaims ont pondu sur la côte de la mer Rouge, provoquant des bandes larvaires, et les essaims qui ont atteint l'intérieur du pays arriveront à maturité et commenceront à se reproduire à mesure que les températures augmenteront. Une reproduction à petite échelle se poursuivra dans les zones côtières du Soudan et de l'Érythrée et provoquera des éclosions et des formations de groupes larvaires et de bandes dans les semaines à venir. Au Yémen, des ailés épars sont présents le long des côtes de la mer Rouge et du golfe d'Aden et se reproduisent probablement et donneront lieu à une nouvelle génération de groupes et de bandes larvaires. Les effectifs acridiens augmenteront et les essaims se propageront davantage dans le sud-ouest de l'Éthiopie, le nord du Kenya et certaines parties de la Somalie; des opérations intensives de surveillance et de contrôle restent essentielles pour éviter toute menace majeure et minimiser les dommages aux cultures et aux pâturages dans les mois à venir. Dans l'EOR, des groupes d'ailés se reproduiront dans le sud-ouest de l'Iran avec l'augmentation des températures. Dans le WOR, une reproduction à petite échelle est probable dans le nord-ouest de la Mauritanie, le nord du Niger et le sud de l'Algérie pendant la période de prévision. <http://www.fao.org/ag/locusts/en/info/info/index.html>

Criquet nomade (*Nomadacris septemfasciata*) (NSE): L'accouplement et la ponte ont eu lieu dans les principales zones de foyers où les pluies saisonnières continuent d'améliorer les conditions de reproduction.

Criquet migrateur africain: *Locusta migratoria migratorioides* (LMI): Des infestations à petite échelle de LMI ont été signalées en Zambie et au Zimbabwe. Une situation similaire est probable dans les pays voisins.

Le criquet arborial, *Anacridium spp*: (ASP): Le rapport ASP n'a pas été reçu ce mois-ci.

Criquet Amérique centrale, *Schistocerca piceifrons piceiferons* (SPI): Aucune mise à jour n'a été reçue, mais il est probable que la SPI a persisté en Amérique centrale.

Criquet d'Amérique du Sud, *Schistocerca cancellata* (SCA): SCA bandes larvaires ont été détectées et contrôlées dans les provinces de Salta, Jujuy, Tucuman et Santiago del Estero en Argentine.

Criquets italiens (CIT), marocains (DMA), Asian Migratory Locust (LMI): Les activités DMA, CIT et LMI se sont terminées à CAC et la situation restera calme jusqu'au printemps.

Chenille Légionnaire d'automne (*Spodoptera frugiperda*) (FAW): La FAW a été signalée dans la région d'Arumeru en Tanzanie et une situation similaire est probable dans d'autres pays où le maïs est en saison et l'irrigation est en cours.

Chenille Légionnaire africaine (AAW), *Spodoptera exempta*: aucune épidémie d'AAW n'a été signalée ce mois-ci.

***Quelea spp. oiseaux* (QSP):** QSP foyers ont été signalés dans plusieurs régions de la Tanzanie où les opérations de lutte ont traité des infestations sur 9 sites de repos.

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 / OFDA / PSPM surveille régulièrement les ETOP en étroite collaboration avec son réseau de PPD / DPV nationaux, d'entités régionales et internationales de surveillance et / ou de lutte antiparasitaire, y compris la FAO, la CLCPRO, le CRC,

le DLCO-EA et l'IRLCO-CSA, et des centres de recherche, universités, secteur privé, ONG et autres et publie des Bulletins analytiques concis à l'intention des parties prenantes. Fin de résumé

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

[USAID Pest and Pesticide Monitoring](#)

