

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

## SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**<sup>1</sup>) situation remained calm in the Western Outbreak Region (**WOR**) and only scattered adults and hoppers were detected in **Mauritania**, **Niger** and **Algeria** during October.

The Central Outbreak Region (**COR**) remained calm and only small-scale breeding may have occurred along the Red Sea coast in **Eritrea**. The situation in **Yemen** remained unclear during October.

In the Eastern Outbreak Region (**EOR**), a few locusts were detected in summer breeding areas in **Pakistan**, but overall the situation remained calm during this month.

## Forecast

In **WOR**, limited breeding may occur in western **Mauritania** and southwestern **Morocco**, but significant developments are not likely during the forecast period.

In **COR**, small-scale breeding is likely along both sides of the Red Sea coasts, but significant developments

are not likely during the forecast period.

In **EOR**, significant developments are not expected during the forecast period.

**Fall armyworm (FAW)** (*Spodoptera frugiperda*) (**SFR**): SFR/FAW outbreaks were reported in **Ethiopia**, **Kenya**, **Malawi**, **Somalia**, **Tanzania**, **Uganda** and **Zimbabwe** during October. No updates were received from other countries, but it is likely that the pest is causing a problem to maize and other crops (**for further detail, please, refer to pages 7-10**).

**Red (Nomadic) Locust** (*Nomadacris septemfasciata*) (**NSE**): NSE populations/swarms persisted in the primary outbreak areas in **Malawi**, **Mozambique** and **Tanzania** during October. Mixed populations of NSE and a grasshopper species were reported in **Zambia** during this month.

**African Armyworm (AAW)**: No reports were received on AAW during October. The pest will likely begin appearing in the southern outbreak region during the forecast period.

**Italian (CIT), Moroccan (DMA), Asian Migratory (LMI) Locusts**: No update was received and it is expected that locust activities have ended in the CAC region during October (OFDA/PSPM).

<sup>1</sup> Definitions of all acronyms can be found at the end of the report.

**Quelea birds (QQU):** QQU bird outbreaks were reported in **Kenya, Ethiopia, Sudan and Tanzania** during October. Aerial control operations were launched with assistance from DLCO-EA.

**Note: Tomato leaf miner (*Tuta absoluta* - TAB)** a pest native to the tropical South America and alien to the African continent was first detected in Sprain in 2006. It has since reached dozens of countries across Africa, Europe, Mediterranean, Middle East, Asia and Pacific and will likely spread further. **End note.**

*Active surveillance and monitoring as well as timely preventive interventions remain critical to abate any threats ETOPs pose to crops and pasture.*

**USAID/OFDA/PSPM** regularly monitors ETOPs in close collaboration with its network of national PPDs/DPVs, regional and international pest monitoring organizations, including FAO, CLCPRO, CRC, DLCO-EA, and IRLCO-CSA and provides timely analytical reports, updates to various stakeholders across the globe. **End summary**

## RÉSUMÉ

**La situation du Criquet pèlerin (*Schistoseca gregaria* - SGR)** est restée calme dans la Région occidentale des épidémies (WOR) et seuls des adultes et des larves épars ont été détectés en Mauritanie, au Niger et en Algérie en octobre.

La région centrale de l'épidémie (COR) est restée calme et seule une reproduction à petite échelle a pu avoir lieu le long de la côte de la mer Rouge en Érythrée. La situation au Yémen est restée incertaine en octobre.

Dans la Région de l'Est de l'Est (EOR), quelques criquets ont été détectés dans des zones de reproduction estivale au Pakistan, mais dans l'ensemble la situation est restée calme au cours de ce mois.

### Prévoir

En WOR, une reproduction limitée mai dans l'ouest de la Mauritanie et le Maroc sud-ouest, mais les développements importants ne sont pas probablement au cours de la période de prévision.

Dans le COR, une reproduction à petite échelle est probable le long des deux côtés des côtes de la mer Rouge.

