

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

## SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**<sup>1</sup>) situation remained generally calm in the western, central and eastern outbreak regions in March.

**Forecast:** The SGR situation is expected to remain generally calm in the Western Outbreak Region (**WOR**) where unfavorable ecological conditions persisted. Limited breeding may occur in the Central Outbreak Region (**COR**) and the Eastern Outbreak Region (**EOR**), but significant developments are not expected during the forecast period.

**Red (Nomadic) Locust** (*Nomadacris septemfasciata*) (**NSE**): NSE situation remained calm in the central and southern Africa regions in March. However, considerable amounts of red locust and grasshoppers were sold in the markets near the primary outbreak region in Malawi during March suggesting that considerable numbers of these pests are present in the country.

**Fall Armyworm** (*Spodoptera frugiperda*) (**FAW**): FAW continued

being a problem to maize and other cereal crops in eastern and southern Africa in March (for more detail, please, refer to pages 6-8).

### **African Armyworm (AAW)**

(*Spodoptera exempta*): AAW outbreak was not reported during March, however the pest will likely appear in Eastern Africa and the Horn region during the forecast period.

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

Locust activities were not reported during March. However, hatching will gradually begin in some Central Asian counties, but significant developments are not expected during the forecast period.

**Quelea birds (QQU):** QQU outbreaks were reported in several areas in Tanzania and Kenya where control interventions were in progress at the time this report was compiled.

*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***

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

## RÉSUMÉ

### La situation du Criquet pèlerin

(*Schistoseca gregaria* - SGR) est restée généralement calme de l'Ouest, du Centre et de l'Est en mars.

**Prévoir: La situation du SGR** devrait rester globalement calme dans la région de l'Ouest de l'Outbreak (WOR), où les conditions écologiques défavorables ont persisté. Une reproduction limitée peut se produire dans la région centrale de l'épidémie (COR) et dans la région de l'est de l'Outbreak (EOR), mais des développements significatifs ne sont pas attendus pendant la période de prévision.

**Criquet nomade rouge (Nomadacris septemfasciata) (NSE):** La situation des NSE est restée calme en mars dans les régions d'Afrique centrale et australe. Cependant, des quantités considérables de criquets rouges et de sauteriaux ont été vendues sur les marchés près de la région du premier foyer au Malawi au cours du mois de mars, ce qui suggère qu'un nombre considérable de ces parasites sont présents dans le pays.

### Chenille Légionnaire d'automne

(*Spodoptera frugiperda*) (FAW): Le FAW a continué à poser un problème au maïs et aux autres cultures céréalières en Afrique orientale et australe en mars (pour plus de détails, voir pages 6-8).

### Chenille Légionnaire africaine (AAW)

(*Spodoptera exempta*): L'épidémie d'AAW n'a pas été signalée en mars, mais l'organisme nuisible apparaîtra probablement en Afrique de l'Est et dans la région de Horn durant la période de prévision.

### Criquets italiens (CIT), marocains (DMA), asiatiques migratrices (LMI):

Les activités acridiennes n'ont pas été signalées en mars. Cependant, l'éclosion commencera graduellement dans certains pays d'Asie centrale, mais des développements significatifs ne sont pas attendus pendant la période de prévision.

### Quelea birds (QQU):

Des éclosions de QQU ont été signalées dans plusieurs régions de la Tanzanie et du Kenya où des interventions de contrôle étaient en cours au moment de la rédaction de ce rapport.

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 Abatement Interventions

*The online Pesticide Stock Management System (PSMS) that was developed by the UN/FAO with financial assistance from USAID/OFDA and other partners continues benefiting participating countries across the globe. Thanks to this tool, ETOP-prone countries and others have been able to avoid unnecessary procurements and stockpiling of pesticides. This practice has significantly*

*contributed to minimize and avoid costly disposal operations and improved safety and well-being of their citizens and the shared environment.*

**USAID/OFDA** co-sponsored FAW disaster risk reduction project is being implemented by a consortium 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 and led by FAOSFE. The project has conducted four National level ToTs and trained 80 *National/county/sub-county officers/staff* in Tanzania, Ethiopia, Kenya and Rwanda between February 27 and April 2<sup>nd</sup>, 2018. Similar ToTs will be conducted in Uganda and Burundi in April, 2018.

