

**Emergency Transboundary Outbreak Pests (ETOPs) Situation for June
with a forecast through mid-August 2019**
résumé en français est inclus

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**¹) situation continued improving in the western outbreak region (WOR) where only a small-scale breeding was reported in Algeria where a few hundred hectares were treated. SGR populations continued declining in spring breeding areas in the central outbreak region and just a little under 40,000 ha were controlled in Saudi Arabia whereas several swarms were reported in Yemen and some of which crossed the Red Sea and reached Eritrea, Ethiopia and northern Somalia, a phenomenon caused by low level wind causing swarms to fly west from **Yemen**. SGR continued declining in spring breeding areas in the western side of southwest Asia where more than 260,000 ha were treated, and ecological conditions continued deteriorating during June. Escapee swarms from spring breeding areas moved to the summer breeding areas along the Indo-Pakistan borders and began breeding during June.

Forecast: SGR situation will continue declining in spring breeding areas, but increase in summer breeding areas where escapee swarms from spring breeding areas in Yemen, Saudi Arabia, Iran and/or southwest Pakistan migrated to. Breeding is also likely in eastern Ethiopia and northwestern Somalia 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.

Red (Nomadic) Locust (*Nomadacris septemfasciata*) (**NSE**): NSE continued to be a concern as swarm formations are expected to have intensified in the primary outbreak areas in Tanzania, Malawi, Zambia and Mozambique. Active monitoring and surveillance and preventive control intervention remain critical to abate any threats the pest poses.

Tree Locust, *Anacridium sp.* No report was received during June.

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 at the time this Bulletin was compiled.

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

Italian (CIT), Moroccan (DMA), and the Asian Migratory Locusts (LMI):

DMA continued appearing and LMI and CIT were developing in several countries during June. Locusts will likely continue to be present and breed in northern parts of the region during the forecast period.

Fall Armyworm (*Spodoptera frugiperda*) (FAW): FAW was reported in maize fields in several countries in eastern, southern and western Africa during June. To date, FAW has been also detected in southwest and southeast Asia regions where it was observed causing damage to maize crops (for more information, go to pages 8-10).

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

Quelea spp. (QSP): QSP outbreaks were reported in Kenya and Zimbabwe in rice and sorghum fields respectively. Control operations were launched by respective MinAgris with the help of DLCO-EA aircraft during June. QSP infestations will likely continue in some countries where small-grains are in-season or are irrigated.

Active surveillance and monitoring as well as sharing ETOP information and implementing 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, as well as research centers, academia, private sector, NGOs and others and issues concise analytical bulletins and forecasts to stakeholders. **End summary**

RÉSUMÉ

La situation du Criquet pèlerin (*Schistoseca gregaria* - SGR): a continué de s'améliorer dans la région de flambée occidentale (WOR), où seule une reproduction à petite échelle a été signalée en Algérie; quelques centaines d'hectares ont été traités. Les populations de RGs ont continué à décliner dans les zones de reproduction printanière de la région centrale du foyer et un peu moins de 40 000 ha ont été contrôlés en Arabie saoudite, tandis que plusieurs essaims ont été signalés au Yémen et certains d'entre eux ont traversé la mer Rouge et ont atteint l'Érythrée, l'Éthiopie et le nord de la Somalie, un phénomène provoqué par un vent de basse altitude faisant que des essaims volent vers l'ouest depuis le Yémen. Le SGR a continué à décliner dans les zones de reproduction printanière de la partie ouest du sud-ouest de l'Asie, où plus de 260 000 ha ont été traités, et les conditions écologiques se sont encore dégradées au cours du mois de juin. Les

essaims d'escapés des zones de reproduction printanière se sont déplacés vers les zones de reproduction estivale situées le long des frontières indo-pakistanaïses et ont commencé à se reproduire en juin.

