

**Emergency Transboundary  
Outbreak Pest (ETOP) Situation  
Update for February with a  
forecast through mid-April, 2018  
*résumé en français est inclus***

## SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**<sup>1</sup>) situation remained generally calm in the Western Outbreak Region (**WOR**), the Central Outbreak Region (**COR**), and the Eastern Outbreak Region (**EOR**) during February due to unfavorable ecological conditions. In **Yemen**, the absence of surveillance and monitoring continued undermining early detection and reporting.

### Forecast

The SGR situation expected to remain calm in the **WOR**, **COR** and **EOR** regions during the forecast period, but the situation in **Yemen** will remain uncertain unless timely surveys and monitoring are resumed.

**Red (Nomadic) Locust** (*Nomadacris septemfasciata*) (**NSE**): Community Locust Monitoring groups in **Malawi** reported the presence of hopper bands in Lake Chilwa, but the situation remained fairly calm in other outbreak areas during February. NSE populations will likely increase in Mozambique and perhaps Malawi

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

during the forecast period and become a problem.

**Fall armyworm (FAW)** (*Spodoptera frugiperda*) (**SFR**): FAW continued being a problem to maize and other crops in southern and eastern Africa during February (for more detail, please, see pages 6-8).

**African Armyworm (AAW)** (*Spodoptera exempta*): AAW outbreak was not reported during February in the central northern outbreak region, but the seasonal breeding period has started.

**Italian (CIT), Moroccan (DMA), Asian Migratory (LMI) Locusts:** The locust season will remain calm in the CAC till spring.

**Quelea birds (QQU):** QQU outbreaks were reported attacking small grain cereal crops in Shinyanga region in **Tanzania** during February.

*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 to stakeholders across the globe. **End summary**

## RÉSUMÉ

### La situation du Criquet pèlerin

(Schistoseca gregaria - SGR) est restée généralement calme dans la Région des épidémies occidentales (WOR), la Région centrale des épidémies (COR) et la Région des épidémies de l'Est (EOR) en février. Au Yémen, le manque de surveillance et de surveillance a continué de compromettre la détection précoce et la notification.

### Prévoir

La situation du SGR devrait rester calme dans les régions WOR, COR et EOR au cours de la période de prévision, mais la situation au Yémen sera incertaine à moins que des enquêtes et un suivi ne soient effectués.

**Criquet nomade rouge (Nomadacris septemfasciata) (NSE):** Des groupes de surveillance de la lutte antiacridienne au Malawi ont signalé la présence de bandes larvaires dans le lac Chilwa, mais la situation est restée relativement calme dans d'autres zones de la flambée en février. Les populations d'NSE augmenteront probablement au Mozambique et peut-être au Malawi pendant la période de prévision et deviendront un problème

**Chenille Légionnaire d'automne (FAW) (Spodoptera frugiperda) (SFR):** FAW a continué à être un problème pour le maïs et d'autres cultures en Afrique australe et orientale en février (pour plus de détails, veuillez vous reporter aux pages 6 à 8).

**Chenille Légionnaire africaine (AAW) (Spodoptera exempta):** L'épidémie d'AAW n'a pas été signalée en février dans la

région du nord du foyer, mais la période de reproduction saisonnière a commencé.

**Criquets italiens (CIT), marocains (DMA), asiatiques migratrices (LMI):** La saison acridienne restera calme dans le CAC jusqu'au printemps.

**Quelea birds (QQU):** Des éclosions de QQU ont été signalées lors de l'attaque de cultures céréalières à petits grains dans la région de Shinyanga en Tanzanie en février.

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 aux parties prenantes à travers le monde. Résumé de fin

### OFDA's Contributions to ETOP Interventions and Abatement

*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 assisting participating countries maintain active inventories. Thanks to this tool, many counties have been able to avoid unnecessary procurements and stockpiling of pesticides and costly*

*disposal operations and improved safety and well-being of their citizens and shared environment.*

The USAID/OFDA funded community-based armyworm monitoring, forecasting and early warning (CBAMFEW) project had 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 maintains a line of communications with participating countries and monitor progresses.