The OFDA-BFS co-funded FAW 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)) and FAO FAW IPM Manual for FFS were utilized during the ToTs. District and village community training will follow.

CABI (Nairobi) has drafted community training field manual on FAW. The Manual is currently under review and design layout by the CABI UK team. The training manual which focuses on district officers, extension staff and rural communities will be circulated among partners for feedback. Tools for surveillance and monitoring FAW are being distributed to participating countries.

*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 FAO implemented DRR projects has been strengthening national and regional capacity for emergency locust control and prevention and 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.*

*The projects created, enhanced, and facilitated collaborations among neighboring countries for joint monitoring, surveillance, information sharing and technical support. The projects supported several dozen training on ETOP monitoring and control. 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.*

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

**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

In **WOR** SGR region, ecological conditions remained largely dry and unfavorable during March. In contrast, the western and central western Africa regions, including Guinea, Sierra Leone, parts of Liberia, Cote d'Ivoire, parts of Burkina Faso, parts of Ghana, Togo, Benin, southeastern Nigeria, Cameroon, and CAR, received above average rainfall during this period (**CNLA/Chad, CNLA/Mali, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, FAO-DLIS, NLCC/Libya, NOAA**).

In **COR** and other adjacent regions including South Sudan, local areas in Congo-Brazzaville and DRC, much of Tanzania, Uganda, Rwanda, Burundi and Kenya, southern Ethiopia, and local areas in southern Somalia received above average rainfall during March (NOAA, (DLMCC/Yemen, FAO-DLIS, LCC/Oman, NOAA, PPD/Sudan).

**EOR:** Light to moderate rain was reported in bordering areas in southeastern Iran and southwestern Pakistan during March (FAO-DLIS).

**NSE Outbreak Regions:** Southern Angola, northern Namibia, parts of Zambia, local areas in Malawi, Botswana, parts of Zimbabwe, portions of South Africa, local areas in Mozambique, and northern Madagascar recorded above-

average rainfall during March. Above-average to average rains was reported at some locations near NSE outbreak areas. Partial flooding occurred in Wembere plane in Tanzania and Buzi plains in Mozambique during March. Favorable ecological conditions persisted in most of the NSE outbreak areas: Ikuu-Katavi, Malagarasi Basin in Tanzania, Lake Chilwa/Lake Chiuta plains in Malawi; Buzi-Gorongosa and Dimba plains in Mozambique and the Kafue Flats in Zambia. In contrast, much of Gabon, parts of Congo-Brazzaville, portions of Angola, much of DRC, parts of Namibia, northern Zambia, local areas in northern Zimbabwe, parts of Mozambique, and western and southern Madagascar received below average rain during this period (IRLOC-CSA, NOAA).

**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 a Forecast for the Next Six Weeks are provided below

**SGR – WOR:** The **SGR** situation remained generally calm in **WOR** and only isolated adults were detected in one place in central **Algeria** during March (CNLA/Chad, CNLA/Mali, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, CNLA/Libya, FAO-DLIS).

**Forecast:** The SGR situation will likely remain calm and only limited-scale breeding may occur in southeastern Morocco and central Algeria if rainfall occurs in those areas during the forecast period (CNLA/Chad, CNLA/Mali, NLCC/Libya, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia).

**SGR (Desert Locust) - COR:** In **Sudan**, no locusts were reported during surveys that covered the central and southern coastal areas reaching to the Toker Delta during March. No locusts were detected in **Saudi Arabia** during surveys that covered along the Red Sea coastal plains and further south into

northern Yemen border. Surveys were not possible in **Yemen** and only isolated adults were detected in one place in the southern coast of the country during March. No locusts were reported in **Oman** during surveys that covered AlDakhiliya, North Al Battinah, Musandam, Al Bureimi and Dhofar regions. No reports were received from Djibouti, Ethiopia or Somalia and no locusts were reported in Eritrea or Egypt during March (DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Sudan).

**Forecast:** Small-scale breeding may occur in a few places along the Red Sea in **Yemen** and the interior of **Saudi Arabia** where moderate rainfall was reported recently. A few adults may persist in eastern **Ethiopia**, northeastern **Somalia**, along the coastal areas in **Eritrea**, and **Oman**, but significant developments are not likely 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 March (FAO-DLIS).