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

Weather and Ecological Conditions

During December, precipitation deficit in COR caused drying out of vegetation in the summer breeding areas in the interior of Sudan. Conditions remained favorable in the northeast subcoastal areas as well as on the Red Sea coast in Sudan, Eritrea, KSA and Yemen. Light rain was reported on the Red Sea coast of Yemen during the 2nd week of December while light to moderate showers fell on the Tihama and Gulf of Aden on 19–20 causing flooding in some wadis in the south where conditions were dry. In the Horn of Africa, light rains fell during the 1st and 3rd dekads in southwest Ethiopia, northwest Kenya, parts of eastern Kenya along the Somalia border, and in southern Somalia. In eastern Ethiopia and central Somalia, vegetation started to dry in places where precipitation was insignificant. Favorable conditions prevailed on the plateau and in northern and northeastern coastal areas of Somalia where heavy rains from Cyclone Gati (Gati made a landfall on 22nd November) (FAO-DLIS, DLMCC/Yemen, LLC/Oman, SPV/Djibouti, PPD/Eritrea, PPD/Sudan, NOAA).

In EOR, light to moderate rains fell during the 1st dekad of December in coastal and

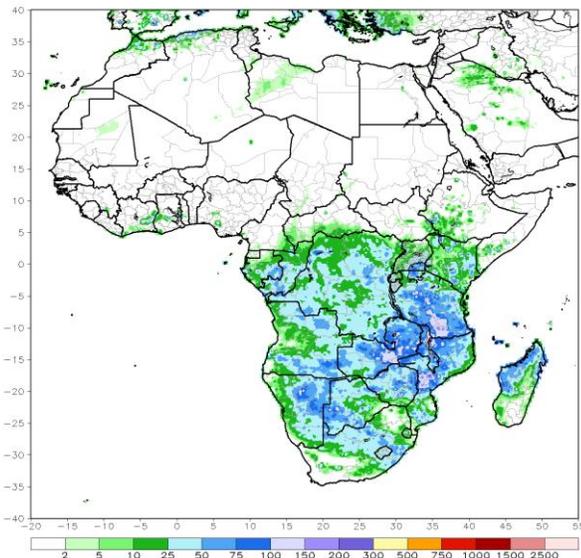
subcoastal areas in southwest Iran where good rain was reported during the 2nd half of November. Although this will likely improve ecological conditions for locusts to survive, low temperatures will delay maturation. Elsewhere, conditions remained dry and unfavorable for breeding in the region (FAO-DLIS).

In WOR, significant precipitation deficit for the 2nd consecutive months continued causing vegetation to dry out in most of SGR breeding areas except a few low-lying areas in west and northwest Mauritania. Annual vegetation remained green in a few places in northeast Chad, in southern Morocco and along the southern side of the Atlas Mountains, and near irrigated areas in central Sahara in Algeria (ANLA/Chad, CNLAA/Mauritania, CNLAA/Morocco, FAO-DLIS).

Rainfall was above average locally over western Tanzania, while below-average rainfall was observed over eastern Tanzania most of December into the 1st few days in early January. Heavy rains were reported in Masenge (Wembere Plain - 348.7 mm); Kaliua (Malagarasi Basin - 397.3 mm) and Muze (Lake Rukwa Plains - 360 mm) in Tanzania. Light to moderate rainfall was also reported in Buzi-Gorongozo plains in Mozambique during this time. Seasonal rains in most NSE outbreak regions continued further improving breeding conditions. In southern Africa, persistent moderate to heavy rains resulted in moisture surpluses over eastern Angola, Zambia (Namwala, Kafue Flats - 317.4 mm), Botswana, and

Zimbabwe. Rainfall was also above average over central and southern Mozambique and pocket areas in Madagascar. Persistent light rains resulted in moisture deficits in western Angola and northern Namibia. Rainfall was also below average over pocket areas in northeastern South Africa, northeastern Mozambique, and over many parts of Madagascar. In central Africa, rainfall was above average over western and northern DRC, Congo, and rainfall was below average over central and eastern DRC (see map below) (NOAA, IRLCO-CSA).

RFE2 7-Day Total Rainfall (mm)
Period: 28Dec2020 – 03Jan2021



CAC Region: In CAC, mostly dry weather prevailed during this month.

