

**Emergency Transboundary
Outbreak Pest (ETOP) Situation
Update for September, 2016 with
a Forecast till mid-November,
2016**
[Un résumé en français est inclus](#)

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**¹) situation continued developing in September in the central outbreak region (COR). In **Yemen** swarms were observed on the Red Sea coasts, the interior of the country and the Gulf of Aden and control operations treated 50 ha during this month. Locust activities continued in eastern **Ethiopia** and northern **Somalia** where control operations treated a combined total of 54 ha during this month. The summer breeding areas in **Sudan** remained fairly calm and only a few scattered adults were observed in wadis and near irrigated areas. 3,000 ha were treated in the southern Red Sea coast **Saudi Arabia** adjacent to **Yemen**. Elsewhere the situation remained calm during September.

Adults and hoppers continued appearing in northwest **Mauritania** where control operations treated 263 ha. A similar situation was reported in northwest **Mali** where 810 ha were treated during this month. Scattered adults were also reported in northern **Niger** and northeast **Chad** and

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

southern **Algeria**. Other countries in the western outbreak region (WOR) remained calm during September.

The eastern outbreak region (EOR) generally remained calm and only a few solitary adults were reported in Cholistan **Pakistan** and adjacent areas in Rajasthan, **India**.

Forecast

SGR groups and swarms will likely continue migrating from the interior of **Yemen** to the Red Sea coast, **Saudi Arabia** and the Horn of Africa and breed in eastern Ethiopia, northern Somalia, southern coasts in Eritrea and causing locust numbers to increase.

Locust numbers will likely increase in a few places in **Mauritania**, **Mali** and **Niger** in the WOR during the forecast period.

Significant activities are not expected in the EOR during the forecast period.

Active surveillance and timely preventive interventions remain critical to abate any major threats.

It is worth noting that during and prior to the 2003-05 locust upsurges that cost national government and international communities hundreds of millions of dollars in control, locust-affected frontline countries in Sahel West Africa and North Africa lacked well-equipped, well-organized autonomous locust control units. The

regional organization that was mandated with coordination and strengthening regional collaborations was struggling to build its own capacity. Thanks to the efforts and commitments of national entities and the supports from regional and international communities, development and humanitarian donors, including USAID, FAC, FAO, AFDB, etc., frontline countries in WOR, i.e., Algeria, Chad, Libya, Mali, Mauritania, Morocco, Niger, Senegal and Tunisia, and several countries in the COR have since established fully operational national locust control and management entities. As a result, several countries in these regions have been able to thwart many serious locust threats, including the potentially devastating SGR emergencies in 2012 and again in 2015 as well as several likely serious outbreaks in 2016. The coordination as well as technical and material supports from CLCPRO, CRC and FAO/EMPRES programs, FAO/ECLO and through USAID's cooperative agreement with FAO has proven absolutely invaluable.

Red (Nomadic) Locust (NSE): NSE remained a cause for concern in **Malawi, Mozambique, Tanzania,** and **Zambia** where swarms were reported developing and persisted through September. In **Malawi,** survey and control operations were carried out with financial assistance from GoM. Other member-states need to remain vigilant and work closely with IRLCO-CSA.

Forecast: Swarms will likely move from breeding areas to invasion areas and impact food security and livelihoods of vulnerable populations.

IRLCO-CSA continues appealing to all member-states for resources to launch timely survey and control interventions to avert any crop damage in a region that has already been hit by an unprecedented drought (IRLCO-CSA, OFDA/AELGA).

Madagascar Migratory Locust

(LMC): No update was received at the time this report was compiled and the 3-year campaign had ended.

Italian (CIT), Moroccan (DMA), Asian Migratory (LMI) Locusts,

Central Asia and the Caucasus (CAC): No update was received at the time this report was compiled. The locust situation is expected to have begun progressively declining in several countries in the region and all species are expected to gradually disappear by the end of the forecast period and remain dormant until next spring.

USAID /OFDA senior pest and pesticide management



specialist visited joint locust survey operations in Georgia during the second dekad of May.