En EOR, des évolutions significatives ne sont pas attendues au cours de la période de prévision.

### **Chenille légionnaire d'automne (FAW) (*Spodoptera frugiperda*) (SFR):**

Des foyers de SFR / FAW ont été signalés en Ethiopie, au Kenya, au Malawi, en Somalie, en Tanzanie, en Ouganda et au Zimbabwe en octobre. Aucune mise à jour n'a été reçue d'autres pays, mais il est probable que le ravageur cause un problème au maïs et à d'autres cultures (pour plus de détails, veuillez vous reporter aux pages 7-10).

**Criquet nomade rouge (*Nomadacris septemfasciata*) (NSE):** Des populations / essais d'ESN ont persisté dans les zones de première épidémie au

Malawi, au Mozambique et en Tanzanie en octobre. Des populations mixtes d'ESN et d'une espèce de sauterelle ont été signalées en Zambie au cours de ce mois.

**Chenille légionnaire africaine (AAW):**

Aucune éclosion d'AAW n'a été signalée en octobre. L'organisme nuisible commencera probablement à apparaître dans la région du sud du foyer au cours de la période de prévision.

**Criquets italiens (CIT), marocains (DMA), asiatiques migratrices (LMI):** Aucune mise à jour n'a été reçue et il est prévu que les activités acridiennes aient pris fin dans la région du CAC en octobre (OFDA / PSPM).

**Quélé oiseaux (QQU):** Des éclosions d'oiseaux QQU ont été signalées au Kenya, en Éthiopie, au Soudan et en Tanzanie en octobre. Les opérations de contrôle aérien ont été lancées avec l'aide de DLCO-EA.

**Note:** Le mineur de feuilles de tomates (**Tuta absoluta - TAB**, est un organisme nuisible originaire de l'Amérique du Sud tropicale et étranger au continent africain. Il a été détecté pour la première fois à Sprain en 2006. Il a déjà atteint des dizaines de pays à travers l'Afrique, l'Europe, la Méditerranée, le Moyen-Orient, l'Asie et le Pacifique et continueront probablement à se répandre davantage. **Fin de la note.**

La surveillance active ainsi que les interventions préventives en temps voulu restent essentielles pour réduire les menaces que les ETOP posent aux cultures et aux pâturages.

**L'USAID / OFDA / PSPM** surveille régulièrement les ETOP en étroite

collaboration avec son réseau de PPV / DPV nationaux, les organisations régionales et internationales de surveillance des ravageurs, notamment la FAO, CLCPRO, CRC, DLCO-EA et IRLCO-CSA et fournit des rapports analytiques opportuns, des mises à jour, diverses parties prenantes à travers le monde.

**Résumé de fin**

**OFDA's Contributions to ETOP Activities**

*The online Pesticide Stock Management System (PSMS) that was developed by the UN/FAO with financial assistance from USAID/OFDA and other partners has been installed in several dozen countries in Africa, South America, the Caribbean, Middle East, Asia and Pacific and 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 has been incorporated into 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 progress.

*OFDA/PSPM is working with interested parties to explore means and ways to expand this innovative technology to other AAW affected countries to 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 remain high on the agenda.*

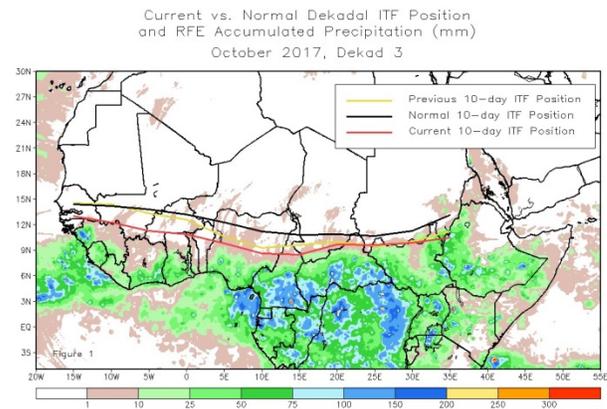
*USAID/OFDA-sponsored DRR projects implemented by FAO to strengthen national and regional capacity for locust control and prevention helped tens of millions of farmers, pastoralists, etc., across Sahel West Africa, Northwest Africa, Eastern and Northeastern Africa, Caucasus and Central Asia (CAC), and the Middle East. The project has created collaborations among neighboring countries for joint monitoring, surveillance, reporting and launching preventive interventions against locusts. Through these projects, several dozens of technical staff and farmers received training in safer and effective ETOP monitoring and preventive/curative operations.*