ETOP proliferation vis-a-vis climate factors

Note: Changes in the weather pattern such as increased or decreased temperatures and precipitation can contribute to an ecological shift in ETOP

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

habitats and could increase or decrease the risk of pest outbreaks, resurgence and/or emergence of new pests. The extended ETOP appearance, prevalence, outbreaks and upsurges are partially attributed to the change in the weather pattern, i.e., extensive and above normal rainfall partly associated with the occurrence of multiple cyclones over a period of less than two years – May 2018 to December 2019 in the COR region.

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

End note.

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

SGR – COR: The Desert Locust

(*Schistoseca gregaria* - SGR²): In COR, SGR continued further developing and numerous hoppers and swarms forming in northern, northeastern and central Somalia and spreading to southeastern Ethiopia and some reached northern Kenya from the 3rd decade of December. Swarms were reported further spreading to southwestern Ethiopia, northeastern Kenya, and some were detected on the coastal areas in Lamu Kenya. Breeding and swarm formations continue on the Red Sea coastal areas in Sudan, Eritrea and Saudi Arabia during December. Control operations treated 336,071 ha, mostly in the greater eastern Africa countries (210,673 ha in Ethiopia, 39,101 ha in Somalia, 1,336 ha in Kenya, 18,873 ha in Sudan, and 1,780 ha in Eritrea) and 61,075 ha in KSA during this month (DLCO-EA, DLMCC/Yemen, LCC/Oman, FAO-DLIS, PPD/Eritrea, PPD/Sudan, SPPV/Djibouti).

Forecast: In northern and northeastern Somalia, where hatching is underway

from egg laying that occurred in areas affected by Cyclone Gati, numerous early instar hopper bands continue to form until about mid-January and give rise to swarms from early February on. More swarms from central **Somalia** and some from eastern **Ethiopia** will likely invade southern Ethiopia and **Kenya** where they will mature and lay eggs and form hopper bands. In **Saudi Arabia**, swarms that reached the interior areas of the country will mature and begin breeding as the temperatures rise. Small-scale breeding continues on the coastal areas in **Sudan**, **Eritrea** and Egypt and cause hatching and hopper group and band formations in the coming weeks.



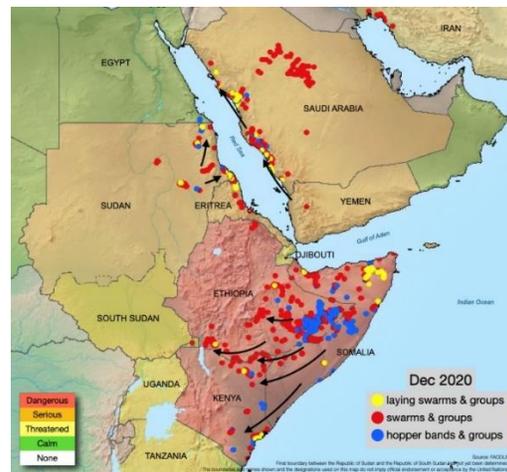
Immature adult locusts invaded maize crop in Mandera, northeastern Kenya (December 2020; source: FAO-DLIS)

In **Yemen**, solitary and scattered adults on the Red Sea and Gulf of Aden coasts will breed and result in a new generation of hopper groups and bands.

Intensive monitoring and control operations will remain critical to avert any major threats and minimize damage to crops and pasture in the months to come (DLCO-EA, DLMCC/Yemen, LCC/Oman, FAO-DLIS, PPD/Eritrea, PPD/Ethiopia, PPD/Sudan, SPPV/Djibouti).



An immature swarm detected in Moyale, northern Kenya in late December (FAO-DLIS)



FAO-DLIS Dec 10, 2020

SGR - EOR: The eastern outbreak region (EOR) remained calm and only some adult groups were reported in southwest coast of **Iran** (FAO-DLIS).

Forecast: In EOR, breeding and hopper formations are likely in southwest coast of Iran provided ecological conditions become favorable. Isolated solitary adults likely to prevail in Pakistan during the forecast period (FAO-DLIS).

