

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

## SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**<sup>1</sup>) situation declined in February in the Western Outbreak Region (WOR) due to continued aggressive preventive interventions and unfavorable ecological conditions. In **Mauritania**, only 227 ha were treated and in **Morocco**, preventive surveys detected small-scale breeding in the southwestern part of the country. A few solitary adults were reported in southeast **Niger** and no locust were reported in Tunisia, Libya, Mali, or Chad during this month.

Infestations declined along the Red Sea coasts in **Sudan** and only 85 ha were treated during this month. In **Saudi Arabia**, ground and aerial control operations treated more than 4,240 ha against hoppers and adult groups along the Red Sea coasts. No locusts were reported in Eritrea, Ethiopia, Somalia, Djibouti, Oman, Syria, Iraq, Qatar, Bahrain or UAE and no surveys were conducted in **Yemen** during this month due ongoing insecurity.

No locusts were reported in the Eastern Outbreak Region (EOR) in

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

India, Iran, Pakistan or Afghanistan during February.

## Forecast

With temperatures gradually rising and ecological conditions becoming favorable in spring breeding areas, locusts will start moving to south-eastern **Morocco**, northern **Mauritania** and **Algeria** and begin breeding on a small-scale, but the rest of the countries in the WOR will likely remain calm during the forecast period.

In COR, **Sudan** may see limited breeding in cropping areas in the Nile Valley. A few adults may appear in northwestern **Somalia** and move westwards to higher altitude in search of favorable conditions. A few adults may also appear in eastern **Ethiopia**, but significant developments are not likely during the forecast period. Adult groups and perhaps a few small swarms could form on the coastal areas in **Saudi Arabia** and move to spring breeding areas in the interior of the country.

In ERO, limited SGR activities are likely in spring breeding areas in southeastern **Iran**, but significant activities are not likely in the region during the forecast period.

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

*The commitments of national authorities coupled with support from regional and international partners and donors, e.g., USAID, FAC, FAO, AFDB, etc., frontline countries in WOR, i.e., enabled Algeria, Chad, Libya, Mali, Mauritania, Morocco, Niger, Senegal and Tunisia, and a number of countries in COR to establish fully operational national locust management units responsible for migratory pest control. As a result, a number of front-line countries were able to thwart many potentially serious locust threats in 2012, 2015, 2016, etc. Technical and material support and coordination from CLCPRO, CRC, DLCO-EA, EMPRES programs, FAO/ECLO and assistance from USAID's cooperative agreement with FAO have proven absolutely valuable.*

#### **Red (Nomadic) Locust (NSE):**

NSE breeding was in progress in **Malawi, Mozambique, Tanzania** and **Zambia** during February. LMI hoppers mixed with NSE were detected over vast areas ha in the Kafue flats, **Zambia** during ground and aerial surveys conducted by IRLCO-CSA and MinAgri/Zambia which extended to Lukanga Swamps and Simalaa plains (IRLCO-CSA).

**Italian (CIT), Moroccan (DMA), Asian Migratory (LMI) Locusts:** No locusts were reported in the Central Asia and the Caucasus (CAC) regions and the situation will remain calm until spring.

#### **The African Armyworm (AAW):**

AAW outbreaks were reported in several districts in **Malawi, Tanzania, and Zimbabwe** during February and control operations were launched in most places by the affected farmers with technical and material assistance from the Ministries of Agriculture (DLCO/EA, IRLCO-CSA).

#### **Fall armyworm (Spodoptera.**

**frugiperda) (FAW)** invasions were reported in the southern regions in Tanzania - Ruvuma, Mbeya, the areas bordering neighboring countries in the south during February. An imminent threat of AAW and SFR (FAW)



outbreaks were reported in **Uganda** during this month, but details were not available at the time this report was compiled.

Earlier, SFR was reported damaging maize fields in **Zambia, Zimbabwe, South Africa, Malawi, Mozambique, Namibia** and **Botswana**, but has since subsided in most places where intensive operations were launched.

**OFDA/PSPM** is closely monitoring the SFR situation and engaging key national, regional and international partners to explore and investigate

the most effective way to address the looming SFR threat to food security and livelihoods of vulnerable populations (**for further detail, see pages 12-13**).

**Botswana:** A report of an SFR outbreak and tomato leaf miner (*Tuta absoluta*) infestations were reported in **Botswana** during February. Both species are native to tropical South America and alien to **Botswana** and the African continent as a whole. If established, these pests can become a serious concern to agriculture and horticulture on the country.