**Note:** ETOP SITREPs can be accessed on USAID Pest and Pesticide Management website: <https://www.usaid.gov/what-we-do/working-crises-and-conflict/responding-times-crisis/how-we-do-it/humanitarian-sectors/agriculture-and-food-security/pest-and-pesticide-monitoring>

### Weather and Ecological Conditions

During the 3<sup>rd</sup> dekad of October (20-31 October) the Inter-Tropical Front (ITF) continued its equatorial retreat and

remained south of its climatological position for this time of the year. The mean western (10W-10E) portion of the ITF was approximated at 10.6N and was south of the mean climatological position by 2.3 degrees causing monsoon rainfall to stop early in many areas across West Africa. The mean eastern (20E-35E) portion of the ITF was approximated at 10.0N and was south of the average position by 1.5 degrees. Drier than normal conditions were observed in South Sudan and Central African Republic during this dekad, but localized rainy conditions persisted in western Ethiopia (NOAA, October, 2017).



ITZ position during the 3<sup>rd</sup> dekad of October, 2017 with its climatological mean position and that of last dekad).

**WOR:** Light rain fell in western part of **Mauritania** and moderate to good rains fell in northeast **Morocco**, northwest **Algeria** and light showers were reported in northwestern **Libya** and Ghat. Ecological conditions were favorable for SGR survival in the Draa, Ziz and Ghri valleys in southern **Morocco**. Overall, unfavorable conditions persisted in other countries in the WOR during this month (**CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, FAO-DLIS, NCLC/Libya**).

**COR:** Light rains fell in the central Red Sea coast in Eritrea and northern coastal areas in Sudan during October. Ecological conditions will improve in those areas during the forecast period (FAO-DLIS, PPD/Sudan).

**EOR:** Dry and hot conditions persisted in the EOR.

**NSE Outbreak Region:** Heavy rains were recorded near NSE outbreak areas in **Mozambique** (100 mm in Buzi-Gorongosa) and **Tanzania** (216 mm in Malagarasi Basin) and sporadic light rains were reported in other countries in the NSE outbreak region during October (IRLCO-CSA).

**Note:** *Combinations of precipitation, warm weather and green vegetation MUST be closely watched as this mix coupled with the seasonal wind trajectory can favor, breeding and facilitate migration and further spread of the new pest – **Fall Armyworm**. **End note.***

[http://www.cpc.ncep.noaa.gov/products/international/casia/casia\\_hazard.pdf](http://www.cpc.ncep.noaa.gov/products/international/casia/casia_hazard.pdf)

**Note:** *Changes in the weather pattern and increased 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 ambient altitude due to warmer higher elevations.*

*The **Asian migratory locust**, an insect that normally breeds once a year, has begun exhibiting two generations per year. These anomalies which are largely*

*attributed to the change in the weather pattern and associated ecological shift, are serious concerns to farmers, rangeland managers, crop protection experts as well as development and humanitarian partners, etc. Regular monitoring, documenting and reporting anomalous manifestations in pest behavior and habitat shifts remain critical to help avoid/minimize potential damage 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:** The **Desert Locust** (*Schistoseca gregaria* - **SGR**<sup>2</sup>) situation remained calm in the Western Outbreak Region (**WOR**). In **Mauritania**, the SGR situation remains generally calm throughout the country. Only some scattered mature and immature adults were detected by the survey teams operating in the central and western parts of the country. Isolated L1, L2 and L5 instar hoppers were detected in Adrar, but did not need control operation. Apart from a few scattered adult locusts that were detected in northern **Niger** and western **Algeria**, no locusts were reported in Libya, Mali, Morocco or Tunisia and no reports were received from other countries in the region during October (CNLA/Mauritania, CNLAA/Morocco, CNLA/Libya, CNLA/Tunisia, FAO-DLIS).