SGR - WOR: In WOR, small groups and concentrations of locusts were treated on 485 ha in **Mauritania**, 2,470 ha in **Niger** and 43 ha in **Algeria**; the situation remained

relatively calm in other countries in the region during December (ANLA/Chad, CNLAA/Mauritania, CNLAA/Morocco, CNLCP/Mali, CNLA/Tunisia, FAO-DLIS).

Forecast: In WOR, some infestations will likely persist in Mauritania, Mali, Niger, and Morocco with small-scale breeding occurring in Mauritania and Algeria during the forecast period (ANLA/Chad, CNLAA/Mauritania, CNLAA/Morocco, CNLCP/Mali, CNLA/Tunisia, FAO-DLIS).

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

Red (Nomadic) Locust (NSE):

Although NSE situation remained relatively calm, improved breeding conditions from the seasonal rains, favor mating and egg laying in several primary outbreak areas - Lake Chilwa/Lake Chiuta plains, Malawi; IkuuKatavi plains, Wembere plains, North Rukwa plains and Malagarasi Basin in Tanzania; the Dimba and Buzi plains in Mozambique and in the Kafue Flats in Zambia – where significant adult populations were present at the onset of the seasonal rains (IRLCO-CSA).

Forecast: Hatching will increase formation of low to medium size hopper bands in the outbreak areas where significant residual parental populations persisted. These are expected to occur in several areas, including Ikuu-Katavi, Rukwa and Wembere plains and Malagarasi Basin in Tanzania; Buzi and Dimba plains in Mozambique; Lake Chilwa/Lake Chiuta plains in Malawi and

the Kafue Flats in Zambia (BHA/TPQ, IRLCO-CSA).

African Migratory Locust (LMI): Small scale LMI outbreak was reported in Kazungula district of Southern Province of Zambia and controlled with pesticides 10 ha. LMI outbreak was also controlled in Midland Province in Zimbabwe during this month (IRLCO-CSA).

Forecast: LMI outbreak is likely in Southern and Western Provinces of Zambia and other countries in the region where breeding conditions have improved from the seasonal rains (IRLCO-CSA).

Timely surveillance, monitoring and preventive interventions remain critical to minimize any crop and pasture damage (BHA/TPQ).

Note: *FAO Southern Africa in consultation with IRLCO-EA and member states developed an action plan (AP) for the AML operations in the region. The AP has since been updated by SADC and increased an appeal to USD 21 million. The updated AP will include coordination, response, preparedness, food security and livelihoods of millions of affected people in targeted countries in the region. FAO is working in close contact with SADC, MoAs, IRLCO-CSA, donors and other stakeholders to help launch the AP and address the AML threat to food security and livelihoods of millions of people (FAO/Southern Africa).*

Central American Locust -

Schistocerca piceifrons (SPI): No update was received at the time this bulletin was compiled though it is likely the pest is in season.

[Note: CAL is a pest of economic importance in Mexico and Central America and attacks hundreds of species of plants including agave, banana, beans, corn, cotton, peanut, rice, sesame, soybean, sorghum, sugarcane, several fruit trees, etc.]

South American Locust, *Schistocerca cancellata* (SCA) (a.k.a. Flying lobster): SCA hopper bands were detected in several provinces in northern Argentina, including Salta, Jujuy, Tucuman and Santiago del Estero. Control operations were in progress in the affected areas at the time this Bulletin was compiled to prevent a second wave of SCA invasions. It is also likely that the pest is present in neighboring countries - Bolivia, Paraguay and perhaps Uruguay (H. Medina - SENASA/Argentina).

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

Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC): Locust activities ended in the region and will remain so till spring (BHA/TPQ/P&PM) <http://www.fao.org/locusts-cca/en/>

Fall armyworm (FAW): FAW outbreaks were reported in maize crop in Dondo, Nhamatanda, Caia districts, Mozambique; Central, Luapula, Lusaka, Muchinga, North western, Northern, Southern and Western Provinces of Zambia; and Machinga, Salima, Shire Valley and Blantyre Agricultural Development Divisions (ADD) of Malawi. Control operations were carried out by the affected farmers with technical and material support from MoAs. FAW infestations were also reported in maize fields in Dodoma, Iringa, Mbeya and Njombe regions in Tanzania. It is likely that the pest was also present in irrigated and/or in-season maize and other cereal

crops in outbreak countries and regions elsewhere (BHA/TPQ, DLCO, DLCO-EA).