He travelled with the team to Kakheti District in southern and southeastern parts of Georgia along the Caucasus Mountains adjacent to Azerbaijan and Russian Federation. During the survey operations, the technical advisor observed early hatching of locusts (see picture above, Belayneh, 5/2016).

Tree locust (*Anacridium spp*): Tree locust outbreaks that were reported earlier in Turkana County of the Rift Valley Region in **Kenya** persisted through September. The pest was seen feeding on acacia trees affecting the main source of fodder crop for grazing animals. Preparations to launch control operations were underway at the time this report was compiled.

African Armyworm (AAW): AAW infestations were not reported in the southern or central outbreak regions during September.

Quelea (QQU): QQU outbreaks were reported in Morogoro and Kilimanjaro Regions of **Tanzania**, Siaya county of **Kenya** and Mashonaland West Province of **Zimbabwe**.

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. It 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) la situation a continué de développer en Septembre dans la région de l'épidémie centrale (COR). Au **Yémen** essaims ont été observés sur les côtes de la mer Rouge, l'intérieur du pays et le golfe d'Aden et les opérations de lutte ont traité 50 ha au cours de ce mois. activités acridiens ont continué dans l'est de l'**Ethiopie** et de la **Somalie** du Nord, où les opérations de lutte ont traité un total combiné de 54 ha au cours de ce mois. Les zones de reproduction estivale du **Soudan** est resté assez calme et à seulement quelques ailés épars ont été observés dans les oueds et à proximité des zones irriguées. 3,000 ha ont été traités dans la côte sud de la mer Rouge en **Arabie Saoudite** adjacente au **Yémen**. Ailleurs, la situation est restée calme au cours de Septembre.

Les adultes et les larves ont continué apparaissant dans au nord-ouest de la **Mauritanie** où des opérations de lutte ont traité 263 ha. Une situation similaire a été signalée au **Mali** au nord-ouest où 810 ha ont été traités au cours de ce mois. Des ailés épars ont également été signalés dans le nord du **Niger** et au nord-est du **Tchad** et le sud de l'**Algérie**. D'autres

pays de la région de l'épidémie occidentale (WOR) est restée calme au cours de Septembre.

La région de l'épidémie est (EOR) généralement restée calme et à seulement quelques aîlés solitaires ont été signalés dans le Cholistan au **Pakistan** et les zones adjacentes au Rajasthan, en **Inde**.

Prévoir

des groupes SGR et des essaims vont probablement continuer à migrer de l'intérieur du **Yémen**, à la côte de la mer Rouge, en **Arabie Saoudite** et dans la Corne de l'Afrique et de la race dans l'est de **l'Ethiopie**, le nord de la **Somalie**, côtes sud en **Erythrée** et causant des numéros d'augmenter.

Les effectifs acridiens vont probablement augmenter dans quelques endroits n **Mauritanie, Mali** et **Niger** dans le WOR au cours de la période de prévision.

activités importantes ne sont pas attendus dans le EOR au cours de la période de prévision.

La surveillance active et les interventions préventives en temps opportun restent critiques pour réduire les menaces majeures.

Il est intéressant de noter que pendant et avant 2003-05 recrudescences acridiennes qui coûtent le gouvernement national et

les communautés internationales des centaines de millions de dollars dans le contrôle, les pays de première ligne touchés par les criquets au Sahel en Afrique occidentale et en Afrique du Nord manquaient bien équipées, bien organisé autonomes acridiennes unités de contrôle. L'organisation régionale qui a été chargé de la coordination et le renforcement de la collaboration régionale a du mal à construire sa propre capacité. Merci aux efforts et engagements des entités nationales et les supports des communautés régionales et internationales, le développement et les donateurs humanitaires, y compris l'USAID, FAC, FAO, BAD, etc., les pays de première ligne dans WOR, à savoir, l'Algérie, le Tchad, la Libye, le Mali, Mauritanie, le Maroc, le Niger, le Sénégal et la Tunisie, et plusieurs pays du COR ont depuis établi des entités de contrôle et de gestion antiacridienne nationales pleinement opérationnelles. En conséquence, plusieurs pays de ces régions ont été en mesure de déjouer de nombreuses menaces acridiennes graves, y compris les situations d'urgence SGR potentiellement dévastatrices en 2012 et de nouveau en 2015, ainsi que plusieurs graves flambées probables en 2016. La coordination ainsi que des supports techniques et matériels de la CLCPRO, CRC et les programmes FAO / EMPRES, FAO / ECLO et par l'accord de coopération de l'USAID avec la FAO a prouvé une valeur absolument inestimable.