**Quelea quelea (QQU):** QQU outbreaks were reported causing damage to rice millet and sorghum crops in several in **Kenya**. The birds were also seen threatening irrigated rice in Ndungu in Kilimanjaro region in **Tanzania** where plans for control operations were in advance stage. The pest was reported gaining force to threaten rice fields in eastern **Uganda**.

*USAID/OFDA's Senior Adviser for pest and pesticide management participated in the 30<sup>th</sup> Session and 50<sup>th</sup> Anniversary of the Commission for the Controlling the Desert Locust in the Central Region (CRC) in Muscat, Oman during February. The Advisor noted broader recognition of the support USAID/OFDA has provided through FAO to strengthen national and regional capacity to prevent locust threats and damages to food security and livelihoods of rural*

*communities and improve awareness raising among national authorities and partners to better manage and use pest control commodities and tools.*

**USAID/OFDA PSPM and ECA** co-funded Horn of Africa sub-regional emergency desert locust management project that is being implemented by FAO and DLCO-EA is progresses. Technical and material support being provided to participating locust-prone countries through the project is improving capacity to better monitor, report and prevent locusts is the sub-region. Participants that received training and surveillance materials are monitoring locust situation and sharing monthly reports.

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

## RÉSUMÉ

**Le criquet pèlerin (Schistoseca gregaria – SGR):** Le criquet pèlerin (Schistoseca grégaire - SGR) Refusé dans la situation Février dans le foyer Région de l'Ouest (WOR) en raison d'interventions préventives agressives continues et les conditions écologiques défavorables. En Mauritanie, seulement 227 ont été

traités et au Maroc, des enquêtes préventives reproduction à petite échelle détectée dans la partie sud-ouest du pays. Quelques ailés solitaires ont été signalés dans le sud du Niger et aucun criquet n'a été signalé en rest WOR en Tunisie, la Libye, le Mali, ou au Tchad Au cours de ce mois-ci.

Infestations Refusée le long des côtes de la mer Rouge au Soudan et seulement 85 ha ont été traités Au cours de ce mois. En Arabie Saoudite, du sol et des opérations aériennes plus de 4240 traités de contrôle a des larves et des groupes d'adultes contre le long des côtes de la mer Rouge. Aucun criquet n'a été signalé en Erythrée, Ethiopie, Somalie, Djibouti, Oman, Syrie, Irak, Qatar, Émirats arabes unis et Bahreïn étaient ou non des enquêtes au Yémen menées au cours de ce mois-ci en raison de l'insécurité permanente.

Aucun criquet n'a été signalé dans la région de l'Est Outbreak (EOR) en Inde, en Iran, au Pakistan ou en Afghanistan Au cours de Février.

## Prévision

Avec des températures augmente progressivement et les conditions écologiques deviennent favorables dans les zones de reproduction printanière, les criquets vont commencer à se déplacer vers le sud-est du Maroc, le nord de la Mauritanie et de l'Algérie et de commencer à se reproduire à petite échelle, mais le

reste des clubs de pays dans le WOR restera probablement calme au cours de la période de prévision.

En COR, le Soudan peut voir une reproduction limitée dans les zones cultivées dans la vallée du Nil. Quelques adultes peuvent apparaître dans le nord-ouest de la Somalie et de se déplacer vers l'ouest à une altitude plus élevée à la recherche d'une des conditions favorables. Quelques adultes peuvent apparaître également dans l'est de l'Ethiopie, mais ne sont pas susceptibles d'importants développements Au cours de la période de prévision. Des groupes d'adultes et quelques petits essaims pourraient peut-être se former sur les zones côtières de l'Arabie Saoudite et déplacer vers les zones de reproduction printanière dans l'intérieur du pays.

En EOR, les activités SGR limitées sont susceptibles dans les zones de reproduction printanière du sud-est l'Iran, mais ne sont pas susceptibles d'importantes activités dans la région Au cours de la période de prévision.

La surveillance active et des interventions préventives en temps opportun à tous les temps RESTENT critique dans les zones où les activités de criquets persistent pour réduire toutes les menaces SGR aux cultures et / ou pâturage.

