

**Emergency Transboundary
Outbreak Pest (ETOP) Situation
Update for June, 2017 with a
Forecast till mid-August, 2017
Un résumé en français est inclus**

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**¹) situation remained calm in the Western Outbreak Region (WOR) during June.

The Central Outbreak Region (COR) remained calm and only low density adults were detected in summer breeding areas **Sudan**. The SGR situation in **Yemen** remained unclear.

In the Eastern Outbreak Region (EOR) control operations treated 5,500 ha in **Iran** during the reporting month.

Forecast: Small-scale breeding is likely in areas where ecological conditions are favorable due to an early summer rain in **Mauritania, Mali, Niger, Chad** and **Algeria** in WOR during the forecast period, but significant developments are not expected.

In COR, small-scale breeding is likely in the interior of **Sudan**, coastal areas in Eritrea, eastern **Ethiopia**, **northern Somalia, Saudi Arabia** and **Yemen** where rainfall was recorded, but significant activities are not likely during the forecast period.

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

In EOR, limited SGR activities are likely in summer breeding areas along the **Indo-Pakistan** borders during the forecast period, but significant activities are not likely.

Red (Nomadic) Locust (NSE):

NSE swarms and concentrations persisted in **Malawi, Mozambique, Tanzania** and **Zambia** in June and control operations were carried out in **Malawi** using GreenMuscle, a bio-pesticide.

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

Control operations treated 3,437 ha against CIT in Georgia during June. No update was received from other CAC countries at the time this report was compiled, but locust activities are expected to be in progress.

The African Armyworm (AAW):

AAW infestations were reported in June in **Ethiopia** and **Uganda** where control operations were carried out with material and technical assistance from the MoA (DLCO-EA, IRLOC-CSA, PPD/Uganda).

Fall armyworm (*Spodoptera frugiperda*) (SFR):

SFR continued affecting maize, sorghum, and other crops in **Ethiopia, Kenya, South Sudan, Uganda, Malawi, Zambia** and **Zimbabwe** during June. The pest continues its northward migration following the inter-tropical front and taking advantage of the associated rain to breed. No update was received from other countries during this month (DLCO-EA, IRLCO-CSA, PPD/Uganda, PHS/Tanzania).

At its current speed of travel across Africa SFR will likely take advantage of the seasonal wind trajectory and continue its migration and reach beyond eastern Africa to invade outside the region and perhaps reach continue beyond the boundaries of the continent.

USAID/OFDA/PSPM continues closely monitoring the SFR (FAW) situation and engaging with key national, regional and international partners to explore and investigate the most effective ways to address the looming threat to food security and livelihoods of vulnerable populations and provide advice and updates (**for further detail on SFR, please, visit pages 10-13, below**).

Tomato leaf miner (*Tuta absoluta* - TAB) infestations were reported in **Botswana** during February and other countries in southern Africa thereafter.

TAB is native to the tropical South America and alien to the African continent until recently. Since it was first detected in 2006 in Sprain it has reached dozens of countries cross Europe, Mediterranean, Middle East, Africa, Asia and Pacific.

In Africa, TAB was first detected in 2008 and has since spread to over 16 countries stretching from North Africa to Central West Africa to East Africa and to Southern Africa. It will continue spreading over much of the continent and affect tomatoes, other

vegetables and fruits. This pest is expected to have been on AU's phytosanitary quarantine pest list along with SFR or included on such list.

Quelea (QQU): QQU outbreaks were reported in **Ethiopia, Kenya** and **Tanzania** in June (DLCO-EA, IRLCO-CSA).

Active surveillance and timely preventive interventions remain critical at all time in areas where locust activities persist to abate any threats SGR may pose to crops and pasture.

The **USAID/OFDA PSPM and ECA** co-funded Horn of Africa sub-regional emergency desert locust management project that is being implemented by FAO and DLCO-EA is progressing. Technical and material supports have been provided to participating locust-prone countries and improving capacity to better monitor, report and prevent locusts in the sub-region.

USAID/OFDA/PSPM continuously monitors ETOPs in close collaboration with its network with national PPDs/DPVs, Migratory Pest Units and international and regional organizations, including FAO, CLCPRO, CRC, DLCO-EA, IRLCO-CSA and provides timely updates and advices to HQ, field staff, partners and others as often as necessary. **End summary**

RÉSUMÉ

Le criquet pèlerin (Schistoseca gregaria – SGR): La situation du Criquet pèlerin (*Schistoseca gregaria* - SGR) est restée calme dans la région de Western Outbreak (WOR) en juin.

La région d'émergence centrale (COR) est restée calme et seuls des adultes de faible densité ont été détectés dans les régions d'élevage d'été au Soudan. La situation SGR au Yémen est restée peu claire.

Dans les opérations de contrôle de la région de l'évasion de l'Est (EOR), on a traité 5 500 ha en Iran au cours du mois de déclaration.