Rouge (Nomadic) Locust (NSE):

NSE est resté une source de préoccupation au **Malawi**, au **Mozambique**, en **Tanzanie** et en **Zambie**, où des essaims ont été signalés en développement et ont persisté à Septembre. Au **Malawi**, les opérations de prospection et de lutte ont été réalisées avec l'aide financière du **GdM**. D'autres Etats membres doivent rester vigilants et de travailler en étroite collaboration avec **IRLCO-CSA**.

Prévisions: Les essaims vont probablement se déplacer des zones de reproduction dans les zones d'invasion et la sécurité alimentaire de l'impact et les moyens de subsistance des populations vulnérables.

IRLCO-CSA continue faisant appel à tous les Etats membres pour les ressources pour lancer des interventions de prospection et de lutte en temps opportun pour éviter tout dommage des cultures dans une région qui a déjà été frappé par une sécheresse sans précédent (IRLCO-CSA, OFDA / AELGA).

Criquet migrateur Madagascar

(LMC): Aucune mise à jour a été reçue au moment où ce rapport a été compilé et la campagne de 3 ans avait pris fin.

Italien (CIT), du Maroc (DMA), d'Asie migrants (IMT) Criquets, l'Asie centrale et du Caucase (CAC): Aucune mise à jour a été reçue au moment où ce rapport a été

compilé. La situation acridienne devrait avoir commencé progressivement en déclin dans plusieurs pays de la région et toutes les espèces devraient disparaître progressivement par la période de prévision de fin de l'été et de rester dormant jusqu'au printemps prochain.

USAID / OFDA spécialiste de la gestion des ravageurs et des pesticides supérieurs a visité des opérations conjointes de l'enquête acridienne en **Géorgie** au cours de la deuxième décennie de mai.

Il a voyagé avec l'équipe à Kakheti District dans le sud et sud-est de la Géorgie le long des montagnes Caucase adjacentes à **l'Azerbaïdjan et la Fédération de Russie**. Au

cours des opérations d'enquête, le conseiller technique observé début

éclosion des criquets (voir image ci-dessus, **Belayneh**, 5/2016).



Arbre antiacridienne (Anacridium spp): les foyers d'arbres qui ont été signalés de plus tôt dans le comté de Turkana de la région de la vallée du Rift au **Kenya** a persisté à Septembre. Le ravageur a été observé se nourrissant des arbres d'acacia affectant la principale source de cultures fourragères pour les animaux

de pâturage. Les préparatifs pour le lancement des opérations de lutte étaient en cours au moment où ce rapport a été compilé.

Légionnaire africaine (AAW): infestations AAW ont pas été signalés dans les régions du sud ou du centre épidémie au cours de Septembre.

Quelea (qqu): les épidémies de qqu ont été signalés dans Morogoro et Kilimandjaro régions de la **Tanzanie**, Siaya du **Kenya** et de Mashonaland West Province du **Zimbabwe**.