**Forecast:** Given the ongoing calm situation and the disappearance of favorable ecological conditions, significant

<sup>2</sup> Definitions of all acronyms can be found at the end of the report.

developments are not likely during the forecast period.

### SGR (Desert Locust) - COR:

The **COR** remained calm and only small-scale breeding may have occurred along the Red Sea coast in **Eritrea**. The situation in **Yemen** remained unclear during October (DAF/Djibouti, FAO-DLIS, LCC/Oman, PPD/Sudan).

**Forecast:** In **COR**, small-scale breeding is likely along both sides of the Red Sea coasts, and perhaps Somalia, but significant developments are not likely during the forecast period.

### SGR - EOR:

In **EOR**, a few locusts were detected in summer breeding areas in **Pakistan** in areas bordering **India**, but overall the situation remained calm during this month (FAO-DLIS).

**Forecast:** The situation will remain calm in EOR during the forecast period.

*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.*

*The **USAID/OFDA-FAO-DLCO-EA** sponsored the Horn of Africa emergency desert locust management project in is progressing. Technical and material supports that have been provided to participating frontline countries and/or DLCO-EA are strengthening the capacity to better monitor, report, prevent, and abate locusts in the sub-region.*

**Red (Nomadic) Locust (NSE):** Joint aerial surveys by IRLCO-CSA and **MinAgri/Tanzania** were carried out from 10-24 October in NSE outbreak areas in North and South Rukwa plains, Ikuu-Katavi, Malagarasi Basin, Wembere and Bahi Valley. Large numbers of isolated and scattered NSE populations were detected mostly in patches of unburned vegetation. In **Malawi**, NSE swarms persisted in Lake Chilwa/Lake Chiuta plains and Mpatsanjoka Dambo, but low precipitation did not favor breeding. In **Mozambique**, NSE populations are expected to have started breeding following the heavy rains that occurred in Buzi-Gorongosa and Dimba plains during October. In **Zambia** mixed populations of NSE and a grasshopper species, *Cataloipus sp.*, continued infesting Kafue Flat where moderate to heavy rains fell during October. Crop or pasture damage or control operations were not reported during this time (IRLCO-CSA, OFDA/PSPM).

**Forecast:** If left unattended, NSE populations will likely breed extensively in **Malawi, Mozambique** and **Zambia** and cause populations to increase. Hoppers of *Cataloipus* will likely begin appearing from December 2017 on and cause serious damage to early planted maize crops.

*IRLCO-CSA continues consulting with its Member States for resources to undertake urgent survey and control operations. It is in the interest of all concerned countries and partners that IRLCO-CSA member-states respond to the Organization's appeal for resources to abate these pests successfully so as to contribute to food security of vulnerable populations (IRLCO-CSA, OFDA-AELGA).*

**Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC):** No update was received at the time this report was compiled and no locusts are expected to have been present (OFDA/PSPM).

**Forecast:** In the CAC region, locust activities will remain calm until next spring (OFDA/PSPM).

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

FAW infestations were reported in irrigated and/or rain-fed maize crops in **Ethiopia, Kenya, Malawi, Somalia, Tanzania, Uganda** and **Zimbabwe** during October.