Prévisions: l'élevage à petite échelle est probable dans les zones où les conditions écologiques sont favorables en raison de la pluie d'été en Mauritanie, au Mali, au Niger, au Tchad et en Algérie dans WOR pendant la période de prévision, mais des développements importants ne sont pas attendus.

En COR, l'élevage à petite échelle est probable dans l'intérieur du Soudan, les zones côtières en Érythrée, l'est de l'Éthiopie, le nord de la Somalie, l'Arabie saoudite et le Yémen, où des précipitations ont été enregistrées, mais des activités importantes ne sont pas probables pendant la période de prévision.

Dans l'EOR, les activités limitées de SGR sont probablement dans les

zones d'élevage estivales le long des frontières indo-pakistanaïses pendant la période de prévision, mais des activités importantes ne sont pas probantes.

Prévisions:

Criquet Rouge (Nomadic) (NSE): Red (Nomadic) Locust (NSE): Des essaims et des concentrations de NSE ont persisté au Malawi, au Mozambique, en Tanzanie et en Zambie en juin et des opérations de contrôle ont été menées au Malawi en utilisant GreenMuscle, un bio-pesticide.

Italienne (CIT), Marocaine (DMA), Migrateurs asiatiques (LMI) Criquets: Les opérations de contrôle ont traité 3 437 ha contre le CIT en Géorgie en juin. Aucune mise à jour n'a été reçue d'autres pays de la CAC au moment où ce rapport a été compilé, mais les activités de criquet sont en cours.

Cheille Légionnaire (AAW) (DLCO-EA, IRLOC-CSA, PPD / Ouganda): Des infestations AAW ont été signalées en juin en Éthiopie et en Ouganda où les opérations de contrôle ont été menées avec l'assistance matérielle et technique du MoA (DLCO-EA, IRLOC-CSA, PPD / Ouganda).

Goutte de l'armée de l'automne (Spodoptera. Frugiperda (SFR): Tour de l'armée de l'automne (*Spodoptera frugiperda*) (SFR): SFR a continué à affecter le maïs, le sorgho

et d'autres cultures en Éthiopie, au Kenya, en Ouganda, au Malawi, en Zambie et au Zimbabwe en juin. Le ravageur continue sa migration vers le nord suite au front intertropical et profite de la pluie associée pour se reproduire. La dernière invasion de ce ravageur agressif a été signalée dans la République du Soudan du Sud où il a été détecté attaquant des cultures de maïs plantées tardivement (FAO / SSD).

Aucune mise à jour n'a été reçue d'autres pays en juin (DLCO-EA, IRLCO-CSA, PPD / Ouganda, PHS / Tanzanie).

À sa vitesse actuelle de voyage à travers l'Afrique, FAW profitera probablement de la trajectoire saisonnière du vent et poursuivra sa migration et atteindra l'Afrique pour envahir les pays en Europe, au Moyen-Orient et en Asie.

USAID / OFDA / PSPM continue de suivre de près le SFR (FAW) La situation et l'engagement avec des partenaires nationaux, régionaux et internationaux clés pour explorer et étudier les moyens les plus efficaces de faire face à la menace imminente pour la sécurité alimentaire et les moyens de subsistance des populations vulnérables et fournir des conseils et des mises à jour (pour plus de détails sur SFR, visitez les pages 10- 12, ci-dessous).

Les infestations de mine de feuilles de tomates (*Tuta absoluta* - TAB) ont été

signalées au Botswana en février et dans d'autres pays d'Afrique australe par la suite.

TAB est originaire de l'Amérique du Sud tropicale et étranger au continent africain jusqu'à récemment. Depuis qu'il a d'abord été détecté en 2006 à Sprain, il a atteint des dizaines de pays traversant l'Europe, la Méditerranée, le Moyen-Orient, l'Afrique, l'Asie et le Pacifique.

En Afrique, le TAB a d'abord été détecté en 2008 et s'est propagé depuis plus de 16 pays s'étendant de l'Afrique du Nord à l'Afrique Centrale-Orientale en Afrique de l'Est et en Afrique australe. Il continuera à s'étendre sur une grande partie du continent et affectera les tomates, les autres légumes et les fruits. On s'attend à ce que ce parasite ait été sur la liste de parasites phytosanitaires de l'UA et SFR ou inclus dans cette liste.

Quelea (QQU): (DLCO-EA, IRLCO-CSA): des éruptions QQU ont été signalées en Éthiopie, au Kenya et en Tanzanie en juin (DLCO-EA, IRLCO-CSA).

La surveillance active et les interventions préventives en temps opportun demeurent critiques en tout temps dans les zones où les activités acridiennes persistent pour réduire les menaces que les SGR peuvent poser aux cultures et aux pâturages.

Le projet PSPM et ECA de l'USAID / OFDA a cofinancé le projet sous-

régional de gestion des criquets pèlerins d'urgence de la Corne de l'Afrique qui est mis en œuvre par la FAO et DLCO-EA montrant les progrès réalisés. Le soutien technique et matériel fourni aux pays participants actives par les acridiens dans le cadre du projet améliore la capacité de mieux surveiller, signaler et prévenir les sauterelles dans la sous-région. Les participants qui ont reçu du matériel de formation et de surveillance surveillent la situation acridienne et partagent des rapports.

