Emergency Transboundary Outbreak Pests (ETOPs) Situation for July with a forecast through mid-September 2019

résumé en français est inclus

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**[1]) situation remained relatively calm in the western outbreak region (WOR) and just 115 ha were treated in Algeria during July. In the central outbreak region (COR) intensive control operations and unfavorable ecological conditions in spring breeding areas in the Arabian Peninsula and neighboring areas in previous months caused locust numbers to decrease significantly during July. Some 7,200 ha were treated in COR during July (mostly in Yemen). Swarms from Yemen arrived in northern Somalia and eastern Ethiopia in June and began breeding and started forming hoppers and bands during July. In the eastern outbreak region (EOR), control operations increased in India and Pakistan where more than 34,000 ha were treated during July, higher than the previous month.

Forecast: SGR situation will continue declining in spring breeding areas, but increase in summer breeding areas in Yemen, Ethiopia, Somalia, western Eritrea and the interior of Sudan as well as along the Indo-Pakistan borders during the forecast period. Active monitoring, intensive surveillance and timely preventive control interventions remain critical to abate any threats the pest could pose to food security and livelihoods of vulnerable people during the forecast period.

Red (Nomadic) Locust (*Nomadacris septemfasciata*) **(NSE):** With swarm formations expected to have intensified in the primary outbreak areas in Tanzania, Malawi, Zambia and Mozambique, NSE remains a concern. Active monitoring, surveillance and preventive interventions are critical to abate the threats the pest poses to food security and livelihoods of vulnerable farmers.

Tree Locust, *Anacridium sp.* No update was received at the time this bulletin was compiled.

Central American Locust, *Schistocerca piceiferons piceiferons* (CAL): No update was received at the time this bulletin was compiled.

South American Locust, *Schistocerca cancellata* (SCA): No update was received in July. Grasshopper outbreak occurred in Nevada State, USA during July, but crop or pasture damage was not reported.

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

Italian (*CIT*), Moroccan (*DMA*), and the Asian Migratory Locusts (*LMI*): DMA continued appearing in some places and disappearing in others while LMI and CIT were developing in a number of countries during July. Locust presence and breeding will likely continue in parts of CAC during the forecast period.

Fall Armyworm *(Spodoptera frugiperda)* ***(FAW)***: FAW was reported in maize fields in several countries in eastern, southern and western Africa, Asia and elsewhere during July. For the first time FAW was reported in **Egypt** and **Japan** in July (for more information, refer to pages 10-12).

African Armyworm (AAW) (*Spodoptera exempta*): No AAW outbreak was reported during July.

Quelea spp. (**QSP**): No update was received on QSP at the time this bulletin was compiled. However, QSP outbreaks may have occurred against small-grain crops in rain-fed or irrigated fields during this month.

Active surveillance and monitoring as well as sharing ETOP information and timely preventive interventions 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) est restée relativement calme dans la région du foyer occidental (WOR) et les opérations de lutte traité 115 ha de criquets pèlerins en Algérie. Dans la région centrale de l'épidémie (COR), des opérations de lutte intensives et des conditions écologiques défavorables dans les zones de reproduction printanière de la péninsule arabique et les zones voisines au cours des mois précédents ont entraîné une diminution significative des effectifs acridiens durant juillet. Environ 7,000 ha ont été traités en Arabie saoudite, au Soudan et au Yémen (principalement au Yémen) en juillet. Les essaims du Yémen qui sont arrivés dans le nord de la Somalie et dans l'est de l'Ethiopie en juin ont commencé à se reproduire et à former des larves et des bandes en juillet. Dans la région est de la flambée épidémique, les opérations de lutte ont augmenté en Inde et au Pakistan, où plus de 34,000 ha ont été traités en juillet, plus élevé que le mois précédent.

Prévisions: La situation de la SGR continuera à décliner dans les zones de reproduction printanière, mais augmentera dans les zones de reproduction estivale au Yémen, en Éthiopie, en Somalie, dans l'ouest de l'Érythrée et à l'intérieur du Soudan, ainsi que le long des frontières indo-pakistanaises au cours de la période de prévision. Une surveillance active, une surveillance intensive et des mesures préventives de contrôle préventif restent essentielles pour réduire les menaces que l'organisme nuisible pourrait faire peser sur la sécurité alimentaire et les moyens de subsistance des personnes vulnérables au cours de la période de prévision.

Criquet nomade rouge (*Nomadacris septemfasciata*) (NSE): Les formations d'essaims étant censées s'intensifier dans les principales zones de flambées épidémiques en Tanzanie, au Malawi, en Zambie et au Mozambique, la NSE est restée une source de préoccupation. Le suivi, la surveillance et les interventions préventives de routine restent essentiels pour réduire les menaces que les NSE menacent la sécurité alimentaire et les moyens de subsistance des agriculteurs vulnérables.