*OFDA/PSPM is working with interested parties to explore means and ways to expand innovative technologies 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 avoid potentially threatening pesticide related contaminations and improve safety of vulnerable populations and their shared environment remain high on the agenda.*

*USAID/OFDA-sponsored DRR projects implemented by FAO to strengthen national and regional capacity for emergency locust control and prevention helped tens of millions of farmers, pastoralists across Sahel West Africa, Northwest Africa, Eastern and Northeastern Africa, Caucasus and Central Asia (CAC), and the Middle East. These projects have not only enhanced, but also created/facilitated collaborations*

*among neighboring countries for joint monitoring, surveillance, information/technical sharing, 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. These projects promoted, encouraged and helped realize south-south collaborations among frontline countries. **Thanks to these and other similar efforts, potentially serious locust outbreaks and invasions had been abated several times in many countries across the primary outbreak regions over more than a decade.***

**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

**WOR** region largely remained dry and ecological conditions were generally unfavorable during February to sustain survival or breeding of SGR except in a few places in south and southeast **Morocco** and northern **Mauritania** (CNLA/Chad, CNLA/Mali, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, FAO-DLIS, NLCC/Libya).

**COR:** In COR, ecological conditions remained generally dry and only patches of green vegetation were reported in a few places between Port Sudan and Swakin and the southern coastal areas

between Aqiq and Agetai in the Toker Delta in **Sudan**. No surveys were conducted in **Yemen**, however, light rain was reported in Hadhramout plateau during the 1<sup>st</sup> dekad of February. Breeding areas in eastern **Ethiopia** and **Somalia** and **Oman** remained fairly dry during this month (DAF/ DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Sudan).

**EOR:** Dry and unfavorable conditions persisted in EOR except in the interior to southeastern **Iran** where light shows were reported in mid-February and vegetation remained green (FAO-DLIS).

**NSE Outbreak Regions:** Moderate to heavy rainfall was recorded in NSE outbreak areas during February. The movement of the Inter-Tropical Convergence Zone (ITCZ) created conditions for increased rainfall during the month. Heavy rains in the watershed of the Pungwe and Buzi rivers in Mozambique caused flooding in the Buzi-Gorongosa plains. Vegetation remained green and conditions favorable for successful NSE breeding continued in most of the areas during February (IRLOC-CSA).

During most of February, parts of Tanzania, Zambia, Botswana, much of Zimbabwe, South Africa, southern Mozambique, and parts of Madagascar had above-average rainfall. In contrast, parts of Uganda, Kenya, eastern Tanzania, Namibia, Malawi, central and northern Mozambique, and portions of Madagascar received below-average rainfall (NOAA, 2/26)

**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 migratory pests. **End note.***

**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 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 livestock and reduce 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](http://www.cpc.ncep.noaa.gov/products/international/casia/casia_hazard.pdf)

**End note.**

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

**SGR – WOR:** The **SGR** situation remained calm in **WOR** and no locusts were reported in Algeria, Morocco, Tunisia, Mali, Chad or Libya and no surveys were carried out in Mauritania

during February (CNLA/Chad, CNLA/Mali, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, CNLA/Libya, FAO-DLIS).

**Forecast:** The SGR situation will remain calm and only solitary adults may persist in a few places in southeastern Morocco and a few adults may begin appearing near irrigated crops in the Adrar Valley in Algeria, and in southwest Adrar and Tiris-Zemmour in Mauritania and perhaps begin breeding. Low numbers of adults may also appear in Adrar des Iforas in Mali and the Air Mountains in Niger during the forecast period, but significant developments are not likely (CNLA/Chad, CNLA/Mali, NLCC/Libya, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia).

**SGR (Desert Locust) - COR:** A few mature solitary adults were detected in Krimbit and Bahra in the southern blocks of Tokar Delta in winter breeding areas along the Red Sea coasts in **Sudan** during February. No locusts were detected in **Saudi Arabia** during surveys carried out along the Red Sea coastal plains and further south to northern Yemen border. Surveys were not carried out in **Yemen** and the situation remained unclear during February. No locusts were detected in **Oman** during surveys that covered Musandam, Bureimi, Dhahera, Dakhiliya, North and South Battinah, and North and South Sharqiya. No reports were received from Djibouti, Ethiopia, Eritrea or Somalia and no locusts were reported in **Egypt** during February (DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Sudan).

**Forecast:** In **COR**, small-scale breeding may occur in a few places along the Red Sea coasts in **Sudan** and **Yemen** and in the interior of **Saudi Arabia**. A few adults may persist in eastern **Ethiopia**,

northeastern **Somalia**, and **Eritrea**, but significant developments are not likely in the region during the forecast period (DLMCC/Yemen, FAO-DLIS, PPD/Sudan).

**SGR - EOR:** The SGR situation remained calm in EOR and no locusts were reported during February (FAO-DLIS).

**Forecast:** The region will likely remain calm during the forecast period except for some adults appearing in spring breeding areas in southeast **Iran** and southwest **Pakistan** and breed on small scale, but significant developments are not likely.