USAID / OFDA / PSPM surveille ETOPS de près par le biais du réseau STI avec PPDs / DPV, unités nuisibles migrateurs nationales et les organisations internationales et régionales, des friandises, y compris la FAO, la CLCPRO, CRC, DLCO-EA, IRLCO-CSA et fournit des mises à jour en temps opportun et de conseils à l'AC, champ le personnel, les partenaires et les autres aussi souvent que nécessaire. Note de fin

OFDA's Contributions to ETOP Activities

The online Pesticide Stock Management System (PSMS) that was developed with financial assistance from USAID/OFDA and other partners has been installed in some 65 countries around the globe and is helping participating countries maintain inventories. Thanks to this tool many counties have been able to avoid unnecessary procurements and stockpiling of pesticides and helping them avoid costly disposal operations and

improve safety and well-being of their citizens and shared environment.

The USAID/OFDA funded community-based armyworm monitoring, forecasting and early warning (CBAMFEW) project that was concluded last September has been incorporated in the annual work plan of the national crop protection departments in all participating countries <http://bit.ly/1C782Mk>. The project enabled farmers to detect and report AAW and prevent major crop/pasture damage. Participating countries continue expressing their gratitude for having the project implemented in their countries. USAID/OFDA/PSPM will maintain a line of communication with participating countries and monitor progresses.

OFDA/PSPM is working with other interested parties to explore means and ways to expand this innovative technology to other AAW affected countries and benefit farmers and rural communities.

OFDA/PSPM's interests in sustainable pesticide risk reduction in low income countries to strengthen their capacities and help improve safety of vulnerable populations and shared environment continued. It intends to expand this initiative to other parts of Africa, the Middle East, CAC, etc., as needed. OFDA continued its support for DRR programs to strengthen national and regional capacities for ETOP operations. The program which is implemented through FAO has assisted several frontline countries to mitigate, prevent, and respond to ETOP outbreaks. It has helped participating countries avoid from misuse and mishandling of pesticides, pesticide-incorporated materials and application platforms.

*USAID/OFDA-sponsored project implemented by FAO to strengthen national and regional capacity for locust control and prevention and help more than 25 million people in Caucasus and Central Asia (CAC) live of agriculture and livestock ended this month. The project has promoted and created collaboration among neighboring countries for joint monitoring, surveillance, reporting and preventive interventions for three major locust species in the region. Thanks to this project, dozens of technical staff from **Sahel West Africa, Northwest Africa, Eastern and Northeastern Africa, CAC, and the Middle East** were trained in health and safety of rural communities and Environmental Monitoring in ETOP operations and PSMS management.*

Note: ETOP SITREPs can be accessed on USAID Pest and Pesticide Management website: [USAID/OFDA PPM Website](#)

Weather and Ecological Conditions

WOR: Ecological conditions remained favorable in the eastern Morocco, but most of the WOR remained unfavorable for SGR to survive or breed during June. Ecological conditions remained unfavorable in the grangerization zone in Chad where only light showers were recorded. In **Mauritania**, good rain was recorded during the last few days of June causing ecological conditions to improve significantly in the southeast and to some extent in the center of the country. In **Mali**, annual plants started appearing in areas where the seasonal rains have commenced and moist winds were predominantly southwesterly (**a situation that needs to be closely watched as this could impact the migration of the FAW in the months**

to come). In **Chad** no rain was reported and annual vegetation remained dry in the gregarization zones and only a few perennial vegetation may be present in Fada and Kalait during May (CNLA/Chad, CNLA/Mauritania, CNLAA/Morocco, CNLP/Mali, CNLA/Tunisia, FAO-DLIS, NCLC/Libya).

COR: In COR, good rains were reported in summer breeding areas in Sudan, on the coastal areas in Eritrea, Red Sea coasts and interior of Yemen and southern coastal areas in Saudi Arabia during June. Light to moderate rains were also reported in eastern Ethiopia from Ayisha to Jijiga and northern Somalia during this time. Other invasion and breeding areas remained hot and dry during this period (DLMCC/Yemen, DLCO-EA, DLMO/Oman, FAO-DLIS, PPD/Sudan).

EOR: Light rains were reported in the summer breeding areas along the Indo-Pakistan borders during May, but the rest of EOR remained dry during this month (FAO-DLIS).

NSE Outbreak Region: Most of the NSE regions remained generally dry expect for Buzi-Gorongosa and Dimba plains in **Mozambique** where light rains were reported in Mafambisse (28 mm), Buzi (24 mm), Namatanda (21 mm), Gorongosa (18 mm) and Caia (15 mm) during June. However, Temperatures were mild to cool in most of the outbreak areas. Vegetation burning was progress in most of the outbreak areas. This will concentrate the locusts further on unburnt areas (IRLCO-CSA, PPD/Uganda).