Criquet Amérique centrale, *Schistocerca piceifrons piceiferons* (CAL): Aucune mise à jour n'a été reçue au moment de la rédaction du présent Bulletin.

Le criquet arborial, Anacridium spp.: Aucune mise à jour n'a été reçue à la date de rédaction du présent Bulletin.

Criquet d'Amérique du Sud, *Schistocerca cancellata* **(SCA**): Aucune mise à jour n'a été reçue à la date de rédaction durant juillet.

Criquets italiens (CIT), marocains (DMA), Asian Migratory Locust (*LMI*): le DMA a continué d'apparaître dans certains endroits et a disparu dans d'autres, tandis que le LMI et le CIT se développaient dans plusieurs pays en juillet. La présence acridienne et la reproduction vont probablement se poursuivre dans certaines parties de la CAC au cours de la période de prévision.

Chenille Légionnaire d'automne (*Spodoptera frugiperda*) (FAW): FAW a été signalé dans des champs de maïs dans plusieurs pays d'Afrique orientale, australe et occidentale, d'Asie et ailleurs en juillet. Pour la première fois, FAW a été signalé en Egypte et au Japon en juillet (pour plus d'informations, voir pages 10-12).

Chenille Légionnaire africaine (AAW), *Spodoptera exempta*: aucun foyer d'AAW n'a été signalé en juillet.

Quelea spp. oiseaux (QSP): Aucune mise à jour n'a été reçue sur QSP au moment de la compilation de ce bulletin. Toutefois, des épidémies de type QSP ont peut-être eu lieu contre des cultures de petites céréales dans des champs pluviaux ou irrigués au cours de ce mois.

La surveillance active et le suivi, ainsi que le partage des informations ETOP et des interventions préventives opportunes restent essentiels pour atténuer les menaces que représentent les ETOP pour la sécurité alimentaire et les moyens de subsistance des communautés vulnérables.

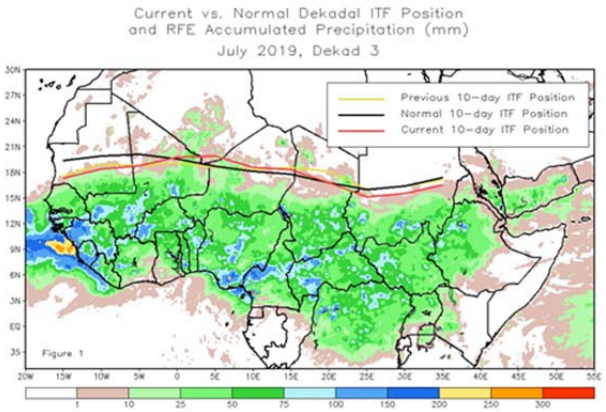
USAID / OFDA / PSPM surveille régulièrement les ETOP en étroite collaboration avec son réseau de PPD / DPV nationaux, d'entités régionales et internationales de surveillance et / ou de lutte antiparasitaire, y compris la FAO, la CLCPRO, le CRC, le DLCO-EA et l'IRLCO-CSA, et des centres de recherche.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

Note: *This and previous ETOP Bulletins and SITREPs can be accessed and downloaded on USAID Pest and Pesticide Monitoring website:* *USAID Pest and Pesticide Monitoring*