Prévisions: La situation de la SGR continuera à se dégrader dans les zones de reproduction printanière, mais augmentera dans les zones de reproduction estivale où les essaims évadés des zones de reproduction printanière du Yémen, d'Arabie saoudite, d'Iran et / ou du sud-ouest du Pakistan ont migré vers. Une reproduction est également probable dans l'est de l'Éthiopie et le nord-ouest de la Somalie 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.

Criquet nomade rouge (*Nomadacris septemfasciata*) (NSE): La sécurité nationale est restée un sujet de préoccupation, car les formations d'essaims devraient s'intensifier dans les principales zones de flambées épidémiques en Tanzanie, au Malawi, en Zambie et au Mozambique. Une surveillance active, une surveillance et une intervention de contrôle préventif demeurent essentielles pour atténuer les menaces que pose le ravageur.

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 du présent Bulletin.

Criquets italiens (CIT), marocains (DMA), Asian Migratory Locust (LMI): Aucune mise à jour n'a été reçue à la date de rédaction du présent Bulletin. Italien (CIT), marocain (DMA) et Criquets migrants d'Asie (LMI): le DMA a continué d'apparaître et LMI et CIT se développaient dans plusieurs pays en juin. Les criquets continueront probablement d'être présents et de se reproduire dans le nord de la région au cours de la période de prévision.

Chenille Légionnaire d'automne (*Spodoptera frugiperda*) (FAW): des FAW ont été signalées dans des champs de maïs dans plusieurs pays d'Afrique orientale, australe et occidentale en juin. À ce jour, le FAW a également été détecté dans des régions du sud-ouest et du sud-est de l'Asie où il a été observé qui endommage les cultures de maïs (pour plus d'informations, voir pages 8-10).

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

Quelea spp. oiseaux (QSP): des épidémies QSP ont été signalées au Kenya et au Zimbabwe dans des champs de riz et de sorgho, respectivement. Les opérations de contrôle ont été lancées par les MinAgris respectifs avec l'aide d'avions DLCO-EA en juin. Les infestations QSP se poursuivront probablement dans certains pays où les petites céréales sont en saison ou irriguées.

Une surveillance et un suivi actifs, ainsi que le partage des informations ETOP et la mise en œuvre d'interventions préventives opportunes restent essentiels pour réduire 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 contre les ravageurs, notamment la FAO, la CLCPRO, le CRC, le DLCO-EA et l'IRLCO-CSA, ainsi que centres de recherche, universités, secteur privé, ONG et autres et publie des bulletins analytiques concis et des prévisions aux 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](#)

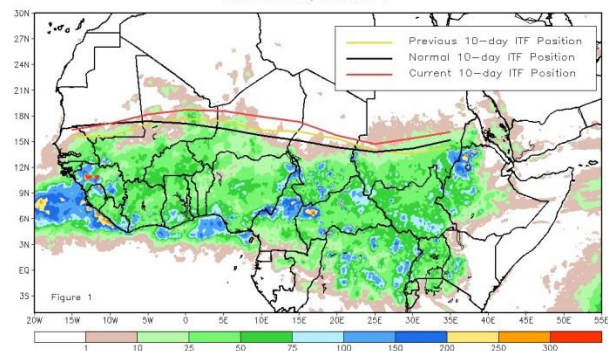
Weather and Ecological Conditions

In Morocco, ecological conditions favoring SGR development are limited to the Drâa and Ziz-Ghris Valleys and the southern portion of the eastern region during June. In Algeria, favorable conditions are present only in irrigated areas whereas in Mauritania, Tunisia and other areas ecological conditions remained unfavorable to support locust survival and development and limited areas in Mali, Niger and Chad were present during June (FAO-DLIS, CNLAA/Morocco, INPV/Algeria, CNLA/Mauritania).