*Les engagements des autorités nationales couplées avec l'appui des partenaires régionaux et*

*internationaux et les donateurs, par exemple, l'USAID, FAC, FAO, BAD, etc., les clubs de pays de première ligne dans WOR, à savoir, permis à l'Algérie, le Tchad, la Libye, le Mali, la Mauritanie, le Maroc, le Niger, le Sénégal et la Tunisie, et un certain nombre de pays COR de créer des unités nationales de gestion des criquets pleinement opérationnels chargés de la lutte contre les ravageurs migrants. En conséquence, un certain nombre de clubs de pays de première ligne ont été en mesure de déjouer de nombreuses menaces acridiennes potentiellement graves en 2012, 2015, 2016, etc. Support technique et de l'équipement et la coordination de la CLCPRO, CRC, DLCO-EA, les programmes EMPRES, FAO / ECLCO et l'assistance de l'accord de coopération de l'USAID avec la FAO ont absolument prouvé précieux.*

### **Rouge (nomade) Locust (NSE):**

NSE reproduction était en cours au Malawi, au Mozambique, en Tanzanie et en Zambie Au cours de Février. trémies IMT NSE ont été mélangés avec de vastes zones détectées a dans les appartements de Kafue, en Zambie terrain et des relevés aériens Pendant Dirigé par IRLCO-CSA et MinAgri / Zambie qui a étendu à Lukanga Marécages et les plaines Simalaa (IRLCO CSA).

**Italien (CIT), du Maroc (DMA), d'Asie migrants (LMI) Criquets:** Criquets Aucun n'a été signalé dans l'Asie centrale et les (CAC) régions du

Caucase et la situation va calmer Jusqu'au printemps.

**Cheille Légionnaire (AAW):** AAW foyers ont été signalés dans plusieurs districts du Malawi, la Tanzanie et le Zimbabwe Pendant Février et les opérations de contrôle ont été lancés dans la plupart des endroits par les agriculteurs concernés avec de l'assistance technique et de l'équipement des ministères de l'Agriculture (DLCO / EA, IRLCO-CSA).

**Fall Armwyrom (Spodoptera frugiperda - SFR) (FAW):** invasions ont été signalées dans les régions du sud de la Tanzanie - Ruvuma, Mbeya, les zones frontalières dans les pays voisins au sud Pendant Février. Une menace imminente de AAW et SFR (FAW) ont été signalés en Ouganda Éclosions Pendant ce mois-ci, mais les détails ne sont pas disponibles au rapport de esta de temps a été compilé.

Plus tôt, SFR a été rapporté des champs de maïs presque dommageables en Zambie, au Zimbabwe, en Afrique du Sud, le Malawi, le Mozambique, la Namibie et le Botswana, mais a depuis diminué dans de nombreuses régions où ont été lancées les opérations de surveillance intensive.

**OFDA / PSPM** surveille de près la situation SFR (FAW) et les partenaires nationaux, régionaux et internationaux Engager pour explorer et étudier la façon la plus efficace

pour faire face à la menace imminente à la nourriture SFR et les moyens de subsistance des populations vulnérables sécurité.

**Botswana:** Un rapport d'un foyer SFR et la tomate mineuse (*Tuta absoluta*) ont été signalés dans les infestations Botswana Au cours de Février. Les deux espèces sont originaires d'Amérique du Sud tropicale et étrangère au Botswana et le continent africain dans son ensemble. Si établie, ces parasites peuvent devenir une préoccupation sérieuse pour l'agriculture et l'horticulture du pays.

***Quelea quelea* (QQU):** ont été signalés Éclosions qqu causant des dommages à mil de riz et de sorgho dans plusieurs au Kenya. Ont été les oiseaux qui menacent le riz irrigué également vu dans Ndungu dans la région du Kilimandjaro en Tanzanie Where Were plans pour les opérations de surveillance à l'étape de l'avance. Le ravageur a été signalé gagne la force de menacer les champs de riz dans l'est de l'Ouganda.

**USAID / OFDA** Conseiller principal de lutte contre les ravageurs et la gestion des pesticides ont participé à la 30e session et 50e anniversaire de la Commission de lutte contre le criquet pèlerin dans la région centrale du (CRC) à Muscat, Oman Pendant Février. Le conseiller NOTÉ une reconnaissance plus large de l'USAID de soutien / OFDA a fourni par la FAO pour renforcer les capacités nationales et régionales visant à prévenir les

menaces de criquets et les dommages à la sécurité alimentaire et les moyens de subsistance des communautés rurales et améliorer la sensibilisation des autorités et des partenaires nationaux pour mieux gérer et utiliser ravageur produits de base et des outils de contrôle.