In **Tanzania**, the pest was reported attacking irrigated maize crops in Kilimanjaro, Arusha and Manyara, Mbeya, Iringa and Rukwa regions (see pictures below and next column; farmer showing damaged maize plants to the head of the Tanzania armyworm forecasting unit, source: Tanzania Plant Health Services - PHS/Tanzania, October 26, 2017). The



damage was sustained on two ha in irrigated maize in Arusha region, Meru district, Ndatu village. The affected farmer

was first unsure whether it was stalk

border, but later on, the pest was properly identified by PHS staff. The farmer sprayed insecticides, but it did not help due to a delayed application where by the pest had already penetrated deep into the stalk. PHS staff provided technical advice on good pest management approach, including proper identification, scouting, monitoring, timely reporting and implementing



effective and safer preventive interventions.

In **Ethiopia**, low numbers of FAW larvae were reported in irrigated maize crops in the southern, central and northern parts of the country. *A late received info indicated that torrential rains washed away massive larval populations in July and August, but additional information was not available at the time this report was compiled (PPD/Ethiopia).*

In **Uganda**, FAW was reported infesting maize crops and MinAgri is disseminating technical information on FAW scouting, monitoring and preventive control interventions via mass media and through agri field agents to reach out to affected farmers (DLCO-EA).

In **Zimbabwe** FAW was reported in irrigated maize. MinAgri is providing technical assistance to affected farmers.

MinAgri and other staff participated in a USAID/BFS-funded regional training on FAW in Harare. No updates were received from other countries across sub-Saharan Africa at the time this report was compiled. However, it is likely that FAW is causing a problem to irrigate crops (DLCO-EA, IRLCO-CSA, OFDA, PPD/Ethiopia, PHS/Tanzania).

**Forecast:** That FAW will likely remain a threat to maize and other crops across Africa during the forecast period.

*Active monitoring, surveillance, routine pheromone trap inspection and crop scouting as well as information sharing and reporting remain critical to help implement preventive interventions to abate any major damage the pest could cause to crops.*

*FAW is not to be considered a single farmer or a village or even a single country pest. It is a trans-regional pest that needs collective efforts, more so in countries that are severely under-resourced. Preventing and effectively managing this pest require well organized efforts beyond a village or country.*

*Countries where pheromone traps are installed are urged to continue reporting moth catches. Extension agents and farmers must undertake routine field scouting alongside inspecting pheromone traps.*

#### **Potential tools for interventions**

*Awareness raising, training and empowering local communities, agricultural extension agents and other entities in proper identification, detection, routine and aggressive scouting, surveillance, monitoring as well as*

*implementing safer and effective interventions remain critical to effectively abate this pest.*

*Cultural control - intercropping can provide crop cover and can be ideal for attracting biological agents. For example, intercropping maize with beans has been reported reducing FAW infestation by 20-30 percent (CIMMYT, 2017). Such methods are worth trying. Plant-based control interventions such as the push-pull system are being experimented and have shown promising results in abating crop damage from FAW (ICIPE is extensively studying to establish optimum utilization of the push-pull strategy). Minimum tillage and conservation agriculture can contribute to increased presence of natural control agents.*

*Preventive and curative mechanical control interventions, crushing and destroying caterpillars and eggs, exposing larvae and pupae to predators and harsh weather and other crop hygiene interventions can all contribute to reducing the pest population and minimize crop damage.*

*Pesticides are one of the tools in the tool box for FAW control. One must take into account the importance of adapting application methods, timing, selecting appropriate products consistent with the nature of the pest – larval presence and feeding at down/dusk, stalk and whorl penetration and cob/ear feeding, etc.*

*A good number of pesticides have been identified and suggested by several entities for FAW control. For example, USAID developed a Programmatic Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP) for Fall Armyworm Management in Africa that provides a*

*detailed list of pesticides suitable for FAW control. The document describes the need for appropriate and safe use and handling of these materials to avoid human and non-target poisoning, environmental contamination, etc. (some of these products may be pricy and/or not easily accessible, but effective and safer).*

*The search for biological control tools – parasitoids, parasites, predators, pathogens (e.g., insects, and other animals could), including those that are being used in the pest's native country must be aggressively researched to develop an array of control tools in a tool box.*

*As long-term preventive control interventions, proper identification and selection of host plant resistance can be tried and implemented in the context of sustainable integrated pest management strategies.*

***Actions being taken to abate SFR's threats to food security and livelihoods of millions of farmers across Africa***

**Host-countries** across the continent continue assisting affected farmers and communities through awareness raising and control interventions. Modest and sporadic material and resource assistance from stakeholders continue contributing to strengthening affected communities' capacity to identify, assess and implement modest preventive control interventions.