During the 3rd dekad of June from 21-30, the Inter Tropical Front (ITF) progressed northward along almost its entire length compared to the previous dekad. The mean western (15W-0E) portion of the ITF is approximated at 18.1N, which is north of its climatological position by 1.3

degrees. The western end of the ITF was located just south of its climatological position causing an increased chance of below-average rainfall over the coastline of Senegal and Guinea Bissau. In the eastern portion, between 0E-35E, the Front was approximated at 15.5N, which is 1.1 degrees north of its climatological position.

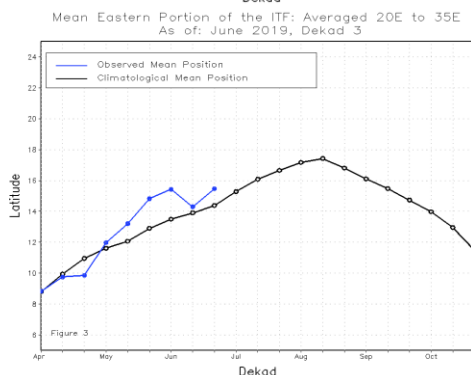
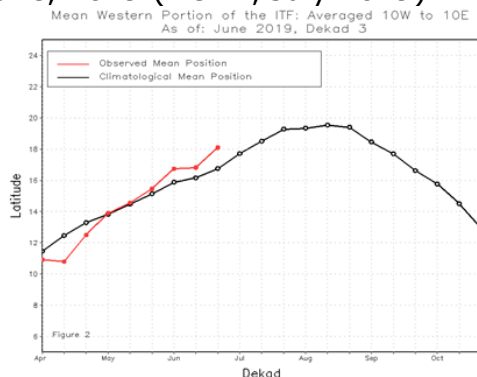
Current vs. Normal Dekadal ITF Position and RFE Accumulated Precipitation (mm) June 2019, Dekad 3



This had caused a return to northward migration after a brief period of regression during the previous dekad. The increased further north location of the Front than the normal average has caused above average rainfall in the region during this dekad. The below

figure shows the current position of the ITF (red) relative to the long-term average position (black) during the 3rd dekad of June and its previous position (yellow) during the 2nd dekad of June (NOAA, July 2019).

The below time series graphic representations illustrate the latitudinal values of the western and eastern portions of the ITF, respectively, and their seasonal evolutions since from April to June, 2019 (NOAA, July 2019).



In **Oman**, light to heavy rain was recorded during the second and third dekads of June in some Governorates of the Sultanate (Ash Sharqiyah South and North, Adh Dhahran, Al Buraymi, Al Batinah South and Dhofar) (LCC/OMAN).

In **EOR**, good pre-monsoon rain fell along the Indo-Pakistan borders during early May and followed by widespread heavier rains and lighter showers during the 2nd and 3rd of May. This will allow favorable ecological conditions to develop earlier

than usual and locusts to begin breeding (FAO-DLIS).

NSE Outbreak Regions: In most of the IRLCO-CSA member-states, dry and cool weather persisted during June. In Kenya, the rainy season is in progress. Showers were reported in coastal areas of Mozambique including Buzi-Gorongosa plains, but were too low to affect vegetation conditions. High soil moisture levels and extensive flooding in Lake Chilwa/L, Chiuta plains in Malawi and Buzi Gorongosa in Mozambique continued to sustain green vegetation. Vegetation continued in Kafue Flats in Zambia, Ikuu-Katavi, Rukwa Valley and Malagarasi Basin in Tanzania and extensive vegetation burning commenced forcing NSE populations to concentrate (IRLCO-CSA).

CAC Region

Warmer than usual weather occurred in the CAC region during May and June causing locust hatching and development locusts to hatch and further develop.