CAC: In Central Asia, the weather has progressively improved for locust hopper development and egg laying. In the

Caucasus, the weather continued improving during June.

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

Note: *Changes in the weather pattern and the rise in temperature can contribute to ecological shift in ETOP habitats and increase the risk of pest outbreaks, resurgence and emergence of new pests. 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 normal ambient altitude due to warmer higher elevations.*

*The **Asian migratory locust**, an insect that bred just once a year, recently began exhibiting two generations per year. These anomalous manifestations and phenomena, which are largely attributed to the change in the weather pattern and associated ecological shift, are a serious concern to farmers, rangeland managers, crop protection experts, development and humanitarian partners and others. Regular monitoring, documenting and reporting anomalous manifestations in pest behavior and habitat remain critical to help avoid and minimize potential damages to crops, pasture and livestock and reduce subsequent negative impacts on food security and livelihoods of vulnerable populations and communities. **End note.***

Detailed Accounts of ETOP Situation and Forecast for the Next Six Weeks

SGR – WOR: SGR situation remained calm in most of the WOR except limited control that treated 70 ha in irrigated areas in **Algeria** during June. No locusts

were reported in Chad, Libya, Mali, Mauritania, Morocco, Tunisia or other countries in the WOR in June (CNLA/Chad, CNLP/Mali, CNLAA/Morocco) (CNLA/Mauritania, CNLA/Libya, CNLA/Tunisia, FAO-DLIS).

Forecast: Given the early start of the seasonal rains in some countries in WOR, there is a likelihood of early breeding in summer breeding areas in central and southern **Mauritania**, northern **Mali** and **Niger**, central and eastern **Chad** and southern **Algeria** during the forecast period (CNLA/Chad, CNLP/Mali, CNLAA/Morocco) (CNLA/Mauritania, CNLA/Libya, CNLA/Tunisia, FAO-DLIS).

SGR (Desert Locust) - COR: SGR situation remained calm in COR and only low-density solitary immature and mature adults were detected in a few places in summer breeding areas between Dongola and Merowe in the Northern State, Kassala State and near Derudeb in the Red Sea State in **Sudan** during June. No locusts were reported in Djibouti, Egypt, Eritrea, Ethiopia, Oman, or Somalia. Survey operations were not possible in **Yemen** due to security reasons (DAF/Djibouti, DLCO-EA, DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Eritrea, PPD/Sudan).

Forecast: In COR, low numbers of adults may appear and breed on small-scale in areas of recent rainfall between West Darfur and the Red Sea hills in **Sudan**, along the Red Sea coast in **Eritrea** and **Yemen** and the interior of **Yemen**, Isolated adults may appear in areas of recent rainfall between Ayisha and Jigjiga in **Ethiopia** and on the western highlands near Boroma in northern **Somalia** and small-scale breeding is likely during the forecast period. In **Oman**, high

temperatures and dry soil will continue deterring SGR development in the coming months (DLCO-EA, DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Sudan).

SGR - EOR: Iran controlled adults and hoppers on some 5,500 ha in Jaz Muria Basin in the southeastern part of the country in June. The **Indo-Pakistan** border remained calm during this month (FAO-DLIS).

Forecast: Because of good rains along the **Indo-Pakistan** borders in June ecological conditions will improve and cause locusts to breed on a small-scale during the forecast period (FAO-DLIS) (FAO-DLIS).

Active monitoring, timely reporting and preventive interventions remain critical to abate any major developments that could pose serious threats to crops and pasture in areas where locust activities are present.

Red (Nomadic) Locust (NSE): NSE swarms and concentrations persisted in Lake Chilwa and Lake Chiuta plains in **Malawi** and **Mozambique**, Buzi-Gorongosa and Dimba plains in **Mozambique**, in Kafue Flats in **Zambia** as well as Ikuu-Katavi plains and Malagarasi Basin in **Tanzania** in June. In **Malawi**, IRLCO-CSA in collaboration with the Ministry of Agriculture, Irrigation and Water Development carried out limited control operations with a biopesticides – GreenMuscle. Financial assistance for the control operations were provided by the FAO Office in Malawi. More swarms still exist in the southern Africa region that need to be controlled.

In **Zambia**, escapee populations of NSE, and *Cataloipus sp.* (grasshopper)

continued to form concentrations/swarms in the Kafue Flats.

Forecast: Vegetation burning that is in progress in all NSE outbreak areas will force locust swarms and groups (as well as *Cataloipus sp.* in **Zambia**) to further concentrate. If left uncontrolled the locusts will likely migrate and threaten crops and pasture in neighboring countries, e.g., Rwanda, Burundi, Uganda, Congo Republic and perhaps redirected by the seasonal wind trajectory to Zambia, Mozambique and may migrate to Zimbabwe. Concerted efforts are required to carry out active surveillance, monitoring and preventive interventions in the outbreak areas and abate further spread.