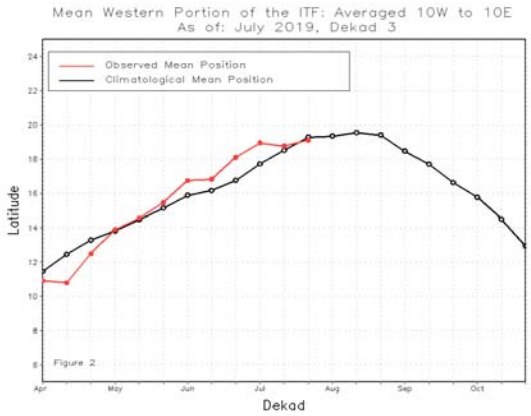
Weather and Ecological Conditions

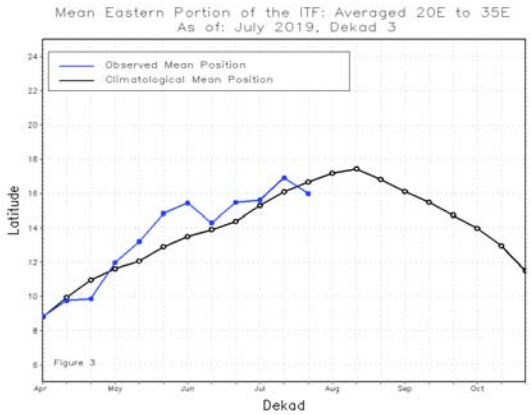
During the past 30 days, rainfall was above-average over southern Mauritania, Senegal, much of Guinea, parts of Mali, Sierra Leone, Liberia, parts of Cote d'Ivoire and Burkina Faso, Ghana, Togo and Benin, parts of Niger, southern Nigeria, central and southern Cameroon, portions of Chad and CAR, central and northern DRC, much of South Sudan, parts of Uganda, southern Sudan, southwestern Ethiopia, and, western Kenya. Parts of eastern Senegal, southwestern Mali, local areas in Cote d'Ivoire and Burkina Faso, parts of Niger, northern Nigeria, northern Cameroon, southern Chad, local areas in CAR, central Sudan and many parts of Ethiopia had below-average rainfall (NOAA 7/2019).

During the 3rd dekad of July from 21-31, the mean western position of the ITF in Africa (from 15W-0E) was approximated at 19.1N, which is north of its location during the 2nd Dekad of July. Despite the southern retreat of the western end of the ITF, below its climatological location for this period, rainfall performance improved over Senegal. From 0E-35E, the ITF was approximated at 16.0N, south of its climatological position by 0.6 degrees and from its position during the 2nd dekad. As such, the northward extent of rains in Chad and Sudan was slightly further south than the previous dekad. The 1st figure below shows the current position of the ITF relative to the long-term average position during the 3rd dekad of July and its previous position during the 2nd dekad of July.



The graphic illustrations below are time series and show the latitudinal values of the western and eastern portions of the ITF, respectively, and their seasonal evolutions since April, 2019 (NOAA July 2019).





During the 2nd dekad of July 11-20, the ITF moved little from its position during the previous dekad in West Africa, but progressed well northward in eastern Africa. The position of the mean western (15W-0E) portion of the ITF is approximated at 18.8N, which is slightly south of its previous location during the first Dekad of July. The position of the western end of the ITF south of its climotological location contributed to poor rainfall performance over Senegal. Between 0E-35E, the ITF was approximated at 16.9N, north of its climotological position by 0.8 degrees and well north of its position during the previous dekad by 1.3 degrees. Increased rains were observed in Sudan concurrent with the northward displacement of the ITF (NOAA, July 2019).

In **WOR**, vegetation remained largely dry except patches of green areas in the perimeter of irrigated plots in **Algeria** during July. In **Mauritania**, heavy rain was reported in the south and southeast and improved ecological conditions for locusts to survive and start breeding. Light to moderate rain is expected in Hodhs due to ITF passing near the Trarza through the Tegant and north of Hodh Chargui. Sand storm will likely affect visibility in Nouadhibou, Inchiri, Adrar, Trarza, and both Hodhs during the coming weeks/months. In **Morocco**, favorable ecological conditions were limited to a few places in the Drâa and Ziz-Ghris valleys as well as the southeastern region during July. In **Mali,** ecological conditions have begun improving with annual vegetation appearing and the soil moisture improving due to recent rainfall associated with the northward migration of the ITF (CNLA/Mali, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, INPV/Algeria,).

In **COR**: Light to moderate rains were reported in summer breeding areas in Sudan and Eritrea and heavy rains were reported in northern and eastern Ethiopia. Light Ethiopia and light to moderate rains were reported in Afar, the Somali highlands causing ecological conditions to improve. In Yemen conditions remained favorable in highlands, wadis and Aden coastal areas. In Oman dry conditions persisted during the month (DLCO-EA, FAO-DLIS, LCC/OMAN, PPD/Somalia, PPD/Sudan).

The forecast for the first week of August, (7/30-8/5, 2019) predicts below-average rainfall over much of Senegal, Gambia, Guinea-Bissau, northern Guinea, southern Mauritania and southwestern Mali. On the other hand, above-average rainfall is predicted across eastern Burkina Faso, northern Togo, northern Benin, southwestern Niger, central and northern Nigeria, northern Cameroon,

northern CAR, and western Sudan from 6-12 August, 2019 (NOAA July 2019).

In **EOR,** monsoon rain has started and ecological conditions have begun to improve in summer breeding areas in Indo-Pakistan regions. In contrast, ecological conditions continued deteriorating spring breeding areas in Iran and Pakistan (FAO-DLIS).

NSE Outbreak Regions: During July, rainfall was above normal in some places in parts of western Kenya, northern Uganda and DRC. Dry and cool weather persisted during July in several IRLCO-CSA member-states. High soil moisture levels and extensive flooding in Lake Chilwa/Chiuta plains in Malawi and in Mozambique persisted and continued to sustain green vegetation. During July, extensive vegetation burning continued forcing NSE populations to further concentrate in several places (IRLCO-CSA).