USAID / OFDA / PSPM surveille ETOPS de près grâce à son réseau avec PPDs / DPV, unités ravageurs migrants et les organisations internationales et régionales, y compris la FAO, la CLCPRO, CRC, DLCO-EA, IRLCO-CSA. Il fournit des mises à jour en temps opportun et de conseils à l'AC, le personnel de terrain, les partenaires et les autres aussi souvent que nécessaire. Résumé 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 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 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 be able 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 project activities 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 were favorable in Sahel West Africa resulting from good rains that fell during the previous months and dekads. In **Morocco**, light to moderate rainfall was reported in the south and southwestern parts of the country improving ecological conditions in areas south of Adrar Settouf and Sakia Al Hamra, at the Draa valleys, Ziz and Ghris

and south of 'Oriental for locust to survive and perhaps begin breeding. In **Chad**, the Intertropical Front was located between 18th and 15th North during the 1st through the 3rd dekad of September. Daytime temperature reached 40°C in Faya during the 3rd dekad. Moderate rainfall was recorded in some areas in Abeche, Arada, Kalait Biltine, Moussoro, and Ati during the period and south by southwesterly wind dominated during early September and gradually became erratic and lighter towards the 3rd dekad. Ecological conditions were favorable in most of the areas surveyed during the 2nd dekad, but declined by the 3rd dekad as vegetation progressively began drying up except perennial plants. Easterly and southwesterly winds dominated with occasional northerly winds during the last dekad (CNLA/Chad).

In **Mali** rain is waning in the Sahelian belt, north of the 14th parallel and vegetation has begun drying up with the exception of rain-fed crops, mainly cereals which are at heading stage, and perennial vegetation. Waning of the seasonal rain was also observed in the Timbuktu and central and southern Gao. Normal to heavy rains were reported in Kayes region and the northern parts of Segou, Mopti and Koulikoro during this period. The southwesterly wind dominated over most of the country except the northern parts of Tombouctou and Kidal where northeasterly wind prevailed. In some places, ecological conditions remained conducive for the locusts to persist and reproduce. The ITF settled around Kidal (CNLCP/Mali). Light showers were reported in the south and

southwestern parts of Tunisia during this month.

Central Outbreak Region: Moderate to good rains were recorded in the summer breeding areas in **Sudan** and in western and southern coastal areas in **Eritrea**. Heavy rains were reported in **Yemen** and good rains were recorded in eastern and northeastern **Ethiopia** and in adjacent areas in northern **Somalia**, coastal areas in **Saudi Arabia** and **Djibouti** where ecological conditions remained favorable (DLMCC/Yemen, FAO-DLIS, PPD/Sudan, LCC/Oman).

Eastern Outbreak Region: The seasonal monsoon rains ended late than normal causing vegetation to remain green a bit longer than usual.

NSE Outbreak Region

Dry and warm weather prevailed in September in NSE outbreak areas where vegetation had dried creating conducive conditions for extensive vegetation burning in the primary outbreak areas in **Malawi**, **Mozambique** and **Zambia**. This has significantly reduced locust habitat and forcing them to move out to invasion areas in search of food and shelter (IRLCO-CSA).

In CAC, dry weather prevailed in most of the locust breeding areas during September. Above normal temperatures persisted across Central Asia and eastern **Kazakhstan**.

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 **Pine Bark Beetle** has been escalating in the western hemisphere due to the rise in winter temperatures and decreased precipitation. Warmer weather means lesser egg/grab death from severe cold temperatures and less precipitation means weaker trees that succumb to the beetle attack.*

*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 a Forecast for the Next Six Weeks

SGR – Western Outbreak Region: In **Mauritania** five teams were dispatched to the western, south, central and southeastern parts of the country where

hoppers, adult locust and groups were observed in several places in Trarza, Adrar, Tagant, Assaba and Hodgh El Charghi. Low density late instar solitary hoppers were also detected in Hodgh El Charghi region during the 1st dekad of September and control operations treated 263 ha during this month. Small-scale breeding was reported in Tamesna Plains in **Niger** and isolated adults were detected in southern **Algeria** during this month. In **Morocco**, no locusts were detected during September, but survey and monitoring teams will be dispatched to the south and southwestern parts of the country during the 2nd dekad of October to assess the situation in areas where rainfall was recorded during September and in areas adjacent to **Mauritania** where locust populations continued to persist and increase (CNLAA/Morocco, CNLA/Mauritania, FAO-DLIS).