Note: The absence or presence of rainfall is correlated to locust breeding and development as precipitation creates favorable ecological conditions both for egg laying and subsequent development of the juveniles. 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 and decrease. 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 are serious concerns to farmers, rangeland managers, crop protection experts, development and humanitarian partners, etc. Regular monitoring, documenting and reporting anomalous manifestations in pest behavior and on habitat shifts remain critical to help avoid/minimize potential damage to crops, pasture and induce subsequent 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: The locust situation generally remained calm in WOR during June. In **Algeria**, survey operations were carried out near irrigated areas in Adrar (in M'guiden, Brizina and In Salah), and in Béchar, El Bayedh and Tamenrasset. Low numbers of isolated mature adults were also observed in Tamenrasset during June. Control operations treated hoppers and adults in 399 ha during the month. No locusts were reported in Morocco, Tunisia and countries in the region during June CNLA/Mauritania, CNLAA/Morocco, CNLAP/Mali, DGSVCIA/Tunisia, INPV/Algeria, FAO-DLIS).

Forecast: In **Algeria**, locusts will likely continue appearing near irrigated areas where ecological conditions are favorable. As the summer rains commence, locusts from spring breeding areas in Central Sahara will begin migrating to the

extreme south of the country and begin breeding. Escapee locusts from the Arabian Peninsula may reach Darfur and perhaps, Chad and start breeding if the seasonal rains commence and coincide with the arrival of the locusts during the forecast period (CNLAA/Mauritania, CNLAP/Mali, CNLAA/Morocco, DGVS&CIA, FAO-DLIS, INPV/Algeria).

SGR – COR: As locust numbers continued declining in spring breeding areas in the Arabian Peninsula, Iran and southwestern Pakistan during June largely due to intensive control operations and unfavorable ecological conditions, fewer ha than the previous month were treated (FAO-DLIS).

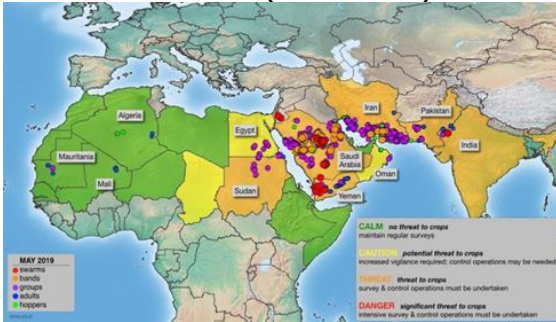


(FAO-DLIS, June 20, 2019)

In **Saudi Arabia**, although spring breeding has nearly ended and control operations were carried out in a few places mainly on the western edge of the Empty Quarter where ground and aerial control operations treated close to close to 39,580 ha against immature and mature adults and a few hopper groups and bands during June (FAO-DLIS).

In **Yemen**, hatching and the formation of hopper groups and bands have commenced in the interior where egg-laying continues between Marib and Al Hazm and near Bayhan. Numerous mature swarms were seen in the past few days throughout the central highlands as well as on the southern coast near Aden where at least one laid eggs. More egg-

laying, hatching and hopper band formation will occur in the interior, in some areas on the coast near Aden and probably on the northern Red Sea coast while others could move to the **Indo-Pakistan** border (FAO-DLIS).



FAO-DLIS, June 13, 2019

In **Sudan**, ground teams treated 3,700 ha of immature and mature adult groups in the Nile Valley between Abu Hamd and Dongola during June. Breeding is underway in a few areas and hatching is expected to cause hoppers to form small groups. In **Oman**, a group of hoppers mixed with immature adults were detected near Al Shakharah and solitary adults and low density mixed instar hoppers were observed at several locations in Al Sharqiah and Ad Dhakhyiah Governorates. Scattered immature and mature adults were seen in the Baiyuda Desert towards the summer breeding areas where small swarms could arrive from **Saudi Arabia** and lay eggs in areas of recent rains. In **Egypt**, limited ground control (604 ha) was carried out against scattered mature adults in the Western Desert near Baris and Tushka and near Aswan. In **Yemen** swarms continued developing in the highland and coastal areas and breeding continued and a few swarms crossed the Red Sea and reached **Eritrea, Ethiopia** and **northern Somalia** during June (FAO-DLIS, LCC/Oman).