CAC Region

Warmer and drier than usual weather continued in CAC region during July enhancing breeding, but reducing vegetation availability.

Note: *Changes in the weather pattern such as increased or decreased temperature and precipitation can contribute to ecological shift in ETOP habitats and could increase or decrease the risk of pest outbreaks, resurgence and emergence of new pests. For example, in Uzbekistan, Moroccan locust (DMA) which is normally a low to medium altitude pest has shown a considerable vertical habitat expansion by up to 1,000 feet or 300 meters from its regular ambient altitude due to warmer higher elevations.*

*The **Asian migratory locust**, an insect that normally has one generation per year, has begun breeding twice per year. These anomalies which are largely attributed to the change in the weather patterns and associated ecological shift can become serious concerns to farmers, rangeland managers, crop protection experts, development and humanitarian partners, etc. Regular monitoring, documenting and reporting anomalies in pest behavior and on habitat shifts are crucial to help avoid/minimize potential damage to crops, pasture and reduce negative impacts on food security and livelihoods of vulnerable populations and communities.*
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 – WOR: In WOR, the SGR situation generally remained calm during July. In **Algeria** 5 ground survey teams were deployed to Adrar, El Bayadh and Tamanrasset Administrative Provinces. Groups of immature and mature adults as well as hoppers were detected in a few places near irrigated fields in M'guiden, Brizina and In Salah. A few isolated mature adults were also observed in Tamanrasset. Control operations treated 115 ha during July. In **Mauritania**, three survey teams were deployed to Elhodh Chargui, Elhodh Garbi and Assaba and Tagant, Brakna and South Adrar and observed that the locust situation remained generally calm and only a few isolated adults were detected in two Hodhs in the south during July. In **Mali**, no surveys were carried out, but locust watch brigades reported the presence of immature and mature adults in outbreak areas in Tarlit, Tadakite, and Aslar during July, but it was not confirmed at the time

this bulletin was compiled; survey and intervention team is on standby at Gao Response Base. Locusts were not reported in Morocco, Tunisia or other countries in the region and only isolated immature adults were detected in the Air Mountains in Niger and late instar hoppers and immature adults were detected in Ghat in southwest Libya during July (CNLA/Mauritania, CNLAA/Morocco, CNLAP/Mali, CNLA/Tunisia, CNLA/Libya, FAO-DLIS, INPV/Algeria).

*In **Morocco**, control operations continued against other locust and grasshopper species, including, Moroccan locust, Senegalese grasshopper and other species on more than 1,900 ha in Azilal Provinces, Errachidia, A Haouz, Guercif, Beni Mellal and Taourir during July (CNLAA/Morocco).*

Forecast: Breeding will likely continue in Algeria near irrigated areas where ecological conditions are favorable. Locusts from spring breeding areas in central Sahara are expected to migrate to summer breeding areas in the Hoggar where flooding was observed during the last week of July and in extreme south following the summer rains.

In **Mauritania** ecological conditions will improve in summer breeding areas in southwest where heavy rainfall was reported and allow locusts to breed and increase during the forecast period. In **Morocco** the situation will likely remain calm during the forecast period.

In **Mali**, ecological conditions are expected to continue improving in the outbreak areas and allow locusts to concentrate in patches of green vegetation, but major developments are not likely during the forecast period. Locusts that may have passed or pass through Sudan and reached/reach **Chad** may begin breeding should good rains fall during the forecast period CNLAP/Mali, CNLA/Mauritania CNLAA/Morocco, FAO-DLIS, INPV/Algeria, CNLA/Tunisia).

SGR – COR: In COR, SGR continued developing in northeastern and eastern Ethiopia, northeastern and northern Somalia where swarms arrived from Yemen, and the interior of Sudan where local populations and swarms from Saudi Arabia arrive.

In **Ethiopia** swarms were 1st detected in Tigray region and controlled on 93 ha and were reported breeding and forming hoppers and bands in northeastern areas in Amhara and Afar regions and near Dire Adwa and Ayisha close to northern Somalia border.

In **northern Somalia**, swarms that arrived from **Yemen** in June started breeding and forming hoppers and bands in several villages (e.g., south of Aasha ado, Eil Gaal, between laanta muruhda and Jidhi, east of beeyo-gulaan, east of Xagal and south of Magab near Berbera during late July. Surveys were also carried out in several locations in Baran and Sanaag Districts in **northeastern Somalia** on 24-25 July (DLCO-EA, PPD/Ethiopia, PPD/Northern Somalia and PPD/Northeastern Somalia).