In **Mali** rains are waning out in the Sahelian belt, north of the 14th parallel during the 2nd dekad of September, however, ecological conditions remained conducive in certain areas allowing locusts and dense populations of grasshopper infestations on 170 ha. The pests were observed causing severe damage to millet and lightly impacting sorghum crops in Mabrouck (Nara), Zarkaye, Peul, (Nara), Zarkaye Moorish (Nara), Tallahaye (Nara) between 15°15'54"N - 15°17'17"N and 7°18'52"E- 7°23'04"E. Control operations treated 810 ha during September. The National Locust Control Center (CNLCP/Mali) provided 10,000 liters of Chlorpyrifos 240g and two spray vehicles to the Department of Plant Protection to control grasshopper infestations (CNLCP/Mali).

In **Chad**, four survey teams were dispatched to Arada, Kalait, Salal and Fada areas beginning on 16 August, 2016 and the teams reported that overall the SGR situation remained calm during September. Small-scale breeding was observed south of Fada and Kalait and isolated low density immature and mature adults and various instar hoppers were observed southwest of Fada and Salal, northeast and southwest of Kalait and in Nokou and Arada (CNLA/Chad).

Forecast: In **Mauritania** vegetation will continue drying up in the south forcing locusts to move northward and begin breeding in areas of recent rainfall. In **Mali** adults will persist and begin breeding in Adrar des Iforas, Tilemsi Valley, Timetrine and Tamesna Plains during the forecast period. In **Niger**, small-scale breeding is likely in a few places in the Tamesna and Tadress plains and elsewhere where ecological conditions are favorable, but gradually decline as conditions continue deteriorating. In **Chad** vegetation continuous drying up forcing locusts to concentrate in areas of green vegetation, but significant developments are not expected during the forecast period. CNLA/**Chad** confirmed that the outbreak in the Bahr El Ghazal region that local media reported earlier was a grasshopper or tree locust species threatening crops and pasture, but not SGR. The situation will likely remain calm in other countries in the WOR (CNLA/Mauritania, CNLAA/Morocco, FAO-ECLC, NALC/Chad, NLCC/Libya).

SGR (Desert Locust) - Central

Outbreak Region: The SGR situation continued developing in September in the COR. In **Yemen** swarms were observed on the Red Sea coasts, in the interior of

the country and the Gulf of Aden and control operations treated 50 ha during this month. Swarms from **Yemen** that reached **Djibouti**, eastern **Ethiopia** and northern **Somalia** during late July continued breeding and control operations treated 53 ha in **Somalia** and 1 ha in **Ethiopia** during this month. The situation remained relatively calm in the summer breeding areas in **Sudan** where a few scattered adults were observed in wadis and near irrigated areas. Several farmers in Bara and Sodari localities in North Kordofan, and Saraf Umra, Tawila, and Dar El Salaam, Sudan also reported (through Radio Dabanga) on September 12, that their crops are affected by locust swarms and the regional plant protection staff was planning on aerial operations in mid-September. Control operations treated close to 3,000 ha in **Saudi Arabia** in the southern Red Sea coast adjacent to **Yemen**. **Oman**, where surveys were carried out in Musandam, Bureimi and Dhofar Regions and other countries in the COR remained calm during September (DLCO-EA, DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Sudan).

Forecast: Given the presence of favorable conditions, breeding and hopper and swarm formations will likely continue in the COR during the forecast period. In **Yemen**, locusts will continue moving to the Red Sea coasts and adjacent areas in **Saudi Arabia**. Some swarms from **Yemen** may also reach the Horn of Africa and breed in eastern **Ethiopia**, northern **Somalia**, southern **Eritrea** causing locust numbers to increase. Small-scale breeding will likely commence in the interior of **Sudan** and on the Red Sea coasts of **Saudi Arabia**. Other countries in the COR will remain fairly calm during the forecast period.