IRLCO-CSA, the only regional entity in the southern region with the mandate to survey, monitor, prevent and control locusts, armyworm and quelea birds, continues appealing to its member-states to avail resources to carry out timely survey, monitoring and control operations. It is in the interest of all concerned that IRLCO-CSA member-states positively respond to the Organization's appeal for resources to prevent and control these pests successfully from ravaging crops and pasture (IRLCO-CSA, OFDA-AELGA).

Madagascar Migratory Locust (LMC): No update was received at the time this report was compiled. Locust activities are expected to have continued in the primary outbreak areas in the central plateau and other parts of the country during June.

www.fao.org/emergencies/crisis/madagascar-locust/en/.

<http://www.fao.org/emergencies/resources/videos/video-detail/en/c/430729/>

Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC): Control operations treated 3,437 ha against late instar hoppers and adult CIT in Kakheti and Kvemo Kartli regions of Georgia during June. Alpha-cypermethrin, chlorpyrifos and deltamethrin were applied using Micronair AU 8115 and LV Scout ULV sprayers. The locusts were reported causing damage to sorghum, sunflowers, winter pastures, melons and watermelons, vegetables (PPD/Georgia). No update was available from other CAC countries at the time this report was compiled, but locust activities are expected to be in progress (PPD/Georgia, OFDA/PSPM).

Forecast: Ecological conditions are expected to have improved and locust activities will continue developing in most of breeding areas. The Aral Sea region, where large-scale egg laying of LMI occurred during 2016, will experience considerable development in the coming months. Other breeding areas such as northern **Afghanistan** where undisturbed prolonged egg laying exploited the ongoing insecurity situation in the region are expected to experience increased locust activities. Vigilance, mapping hatching grounds remain essential to plan effective interventions during 2017.

Note: Italian, Migratory and Moroccan locusts and some grasshopper species are a constant threat to the CAC region. They profusely multiply and attack tens of millions of hectares of crop and pasture and adversely affect food security and livelihoods of more than 20 million vulnerable inhabitants that eke out a

living primarily from farming and herding. With the ability to travel more than 100 km (60 miles) each day, these locusts can decimate dozens of hectares of cereal crops, pasture, cotton, fruit trees, leguminous plants, sunflower, tobacco, vineyard, vegetable and others over vast areas. Many CAC countries affected by these locusts lack robust and well established capacity to effectively prevent and control these pests, but do their level best and invest tremendous amounts of resources to keep these pests under control. USAID/OFDA has been supporting a DRR program to strengthen national and regional capacity to help abate these beasts (for further detail, refer to page 6, column two paragraph two). End note.

African Armyworm (AAW): AAW outbreaks continued affecting sorghum crops and pasture in Dire Dawa, Oromya and the SNNPR, **Ethiopia** where 60 districts were affected more than 80,300 ha of crops and 35,420 ha of pasture and control operations treated close to 27,960 ha using 38,384 liters of pesticides. AAW outbreaks were not reported in other breeding areas during this period (DLCO-EA, IRLCO-CSA, PPD/Uganda).

Forecast: AAW outbreaks will likely occur in northern and Rift Valley regions of Ethiopia during the forecast period (DLCO-EA, IRLCO-CSA).

Where applicable, CBAMFEW forecasters must remain vigilant and report any trap catches on time to concerned authorities to facilitate rapid interventions (DLCO-EA, IRLCO-CSA, OFDA/AELGA).

Note: PSPM continuous developing and improving AAW information in both the SOR and COR and so far, printable and web-based maps have been developed for AAW outbreak and invasion countries in the central and southern regions (click on the below link for the maps (OFDA/PSPM in collaboration with the GIU will develop a similar map for FAW):

<http://usaid.maps.arcgis.com/apps/View/index.html?appid=9d2ab2f918284595819836d1f16a526f>

Fall armyworm (*Spodoptera frugiperda*) (SFR - FAW): SFR continued affecting maize, sorghum, and/or other crops in many countries in eastern and southern Africa including **Ethiopia, Kenya, Uganda, South Sudan, Malawi, Zambia** and **Zimbabwe** during June. No update was received on SFR in West and Central Africa regions and significant developments are not expected during this period.

In **Ethiopia** SFR continued its north and western spread and had reached three more administrative regions - Amhara, Benishangul Gumz and Tigray increasing the number of administrative regions affected to 6 (six), including SNNPR, Oromia, Gambella. By mid-June more than 294,201 ha were reported affected, 4,807 peasant association in 347 districts in 46 zones. Control operations were carried out on more than 187,605 ha and more than 88,950 l/kg of pesticides were utilized. In previous month, MoA/Ethiopia estimated crop losses of up to 15–30% in SNNP and 5–10% in Oromia where some localities reported 100% loss). The most recent estimate puts some 5% possible harvest loss across the affected regions

of the country. This estimate could increase as the pest continuous affecting crops and pasture in other regions of the country.