**Forecast:** The EOR will likely remain calm and only limited-scale breeding may occur in areas where rainfall was recorded in southeast **Iran** and southwest **Pakistan**, but significant developments are not likely 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 Horn of Africa emergency desert locust management project is progressing well. 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 outbreak was not reported in the IRLCO-CSA member-countries during March. However, favorable ecological conditions persisted in Ikuu-Katavi, Wembere Basin and Rukwa Valley plains in **Tanzania**; Lake Chilwa/Lake Chiuta plains in **Malawi**; Buzi-Gorongosa plains in and Dimba plains in **Mozambique** Kafue Flats in **Zambia** during this this month.

In **Tanzania**, fledging may have occurred in Iku-Katavi, Malagarasi Basin and Rukwa Valley. In **Malawi** locusts and grasshoppers were sold in large quantities markets in Dedza, Zomba, Liwonde near Lake Chilwa/ Lake Chiuta plains suggesting that the pests are present in large numbers in these areas. In **Mozambique**, NSE likely continued breeding in Buzi-Gorongosa and Dimba plains where favorable ecological conditions persisted (IRLCO-CSA). In **Zambia**, spraying of *Cataloipus* grasshoppers that were infesting maize continued. No locusts were reported in other countries in the region in March (IRLCO-CSA).

**Forecast:** Successful breeding that may have occurred in areas where favorable ecological conditions persisted (Ikuu-Katavi plains, North Rukwa plains, Malagarasi Basin in Tanzania; Lake Chilwa/Lake Chiuta plains in Malawi/Mozambique and in the Kafue

Flats, Zambia), adults will likely concentrate and form swarms. If left uncontrolled, they will migrate to adjacent areas and neighboring countries and threaten crops and pasture during the forecast period (IRLCO-CSA, OFDA/AELGA).

*Given the significance of the NSE to food security and livelihoods of vulnerable populations, IRLCO-CSA continues appealing to its member-states to avail resource for early detection and timely control in the pest's primary outbreak areas.*

**Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts** in Central Asia and the Caucasus (CAC): Locust activities were not reported during March.

**Forecast:** DMA will likely begin hatching gradually in a few countries in Afghanistan, Tajikistan, Turkmenistan and Uzbekistan during the forecast period, but significant developments are not expected. The Caucasian countries will likely remain calm unless the seasonal temperatures increase during the forecast period (OFDA/PSPM).

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

FAW continued being a problem to maize and other cereal crops in eastern and southern Africa.

In **Ethiopia**, the pest was reported in maize fields in 915 kebeles in 173 districts in seven regions during 7-27 March, 2018. Of the 244,931 ha of rain-fed and irrigated maize crops planted as of March 27, 2018, 30,645 ha were reported infested and 12,604 ha protected with chemical and cultural means (PPD/Ethiopia).

*In 2017 cropping season FAW infested more than 692,000 ha of 2.9 million ha of maize planted. On average the damage was estimated at 5.2% with a total loss of more than 134,000 tons of crops or close to \$29 million across the country. FAW outbreaks that affected millions of small-holder farmers across the country during 2017 cropping seasons forced GoE and partners to prioritize implementation of the 2018 FAW work plan (OCHA 11/3/2018).*

In **South Sudan**, FAW was detected in early planted maize crops in Yambio County in Western Equatorial State during late March, 2018. The pest was detected in areas surrounding Yambio Town. As planting progresses across the country the pest will continue appearing over vast areas. Active surveillance, monitoring, routine scouting and control interventions remain critical to abate major crop losses.



FAW larvae attacking maize plant (source: FAO South Sudan, 3/2018)

In **Kenya**, FAW outbreaks were reported in Kericho, Nyeri, Embu, Nakuru and Meru Counties attacking early planted maize. Control operations were launched by the affected farmers. In **Tanzania**, the pest was reported in most regions of the country and control operations are carried out by the affected farmers with

technical and material assistance from the Ministry of Agriculture (IRLCO-CSA).

In **Somalia**, PPD earlier reported FAW in irrigated sorghum, but further detail was not available at the time this bulletin was compiled.

In **Madagascar**, FAW was first reported in November, 2017 and continued through February and March, 2018. FAO dispatched an assessment team early March, 2018 to conduct assessments and provided training to NPPOs.