*(Note: In 2007, several swarms developed in **Yemen** and crossed the Red Sea and the Gulf of Aden and invaded eastern **Ethiopia**, northern **Somalia**, and **Djibouti**. The swarms progressively reached northern **Kenya** and hundreds of kilometers farther west into southwest and western **Ethiopia** where they were reported threatening crops and pasture over vast areas. **End note**).*

SGR - Eastern Outbreak Region: The SGR situation in the EOR remained calm during September and only a few solitary adults were reported in Cholistan **Pakistan**. A few gregarious mature adults were also detected in Rajasthan **India**, but significant populations were not observed in the Scheduled Desert Areas during this month (DPPQS/India, FAO-DLIS).

Forecast: Adults will persist in the summer breeding areas along the **Indo-Pakistan** borders, but significant developments are not likely.

Vigilance, timely reporting and preventive interventions remain critical to abate any major developments that could pose serious threats to crops and pasture (DLCO-EA, DLMCC/Yemen, DPPQS/India, FAO-DLIS, LCC/Oman, OFDA/AELGA, PPD/Sudan).

Red (Nomadic) Locust (NSE): NSE remained a cause for concern in **Tanzania**, **Zambia**, **Malawi** and **Mozambique**. IRLCO-CSA and MoA/**Malawi** carried out search/survey for LMM swarms that had invaded the country to determine control operations. In addition, the two institutions carried out survey of NSE in Lake Chilwa plains, Lake Chiuta plains and Mptasanjoka Dambo in **Malawi**. Small swarms and

concentrations of adult locusts were reported on 2,700 ha in the Lake Chilwa plains, 2,400 ha in Lake Chiuta plains and 2,000 ha in Mpatasanjoka Dambo during the surveys. During September, swarms and adult concentrations persisted in Malagarasi Basin in **Tanzania** and in the Kafue Flats and Lukanga swamps in **Zambia**. Swarms in the Kafue Flats continue to pose a serious threat to irrigated crops. In the Buzi Gorongosa and Dimba plains in **Mozambique**, high density NSE populations are expected to be present (IRLCO-CSA).

Forecast: In **Malawi**, there is a likelihood of more LMM invading the country given that the source of the previous invasion has not been clearly identified. This situation poses greater threat to the country given that it will likely face two serious migratory pest species, i.e., NSE and LMM both of which are known to pose serious threats to crops and pasture. As the vegetation burning in the primary outbreak areas in **Zambia, Malawi, Tanzania** and **Mozambique** continues forcing NSE to further concentrate and form denser swarms, it is likely that swarms will escape these areas and invade **Uganda, Rwanda, Burundi** and **Democratic Republic of Congo** and pose a serious threat to livelihoods of vulnerable populations. If left uncontrolled in the primary invasion areas, the NSE will begin breeding on a larger-scale at the foothills of the seasonal rains from late October on and further escalate the problem.

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 plea 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.

www.fao.org/emergencies/crisis/madagascar-locust/en/.

Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC): No update was available at the time this report was compiled. However, given the favorable weather conditions that persisted over the past months, the three locust species and grasshoppers appear to have taken advantage of the change in weather and associated ecological improvements.

Forecast: Locust activities will progressively come to an end in **CAC** countries during the forecast period. 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 in the region may also experience increased locust activities in 2017. Vigilance, marking egg laying

grounds remain essential to plan for the next campaign in 2017.



CAC countries affected by CIT, DMA and LMI species (source: FAO-ECLLO).

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.

Timor and South Pacific: No update was received from East Timor during September, but it is likely that ETOPs continued to be present.

African Armyworm (AAW): AAW activities were not reported in either the southern or the central/northern outbreak region during September.

*It is to be recalled that during earlier months local farmers and communities trained by **OFDA-funded CBAMFEW** project were the first to monitor and 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 (PPD/Ethiopia, OFDA/AELGA).*

Forecast: AAW season will likely commence in the southern outbreak region during the forecast period. Frontline countries are advised to exercise readiness for monitoring and forecasting on a timely basis. CABMFEW forecasters must remain vigilant and report trap catches to concerned authorities on time to facilitate rapid interventions (DLCO-EA, IRLCO-CSA, OFDA/AELGA).