**USAID / OFDA PSPM et la ECA** co-financé Corne de l'Afrique projet de gestion d'urgence désert sous-régional criquets qui est mis en œuvre par la FAO et DLCO-EA est progresse. Le soutien technique et l'équipement fourni aux clubs de pays acridiennes sujettes à participer par le biais du projet est de mieux surveiller Amélioration de la capacité, le rapport et les criquets Prevent est la sous-région. Les participants ont reçu une formation et de surveillance Ce matériel surveillent la situation acridienne et le partage des rapports mensuels.

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

## OFDA's Contributions to ETOP Activities

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

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

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

OFDA/PSPM's interests in sustainable pesticide risk reduction in low income countries to strengthen their capacities and help improve safety of vulnerable populations and shared environment continued. It intends to expand this

initiative to other parts of Africa, the Middle East, CAC, etc., as needed. OFDA continued its support for DRR programs to strengthen national and regional capacities for ETOP operations. The program which is implemented through FAO has assisted several frontline countries to mitigate, prevent, and respond to ETOP outbreaks. It has helped participating countries avoid from misuse and mishandling of pesticides, pesticide-incorporated materials and application platforms.

USAID/OFDA is sponsoring a project through the UN/FAO to help strengthen/re-build national and regional capacity to prevent and control the threats the locusts pose to the 25 million plus vulnerable people that eke a living from agriculture and livestock in CAC. The program is on track and it has enabled collaboration among neighboring countries where joint monitoring, surveillance, reporting and preventive interventions have been realized to minimize the threats of ETOPs to food security and livelihoods of vulnerable population. Through this project, a number of technical staff from **Sahel West Africa, Northwest Africa, Eastern and Northeastern Africa, CAC, and the Middle East** continue receiving training in several fields, including Health Safety and Environmental Monitoring as related to ETOP operations and many more. During the first dekad of September, 2016, several technical staff from **Sahel West Africa and North Africa** received training on Health Safety and Environmental Monitoring in **Morocco**.

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

## Weather and Ecological Conditions

**Western Outbreak region:** Ecological conditions remained generally favorable during the first dekad of February for SGR to survival and breeding southeastern and southern **Morocco**, northern Mauritania, central Sahara in Algeria and parts of northern Sahel, but vegetation was drying in most of the winter breeding areas in the WOR.

**Central Outbreak Region:** Ecological condition was largely unfavorable in winter breeding areas along the Red Sea coastal plains of Sudan and vegetation was dry to drying here and in adjacent areas in Eritrea. Light showers were reported in the Rift Valley in Afar region in **Ethiopia** and dry weather persisted in Djibouti, eastern Ethiopia. Good rains fell in spring breeding areas in interior of **Saud Arabia** and northern coast and inland **Oman** and conditions may be favorable in **Yemen** were survey was undermined by the insecurity situation (DAF/Djibouti, DLCO-EA, DLMCC/Yemen, DLMO/Oman, FAO-DLIS, PPD/Eritrea, PPD/Sudan).

**Eastern Outbreak Region:** The EOR received good rains in spring breeding areas in southeastern **Iran** in early February and this will create favorable breeding conditions for locust to survive and develop.

**NSE Outbreak Region:** The NSE outbreak regions experienced normal rainfall (94-199 mm in *Wember Plain to Rukwa*) to above normal rains (with 359 mm leading to flooding in Kafue Flats Zambia). Given that hatching has already occurred and hoppers can climb partially submerged grasses, it is unlikely the

floods will affect further development of the locusts (IRLCO-CSA).

No update was reported in CAC, but dry and cold weather is expected to have prevailed in most of the locust breeding areas during February.

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

**Note:** *Changes in the weather pattern and the rise in temperature can contribute to ecological shift in ETOP habitats and increase the risk of pest outbreaks, resurgence and emergence of new pests. In Uzbekistan, Moroccan locust (DMA) which is normally a low to medium altitude pest has shown a considerable vertical habitat expansion by up to 1,000 feet or 300 meters from its normal ambient altitude due to warmer higher elevations.*

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

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

### SGR – Western Outbreak Region:

In **Mauritania**, overall ecological conditions continued deteriorating and only a few places in the extreme northwest of Tiris Zemmour and to a lesser extent at the Oueds et Graras in Adrar harbor favorable conditions for locusts to survive and develop. During the first dekad of February, CNLA carried out control operations in six locations in Dakhlet Nouadhibou and Adrar on groups of mature adults. 227 ha were treated during February bringing the total areas treated to 17,472 ha since current campaign began in September, 2016. In **Morocco**, surveys were carried out in Bir Guendouz, Dakhla-Oued Eddahab to prevent undetected locusts from breeding, but overall the situation remained calm during this month (CNLA/Mauritania, CNLAA/Morocco).