Training of extension staff and farmers on identification, scouting and management of the pest is gradually progressing in a few countries and the gap between the need and available resources still remains

clearly obvious. IRLCO-CSA has issued pheromone traps to its Member States to monitor the pest during the upcoming cropping season.

**USAID** has elevated the issue of the FAW and encouraging collaborations between public and private sectors, including companies that have relevant tools for controlling the pest. Through broader collaborations and engagements, efforts are being made to minimize and prevent adverse impacts FAW on food security and livelihoods of hundreds of millions of households across Africa.

**USAID**-led intra-agency FAW working group continues convening a discussion forum on new on tracking developments, progresses, accomplishments, as well as constraints and explores potential remedial actions. The Group analyzes FAW reports and information, suggests actions for better and effective interventions to USAID and other GoS entities. The Group shares information and discusses with key stakeholders from across the globe.

**USAID Office of U.S. Foreign Disaster Assistance (OFDA)** is implementing a project through an UN/FAOSFE-led consortium composed of the Center for Agriculture and Biosciences International (CABI), DLCO-EA, International Center for Insect Physiology and Ecology (ICIPE) and National MinAgries. The project is aimed at strengthening national capacity in scouting, monitoring, forecasting, early warning and effective and safer FAW management interventions.

**USAID/OFDA**-funded and BFS managed project is developing a standardized field guide for FAW scouting, monitoring, early warning and control has distributed the

first draft field guide for review. The finalized version of the guide is expected to be rolled out early December. The field guide will complement and augment the OFDA-funded FAW sub-regional project for Central and Eastern Africa.

*USAID/BFS is conducting regional ToT in southern, eastern and western Africa. The ToT which is field testing the draft field guide from the Entebbe workshop is in progress in southern Africa and is expected to be conducted in western Africa.*

Several other stakeholders, including, but not limited to the National Research, Academic and management entities, MoAs, AGRA, CABI, CIMMYT, DLCO-EA, FAO, IRLCO-CSA, IITA, ASARECA, ICIPE, international development and humanitarian donors, the private sector and non-governmental organizations are all contributing to the collective efforts to help address the SFR problem.

#### **Useful websites on fall armyworm**

*Armyworm Network: A web resource for armyworm in Africa and their biological control:*

<http://www.lancaster.ac.uk/armyworm/>

*Latest African and Fall Armyworm*

*Forecast from IRLCO-CSA - 5th Jul 2017:*

[http://www.lancaster.ac.uk/armyworm/forecasts/?article\\_id=002971](http://www.lancaster.ac.uk/armyworm/forecasts/?article_id=002971)

*Invasive Species Compendium*

*Datasheets, maps, images, abstracts and full text on invasive species of the world:*

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

*Drought and armyworm threaten Africa's food security:*

<http://www.theeastafrican.co.ke/news/Drought-and-armyworm-threaten-Africa->

[food-security/2558-3996692-ggws8q/index.html](http://www.ircaco-csa.org/food-security/2558-3996692-ggws8q/index.html)

**African Armyworm (AAW):** AAW outbreaks were not reported during October.

**Forecast:** AAW breeding season will commence in the southern outbreak region during the forecast period. Vigilance and timely preventive interventions remain critical to avoid crop damage.

