

Situation Update on Emergency Transboundary Outbreak Pest (ETOP) for November, 2017 with a Forecast till mid-January, 2018
résumé en français est inclus

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**¹) situation remained calm in the Western Outbreak Region (**WOR**) and only scattered adults and hoppers were detected in a few places in **Chad, Mauritania, Niger** and **Algeria** during November.

In the Central Outbreak Region (**COR**) a few isolated adults were observed along the Red Sea coast in **Yemen** and **Saudi Arabia** and in irrigated crops in **Ethiopia**.

The Eastern Outbreak Region (**EOR**) remained calm during November.

Forecast

Limited breeding may occur in western **Mauritania** and southwestern **Morocco**, but significant are not expected in the **WOR** during the forecast period.

In **COR**, small-scale breeding is likely along both sides of the Red Sea coasts in **Saudi Arabia** and **Yemen**, but significant developments are not expected during the forecast period.

In **EOR**, the SGR situation will remain calm.

Red (Nomadic) Locust (*Nomadacris septemfasciata*) (**NSE**): NSE breeding commenced in the primary outbreak areas in **Malawi, Mozambique** and **Tanzania** and **Zambia** during November.

Fall armyworm (FAW) (*Spodoptera frugiperda*) (**SFR**): SFR/FAW was reported in maize crops in **Kenya, Tanzania, Malawi** and **Mozambique** during November. Control is being undertaken by the affected farmers with material assistance from the Ministries of Agriculture (see pages 7-8 for additional information).

African Armyworm (AAW): No AAW activities were reported in November.

Italian (CIT), Moroccan (DMA), Asian Migratory (LMI) Locusts: The locust season has ended in the CAC region and will remain so till spring 2018.

Quelea birds (QQU): QQU outbreaks were reported in **Kenya, Tanzania, Ethiopia** and **Sudan** where the pest was detected attacking small grain cereal crops.

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

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

*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 généralement calme dans la Région occidentale des épidémies et seuls quelques adultes et larves épars ont été détectés dans quelques endroits au Tchad, en Mauritanie, au Niger et en Algérie en novembre.

Dans la région centrale de l'épidémie (COR), quelques ailés isolés ont été observés le long de la côte de la mer Rouge au Yémen et en Arabie saoudite.

La région de l'Est de l'Outbreak (EOR) est restée calme et aucun criquet n'a été signalé en novembre.

Prévoir

Une reproduction limitée peut se produire dans l'ouest de la Mauritanie et le sud-ouest du Maroc, mais des concentrations significatives ne sont pas attendues dans la zone WOR durant la période de prévision.

Une reproduction à petite échelle est probable le long des deux côtés des côtes de la mer Rouge en Arabie Saoudite et au Yémen, mais des développements

significatifs ne sont pas probables dans le COR au cours de la période de prévision. En EOR, la situation SGR restera calme. Des foyers de SFR / FAW a été signalé dans les régions de Madagascar et de St Louis au Sénégal en novembre (pour plus de détails, voir pages 7-8 ci-dessous et consulter les mises à jour de coordination de l'USAID).

Criquet nomade rouge (Nomadacris septemfasciata) (NSE): La reproduction de l'ESN a débuté dans les zones de première épidémie au Malawi, au Mozambique et en Tanzanie en novembre.

Chenille légionnaire d'automne (FAW) (Spodoptera frugiperda) (SFR): a été signalé dans les cultures de maïs au Kenya, en Tanzanie, au Malawi et au Mozambique en novembre. Le contrôle est entrepris par les agriculteurs affectés avec l'aide matérielle des Ministères de l'Agriculture (voir pages 7-8 pour plus d'informations).

Chenille Légionnaire africaine (AAW): Aucun rapport n'a été reçu sur AAW en novembre.

Criquets italiens (CIT), marocains (DMA), asiatiques migratrices (LMI): Aucune mise à jour n'a été reçue et la saison acridienne devrait s'achever dans la région du CAC.

Oiseaux de Quéléa (QQU): Des éclosions de QQU ont été signalées au Kenya, en Tanzanie, en Éthiopie et au Soudan, où l'on a signalé que le ravageur attaquant les petites céréales.

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 progresses.