A CRS Farmer2Farmer volunteer is working with MinAgri/CPD shared information and documents on SFR identification, surveillance, tools and techniques of monitoring, control measure. The volunteer also made a presentation at Debre Berehan University in collaboration with faculty and staff from the university's Agricultural Research Center.

In **Kenya**, SFR outbreak continued affecting rain-fed maize crops in June where the pest has been affecting all counties except Garissa, Wajir Mandera, Isiolo and Marsabit. Country-wide control campaign led by the Ministry of Agriculture, Livestock and Fisheries is in progress. Note: most of the original infestations in **Kenya** were reported in the western and Rift Valley parts of the country which suggests that the pest might have migrated from **Uganda**. **Kenya** estimates 20-25% crop loss overall due to FAW and allocated substantial amount of resource, both monetary and personnel to counter the pest that has already attacked and/or threatened maize crops in most of its maize growing countries. National Ag research centers are aggressively researching for effective and sustainable control tools.

Irrigated maize crops in **Malawi, Zambia** and **Zimbabwe** are also affected by the pest where control operations are implemented by the affected farmers with technical and material assistance from the Ministries of Agriculture. Damage estimates were not yet available at the time this report was compiled, but during

May the pest was reported threatening more than 200,000 ha of maize crops (IRLCO-CSA).

SFR has been reported in the **Republic of South Sudan** (SSD) during June where outbreaks were detected in Eastern, Central and Western Equatorial and Northern Bahr El Ghazal. The pest was reported attacking maize crops in Eastern and Western Equatorial (Nzara and Tambura Counties) and feeding on young sorghum plants in Northern Bahr Al Gazal. It was detected in Jubik State during the 3rd dekad of June.

As of June 27, FAW was reported in Eastern Equatorial State in Magwi Country in SSD where late planted (mid-April) maize crops in 25% of the fields visited were reported affected (D). By late June the pest was also reported in Jubik, Central Equatorial, Northern Bahr El Gazal on sorghum and in Western Equatorial State in Nzara and Tambura Counties on maize crops (see pictures below, FAO/SSD).



According to FAO/SSD, the pest was first detected by farmers in Magwi County in Eastern Equatorial State in areas adjacent to northern Uganda where it was observed attacking late planted maize crops during

mid-May, but extension staff were unable to determine whether it was

African armyworm or FAW until a field photo was shared with OFDA/PSPM senior technical advisor who identified the pest. Access to the affected areas in iMagwi County was not possible to FAO staff due to the security situation in the region.

The first FAO/SSD field visit to the affected areas in Magwi County took place during the 3rd dekad of June where staff could travel with a UNMISS convoy and assess maize fields that were affected (see pictures below). The preliminary assessment suggested serious crop damage in 25% of the fields that were affected. Early planted maize fields were largely free from the pest attack.



There is a concern among FAO field staff that the ongoing security situation, poor infrastructure (bad road), lack of expertise and trained staff, as well as absence of materials, application and personal protection equipment, etc., will undermine implementation of effective and timely control interventions.

The pest has gained political attention from GoSSD and funds will likely be allocated, but procurement of pest control commodities may take a while and a timely delivery of essential materials will need concerted efforts and expedited

actions. In the absence of alternatives, FAO field staff will encourage farmers and local communities to implement mechanical and other traditional means of control, e.g., handpicking larvae, crop hygiene, destroying severely affected plants, regular monitoring to reduce the larval caseload while other means of control interventions will be aggressively explored and implemented.

OFDA/PSPM shared technical documents on the biology, identification, ecology, phenology, feeding behavior and possible prevention and control interventions and helped with the identification of the pest with the field staff. It is currently reviewing an unsolicited proposal on FAW for the Eastern Africa sub-region which, if/when implemented, could benefit countries in the sub-region as a whole.

OFDA/PSPM will continue monitoring the situation closely and provide advice and guidance.

The Republic of **Sudan** has taken a preventive action to get ahead of a potential SFR invasion by sending PPD experts to **Ethiopia** in collaboration with FAO/SFE and PPD/Ethiopia to observe, learn biology, detection, prevention and control interventions (PPD/Ethiopia).

SFR continued spreading throughout maize producing districts in **Uganda** and by end of June it had reached Moyo, Kotido, Karamoja, and other districts in northeastern part of the country. Control operations were carried out by affected farmers with technical and material support (*Cypermethrin* and *Profensos* mix and sprayers) from MoA/PPD/Uganda. The pest was reported causing a localized total crop loss in some places where

replanting was necessitated (*DLCO-EA, CPD/Uganda*).

MoA/**Uganda** estimates a potential annual loss of some 450,000 MT of maize to a potentially established and unabated SFR outbreaks. GoU developed an action plan with a budget of USD 1 million before the pest migrated to that several dozen districts and it is expected to have revised the action plan after the pest continued affecting many more districts (MoA/Uganda).

Rwanda has developed an action plan for USD 700,000 with USD 200,000 from its own and the rest soliciting from partners. It has also mobilized its military force to control SFR caterpillars through mechanical and means.