Trap operators for AAW [and FAW as applicable] are advised to actively monitor their traps. Trap monitoring must be accompanied by routine crop scouting to detect egg and larval presence. Egg and larval detections must be reported instantly to facilitate timely preventive control interventions. Moth catches must be reported to forecasting officers and concerned staff and *authorities to facilitate rapid interventions (IRLCO-CSA, OFDA/AELGA).*

**Note:** PSPM continuous collecting, analyzing and reporting on A/FAW information. 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: <http://usaid.maps.arcgis.com/apps/Viewer/index.html?appid=9d2ab2f918284595819836d1f16a526f> (OFDA/PSPM in collaboration with the GIU will develop a similar map for FAW)

**Quelea (QQU):** QQU bird outbreaks were reported attacking irrigated rice and/or rainfed-sorghum crops in Kirinyaga and Tana River counties in **Kenya**, southeastern **Ethiopia** and **Sudan** during October. Control

operations were launched by the respective MinAgries with aerial assistance from DLCO-EA. No additional information was received on sustained crop damage (DLCO-EA, IRLCO-CSA).

**Forecast:** QQU birds will likely continue being a problem to small grain cereal growers in **Kenya** and to a lesser extent in other countries in the eastern and southern outbreak areas during the forecast period.

**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 update was received on rodents during October.

**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 carry and can transmit.

**All ETOP front-line countries must maintain regular monitoring. 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.*

### Inventories of Pesticide Stocks for SGR Prevention and Control

Only 2 ha were treated in **Eritrea** during October.

**Note:** A sustainable Pesticide Stewardship (SPS) can improve and strengthen 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** encourages at all times the use of alternatives to hard core pesticides and promotes IPM to minimize risks associated with pesticide stockpiling. A judiciously executed triangulation of surplus stocks from countries with large inventories to countries in need and where they can be effectively utilized is a win-win situation worth considering.

Table 1. ETOP Pesticide Inventory in Frontline Countries as of October, 2017

Country	Quantity (l/kg)*
Algeria	1,188,708~
Chad	38,300
Egypt	68,070~ (18,300 ULV, 49,770 I)
Eritrea	17,122~ + 20,000 <sup>D</sup>
Ethiopia	9,681~
Libya	25,000~
Madagascar	206,000~ + 100,000 <sup>D</sup>

Mali	7,000
Mauritania	14,998 <sup>DM</sup>
Morocco	3,490,732 <sup>D</sup>
Niger	75,750~
Oman	10,000~
S. Arabia	89,357~
Senegal	156,000~
Sudan	169,710~
Tunisia	68,514 obsolete
Yemen	40,090 <sup>D</sup> + 180 kg GM~
* Includes different kinds of pesticide and formulations - ULV, EC and dust;	
~ data may not be current;	
<sup>D</sup> = Morocco donated 100,000 l of pesticides to Madagascar and 10,000 l to Mauritania in 2015	
<sup>D</sup> = In 2013 Morocco donated 200,000 l to Madagascar	
<sup>D</sup> = Saudi donated 10,000 to Yemen and pledged 20,000 l to Eritrea	
<sup>DM</sup> = Morocco donated 30,000 l of pesticides to Mauritania	
GM = <i>GreenMuscle</i> <sup>TM</sup> (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 Criquet Pélerin dans la Région Occidentale (Commission for the Desert Locust Control in the Western Region)*  
 CNLA(A) *Centre National de Lutte Antiacridienne (National Locust Control Center)*  
 COR *Central SGR Outbreak Region*  
 CPD *Crop Protection Division*  
 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)*  
 DPPOS *Department of Plant Protection and Quarantine Services, India*  
 DPV *Département Protection des Végétaux (Department of Plant Protection)*  
 ELO *EMPRES Liaison Officers –*