*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 Horn of Africa emergency desert locust management project 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):** NSE situation remained relatively calm in most outbreak areas except in **Malawi** where Community Locust Monitoring and Scouting groups reported the presence of hopper bands in Lake Chilwa plains where moderate rains from the past three months created favorable conditions for successful breeding (IRLCO-CSA).

In **Zambia**, NSE and a grasshopper species, *Cataloipus sp.* Community-Based Locust Monitoring groups reported that

NSE continued to infest large areas including maize fields in the Kafue Flats. Limited ground spraying against the grasshopper was undertaken by farmers with material and technical assistance from the Ministry of Agriculture. In **Tanzania**, NSE outbreak was not reported, however, significant hopper populations are expected to be present in Ikuu-Katavi, Malagarasi Basin and Rukwa Valley due to breeding that prevailed since the beginning the rainy season. In **Mozambique**, ecological conditions remained favorable in Buzi-Gorongosa and Dimba plains where moderate to good rains were recorded during December 2017 and January 2018 (IRLCO-CSA).

**Forecast:** NSE is expected to have completed fledging and immature adults will appear during April/May. The adults will likely start forming swarms in Lake Chilwa/L. Chiuta plains and Mpatsanjoka Dambo in Malawi; in Ikuu-Katavi plains, Malagarasi Basin and Rukwa Valley in Tanzania; in Buzi-Gorongosa and Dimba plains in Mozambique and in Kafue Flats in Zambia where breeding conditions remained favorable. Hatching is completed in Buzi-Gorongosa plains and flooding will have no effect on NSE. *If left uncontrolled, adults will likely leave breeding areas and cause damage to crops in adjacent areas and afar (IRLCO-CSA, OFDA/AELGA).*

IRLCO-CSA is in communications with MinAgri/Malawi to conduct survey operations (IRLCO-CSA).

**Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC):** The locust season will remain calm in the CAC region until spring (OFDA/PSPM).

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

In **Malawi**, FAW was first detected in the southern part of the country in November into December 2017 and spread further and is expected to reach the northern growing region following cropping patterns which is influenced by the rainfall pattern trailing behind the ITZ-based seasonal movement. The pest continued to cause damage to maize in most regions of the country. Since the beginning of the cropping season in November 2017, the Ministry of Agriculture provided more than 40,000 litres/kg **Chlopyrifos**, Cypermethrin and granular pesticides to affected farmers to carry out control (IRLCO-CSA).

In **Zimbabwe**, FAW continued affecting maize in all 10 provinces. The Ministry of Agriculture was assessing the severity of the situation and assisting farmers with material and technical support. In **Mozambique**, all 10 provinces reported FAW on maize and Ministry of Agriculture provided material and technical support to affected farmers to control the pest. The pest was also reported in all 10 provinces of **Zambia** and the Government facilitated control by providing pesticides, spraying equipment and technical assistance to farmers. In **Tanzania, the pest was reported** across 18 regions of the country where patchy and mild to severe damage was reported. In **Kenya**, FAW attacks have decreased as irrigated crops had reached maturity (IRLCO-CSA).

In **Ethiopia** the pest was reported in six administrative regions where more than some 17,115 ha of some 130,000 ha were affected as for the third week of February. The pest was primarily reported on irrigated and short rain maize crops

and control operations protected more than 5,460 ha using cultural means (involved more close to 14,000 farmers) and with pesticides (further detail is being awaited (PPD/Ethiopia). In **Somalia**, PPD staff reported FAW in irrigated sorghum, but further detail was not available at the time this bulletin was compiled.



Map showing countries where FAW has been reported as of January 2018 (FAO)

As of January 2018, UN/FAO reported the presence of FAW in almost all of sub-Saharan African countries, but Djibouti, Eritrea, Lesotho, Mauritius and Seychelles. *In February, a few FAW larvae were detected on irrigated maize plants in Djibouti (field staff).*

**Forecast:** FAW will remain being a threat to irrigated and rain-fed maize and other crops across several regions in Africa during the forecast period. This situation has been prominent in countries with bimodal rainfall patterns and in irrigated crops which allow uninterrupted presence of host plants for the pest to survive and continue breeding and cause damage to crops.