**Forecast:** With the gradual rise in temperature in spring breeding areas, locusts will likely be detected in the southern side of the Atlas Mountains in **Morocco** and northern **Mauritania** and **Algeria** and begin breeding on a limited scale. Low number of adults will likely persist in northern **Mali, Niger**, western Algeria and Libya, but significant developments are not likely during the forecast period (CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, FAO-DLIS, NALC/Chad, NLLC/Libya).

**SGR (Desert Locust) - Central Outbreak Region:** Locust infestations declined along the Red Sea coasts in **Sudan** and only 85 ha were treated during this month. In **Saudi Arabia**, ground and aerial control operations treated more than 4,240 ha against

hoppers and adult groups along the Red Sea coasts. No locusts were reported in Eritrea, Ethiopia, Somalia, Djibouti, Oman, Syria, Iraq, Qatar, Bahrain or UAE and no surveys were conducted in **Yemen** during this month due ongoing insecurity (DAF/Djibouti, DLCO-EA, DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Eritrea, PPD/Sudan).

**Forecast:** Small-scale breeding is likely in low laying cropping areas in the Nile Valley in **Sudan**. A few adults may also appear in northwestern **Somalia** and move westwards to the western escarpments and to the plateau in search of favorable conditions and may breed. A few adults may also appear in eastern **Ethiopia** in Jijiga region during the forecast period, but significant developments are not likely. Adult groups and perhaps a few small swarms could form on the coastal areas in **Saudi Arabia** and move to spring breeding areas in the interior of the country, the rest of the COR will likely remain calm during the forecast period (DAF/Djibouti, DLCO-EA, DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Eritrea, PPD/Sudan).

**SGR - Eastern Outbreak Region:** The SGR situation in the EOR remained calm during February (DPPQS/India, FAO-DLIS).

**Forecast:** Good rains that fell in southeast Iran and southwest Pakistan the previous month will favorable conditions for spring breeding in the EOR during the forecast period.

Active monitoring, timely reporting and preventive interventions remain critical to abate any major developments that could pose serious threats to crops and pasture

in areas where locust activities are present.

**Red (Nomadic) Locust (NSE):** NSE breeding was in progress the primary outbreak areas in Malawi, Mozambique, Tanzania and Zambia where hatching began last December progressed through January, 2017. Early instar LMI hoppers were detected alongside NSE over vast areas (~10,000 ha) in the Kafue flats, Zambia during ground and aerial surveys conducted by IRLCO-CSA and MinAgri/Zambia (with financial assistance from Gov Zambia). Aerial surveys were still in progress in the Kafue Flats at the time this update was compiled. A similar locust situation is expected in the other outbreak areas in Ikuu-Katavi, North and South Rukwa Valley plains and Malagarasi basin in Tanzania; Lake Chilwa/Lake Chiuta plains that are shared by Malawi and Mozambique: Buzi-Gorongosa plain and Dimba plain in Mozambique (IRLCO-CSA).

A mixture of the NSE and the African Migratory Locust (LMI) were reported damaging maize fields in Zambia during this month. More than 1,600 ha of maize fields located within the Kafue Flats were affected by hoppers ranging from 2-10 hoppers/m<sup>2</sup> located in grassland adjacent to maize fields covering over 9,000 ha.

**Forecast:** Hoppers will fledge and form immature adults and perhaps swarms in the primary outbreak areas during the forecast period. It is critical that survey operations are intensified before hoppers fledge, form adult groups and swarms and start migrating to cropping areas outside the outbreak regions. If left unaddressed, swarms have the capacity to invade neighboring countries as far as Uganda, Rwanda, Burundi, Republic of

Congo and even Kenya, Botswana and Zimbabwe depending on wind trajectory and threaten food security and livelihoods of vulnerable populations (IRLCO-CSA).

*It is critical that timely surveillance, monitoring and control operations are launched against hoppers in February and March and prevent fledglings from appearing thereafter which can otherwise making the situation much more complicated to abate them as they will form adult swarms and begin flying around and easily reach cropping and grazing areas and threaten food security of vulnerable populations.*

*IRLCO-CSA, the only entity in the southern region with the mandate to survey, monitor, prevent and control locusts, armyworm and quelea birds, continues appealing to its member-states to avail resources to carry out timely surveys, monitoring and control operations and contribute to food security and livelihoods of vulnerable populations in the region that has already been battered by multiple calamities. It is in the interest of all concerned that IRLCO-CSA's member-states positively and generously respond to the Organization's please for resources and enable it to abate, prevent and control these pests successfully and prevent them from reaching a plague stage and ravage crops and pasture and end up being unstoppable (IRLCO-CSA, OFDA-AELGA).*

**Madagascar Migratory Locust (LMC):** No update was received at the time this report was compiled. Moisture associated with the cyclone will likely favor the development of locusts.