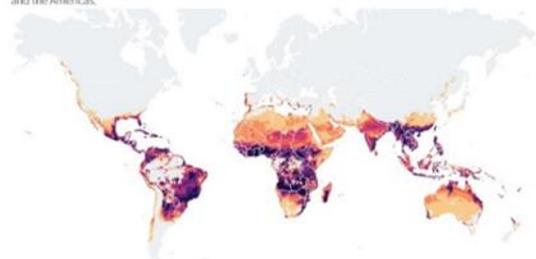
Forecast: FAW is likely to continue affecting rain-fed and/or irrigated maize and other cereal crops across sub-Saharan Africa, Asia, the Pacific Regions and elsewhere during the forecast period. Active monitoring, surveillance, reporting and preventive and curative actions remain critical to abate significant crop damage (BHA/TPQ).

Areas suitable to Fall Armyworm

Regions with little forest cover, a minimum annual temperature of 18–26 °C and receiving 500–700 mm of rainfall in the three wettest months are prone to fall armyworm infestation as predicted by the species distribution models based on occurrences in Africa and the Americas.

ENVIRONMENTAL SUITABILITY INDEX

Not suitable Marginal Suitable Highly suitable
0 10 20 30 40 50 60 70 80 90 100



Source: CAB, 2019. Invasive Species Compendium, Wallingford, UK: CAB International.
P. K. Dutta, 15/06/2020

REUTERS

Events on FAW: The Food and Agriculture Organization of the United Nations (FAO) proposed a bold, transformative and coordinated Global Action for Fall Armyworm Control (GAFC) (<https://www.ippc.int/en/the-global-action-for-fall-armyworm-control/>). A total budget of USD 500 million is estimated to implement the GAFC in 65 target countries in Africa, Near East and Asia-Pacific from 2020 to 2022. This envisages an estimated USD 450 million for the Global Action and USD 50 million for global coordination.

The first meeting of the Technical Committee of the GAFC was conducted on **May 18, 2020**. The GAFC is a pioneering initiative that aims to mobilize USD 500 million over the period 2020–2022 to take radical, direct and coordinated measures to fight FAW at a

global level. The 3 key objectives of the GAFC are to:

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

Key Activity update: BHA/TPQ/FSL is working on innovative intervention projects to benefit large numbers of small-scale farming communities in affected countries with the intention to scale-up cross different FAW prone regions. This initiative will build on experiences gained over the past several years, including OFDA (BHA) and RFS sponsored initiatives.

Note: Several species of FAW natural enemies have been identified in Ethiopia, Kenya, Tanzania, Madagascar, India, etc. and are being further studied to determine their efficacy, environmental impacts and safety. **End note.**

African Armyworm (AAW): AAW outbreaks were not reported during this month (BHA/TPQ, DLCO-EA).

Forecast: No major AAW activities are expected during the forecast period (BHA/TPQ).

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

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

Quelea sp. (QSP): QSP infestations were reported in irrigated rice in Arusha, Kilimanjaro, Tanga, Manyara and Coast regions and aerial control was carried out by DLCO-EA in collaboration with MoA/Tanzania and treated 9 roosting sites in Kilimanjaro and Manyara regions through December 24th (DLCO-EA, IRLCO-CSA).

Forecast: QSP outbreaks will likely remain being a problem to irrigated rice growers in Kenya and to rice and sorghum growers in Dodoma, Shinyanga, Morogoro and Mbeya Regions of Tanzania. The birds are likely to have begun breeding in Mozambique and Zimbabwe where fledglings and adults are likely to be a problem to small grain cereal grain growers here and across other regions (IRLCO-CSA).

Facts: QSP birds 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 to 10,000 kg of seeds/day, enough to feed 12,000-20,000 people/day (OFDA/AELGA).

Rodents: No update was received during this month, but it is likely that the pest continues being a problem to crops and produce (BHA/TPQ).