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 avoid potential contaminations and 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

WOR region remained generally dry with no significant rainfall reported. Patches of green vegetation were present in a few low laying areas, but overall unfavorable conditions persisted in the region (**CNLA/Mauritania, CNLA/Chad, CLA/Mali, CNLAA/Morocco, CNLA/Tunisia, FAO-DLIS**).

COR: Light to moderate rains fell along the Red Sea coasts in **Saudi Arabia** and **Yemen** and a few places in eastern lowlands in **Ethiopia** and **Djibouti** (Djibouti, DLCO-EA, FAO-DLIS, PPD/Sudan).

Portions of Guinea-Conakry, Sierra Leone, southern Cote d'Ivoire, southern Ghana, parts of Cameroon, western Gabon, Congo-Brazzaville, CAR, much of DRC, western South Sudan, southern Ethiopia, portions of Kenya, southern Somalia, parts of Tanzania, Zambia, Namibia, Zimbabwe, local areas in South Africa, portions of Mozambique, and central and northern Madagascar had above-average rainfall during November. In contrast, parts of Liberia, northern Cote d'Ivoire, Nigeria, Gabon, Angola, eastern South Sudan, Uganda, eastern Kenya, local areas in DRC, portions of Tanzania, northern Mozambique, Botswana, portions of South Africa and southern Madagascar had below-average rainfall.

Forecast: The outlooks call for an increased chance for below-average rainfall over Equatorial-Guinea, Gabon, Congo-Brazzaville, northwestern DRC, eastern Namibia, Botswana, Zimbabwe, northeastern South Africa and southern Mozambique. In contrast, there is an increased chance for above-average rainfall over portions of Angola, southern

DRC, Rwanda, Burundi, western Tanzania, and northern Zambia during the coming week (NOAA, November 2017).

EOR: Dry and hot conditions persisted in the EOR.

NSE Outbreak Regions: Heavy rains were recorded near NSE outbreak areas in **Tanzania** (193.5 mm in North Rukwa; 363.9 in Wembere Plains and 394.7 in Malagarasi Basin). Buzi-Gorongosa and Dimba Plains in **Mozambique** received light to moderate rain during November. Significant rain was not reported in the NSE outbreak areas in **Zambia** or **Malawi** during November (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 SFR and other pests. **End note.

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** situation remained largely calm in the Western Outbreak Region (**WOR**) during November. Only scattered mature and immature adults were detected in the central and northwestern parts of **Mauritania** and isolated L1, L2 and L5 instar hoppers were observed in Adrar. Scattered adults were also detected in northern **Niger** and northeastern **Chad** in Fada, Kalait, north-east of Arada, east of Mao and north of Moussoro and Salal during November, but control operations were not necessitated given that ecological conditions do not favor further developments or reproduction. No locusts were reported in **Mali, Morocco** or **Tunisia** during November (CNLA/Chad, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, FAO-DLIS).

Forecast: The SGR situation will likely remain calm in WOR during the forecast period. Only a few adult may persist in and breed on a small-scale in **Mauritania** and southwestern **Morocco** during the forecast period.

*In the spirit of the south-south cooperation, **Mali National Locust Control Center** hosted a team of locust staff from **Madagascar**. The Malagasy team received training on locust operations from 26-30 November, 2017.*

SGR (Desert Locust) - COR:

The **COR** remained calm and only scattered solitary adults were present in winter breeding areas along the Red Sea coasts in **Saudi Arabia** and **Yemen**. A few solitary adults were detected near irrigated fields in eastern **Ethiopia**. No locusts were reported in Oman and no updates were received from other countries in the region (DAF/Djibouti, FAO-DLIS, LCC/Oman, PPD/Sudan).

Forecast: In **COR**, small-scale breeding is likely along both sides of the Red Sea coasts in areas where rain fell during the past month, but significant developments are not likely during the forecast period.

SGR - EOR: The SGR situation remained calm and no locusts were reported during November and the region will likely remain calm 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. 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):

Extensive breeding commenced following seasonal rains in the outbreak areas in Lake Chilwa/L. Chiuta plains and Mpatsanjoka Dambo in **Malawi**. **Similar situation was reported in** Dimba and Buzi-Gorongosa plains in **Mozambique** and in Kafue Flats in **Zambia**. Increased locust numbers are likely in Ikuu-Katavi, Malagarasi Basin, North and South Rukwa and Wembere plains in **Tanzania**.