In **Sudan** survey in July covered 56,900 ha in all six summer breeding states (River Nile, North Kordofan, the Northern State, White Nile, and Khartoum States). Escapee swarms from Saudi Arabia reached the interior of Sudan during the last week of June. In the Northern State, groups of solitary, mature and immature adults and hopper were detected and controlled on 1,180 ha in the irrigated agricultural schemes in Alamin algizia

during the month. No locusts were reported in Djibouti during this month.

Control operations treated close to 6,000 ha in Saudi Arabia (1,300 ha) and Yemen (4,605 ha). Most swarms and adult groups from spring breeding areas migrated to summer breeding areas along the Indo-Pakistan borders (DLCO-EA, FAO/Somalia, PPD/Djibouti, PPD/Ethiopia, PPD/Somalia, PPD/Sudan).

In **Yemen**, locusts continued further developing and forming hopper bands, fledglings and immature adults and swarms throughout the highland areas in the western, southern and the Red Sea coasts and control operations treated 4,606 ha during July, a situation considered an improvement and encouraging given the circumstances on the ground. More swarms and groups will likely form and begin breeding in areas where favorable conditions exist and increase locust numbers during the forecast period.

The ongoing insecurity situation and lack of adequate resources continue undermining timely surveillance, monitoring and control to prevent the threat the pest poses to livelihoods of affected communities. Cognizant of the situation on the ground, FAO and CRC are working closely with the national units and international communities to strengthen the capacity of the locust team to carry out timely survey and control interventions.

It is to be recalled that in the recent past, USAID supported the desert locust control units by rebuilding the center and offices, providing equipment and materials and supporting training of technical staff in locust surveillance, monitoring and control operations. Much of the equipment and materials, including vehicles, communication and camping gears that were provided by donors and the UN were looted, damaged or destroyed by the third party (FAO-DLIS).

FAO-DLIS, August, 2019

In **Oman**, control operations treated 25 ha during this month mostly against locusts during July. No locusts were reported in other countries in the region during this period (FAO-DLIS, LCC/Oman).

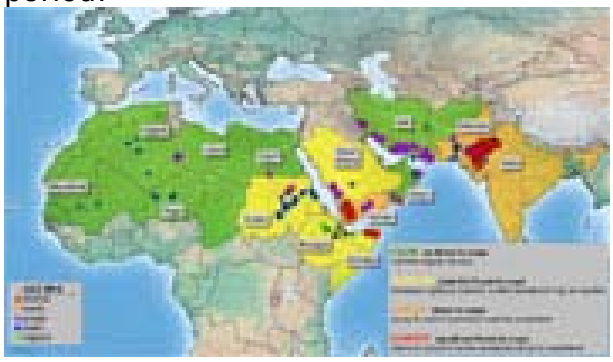
Forecast: SGR situation will continue further developing and increasing locust numbers during the forecast period provided favorable conditions persist in areas where breeding has already begun. In eastern and northeastern Ethiopia breeding will likely continue and form more bands, and fledglings and some may form groups and swarms and move around during the forecast period. A similar situation may occur in northern and northwestern Somalia where locusts could continue breeding and spread further west and south and reach eastern Ethiopia.

If conditions in the eastern northeastern Ethiopia becomes unfavorable for the locust to persist and cotiue breeding, then swarms and groups will likely form and start migrating northward and reach northwestern parts of the country and further migrate to the interior of Sudan passing through western Eritrea (DLCO-EA, FAO-DLIS, FAO/Somalia, LLC/Oman,

OFDA/PSPM, PPD/Djibouti, PPD/Ethiopia, PPD/Somalia, PPD/Sudan).

SGR - EOR: Locust numbers significantly decreased in spring breeding areas in Iran and Pakistan and control operations treated less than 32,000 ha compared to close to seven time this number during the previous month. Control operation intensified in summer breeding areas in India and Pakistan where close to 34,000 ha were treated against hoppers as well as immature and mature adults during this month. Egg laying and hatching continued and swarms were observed moving about in summer breeding areas in India and Pakistan. In Afghanistan, mating adult locusts were detected in Helmand and Nimroz provinces in south in July (FAO-DLIS).

Forecast: Breeding and hatching will continue and increase locust numbers in summer breeding areas along the **Indo-Pakistan** borders. Hoppers will fledge and adults will mature and start 2nd generation breeding. Hopper groups and bands will likely form in some areas in southern Afghanistan during the forecast period.



FAO-DLIS, August, 2019 (green = calm/no threat to crops; yellow = caution/potential threat to crops, orange= threat to crops, red = significant threat to crops)

Intensive control operations through June, 2019 treated more than 300,000 ha in Sudan, Saudi Arabia, and Egypt collectively and more than 700,000 ha were controlled in Iran and Pakistan. These coupled with deteriorating ecological conditions significantly decreased locust numbers in spring breeding areas in Saudi Arabia and Iran as well as southwestern Pakistan during July (FAO-DLIS, PPD/Sudan).