*As March, 2018, FAW has been in all of sub-Saharan African countries, but Eritrea, Lesotho, Mauritius and Seychelles.*



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

**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 become more evident in countries with bimodal rainfall patterns and 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 measures is critical.*

FAOSFE is providing support to SSD and Somalia through country specific FAO Trust Fund projects (Japan funded FAW project, etc.).

<https://reliefweb.int/report/uganda/uganda-food-security-outlook-update-october-2017-january-2018>

#### **Additional 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/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>

FAO FAWRisk-Map has been developed to provide information on the risk of household food insecurity due to FAW across Africa (see below)

<http://www.fao.org/emergencies/resources/maps/detail/en/c/1110178/>

*USAID issues a prize for mobile technology to detect and help monitoring of FAW (<https://feedthefuture.gov/lp/partnering-combat-fall-armyworm-africa>)*

**African Armyworm (AAW):** AAW season has ended in the southern region in Malawi, Mozambique, Zambia, Zimbabwe, etc. No outbreaks were reported in the central region.

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

Trap operators are advised to actively monitor their traps. Trap monitoring must be accompanied by routine crop scouting to detect and report/act on egg, larval and damage *to help facilitate rapid interventions. Vigilance and timely and appropriate preventive interventions remain critical to avoid crop damage (IRLCO-CSA, OFDA/AELGA).*

**Note:** PSPM continuous collecting, analyzing and reporting on AAW. USAID/OFDA has developed printable and web-based maps for AAW trap monitoring locations, for participating outbreak and invasion countries in the central region: <http://usaid.maps.arcgis.com/apps/View/index.html?appid=8ff7a2eefbee4783bfb36c3e784e29cb>. A similar map is also being developed for southern region: <http://usaid.maps.arcgis.com/apps/View/index.html?appid=9d2ab2f918284595819836d1f16a526f> (click on the links for the maps). OFDA/PSPM intends to develop a similar map for FAW DDR project).

**Quelea (QQU):** QQU bird outbreaks were reported in irrigated rice in Busia County in **Kenya**. Crop Protection Branch of the MinAgri was preparing for control operations at the time this report was compiled. In **Tanzania**, the pest was reported in Singida, Dodoma, Shinyanga, Arusha and Kilimanjaro Regions and control operations were being conducted by The Plant Health Services and DLCO-EA at the time this report was compiled (IRLCO-CSA).

**Forecast:** QQU bird outbreaks will likely continue being a problem to small grain cereal growers in Shinyanga, Dodoma, Tabora, Singida and Mbeya Regions of Tanzania; Kisumu, Busia, Siaya and Kirinyaga counties of Kenya 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 March, 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**

Inventory of strategic stocks of SGR pesticides remained unchanged during March.

**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 at all times 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	5,000
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

<i>AAW</i>	<i>African armyworm (Spodoptera expempta)</i>
<i>AELGA</i>	<i>Assistance for Emergency Locust Grasshopper Abatement</i>
<i>AFCS</i>	<i>Armyworm Forecasting and Control Services, Tanzania</i>
<i>AfDB</i>	<i>African Development Bank</i>
<i>AGRA</i>	<i>Agricultural Green Revolution in Africa</i>
<i>AME</i>	<i>Anacridium melanorhodon (Tree Locust)</i>
<i>APLC</i>	<i>Australian Plague Locust Commission</i>
<i>APLC</i>	<i>Australian Plague Locust Commission</i>
	<i>Bands groups of hoppers marching pretty much in the same direction</i>
<i>ASARECA</i>	<i>Association for Strengthening Agricultural Research in Eastern and Central Africa</i>
<i>CABI</i>	<i>Center for Agriculture and Biosciences International</i>
<i>CAC</i>	<i>Central Asia and the Caucasus</i>
<i>CBAMFEW</i>	<i>Community-based armyworm monitoring, forecasting and early warning</i>
<i>CERF</i>	<i>Central Emergency Response Fund</i>

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

*PBB Pine Bark Beetle (Dendroctonus sp. – true weevils*

*PHD Plant Health Directorate*

*PHS Plant Health Services, MoA Tanzania*

*PPD Plant Protection Department*

*PPM Pest and Pesticide Management*

*PPSD Plant Protection Services Division/Department*

*PRRSN Pesticide Risk Reduction through Stewardship Network*

*QQU Quelea Qulelea (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:

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