*Active surveillance and timely reporting and interventions remain critical.*

*The need for developing safer, and ecologically sustainable, economically profitable and socially acceptable IPM based control and mitigation measures remains critical. When used properly, such tools can effectively minimize the negative impact FAW can have on hundreds of millions of resource strained farmers across Africa who eke their living from*

*small-scale farming and avert food security crisis and economic stagnation.*



**OFDA** co-sponsored disaster risk reduction project is being implemented by a consortium led by FAO and

composed of the Center for Agriculture and Biosciences International (CABI), the Desert Locust Control Organization for Eastern Africa (DLCO-EA), International Center for Insect Physiology and Ecology (ICIPE) and National MinAgri and other partners. The project is progressing well; LoA has been signed by all implementing partners and a practical field manual for agricultural agent, district plant protection officers, extension agents and farmers is being developed (the USAID-CIMMYT fields guide which has been released recently will be of core great value to this and other activities) (click here to download the PDF version of the USIAD-CIMMYT field guide

[https://feedthefuture.gov/sites/default/files/resource/files/FallArmyworm\\_IPM\\_Guide\\_forAfrica.pdf](https://feedthefuture.gov/sites/default/files/resource/files/FallArmyworm_IPM_Guide_forAfrica.pdf)

ToT of district plant protection staff, agricultural and extension officers and other stakeholders are under way in the DRR project participating countries. The ToT will be covering all six countries and possibly a couple of neighboring countries through other means.

Tools and equipment for the proposed activities are being distributed to participating countries; ToT for Agricultural Extension Officers and farmers and awareness to be implemented in time for farmers to be able to defend their crops.

*Humanitarian, economic and food security FAW risk assessments and analysis ought to focus on impacts at the national, sub-regional and regional levels.*  
<https://reliefweb.int/report/uganda/uganda-food-security-outlook-update-october-2017-january-2018>

#### ***Additional information sources on FAW***

*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.fao.org/food-chain-crisis/how-we-work/plant-protection/fallarmyworm/en/)  
<http://www.fao.org/food-chain-crisis/how-we-work/plant-protection/fallarmyworm/en/>  
[http://www.fao.org/fileadmin/templates/fcc/map/map\\_of\\_affected\\_areas/Fall\\_Arm\\_yworm\\_brief\\_-\\_15Dec2017\\_.pdf](http://www.fao.org/fileadmin/templates/fcc/map/map_of_affected_areas/Fall_Arm_yworm_brief_-_15Dec2017_.pdf)  
 FAO Food Chain Crisis Early Warning Bulletin for January, 2018:  
<http://www.fao.org/3/I8520EN/i8520en.PDF>

*Information on USAID Call to Action to combat FAW:*

<https://feedthefuture.gov/lp/partnering-combat-fall-armyworm-africa>

<https://feedthefuture.gov/resource/combating-fall-armyworm>

**African Armyworm (AAW):** AAW outbreak was not reported during this month. Forecasters are advised to monitor the pest and manage traps regularly (IRLCO-CSA, OFDA/AELGA).

**Forecast:** AAW outbreak is likely to appear during the forecast period in the central northern outbreak areas in Tanzania and perhaps, Kenya, in areas where seasonal rains have been reported, and cause serious damage to crops and pasture.

Trap operators are advised to actively monitor their traps. Trap monitoring must be accompanied by routine crop scouting to detect egg and larval presence and damages. Egg and larval detections and moth catches must be reported to the national forecasting officers and concerned staff and *authorities immediately to help facilitate rapid interventions. Vigilance and timely preventive interventions remain critical to*

*avoid crop damage (IRLCO-CSA, OFDA/AELGA, DLCO-EA).*

**Note:** PSPM continuous collecting, analyzing and reporting on AAW. Currently, printable and web-based maps have been developed for AAW monitoring locations, outbreak and invasion countries in the central and southern regions (click on the below link for the maps: <http://usaid.maps.arcgis.com/apps/View/index.html?appid=9d2ab2f918284595819836d1f16a526f> (OFDA/PSPM in collaboration with the GIU will develop a similar map for FAW/SFR as needed)

**Quelea (QQU):** QQU bird outbreaks were reported in Shinyanga region in **Tanzania** during February and control operations and the search for roosts in other areas in the region are in progress (IRLCO-CSA).

**Forecast:** QQU bird outbreaks will likely increase and continue causing damage to small grain cereals in traditional outbreak areas in **Tanzania** and **Kenya** and elsewhere where small grain cereal crops will reach maturity during the forecast period (IRLCO-CSA, OFDA/AELGA).

**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 February, 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 (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 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.

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

The SGR pesticide inventory remained unchanged during February.