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

Red (Nomadic) Locust (NSE): No update was received at the time this report was compiled. However, NSE swarms that were detected in the Kafue Flats, Zambia, during joint survey by the IRLCO-CSA and the MinAgri likely increased surface coverage due to further concentrations from declining vegetation coverage. In Ikuu-Katavi plains, Tanzania, likely witnessed increased swarms and density. Similar situations are likely in Malagarasi Basin, Rukwa Valley and Wembere plains in Tanzania, as well as in Dimba plains in Mozambique and Lake Chilwa/Chiuta plains in Malawi during July (IRLCO-CSA).

Forecast: Diminishing vegetation coverage will continue forcing locusts to further concentrate, form swarms and groups and perhaps escaper and threaten cropping and pasture areas. Active surveillance and timely preventive interventions remain critical to avoid crop/pasture damage (IRLCO-CSA).

Central American Locust - Schistocerca piceifrons peceifrons (CAL): No update was received at the time this Bulletin was compiled.

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

Tropidacris collaris* (*Tucura quebrachera – **TCO** - grasshopper-): No update was received at the time this Bulletin was compiled.

Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC): No update was received at the time this bulletin was compiled, however, it is expected that DMA has receded in a number of countries in the southern region where hot and dry weather caused vegetation to dry up and DMA to mature and move northward. A late received report indicated that hundreds of thousands of ha were treated during June against DMA in several countries in CAC, but expected to have declined in its southern territories during July. CIT and LMI are expected to have continued developing and perhaps necessitating control operations in parts of CAC during July (OFDA/PSPM).

Forecast: Drying up of vegetation in the primary outbreak areas of DMA continued causing activities to diminish in the southern and parts of the central Asia and will likely remain so. DMA activities may appear in other parts of the region and LMI and CIT will likely continue developing during the forecast period.

Fall armyworm (FAW) (S. frugiperda)

FAW presence is expected to have continued in irrigated and rain-fed maize fields in several countries and causing damage to maize, sorghum and other crops during July.

Forecast: FAW will likely continue affecting rain-fed and irrigated maize and other crops in several countries across sub-Saharan Africa, southwest and southeast Asia and elsewhere (OFDA/PSPM).

FAW infested maize plant, Magole Village, Kilossa District, Morogoro Region, Tanzania observed during project site visit in May 2019.

***Note**: As predicted, FAW had spread further north and reached **Egypt** by July 2019. The likelihood of the pest crossing the Mediterranean and spreading to southern Europe and the Middle East is not unlikely.*

*After spreading across nearly **sub-Saharan Africa**, FAW was first reported in **Asia** in maize crops in **India** in 2018. It then continued further spreading and by June 2019, it had been reported in **Indonesia, Taiwan, Lao People's Democratic Republic, Malaysia, Myanmar, Viet Nam, the Republic of Korea,** and **Thailand.** By July 2019, the pest was reported in **Japan**.*

*In **Thailand**, the pest was detected in 50 of the country's 76 provinces and will likely continue. In **China**, the second biggest maize producer and consumer country, as of last month, FAW has been detected in more than 18 of its 33 provinces/regions and will likely spread across the major maize producing region of the country in the northeast.*

In most of these countries, the pest is disproportionately affecting small-holder

farmers whose farms are susceptible to any level of FAW infestation that can significantly affect their food security and livelihoods. With its fast-moving ability, the pest will continue reaching other countries in Asia Pacific and affect more vulnerable people.

***Note:** The absence of updates on FAW in some regions or countries does not necessarily mean non-presence of the pest either in rain-fed or irrigated crops. OFDA/PSPM continues the search for timely information and issue updates and alerts as often as necessary.*

Seasonal movements of FAW coupled with trade and travel by land, water (sea) and air can significantly increase further spread of FAW across continents and will contribute to its establishment in suitable habitats and climatological conditions. With its voracious appetite and more than 186 species of plants to choose from, FAW is highly unlikely to ever go hungry and terminate its presence in maize and other crop growing countries (Reuters, OFDA/PSPM). ***End note.***

Activity updates:

The USAID/OFDA sponsored community-based fall armyworm monitoring, surveillance and management project (CBFAMFEW) is being implemented in six countries in eastern Africa will be concluded in August after nearly two years of intensive engagements with farmers, rural communities, technical staff and managements. USAID/OFDA senior technical advisor and implementing partners visited project sites and met partners in June 2018 in Rwanda and Kenya, May 2019 in Tanzania and Uganda July 2019 in Ethiopia and Burundi (through virtual meeting) and intensively discussed project accomplishments, constraints and the way forward. The technical advisor also met project managing and implementing partners as well as concerned authorities in the line Ministry and partners, and key stakeholders, including the Commission for African Union (AUC) and discussed FAW and CBFAMFEW vis-à-vis AUC strategies, etc.