<i>EMPRES</i>	<i>Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases</i>	<i>MoAI</i>	<i>Ministry of Agriculture and Irrigation</i>
<i>EOR</i>	<i>Eastern SGR Outbreak Region</i>	<i>MoARD</i>	<i>Ministry of Agriculture and Rural Development</i>
<i>ETOP</i>	<i>Emergency Transboundary Outbreak Pest</i>	<i>NALC</i>	<i>National Agency for Locust Control</i>
<i>Fledgling</i>	<i>immature adult locust /grasshopper that has pretty much the same phenology as mature adults, but lacks fully developed reproductive organs to breed</i>	<i>NCDLC</i>	<i>National Center for the Desert Locust Control, Libya</i>
<i>GM</i>	<i>GreenMuscle® (a fungal-based biopesticide)</i>	<i>NOAA (US)</i>	<i>National Oceanic and Aeronautic Administration</i>
<i>ha</i>	<i>hectare (= 10,000 sq. meters, about 2.471 acres)</i>	<i>NPS</i>	<i>National Park Services</i>
<i>ICAPC</i>	<i>IGAD's Climate Prediction and Application Center</i>	<i>NSD</i>	<i>Republic of North Sudan</i>
<i>IGAD</i>	<i>Intergovernmental Authority on Development (Horn of Africa)</i>	<i>NSE</i>	<i>Nomadacris septemfasciata (Red Locust)</i>
<i>IRIN</i>	<i>Integrated Regional Information Networks</i>	<i>OFDA</i>	<i>Office of U.S. Foreign Disaster Assistance</i>
<i>IRLCO-CSA</i>	<i>International Red Locust Control Organization for Central and Southern Africa</i>	<i>PBB</i>	<i>Pine Bark Beetle (Dendroctonus sp. – true weevils)</i>
<i>ITCZ</i>	<i>Inter-Tropical Convergence Zone</i>	<i>PHD</i>	<i>Plant Health Directorate</i>
<i>ITF</i>	<i>Inter-Tropical Convergence Front = ITCZ)</i>	<i>PHS</i>	<i>Plant Health Services, MoA Tanzania</i>
<i>FAO-DLIS</i>	<i>Food and Agriculture Organizations' Desert Locust Information Service</i>	<i>PPD</i>	<i>Plant Protection Department</i>
<i>Hoppers</i>	<i>young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)</i>	<i>PPM</i>	<i>Pest and Pesticide Management</i>
<i>JTWC</i>	<i>Joint Typhoon Warning Center</i>	<i>PPSD</i>	<i>Plant Protection Services Division/Department</i>
<i>Kg</i>	<i>Kilogram (~2.2 pound)</i>	<i>PRRSN</i>	<i>Pesticide Risk Reduction through Stewardship Network</i>
<i>L</i>	<i>Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)</i>	<i>QQU</i>	<i>Quelea Quelelea (Red Billed Quelea bird)</i>
<i>LCC</i>	<i>Locust Control Center, Oman</i>	<i>SARCOF</i>	<i>Southern Africa Region Climate Outlook Forum</i>
<i>LMC</i>	<i>Locusta migratoriacapito (Malagasy locust)</i>	<i>SFR</i>	<i>Spodoptera frugiperda (SFR) (Fall armyworm (FAW))</i>
<i>LMM</i>	<i>Locusta migratoria migratorioides (African Migratory Locust)</i>	<i>SPB</i>	<i>Southern Pine Beetle (Dendroctonus frontalis) – true weevils</i>
<i>LPA</i>	<i>Locustana pardalina</i>	<i>SGR</i>	<i>Schistoseca gregaria (the Desert Locust)</i>
<i>MoAFSC</i>	<i>Ministry of Agriculture, Food Security and Cooperatives</i>	<i>SSD</i>	<i>Republic of South Sudan</i>
		<i>SWAC</i>	<i>South West Asia DL Commission</i>
		<i>PBB</i>	<i>Pine Bark Beetle</i>
		<i>PSPM</i>	<i>Preparedness, Strategic Planning and Mitigation (formerly known as Technical Assistance Group - TAG)</i>
		<i>Triangulation</i>	<i>The process whereby pesticides are donated by a country, with large inventories, but</i>

*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*

### **Who to contact for more information:**

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, contact:

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