Forecast: SGR immature and mature adults from Yemen and perhaps Saudi

Arabia will reach coastal areas in Eritrea, Ethiopia and Somalia and perhaps begin breeding in areas of recent rainfall during the forecast period. Some swarms may also reach summer breeding areas in the interior of Sudan and perhaps stretch out to the west and reach Chad.

SGR - EOR: While spring breeding is declining in all areas due to intensive control operations (close to 260,000 ha treated during June; more than 247,000 in **Iran**) and unfavorable ecological conditions, residual and escapee populations will continue migrating to summer breeding areas along the **Indo-Pakistan borders** (OFDA/PSPM). In **Pakistan**, ground control operations continue in spring breeding areas of Baluchistan against hopper groups in the interior (Dalbandin) and near the coast in Turbat, Gwadar and Lasbela. Similar operations are in progress against hopper and adult groups in a few summer areas of Nara and Cholistan deserts. Ground control teams controlled more than 8,600 ha in Pakistan and to 4,000 ha in **India** during June (FAO-DLIS).

Forecast: As vegetation continued drying out in spring breeding areas in Iran and adjacent areas in Baluchistan, Pakistan, more groups of immature adults and a few small swarms formed and will continue moving to the summer breeding areas along the **Indo-Pakistan** borders where more hatchings and hoppers and bands form and mature during the forecast period. Rainfall and moisture from Tropical Cyclone Vayu and the seasonal monsoon rains will further improve ecological conditions in summer breeding areas, including inland in Gujarat and southern Rajasthan **India** as well as adjacent areas of Tharparkar Desert in Sindh, **Pakistan**.

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): Low to medium density NSE swarms were located in the Kafue Flats, Zambia, during joint survey by the International Red Locust Control Organization for Central and Southern Africa (IRLCO-CSA) and the Ministry of Agriculture. An estimated area covering 20,000 ha was reported infested by NSE swarms (at about 8-30 locusts/m²). Areas infested by NSE swarms will likely increase as locusts continue to further concentrate due to vegetation burning. NSE populations that were reported during ground survey in May 2019 in Ikuu-Katavi plains, Tanzania, persisted and likely increased in size and density. NSE populations are also expected to have been present in Malagarasi Basin, Rukwa Valley and Wembere plains in Tanzania, Dimba plains in Mozambique and Lake Chilwa/L. Chiuta plains in Malawi (IRLCO-CSA).

Forecast: As the dry season progresses and vegetation burning intensifies, escapee populations are expected to further concentrate and form swarms and pose threats. Timely interventions are critical to prevent swarms leaving the outbreak areas and likely cause crop production (IRLCO-CSA).

Central American Locust - *Schistocerca piceifrons piceifrons* (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): A late received update indicated that all three locust species were present in the CAC region during May where control operations treated more than 401,930 ha during the month. Although no update was received for June, it is likely that DMA continued in the northern part while declining in the southern parts of the region. CIT and LMI are expected to have progressed throughout the region during June (FAO, OFDA/PSPM).

Forecast: DMA will mate and begin egg laying in the Caucasus, while vegetation drying will likely cause the pest to gradually disappear. The pest will likely continue mating and egg laying in other countries in the region while LMI and CIT will continue developing in the northern parts of the CAC region during the forecast period.

Fall armyworm (FAW) (*S. frugiperda*)

FAW damage was reported in irrigated maize in Arusha, Kilimanjaro and Morogoro regions in **Tanzania** and low incidences of FAW infestations were also reported in late planted maize in **Uganda** during June.

In **Ethiopia**, FAW outbreaks were reported causing damage to Belg (short-rain) maize crops in Oromya and SNNP Administrative Regions and to Meher (long-rain) maize and sorghum crops in Oromya, Dire Dawa and Amhara

Administrative Regions in June. The pest was reported on more than 30,000 ha of maize and 7,342 ha of sorghum in more than 3,090 villages in 277 districts during this month. Chemical and mechanical control protected more than 21,000 ha (DLCO-EA, IRLCO-CSA).