[www.fao.org/emergencies/crisis/madagascar-locust/en/](http://www.fao.org/emergencies/crisis/madagascar-locust/en/).

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

**Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts** in Central Asia and the Caucasus (CAC): No update was received and no locust activities are expected in the CAC region during February.

**Forecast:** The Aral Sea region, where large-scale egg laying of LMI occurred during 2016, will likely experience massive hatching and hopper developments in spring 2017. Other breeding areas such as northern **Afghanistan** where undisturbed prolonged egg laying exploited the ongoing insecurity situation in the region will likely experience increased locust activities in 2017. Vigilance, mapping egg laying grounds remain essential to plan for the next campaign in 2017.

**Note: Italian, Migratory and Moroccan locusts** and some grasshopper species are a constant threat to the CAC region. They profusely multiply and attack tens of millions of hectares of crop and pasture and adversely affect food security and livelihoods of more than 20 million vulnerable inhabitants that eke out a living primarily from farming and herding. With the ability to travel more than 100 km (60 miles) each day, these locusts can decimate dozens of hectares of cereal crops, pasture, cotton, fruit trees, leguminous plants, sunflower, tobacco, vineyard, vegetable and others over vast areas. Many CAC countries affected by these locusts lack robust and well established capacity to effectively prevent and control these pests, but do their level best and invest tremendous amounts of resources to keep these pests under control. USAID/OFDA has been

supporting a DRR program to strengthen national and regional capacity to help abate these beasts (for further detail, refer to page 6, column two paragraph two). End note.

**African Armyworm (AAW):** AAW was reported attacking pasture in Matebeleland North Province in Zimbabwe where control was launched. In Malawi, the pest was reported affecting crops in Shire Valley Agriculture Development Division and control was launched by affected farmers. In Mozambique, outbreaks were reported in Manica, Sofala and Tete Provinces where the pest was reported damaging maize, rice and pasture. Affected farmers carried out control with material and technical assistance from the Ministry of Agriculture. In Tanzania, outbreaks were reported in Morogoro and Lindi Regions where affected farmers controlled the pest with material and technical assistance from Ministry of Agriculture and Livestock (DLCO-EA, IRLCO-CSA).

**Forecast:** Armyworm outbreaks are likely to occur in **Kenya** and northern **Tanzania**, while isolated outbreaks of the pest might continue to occur in Malawi, Mozambique, Zambia and **Zimbabwe**.

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

It is worth mentioning that local farmers and communities that were by **OFDA-funded CBAMFEW** project were the first to report the presence of AAW in southeastern and northern regions of Ethiopia. The CBAMFEW's timely actions

*enabled MinAgri staff and local communities to avert what could have otherwise caused a serious damage to crops and pasture. CBAMFEW forecasters are also monitoring and reporting AAW presence in other countries (PPD/Ethiopia, PHS/Tanzania). The CBAMFEW forecaster must be encouraged and supplied with pheromone capsules and the necessary materials to continue with their assignments (OFDA/AELGA).*

**Fall armyworm (*Spodoptera frugiperda*) (SFR - FAW)**, an armyworm species alien to the region was reported destroying maize in **Zambia and Zimbabwe, Malawi, Mozambique and South Africa**. By February, the pest was reported in southern **Tanzania**.

The results of assessment missions that were launched by Ministries of agriculture (MoAs) in the affected countries to determine the extent of damage and evaluate the potential impact of the pest on maize production in the affected areas are being awaited.

In early 2016, FAW was also detected in South-West Nigeria and neighboring Sao Tome and Principe, Benin and Togo. The pest was first reported attacking maize crops in the rainforest zones of south-western Nigeria and in maize fields of the International Institute of Tropical Agriculture in Ibadan and Ikenne in Nigeria (Georgen IITA, 2016) <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0165632>) (see

While the cause for the appearance of the FAW (a pest indigenous and well established and common in the Americas) is not clear. Some blame trade/transporting goods across nations as a

possible source. Others associate this phenomenon with climatological anomalies (strong wind, cyclones, storms, etc.) that can carry the moths a great distance, but the likelihood of winds carrying the pest across the ocean is not vetted. However, the moth, its eggs and larvae and even pupae can be carried around with planting materials, such as sods for turf building, through packaging, containers, etc. It may be possible that ongoing investigations and other similar efforts could throw some light on the cause for the introduction of this pest to the continent its presence was not known prior to this.