Burundi requested an emergency technical assistance from FAO and FAO is considering a TCP project to assist with FAW issues (FAO-SFE)

Tanzania has developed an action plan to carry out surveillance and monitoring during the coming seasons and is on the lookout.

Forecast: SFR will continue spready northward affecting crops in other parts of **Ethiopia** and perhaps reach southern **Eritrea** during the forecast period. With the Intertropical Front moving northward during the coming months, it is likely that the pest will continue its northward trajectory and threaten crops in many countries, north of its current invasion belt in South Sudan, northern Ethiopia, and perhaps appear in central west Africa and south of the Sahel. *In the southern region, SFR outbreaks are likely to continue especially on irrigated cereal crops.*

Countries in the IRLCO-CSA region are urged to install pheromone traps that the organization issued last month to monitor the FAW moths.

This pest can travel up to 100 km/day with the capacity to reach more than 1,000 km during its life and even further with the support of strong trade winds. *Active surveillance*, monitoring, and timely reporting, information sharing among districts, regions, countries and neighboring countries and implementing appropriate preventive interventions remain critical to abate damage to crops and pasture.

The likelihood of this pest appearing more often is high due to its ability to bypass diapaus and continuously breed under ideal ecological conditions. This will be exacerbated by the presence of late planted and irrigated maize and other crops in different regions across the continent. However, a clear understanding of its impact crops and pasture remain to be studied. Meanwhile, efforts should be made at all levels to remain vigilant and implement appropriate interventions to the extent possible.

If established on the continent, a phenomenon that appears to be highly likely given the nature of the pest and the favorable ecological and climatological conditions in many countries across the continent, this aggressive and fast spreading pest will likely continue affecting agricultural production across the continent and threaten food security and livelihoods of tens of millions of households.

As a new pest to the continent, extensive studies are required to better understand

its biological behavior, host preference, habitat selection, means and range of migration, and competition between indigenous species is ever more important to develop effective control tools.

Awareness raising and training local communities, agricultural agents and other concerned entities are essential for effective identification, detection surveillance, monitoring as well as to implement preventive and curative control interventions.

As part of a long-term preventive and curative control options, identification and selection of resistance crop varieties remain critical to implement as part of effective and inclusive and sustainable pest management strategies. The search and research for biological control tools - parasitoids, parasites, predators, pathogens, needs to pursue to help develop an array of control tools in a tool box.

A preliminary Evidence Note from CABI, SFR estimates a potential damage of 13.5 million tons of maize (valued at US\$3 billion). So far different scale of SFR damage have been reported on more than 300,000 ha of maize in sub-Saharan Africa just over the past six or so months. The Evidence Note estimates a predicted total loss of more than USD 13.38 billion in maize, sorghum, rice and sugarcane – mostly rice paddy, maize and sugarcane. This information document is being revised and updated to reflect an ongoing and evolving situation of the SFR.

USAID/OFDA/PSPM will continue monitoring the situation and provide updates and offer guidance as often as necessary.

Quelea (QQU): QQU outbreaks were reported in Narok County in **Kenya** where plans were underway to launch control operations. In **Tanzania**, the pest was reported in Dodoma, Morogoro and Mbeya regions where aerial control operations by the DLCO-EA aircraft were in progress at the time this report was compiled. QQU outbreaks were also reported on Teff and Sorghum crops in Konso District in SNNPR in **Ethiopia**, but no outbreaks were reported elsewhere during this month. However, it was reports that MoA/**Zimbabwe** has dispatched pesticides at strategic locations in anticipation of potential invasions (DLCO-EA, IRLOC-CSA).

Forecast: QQU birds will likely continue being a problem to small grain cereal crops in the Rift Valley and Nyanza Provinces of **Kenya** in **Ethiopia**, in Morogoro, Mbeya and Kilimanjaro Regions of **Tanzania** and winter wheat growing provinces in **Zimbabwe** (DLCO-CE, IRLCO-CSA).

Facts: QQU birds can travel ~100 km/day in search of food. An adult QQU bird can consume 3-5 grams of grain and destroy the same amount each day. A medium density QQU 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 information was received on rodent situation during June.

(Note: On average an adult rat can consume 3-5 gm of food (grains etc.)/day and a population of 200 rats/ha (a very low density) could consume what a sheep can eat in one day (not to mention the

amount they can damage, destroy or pollute making it unfit for human consumption) and the zoonotic diseases they can transmit.)

All ETOP front-line line countries must maintain regular monitoring. 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 and on a timely basis. Lead farmers and community forecasters must remain vigilant and report ETOP detections to relevant authorities immediately.

Inventories of Pesticide Stocks for ETOP Prevention and Control

During June only 70 ha were treated in **Algeria**.

Control operations continued against AAW and SFR (FAW) in several **Sub-Saharan African** countries where hundreds of thousands of ha were affected and treated during this month.