Note: OFDA/PSPM continued developing and improving AAW information in both the SOR and COR. 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 outbreaks were reported in Morogoro and Kilimanjaro Regions of **Tanzania**, Siaya county of **Kenya** and Mashonaland West Province of **Zimbabwe** (DLCO-EA, IRLCO-CSA).

Forecast: QQU birds will likely persist and continue being problematic to rice growers in Busia, Siaya, Kisumu and Kirinyaga counties of **Kenya**, Morogoro and Kilimanjaro Regions of **Tanzania** and in some of the provinces of **Zimbabwe** where winter wheat is grown. Member-States are advised to remain vigilant and share QQU sightings on a timely fashion and avail resources to avert crop damage (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 rodent outbreaks in September. However, these pests are a constant threat to crops in the field as well as storage and must be regularly monitored and abated.

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 September, control operations were carried out against adult locusts in **Mauritania** and **Mali** where 263 ha and 810 ha respectively, were treated. **Saudi Arabia** and **Yemen** treated 3,000 ha and 50 ha respectively. **Ethiopia** and **Somalia** treated 1 ha and 53 ha, respectively during this month. An update was not available for **CAC** at the time this report was compiled, but limited control operations are expected to have taken place in the region during September.

Note: SGR invasions countries in West and North West Africa reported large inventories of obsolete stocks, some dating as far back as 2003-05 locust campaigns and even earlier than that. Countries in Central Asia and the Caucasus also carry large stocks of obsolete pesticides that date as far back as the old Soviet era. Safe disposal of these stocks requires considerable resources, but can significantly minimize health risks and environmental pollution associated with the stocks. **End note.**

Note: A Sustainable Pesticide Stewardship (SPS) can strengthen the 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/AELGA encourages exploring 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	1,189,349~
Chad	38,300
Egypt	68,070~ (18,300 ULV, 49,770 l)
Eritrea	18,250~ + 20,000 ^D
Ethiopia	9,711~
Libya	25,000~
Madagascar	206,000~ + 100,000 ^D
Mali	16,190
Mauritania	25,737 ^{DM}
Morocco	3,491,025 ^D
Niger	75,800~
Oman	10,000~
S. Arabia	97,000~
Senegal	156,000~
Sudan	171,780~
Tunisia	68,514 obsolete
Yemen	41,585 ^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 = *GreenMuscle*TM (fungal-based biological pesticide)

LIST OF ACRONYMS

AAW	<i>African armyworm (Spodoptera expempta)</i>
AELGA	<i>Assistance for Emergency Locust Grasshopper Abatement</i>
AFCS	<i>Armyworm Forecasting and Control Services, Tanzania</i>
AfDB	<i>African Development Bank</i>
AME	<i>Anacridium melanorhodon (Tree Locust)</i>
APLC	<i>Australian Plague Locust Commission</i>
APLC	<i>Australian Plague Locust Commission</i>
	<i>Bands groups of hoppers marching pretty much in the same direction</i>
CAC	<i>Central Asia and the Caucasus</i>
CBAMFEW	<i>Community-based armyworm monitoring, forecasting and early warning</i>
CERF	<i>Central Emergency Response Fund</i>
CIT	<i>Calliptamus italicus (Italian Locust)</i>
CLCPRO	<i>Commission de Lutte Contre le Criquet Pèlerin dans la Région Occidentale (Commission for the Desert Locust Control in the Western Region)</i>
CNLA(A)	<i>Centre National de Lutte Antiacridienne (National Locust Control Center)</i>
COR	<i>Central SGR Outbreak Region</i>
CPD	<i>Crop Protection Division</i>
CRC	<i>Commission for Controlling Desert Locust in the Central Region</i>
CTE	<i>Chortoicetes terminifera (Australian plague locust)</i>
DDLC	<i>Department of Desert Locust Control</i>

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

- 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...

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