Note:** Several species of natural enemies of FAW have been identified in Ethiopia, Kenya, Tanzania, Madagascar, India, etc. and studies are being conducted on these natural enemies to better understand their efficacy, environmental impacts and safety, etc. Some are being tested along-side other agro-ecological tools,, e.g., push-pull technology, etc., in an effort to develop effective, affordable, accessible, adaptable and sustainable means of managing the pest* http://www.informaticsjournals.com/index.php/jbc/article/viewFile/21707/17850. ***End note.

Information resources

Highly hazardous pesticides cannot and must not be considered or used for FAW control!

CBFAMFEW project has developed a ToT in English language and http://www.fao.org/3/CA2924EN/ca2924en.pdf twenty *eight (28) posters and flyers in 9 languages, including, Amharic, English, French, Luganda, Kinyarwanda, Oromfa, Runyankore and Swahili for dissemination across eastern Africa and the Horn. Participating countries have expressed interest to further translate the flyers into additional local languages for wider distributions.*

USAID/BFS and OFDA co-funded IPM based FAW management guidance document is available in English and French and will soon be available in Portuguese language: https://www.usaid.gov/sites/default/files/documents/1867/Fall-Armyworm-IPM-Guide-for-Africa-Jan_30-2018.pdf

BFS and SAWBO (Scientific Animation Without Borders animation video clip on FAW: https://sawbo-animations.org/video.php?video=//www.youtube.com/embed/5rxlpXEK5q8

USAID Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP) contains a list of pesticides assessed as relatively safer for use against FAW: https://ecd.usaid.gov/repository/pdf/50065.pdf

CABI FAW Portal: identification guides: https://www.cabi.org/ISC/fallarmyworm
Bt maize and the fall armyworm in Africa (Africa Center for Biodiversity, June 2018):
https://acbio.org.za/sites/default/files/documents/BT%20Maize%20Fall%20Army%20Worm%20report.pdf

Invasive Species Compendium Datasheets, maps, images, abstracts and full text on invasive species of the world:
http://www.cabi.org/isc/datasheet/29810

FAO interactive FAW Risk-Index heat map to help monitor potential risk of FAW infestation in countries where the pest has been reported
http://www.fao.org/emergencies/resources/maps/detail/en/c/1110178/

NURU, a mobile phone application detects FAW eggs, larvae, pupae and damage on maize crops is developed by Penn State University in collaboration with UNFAO:
http://www.fao.org/news/story/en/item/1141889/icode/

Dissemination of safer, affordable, acceptable IPM-based pest management and assessment tools remains critical in abating FAW infestations and to minimize crop damage.

African Armyworm (AAW): AAW outbreak was not reported in the southern and eastern outbreak regions in Africa during July (DLCO-EA, IRLCO-CSA).

Forecast: The likelihood of AAW appearing in its secondary breeding areas in diminishing although some insignificant numbers may appear here and there. All in all it is unlikely that the pest will be a serious threat in breeding areas during the forecast period (OFDA/PSPM, DLCO-EA, IRLCO-CSA) http://www.armyworm.org/

It is important that AAW pheromone traps are maintained during and monitored during in-season period so as to enable timely and appropriate preventive interventions are supported to avoid crop damage (OFDA/PSPM/AELGA).

Note: OFDA/PSPM has developed printable and web-based interactive maps for AAW project sites in project countries and potential participating countries:
http://usaid.maps.arcgis.com/apps/Viewer/index.html?appid=8ff7a2eefbee4783bfb36c3e784e29cb.

http://usaid.maps.arcgis.com/apps/Viewer/index.html?appid=9d2ab2f918284595819836d1f16a526f
OFDA/PSPM is considering a similar map for the CBFAMFEW project sites

Southern Armyworm (*Spodoptera eridania*) (SAW/SER). SAW, was not reported in Africa during July.

Strong quarantine services and vigilance, monitoring and surveillance remain essential to prevent invasive pests invading a new territory.

***Quelea* sp. (QSP):** No update was received at the time this bulletin was compiled, but QSP outbreaks are likely in rain-fed and irrigated small-grain crops, including sorghum, millet, white, rice, etc., across different regions.

Forecast: Crop damage from QSP populations will likely continue in several countries where small-grain crops are out in the field at growing or maturing stages. Active surveillance and preventive interventions remain critical to void major crop damage (IRLCO-CSA).