**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 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

Country	Quantity (l/kg)*
Algeria	1,188,708~
Chad	38,300
Egypt	68,070~ (18,300 ULV, 49,770 l)
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 = *GreenMuscle*<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 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)*

<i>COR</i>	<i>Central SGR Outbreak Region</i>	<i>ITCZ</i>	<i>Inter-Tropical Convergence Zone</i>
<i>CPD</i>	<i>Crop Protection Division</i>	<i>ITF</i>	<i>Inter-Tropical Convergence Front = ITCZ)</i>
<i>CRC</i>	<i>Commission for Controlling Desert Locust in the Central Region</i>	<i>FAO-DLIS</i>	<i>Food and Agriculture Organizations' Desert Locust Information Service</i>
<i>CTE</i>	<i>Chortoicetes terminifera (Australian plague locust)</i>	<i>Hoppers</i>	<i>young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)</i>
<i>DDLC</i>	<i>Department of Desert Locust Control</i>	<i>JTWC</i>	<i>Joint Typhoon Warning Center</i>
<i>DLCO-EA</i>	<i>Desert Locust Control Organization for Eastern Africa</i>	<i>Kg</i>	<i>Kilogram (~2.2 pound)</i>
<i>DLMCC</i>	<i>Desert Locust Monitoring and Control Center, Yemen</i>	<i>L</i>	<i>Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)</i>
<i>DMA</i>	<i>Dociostaurus maroccanus (Moroccan Locust)</i>	<i>LCC</i>	<i>Locust Control Center, Oman</i>
<i>DPPQS</i>	<i>Department of Plant Protection and Quarantine Services, India</i>	<i>LMC</i>	<i>Locusta migratoriacapito (Malagasy locust)</i>
<i>DPV</i>	<i>Département Protection des Végétaux (Department of Plant Protection)</i>	<i>LMM</i>	<i>Locusta migratoria migratorioides (African Migratory Locust)</i>
<i>ELO</i>	<i>EMPRES Liaison Officers –</i>	<i>LPA</i>	<i>Locustana pardalina</i>
<i>EMPRES</i>	<i>Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases</i>	<i>MoAFSC</i>	<i>Ministry of Agriculture, Food Security and Cooperatives</i>
<i>EOR</i>	<i>Eastern SGR Outbreak Region</i>	<i>MoAI</i>	<i>Ministry of Agriculture and Irrigation</i>
<i>ETOP</i>	<i>Emergency Transboundary Outbreak Pest</i>	<i>MoARD</i>	<i>Ministry of Agriculture and Rural Development</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>NALC</i>	<i>National Agency for Locust Control</i>
<i>GM</i>	<i>GreenMuscle® (a fungal-based biopesticide)</i>	<i>NCDLC</i>	<i>National Center for the Desert Locust Control, Libya</i>
<i>ha</i>	<i>hectare (= 10,000 sq. meters, about 2.471 acres)</i>	<i>NOAA (US)</i>	<i>National Oceanic and Aeronautic Administration</i>
<i>ICAPC</i>	<i>IGAD's Climate Prediction and Application Center</i>	<i>NPS</i>	<i>National Park Services</i>
<i>IGAD</i>	<i>Intergovernmental Authority on Development (Horn of Africa)</i>	<i>NSD</i>	<i>Republic of North Sudan</i>
<i>IRIN</i>	<i>Integrated Regional Information Networks</i>	<i>NSE</i>	<i>Nomadacris septemfasciata (Red Locust)</i>
<i>IRLCO-CSA</i>	<i>International Red Locust Control Organization for Central and Southern Africa</i>	<i>OFDA</i>	<i>Office of U.S. Foreign Disaster Assistance</i>
		<i>PBB</i>	<i>Pine Bark Beetle (Dendroctonus sp. – true weevils)</i>
		<i>PHD</i>	<i>Plant Health Directorate</i>
		<i>PHS</i>	<i>Plant Health Services, MoA Tanzania</i>
		<i>PPD</i>	<i>Plant Protection Department</i>
		<i>PPM</i>	<i>Pest and Pesticide Management</i>
		<i>PPSD</i>	<i>Plant Protection Services Division/Department</i>

**PRRSN** *Pesticide Risk Reduction through Stewardship Network*  
**QQU** *Quelea Quelea (Red Billed Quelea bird)*  
**SARCOF** *Southern Africa Region Climate Outlook Forum*  
**SFR** *Spodoptera frugiperda (SFR) (Fall armyworm (FAW))*  
**SPB** *Southern Pine Beetle (Dendroctonus frontalis) – 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*

### **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:

Yeneneh Belayneh, PhD.  
 Senior Technical Advisor  
 USAID/DCHA/OFDA  
[ybelayneh@usaid.gov](mailto:ybelayneh@usaid.gov)

Tel.: + 1-202-712-1859

To learn more about our activities and programs, please, visit our 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>