Forecast: FAW will likely continue affecting rain-fed and irrigated maize and other crops in several countries in sub-Saharan African and across Southeast Asia during the forecast period. In IRLCO-CSA region, FAW infestations are expected to continue on rain-fed maize in **Kenya** and on irrigated maize in other countries (IRLCO-CSA, OFDA/PSPM).

In CBFAMFEW project countries, sensitization and alerting farmers on routine scouting, monitoring, surveillance and control continued. CBFAMFEW Community Forecasters and trap operators, scouting teams and extension agents are encouraged to remain vigilant and alert PPD staff, farmers, local communities and concerned authorities on FAW situation on a timely manner (OFDA/PSPM).

The absence of updates on FAW in some FAW prone 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 (OFDA/PSPM).

Note: *The likelihood of FAW presence in Sudan, more so along the Nile River, could lead to its northward spread where the pest could affect hundreds of thousands of ha of irrigated crops along the Nile Valley and likely reach the northeastern end of the continent (Egypt) and possibly migrate across the Red Sea and likely further spread.*

*After spreading across nearly all of sub-Saharan Africa, FAW was first reported in Asia in 2018 in maize crops in western **India**. To date, in Asia, FAW has been reported in **India, Sri Lanka, Bangladesh, Burma, Thailand, Cambodia, Viet Nam, Indonesia, Taiwan** and **China** in Asia. In **Thailand**, the pest has been 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 who's 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.*

Seasonal movements of FAW coupled with trade and travel by land, water (sea) and air can significantly increase further spread of FAW across nations, regions, and continents and lead to the establishment of the pest in habitats with suitable ecological and climatological conditions.

*With its voracious appetite and more than 186 species of plants to choose from, it is highly unlikely that FAW could ever go hungry and terminate its presence in maize and other crop growing countries across the globe in the presence of suitable ecological conditions (Reuters, OFDA/PSPM). **End note.***

Activity updates:

USAID/OFDA senior technical advisor for pesticides and pests (STAPP) visited

project sites in Tanzania and Uganda in May and met and discussed FAW project activities, accomplishments and constraints during June and July.

STAPP compiled this bulletin while on TDY to a project country and wrap up discussion and explorations sessions in July.



Community focal persons demonstrating how to use and manage pheromone traps during a farms field day in Kitete Village, Kilosa District, Morogoro Region in Tanzania, 16 May, 2019)



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

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 (parasites, parasitoids, predators and entomopathogens) to better understand their safety, efficacy, environmental impacts and other important traits. 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/Fal-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/5rxlpXEK5g8>

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 June (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/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 June.

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

Quelea sp. (QSP): QSP outbreaks were reported in several countries during June. In **Ethiopia**, QSP outbreaks were reported in Konso and Derashe Districts in SNNPR and details are forthcoming. In **Kenya**, aerial control operations were carried out on a QSP roost in Timau Rice scheme in Nanyuki County during the last week of June.

In **Tanzania**, aerial control operations treated close to 896 ha of roosting sites in Kilosa and Mvomero District in Morogoro Region, Babati District in Manyara Region and Kibaha District in Coast Regions of the country. DLCO-EA spray aircraft were involved in aerial control operations in both countries where saved considerable amount of rice and/or Sorghum crops were saved.

QSP populations were also reported feeding on rice crops in Kibimba irrigated Rice Schemes in Eastern **Uganda** and mechanical tools were utilized by the affected farms to fend off the pest. In **Zimbabwe**, ground control operations were launched against QSP outbreaks in sorghum in Mashonaland West Province. QSP were also reported in Pandamatenda area in Matabeleland in North province near the border with Botswana and monitoring is in progress during June (DLCO-EA, IRLCO-CSA).