This species has a range extension of thousands of kilometers and a voracious appetite with close to 100 species of host plants to feed on, including plants in the grass family – maize, wheat, barley, sorghum, millets, sugar cane, and non-grass plants such as cowpea, potatoes, vegetables, cotton and many more threatening vast areas of agricultural fields in tropical Africa.

Its comparative evolutionary advantage of stronger serrated mandibles (jaws) enables it to munch on virtually any part of its host plant whether young or silicate old parts and can even cannibalize its own and other similar pests.

With these and the ability to continue breeding non-stop under favorable conditions, the FAW is in for the long haul in its new territory where known natural enemies to keep it in balance are unlikely. This pest will likely take advantage of every means possible and dominate the indigenous armyworm species and become a formidable pest with significant economic implications.

The [young] larvae that are susceptible to pesticides, develop inside the maize stock well protected from external threats, thus making use of contact pesticides for early instars ineffective. However, both young and late instar larvae are susceptible to other control tools (early use of systemic pesticides, biopesticides and other biological control tools, etc.).

As a new pest to the continent, a lot needs to be done to ensure that this pest is well understood among communities in its potentially new home. Extensive studies are required to better understand its biological behavior, host preference, habitat selection, means and range of migration, competition between indigenous species, potential natural control tools and many more.

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

As part of a long-term preventive and control alternative, resistance identification and selection would be important. Search and research for biological control tools such as natural enemies - parasitoids, predators, pathogens, is worth pursuing to help develop an array of control tools in a tool box. OFDA/PSPM will continue monitoring the situation and issue guidance and updates as often as necessary.

**Note:** PSPM continuous developing and improving AAW information in both the SOR and COR and so far, printable and web-based maps have been developed for AAW outbreak and invasion countries

in the central and southern regions (click here for the SOR maps):

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

**Quelea (QQU):** QQU outbreak occurred in Kisumu, Siaya, Busia, Kitui (Kitui Central, Mutomo mbitini), Makueni and Embu (Mbeere sub-county) in **Kenya** during February. The pest was reported attacking rice in Kisumu, Busia and Siaya counties while in Kitui, Mbeere and Makueni counties it was detected damaging millet and sorghum. Aerial control operations were carried out in Kisumu county and control operations were also launched in Siaya and Busia Counties. QQU outbreak was reported causing damage to rice in Kilimanjaro region in **Tanzania** where control operations were planned. No QQU outbreaks were reported in Mozambique, Malawi, Zambia or Zimbabwe (DLCO-CE, IRLCO-CSA).

**Forecast:** QQU will likely become a problem in **Kenya, Tanzania, Mozambique** and **Zimbabwe** where rain-fed and irrigated small grain cereal crops reach susceptible stage during the forecast period (IRLCO-CSA).

**Facts:** QQU birds can travel ~100 km/day in search of food. An adult QQU bird can consume 3-5 grams of grain and destroy the same amount each day. A medium density QQU colony can contain up to a million or more birds and is capable of consuming and destroying 6,000 to 10,000 kg of seeds/day, enough to feed 12,000-20,000 people/day (OFDA/AELGA).

**Rodents:** Serious rodent infestations were reported in **Georgia** where the pest was seen damaging vegetable crops (OFDA technical Adviser for pests and pesticides discussed this issue with colleagues from MoA/Georgia and provided them information on rodent biology, behavior, prevention and control. No update was reported on rodent pest situation during February.

**(Note:** On average an adult rat can consume 3-5 gm of food (grains etc.)/day and a populations of 200 rats/ha (a very low density) could consume what a sheep can eat in one day (not to mention the amount they can damage, destroy or pollute making it unfit for human consumption) and the zoonotic diseases they can transmit.

**All ETOP front-line line countries must maintain regular monitoring. Invasion countries should remain alert. DLCO-EA, IRLCO-CSA, DLCCs, DLMCC, CNLAs, national DPVs and PPDs, ELOs are encouraged to continue sharing ETOP information with stakeholders as often as possible and on a timely basis. Lead farmers and community forecasters must remain vigilant and report ETOP detections to relevant authorities immediately.**

**Inventories of Pesticide Stocks for ETOP Prevention and Control**

In February, control operations treated 227 ha in **Mauritania**, 85 ha in **Sudan** and 4,243 ha in **Saudi Arabia**. A late received report indicated that in January 85 ha were treated in northern **Somalia**.