***Facts:** QSP birds can travel ~100 km/day in search of food. An adult Quelea bird can consume 3-5 grams of grain and destroy the same amount each day. A medium density Quelea 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 on rodents during July, but the pest is a constant threat to field and storage crops and vigilance and rapid response remain essential to protect crops and produce.

***FACTS**: On average, an adult rat can consume 3-5 gm of food (grain, etc.) per day; a population of 200 rats/ha (an extremely low density/unit area) can consume a quantity enough to feed an adult sheep/day, not to mention the amount of food the rats can damage, destroy, contaminate making it unfit for human consumption, not to mention the zoonotic disease this pest carries and can transmit.*

***All ETOP front-line countries** must maintain regular monitoring and surveillance as needed. During cropping seasons, regular scouting is critical to avoid crop damage/losses. Invasion countries should remain alert. DLCO-EA, IRLCO-CSA, DLCCs, DLMCC, CNLAs, national DPVs and PPDs, ELOs are encouraged to continue sharing ETOP information with stakeholders as often as possible. It is critical that lead farmers, field scouts, community forecasters and others remain vigilant and report ETOP detections to relevant authorities as quickly as immediately.*

OFDA's Contributions to ETOP Abatement Interventions

USAID/OFDA/PSPM is sponsoring an operational research on soil amelioration to manage the Senegalese grasshopper (OSE) through Arizona State University. OSE is a notorious pest of cereal crops and pasture causing serious damage to small-scale farmers in its wide geographic coverage which extends from the Canneries, Cape Verde to nearly all sub-Saharan regions of Africa to India and neighboring countries across a wide swath. OSE occurs more frequently than several other grasshopper/locust species and is a constant threat to small-scale farmers.

USAID/OFDA/PSPM is interacting with interested parties to explore means and ways to expand innovative technologies to AAW, FAW and SGR affected countries to contribute to food security to benefit farmers and rural communities.

The online Pesticide Stock Management System (PSMS) that was developed by FAO with financial assistance from donors, including USAID/OFDA, continues benefiting participating countries across the globe. Thanks to the system, SGR frontline countries and others are effectively managing their strategic pesticide stocks and have been able to minimize/avoid accumulation of unusable and toxic obsolete pesticides and empty pesticide containers (see table 1).

Note:** A sustainable Pesticide Stewardship (SPS) can contribute to strengthening a pesticide delivery system (PDS) at the national and regional levels. A strong and viable PDS can effectively reduce pesticide related human health 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 borders and geographic regions. **End note.

OFDA/PSPM discourages the use of highly hazardous pesticides and promotes an IPM approach to minimize risks associated with pesticide stockpiling,

poisoning and pollution. A judiciously executed triangulation of surplus stocks from countries with large inventories to countries that can safely and effectively utilize and create a win-win situation worth considering

Inventories of Strategic Pesticide Stocks for SGR Prevention and Control

Inventory of strategic stocks of SGR pesticides changed during July by close to 73,000 ha treated (some 65,737 ha are from EOR) and the rest are in WOR and COR: 115 ha in Algeria; 4 ha in Egypt, 1,180 ha in Sudan, 1,300 in Saudi Arabia, 4,605 in Yemen, 25 ha in Oman (FAO-DLIS, INPV/Algeria, LLC/Oman, PPD/Sudan).

Table 1. Inventory of Strategic SGR Pesticide Stocks in Frontline Countries

Country	Quantity (l/kg)*
Algeria	1,186,326~
Chad	34,100
Egypt	10,253 ULV, 45,829 l
Eritrea	580~
Ethiopia	9,681~
Libya	25,000~
Madagascar	206,000~ + 100,000[D]
Mali	3,600
Mauritania	39,900
Morocco	3,406,372.5[D]
Niger	75,750~
Oman	9,953~
Saudi Arabia	25,184~(-42,628l?)
Senegal	156,000~
Sudan	106,507
Tunisia	62,200 obsolete
Yemen	35,480[D] + 180 kg GM~

*Includes different kinds of pesticide and formulations - ULV, EC and dust;

~ data may not be the 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 = *GreenMuscle*[TM] (fungal-based biological pesticide)

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*
CABI *Center for Agriculture and Biosciences International*
CAC *Central Asia and the Caucasus*
CBAMFEW *Community-based armyworm monitoring, forecasting and early warning*
CERF *Central Emergency Response Fund*
CIT *Calliptamus italicus (Italian Locust)*
CLCPRO *Commission de Lutte Contre le 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 Pest

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)

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

LMC Locusta migratoriacapito (Malagasy locust)

LMM Locusta migratoria migratorioides (African Migratory Locust)

LPA Locustana pardalina

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)
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 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 fairly 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:

If you need more information or have any questions, comments or suggestions or know someone who would like to freely subscribe to this report or unsubscribe, please, reach out to:

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