Forecast: Breeding will continue in the primary outbreak areas in **Mozambique, Malawi, Zambia** and **Tanzania** and create large numbers of hoppers during the forecast period. Vigilance must be maintained and hoppers must be closely monitored and prevented from potentially major crop damage in cultivated zones near the outbreak areas

Large populations of the *Cataloipus sp.* grasshopper which is known to attack maize, continued to infest the Kafue Flats in **Zambia** and hoppers are already present by late November 2017.

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): The locust season has ended in the CAC region the

situation will remain calm until next spring (OFDA/PSPM).

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

FAW was reported attacking cereal crops in several areas in **Kenya**, in Kagera and Lindi regions in **Tanzania** and in Balaka district in Machinga Agricultural Development Division (ADD) and Chiradzulu district in Blantyre ADD in **Malawi**.



Photo courtesy: PHS/Tanzania

The pest was also detected causing damage to maize in Sofala province in **Mozambique**. Control operations are carried out by the affected farmers with material and technical assistance from the Ministries of Agriculture. The pest is being monitored by the national Plant Protection Services (IRLCO-CSA). Elsewhere, SFR outbreaks are likely causing damage to irrigated or rain-fed maize and other cereal crops, but updates were not available at the time this report was compiled.

Forecast: FAW will remain a threat to irrigated or rain-fed 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.

OFDA is implementing a disaster risk reduction project through 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 rural and national capacity in scouting, monitoring, forecasting, early warning and effective and safer management interventions.

Additional information sources

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

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/>

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

Forecast: AAW breeding is expected to have begun appearing in the southern outbreak region at the foot hills of the seasonal rains. 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 and moth catches must be reported instantly to the national 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 SFR as needed)

Quelea (QQU): QQU outbreaks were reported in Kirinyaga and Tana River counties in **Kenya** damaging sorghum and rice. Outbreaks were also reported in Kagera and Lindi regions in **Tanzania**, in the Rift Valley regions of **Ethiopia** and eastern **Sudan**. The pest was observed attacking small-grain crops and control

operations were launched by the affected countries with aerial support from DLCO-EA (DLCO-EA, IRLCO-CSA).

Forecast: QQU birds will likely continue being a problem to small grain cereal growers in **Kenya, Ethiopia, Tanzania** and **Sudan** 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 November.

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

The SGR pesticide inventory remained unchanged during November.

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 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 ^D
Ethiopia	9,681~
Libya	25,000~
Madagascar	206,000~ + 100,000 ^D
Mali	7,000
Mauritania	14,998 ^{DM}
Morocco	3,490,732 ^D
Niger	75,750~

Oman	10,000~
S. Arabia	89,357~
Senegal	156,000~
Sudan	169,710~
Tunisia	68,514 obsolete
Yemen	40,090 ^D + 180 kg GM~
* Includes different kinds of pesticide and formulations - ULV, EC and dust;	
~ data may not be current;	
^D = Morocco donated 100,000 l of pesticides to Madagascar and 10,000 l to Mauritania in 2015	
^D = In 2013 Morocco donated 200,000 l to Madagascar	
^D = Saudi donated 10,000 to Yemen and pledged 20,000 l to Eritrea	
^{DM} = Morocco donated 30,000 l of pesticides to Mauritania	
GM = <i>GreenMuscle</i> TM (fungal-based biological pesticide)	

LIST OF ACRONYMS

AAW *African armyworm (Spodoptera expempta)*

AELGA *Assistance for Emergency Locust Grasshopper Abatement*

AFCS *Armyworm Forecasting and Control Services, Tanzania*

AfDB *African Development Bank*

AGRA *Agricultural Green Revolution in Africa*

AME *Anacridium melanorhodon (Tree Locust)*

APLC *Australian Plague Locust Commission*

APLC *Australian Plague Locust Commission Bands groups of hoppers marching pretty much in the same direction*

ASARECA *Association for Strengthening Agricultural Research in Eastern and Central Africa*

CABI *Center for Agriculture and Biosciences International*

CAC *Central Asia and the Caucasus*

CBAMFEW *Community-based armyworm monitoring, forecasting and early warning*

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)*

DDLCC *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 –*

EMPRES *Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases*

EOR *Eastern SGR Outbreak Region*

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

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:

Yeneneh Belayneh, PhD.
ybelayneh@usaid.gov

Tel.: + 1-202-712-1859

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