Note: A Sustainable Pesticide Stewardship (SPS) can strengthen pesticide delivery system (PDS) at the national and regional levels. A strong PDS can effectively reduce pesticide related human health risks, minimize environmental pollution, increase food security and contribute to the national economy. An SPS can be effectively established by linking key stakeholders across political borders. **End Note.**

OFDA/PSPM encourages alternatives to core pesticides to implement IPM to reduce risks associated with pesticide stockpiling. A judiciously executed

triangulation of surplus stocks from countries with large inventories to countries in need is a win-win situation worth considering.

Table 1. ETOP Pesticide Inventory in Frontline Countries during March, 2016

Country	Quantity (l/kg)*
Algeria	1,188,745~
Chad	38,300
Egypt	68,070~ (18,300 ULV, 49,770 l)
Eritrea	17,124~ + 20,000 ^D
Ethiopia	9,681~
Libya	25,000~
Madagascar	206,000~ + 100,000 ^D
Mali	7,000
Mauritania	14,998 ^{DM}
Morocco	3,490,732 ^D
Niger	75,750~
Oman	10,000~
S. Arabia	89,357~
Senegal	156,000~
Sudan	169,710~
Tunisia	68,514 obsolete
Yemen	40,090 ^D + 180 kg GM~

*Includes different kinds of pesticide 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 = *GreenMuscle*TM (fungal-based biological pesticide)

LIST OF ACRONYMS

AAW	African armyworm (<i>Spodoptera expempta</i>)
AELGA	Assistance for Emergency Locust Grasshopper Abatement
AFCS	Armyworm Forecasting and Control Services, Tanzania
AfDB	African Development Bank
AME	<i>Anacridium melanorhodon</i> (Tree Locust)
APLC	Australian Plague Locust Commission
APLC	Australian Plague Locust Commission Bands groups of hoppers marching pretty much in the same direction
CAC	Central Asia and the Caucasus
CBAMFEW	Community-based armyworm monitoring, forecasting and early warning
CERF	Central Emergency Response Fund
CIT	<i>Calliptamus italicus</i> (Italian Locust)
CLCPRO	Commission de Lutte Contre le Criquet Pèlerin 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	<i>Chortoicetes terminifera</i> (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	Kg	Kilogram (~2.2 pound)
DMA	<i>Dociostaurus maroccanus</i> (Moroccan Locust)	L	Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)
DPPQS	Department of Plant Protection and Quarantine Services, India	LCC	Locust Control Center, Oman
DPV	Département Protection des Végétaux (Department of Plant Protection)	LMC	<i>Locusta migratoriacapito</i> (Malagasy locust)
ELO	EMPRES Liaison Officers –	LMM	<i>Locusta migratoria migratorioides</i> (African Migratory Locust)
EMPRES	Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases	LPA	<i>Locustana pardalina</i>
EOR	Eastern SGR Outbreak Region	MoAFSC	Ministry of Agriculture, Food Security and Cooperatives
ETOP	Emergency Transboundary Outbreak Pest	MoAI	Ministry of Agriculture and Irrigation
Fledgling	immature adult locust /grasshopper that has pretty much the same phenology as mature adults, but lacks fully developed reproductive organs to breed	MoARD	Ministry of Agriculture and Rural Development
GM	GreenMuscle® (a fungal-based biopesticide)	NALC	National Agency for Locust Control
ha	hectare (= 10,000 sq. meters, about 2.471 acres)	NCDLC	National Center for the Desert Locust Control, Libya
ICAPC	IGAD's Climate Prediction and Application Center	NOAA (US)	National Oceanic and Aeronautic Administration
IGAD	Intergovernmental Authority on Development (Horn of Africa)	NPS	National Park Services
IRIN	Integrated Regional Information Networks	NSD	Republic of North Sudan
IRLCO-CSA	International Red Locust Control Organization for Central and Southern Africa	NSE	<i>Nomadacris septemfasciata</i> (Red Locust)
ITCZ	Inter-Tropical Convergence Zone	OFDA	Office of U.S. Foreign Disaster Assistance
ITF	Inter-Tropical Convergence Front = ITCZ)	PBB	Pine Bark Beetle (<i>Dendroctonus</i> sp. – true weevils)
FAO-DLIS	Food and Agriculture Organizations' Desert Locust Information Service	PHD	Plant Health Directorate
Hoppers	young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)	PHS	Plant Health Services, MoA Tanzania
JTWC	Joint Typhoon Warning Center	PPD	Plant Protection Department
		PPM	Pest and Pesticide Management
		PPSD	Plant Protection Services Division/Department
		PRRSN	Pesticide Risk Reduction through Stewardship Network
		QQU	<i>Quelea Quelea</i> (Red Billed Quelea bird)
		SARCOF	Southern Africa Region Climate Outlook Forum
		SFR	<i>Spodoptera frugiperda</i> (SFR) (Fall armyworm (FAW))
		SPB	Southern Pine Beetle (<i>Dendroctonus frontalis</i>) – true weevils

SGR *Schistoseca gregaria* (the Desert Locust)
SSD Republic of South Sudan
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.
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...

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