**Note:** A Sustainable Pesticide Stewardship (SPS) can strengthen pesticide delivery system (PDS) at the

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

**OFDA/PSPM** encourages alternatives such as IPM to reduce risks associated with pesticide stockpiling. A judiciously executed triangulation of surplus stocks from countries with large inventories to countries in need is a win-win situation worth considering.

Table 3. ETOP Pesticide Inventory in Frontline Countries during March, 2016

Country	Quantity (l/kg)*
Algeria	1,188,847~
Chad	38,300
Egypt	68,070~ (18,300 ULV, 49,770 l
Eritrea	17,124~ + 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	3,490,752 <sup>D</sup>
Niger	75,750~
Oman	10,000~
S. Arabia	89,357~
Senegal	156,000~
Sudan	169,710~
Tunisia	68,514 obsolete
Yemen	41,585 <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*

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*

CAC *Central Asia and the Caucasus*

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

CERF *Central Emergency Response Fund*

CIT *Calliptamus italicus (Italian Locust)*

CLCPRO *Commission de Lutte Contre le Criquet Pélerin dans la Région Occidentale (Commission for the Desert Locust Control in the Western Region)*

CNLA(A) *Centre National de Lutte Antiacridienne (National Locust Control Center)*

COR *Central SGR Outbreak Region*

CPD *Crop Protection Division*

CRC *Commission for Controlling Desert Locust in the Central Region*

CTE *Chortoicetes terminifera (Australian plague locust)*

DDLC *Department of Desert Locust Control*

DLCO-EA *Desert Locust Control Organization for Eastern Africa*

DLMCC *Desert Locust Monitoring and Control Center, Yemen*

DMA *Dociostaurus maroccanus (Moroccan Locust)*

DPPQS *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*

ETOP *Emergency Transboundary Outbreak Pest*

Fledgling *immature adult locust /grasshopper that has pretty much the same phenology as mature adults, but lacks fully developed reproductive organs to breed*

GM *GreenMuscle<sup>®</sup> (a fungal-based biopesticide)*

ha *hectare (= 10,000 sq. meters, about 2.471 acres)*

ICAPC *IGAD's Climate Prediction and Application Center*

IGAD *Intergovernmental Authority on Development (Horn of Africa)*

IRIN *Integrated Regional Information Networks*

IRLCO-CSA *International Red Locust Control Organization for Central and Southern Africa*

ITCZ	Inter-Tropical Convergence Zone	PRRSN	Pesticide Risk Reduction through Stewardship Network
ITF	Inter-Tropical Convergence Front = ITCZ)	QQU	Quelea Qulelea (Red Billed Quelea bird)
FAO-DLIS	Food and Agriculture Organizations' Desert Locust Information Service	SARCOF	Southern Africa Region Climate Outlook Forum
Hoppers	young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)	SFR	Spodoptera frugiperda
JTWC	Joint Typhoon Warning Center	SPB	Southern Pine Beetle (Dendroctonus frontalis) - true weevils
Kg	Kilogram (~2.2 pound)	SGR	Schistoseca gregaria (the Desert Locust)
L	Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)	SSD	Republic of South Sudan
LCC	Locust Control Center, Oman	SWAC	South West Asia DL Commission
LMC	Locusta migratoriacapito (Malagasy locust)	PBB	Pine Bark Beetle
LMM	Locusta migratoria migratorioides (African Migratory Locust)	PSPM	Preparedness, Strategic Planning and Mitigation (formerly known as Technical Assistance Group - TAG)
LPA	Locustana pardalina	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.
MoAFSC	Ministry of Agriculture, Food Security and Cooperatives	USAID	the Unites States Agency for International Development
MoAI	Ministry of Agriculture and Irrigation	UN	the United Nations
MoARD	Ministry of Agriculture and Rural Development	WOR	Western SGR Outbreak Region
NALC	National Agency for Locust Control	ZEL	Zonocerus elegans, the elegant grasshopper
NCDLC	National Center for the Desert Locust Control, Libya	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...
NOAA (US)	National Oceanic and Aeronautic Administration		
NPS	National Park Services		
NSD	Republic of North Sudan		
NSE	Nomadacris septemfasciata (Red Locust)		
OFDA	Office of U.S. Foreign Disaster Assistance		
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		

**Who to contact for more information:**

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