Forecast: Threats and possible damage from QSP populations will likely continue in Kenya, Zimbabwe, etc. during the forecast period. 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 June, but the pest is a constant threat to field and storage crops.

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. During crop in-seasons, scouting must be implemented on a regular basis. Invasion countries should remain on 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 and on a timely basis. Lead farmers and community forecasters must remain vigilant and report ETOP detections to relevant authorities 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 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 hard core (including 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 June by close to 300,000 ha controlled in total (detail: - 399 ha in Algeria; 604 ha in Egypt, 3,700 ha in Sudan, 39,270 in Saudi Arabia, 249,270 ha in Iran, 8,684 ha in Pakistan, and 3,991 ha in India and 5 ha in Yemen (FAO-DLIS, INPV/Algeria).

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

Country	Quantity (l/kg)*
Algeria	1,186,441~
Chad	34,100
Egypt	10,257 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	3,406,248.5 ^D
Niger	75,750~
Oman	9,988~
Saudi Arabia	25,184~ -42,628l?
Senegal	156,000~
Sudan	107,687
Tunisia	62,200 obsolete
Yemen	40,085 ^D + 180 kg GM~
*Includes different kinds of pesticide and	

formulations - ULV, EC and dust;

~ data may not be the most 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	ha	hectare (= 10,000 sq. meters, about 2.471 acres)
CERF	Central Emergency Response Fund	ICAPC	IGAD's Climate Prediction and Application Center
CIT	<i>Calliptamus italicus</i> (Italian Locust)	IGAD	Intergovernmental Authority on Development (Horn of Africa)
CLCPRO	Commission de Lutte Contre le Criquet Pélerin dans la Région Occidentale (Commission for the Desert Locust Control in the Western Region)	IRIN	Integrated Regional Information Networks
CNLA(A)	Centre National de Lutte Antiacridienne (National Locust Control Center)	IRLCO-CSA	International Red Locust Control Organization for Central and Southern Africa
COR	Central SGR Outbreak Region	ITCZ	Inter-Tropical Convergence Zone
CPD	Crop Protection Division	ITF	Inter-Tropical Convergence Front = ITCZ)
CRC	Commission for Controlling Desert Locust in the Central Region	FAO-DLIS	Food and Agriculture Organizations' Desert Locust Information Service
CTE	<i>Chortoicetes terminifera</i> (Australian plague locust)	Hoppers	young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)
DDLC	Department of Desert Locust Control	JTWC	Joint Typhoon Warning Center
DLCO-EA	Desert Locust Control Organization for Eastern Africa	Kg	Kilogram (~2.2 pound)
DLMCC	Desert Locust Monitoring and Control Center, Yemen	L	Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)
DMA	<i>Dociostaurus maroccanus</i> (Moroccan Locust)	LCC	Locust Control Center, Oman
DPPQS	Department of Plant Protection and Quarantine Services, India	LMC	<i>Locusta migratoriacapito</i> (Malagasy locust)
DPV	Département Protection des Végétaux (Department of Plant Protection)	LMM	<i>Locusta migratoria migratorioides</i> (African Migratory Locust)
ELO	EMPRES Liaison Officers –	LPA	<i>Locustana pardalina</i>
EMPRES	Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases	MoAFSC	Ministry of Agriculture, Food Security and Cooperatives
EOR	Eastern SGR Outbreak Region	MoAI	Ministry of Agriculture and Irrigation
ETOP	Emergency Transboundary Outbreak Pest	MoARD	Ministry of Agriculture and Rural Development
Fledgling	immature adult locust /grasshopper that has pretty much the same phenology as mature adults, but lacks fully developed reproductive organs to breed	NALC	National Agency for Locust Control
GM	GreenMuscle® (a fungal-based biopesticide)	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	<i>Nomadacris septemfasciata</i> (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 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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