NOTE: Acute food insecurity hotspots map (see below) shows several countries and regions that are exposed to and/or are highly vulnerable to locust invasions plus other stressors – eastern Africa and

risks, minimize environmental pollution, reduce pest control cost, improve food security and contribute to the national economy. A viable SPS can be effectively established by linking key stakeholders across political boundaries and geographic regions. **End note.**

OFDA/PSPM promotes an IPM approach to minimize risks associated with pesticide poisoning, stockpiling, and environmental contamination. An informed procurement and judiciously executed triangulations of surplus stocks from countries with large inventories of usable products to countries where they are much needed is worth considering

Inventory of Strategic Pesticide Stocks for SGR Control

During December, more than 336,070 ha were reported controlled mainly in COR (210,673 ha in Ethiopia, 39,101 ha in Somalia, 18,873 ha in Sudan, 61,075 in KSA, 1,780 ha in Eritrea, 1,336 ha in Kenya, 235 ha in Egypt), 43 ha in Algeria, 485 ha in Mauritania and 2,470 ha in Niger (FAO-DLIS, PPD/Eritrea, PPD/Ethiopia, PPD/Sudan).

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

Country	Quantity, l/kg*
Algeria	1,186,034~
Chad	34,100
Egypt	10,253 ULV, 45,796
Eritrea	527~
Ethiopia	110,543~
Libya	24,930~
Kenya	~
Madagascar	206,000~ + 100,000 ^D
Mali	3,540
Mauritania	39,803

Morocco	3,412,374 ^D
Niger	75,701~
Oman	9,953~
Saudi Arabia	23,379~
Senegal	156,000~
Somalia	~
Sudan	103,482
South Sudan	
Tunisia	62,200 obsolete
Uganda	
Yemen	35,000 ^D ; 180 kg GM~

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

~ data may not be current;

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

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

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

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

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

LIST OF ACRONYMS

- AAW *African armyworm (Spodoptera expempta)*
- AELGA *Assistance for Emergency Locust Grasshopper Abatement*
- AFCS *Armyworm Forecasting and Control Services, Tanzania*
- AfDB *African Development Bank*
- AGRA *Agricultural Green Revolution in Africa*
- AME *Anacridium melanorhodon (Tree Locust)*
- APLC *Australian Plague Locust Commission*
- APLC *Australian Plague Locust Commission Bands groups of hoppers marching pretty much in the same direction*

ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa	Fledgling	immature adult locust /grasshopper that has pretty much the same phenology as mature adults, but lacks fully developed reproductive organs to breed
CABI	Center for Agriculture and Biosciences International	GM	GreenMuscle® (a fungal-based biopesticide); NOVACRID, Green Guard
CAC	Central Asia and the Caucasus	ha	hectare (= 10,000 sq. meters, about 2.471 acres)
CBAMFEW	Community-based armyworm monitoring, forecasting and early warning	ICAPC	IGAD's Climate Prediction and Application Center
CERF	Central Emergency Response Fund	IGAD	Intergovernmental Authority on Development (Horn of Africa)
CIT	<i>Calliptamus italicus</i> (Italian Locust)	IRIN	Integrated Regional Information Networks
CLCPRO	Commission de Lutte Contre le Criquet Pélerin dans la Région Occidentale (Commission for the Desert Locust Control in the Western Region)	IRLCO-CSA	International Red Locust Control Organization for Central and Southern Africa
CNLA(A)	Centre National de Lutte Antiacridienne (National Locust Control Center)	ITCZ	Inter-Tropical Convergence Zone
COR	Central SGR Outbreak Region	ITF	Inter-Tropical Convergence Front = ITCZ)
CPD	Crop Protection Division	FAO-DLIS	Food and Agriculture Organizations' Desert Locust Information Service
CRC	Commission for Controlling Desert Locust in the Central Region	Hoppers	young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)
CTE	<i>Chortoicetes terminifera</i> (Australian plague locust)	JTWC	Joint Typhoon Warning Center
DDLC	Department of Desert Locust Control	Kg	Kilogram (~2.2 pound)
DLCO-EA	Desert Locust Control Organization for Eastern Africa	L	Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)
DLMCC	Desert Locust Monitoring and Control Center, Yemen	LCC	Locust Control Center, Oman
DMA	<i>Dociostaurus maroccanus</i> (Moroccan Locust)	LMC	<i>Locusta migratoriacapito</i> (Malagasy locust)
DPPQS	Department of Plant Protection and Quarantine Services, India	LMI	<i>Locusta migratoria migratorioides</i> (African Migratory Locust)
DPV	Département Protection des Végétaux (Department of Plant Protection)	LPA	<i>Locustana pardalina</i>
ELO	EMPRES Liaison Officers –	MoAFSC	Ministry of Agriculture, Food Security and Cooperatives
EMPRES	Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases	MoAI	Ministry of Agriculture and Irrigation
EOR	Eastern SGR Outbreak Region	MoARD	Ministry of Agriculture and Rural Development
ETOP	Emergency Transboundary Outbreak Pest	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)
 SARCOF Southern Africa Region Climate Outlook Forum
 SCA *Schistocerca cancellata* (South American Locust)
 SFR *Spodoptera frugiperda* (SFR) (Fall armyworm (FAW))
 SGR *Schistoseca gregaria* (the Desert Locust)
 SPI *Schistocerca piceifrons piceiferons* (Central American Locust)
 SSD Republic of South Sudan
 SPB Southern Pine Beetle (*Dendroctonus frontalis*) – true weevils
 SWAC South West Asia DL Commission
 PBB Pine Bark Beetle
 PSPM Preparedness, Strategic Planning and Mitigation (formerly known as Technical Assistance Group - TAG)
 Triangulation The process whereby pesticides are donated by a country, with large inventories, but often no immediate need, to a country with immediate need with the help of a third party in the negotiation and shipments, etc. Usually FAO plays the third-party

role in the case of locust and other emergency pests.

UF University of Florida
 USAID the United States Agency for International Development
 UN the United Nations
 WOR Western SGR Outbreak Region
 ZEL *Zonocerus elegans*, the elegant grasshopper
 ZVA *Zonocerus variegatus*, the variegated grasshopper, is emerging as a relatively new dry season pest, largely due to the destruction of its natural habitat through deforestation, land clearing, etc. for agricultural and other development efforts and due to climate anomalies

Point of Contact:

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

Additional resources on SGR and other ETOPs

SGR
 USAID Pest Monitoring:
<https://www.usaid.gov/what-we-do/working-crises-and-conflict/responding-times-crisis/how->

[we-do-it/humanitarian-sectors/agriculture-and-food-security/pest-and-pesticide-monitoring](#)

Archived ETOP Bulletins:

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

UN/FAO Desert Locust Watch

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

FAO Locust Hub

<https://locust-hub-hqfao.hub.arcgis.com/>

FAO Locust Emergency Appeal for Greater Horn of Africa and Yemen

http://www.fao.org/fileadmin/user_upload/emergencies/docs/Greater%20Horn%20of%20Africa%20and%20Yemen%20%20Desert%20locust%20crisis%20appeal%20%20May%202020.pdf

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

FAO visuals on SGR

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

FAO Desert Locust Crisis

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

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

CIT, DMA and LMI – FAO-PPPD

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

DLCO-EA

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

FAO/Central Region Locust Control Commission

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

FAO/Western Region Locust Control Commission

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

FAO Locust Watch - Central Asia and Caucasus

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

IGAD Climate Predication and Application Centres

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

USAID supports for locust operations in the CAC Region: <http://www.fao.org/locusts-cca/programme-and-donors/projects-donors/en/>

FAO SGR Response Overview Dashboard

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

FAO Locust Hub

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

FAW

USAID FtF FAW

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

FAW management animation SAWBO

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

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

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

FAO NURU FAW Application

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

USAID FAW PEA/PERSUAP

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

FAO FAW Monitoring and Early warning System

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

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

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

AAW

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

FEWS NET

<https://fews.net/>

NOAA CPC

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