Emergency Transboundary Outbreak Pest (ETOP) Situation Update for June, 2016 with a Forecast till mid-August, 2016
Un résumé en français est inclus

SUMMARY

The **Desert Locust (SGR[1])** situation continued developing in **Yemen** in June where new swarms and hopper groups were reported causing damage to crops in the interior of the country. Limited survey and control (365 ha) operations were carried out in areas accessible to the locust team.

In **Mauritania** only 375 ha were treated during June and scattered solitary adults were reported controlled on 38 ha in **Algeria**. Isolated adults were reported in **Niger**. No locusts were reported elsewhere in the Western Outbreak Region (WOR) during June.

A few adults were reported in northern **Oman,** northwest coast of **Somalia** and northern Red Sea coast in **Eritrea**. The rest of the Central Outbreak Region (COR) and the Eastern Outbreak Region (EOR) remained calm during June.

Forecast:

Small-scale breeding is likely in areas of recent rainfall in southern and southeastern **Mauritania**, northern **Mali, Niger** and **Chad** and slightly increase locust activities during the forecast period.

Swarms that formed in the interior of **Yemen** will continue moving to the highlands and perhaps reach the Red Sea coasts and/or the southern coast where monsoon winds will carry them through the coast of **Oman** across the Arabian Sea to the summer breeding areas in **Indo-Pakistan** borders. Some locusts may remain in the interior of the country and continue breeding provided rainfall occurs during the coming months. Seasonal rains that started in June in the interior of **Sudan** and western **Eritrea** will likely cause locust to breed during the forecast period. Elsewhere in COR the situation will likely remain calm during the coming months.

Small-scale breeding may begin in **Pakistan** and along the **Indo-Pakistan** borders during the forecast period.

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

It is worth noting that during the 2003-05 locust upsurges, 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 coordination and strengthening regional collaborations was struggling to build its own capacity. Thanks to the efforts and

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

commitments of national authorities and the supports from regional and international communities, development and humanitarian donors, including USAID, FAC, FAO, AFDB and many more, frontline countries, i.e., Algeria, Chad, Libya, Mali, Mauritania, Morocco, Niger, Senegal and Tunisia, have since established fully operational autonomous locust management and control entities at the national level. These entities have been able to abate several locust threats, including a potentially devastating locust emergency in 2012 and again in 2015. The coordination and support that CLCPRO has been providing to the frontline countries remain invaluable.

Red (Nomadic) Locust (NSE): Immature adults in Kafue Flats in **Zambia**, Lake Chiuta plains and Mpatsanjoka Dambo in **Malawi** and Ikuu plains in **Tanzania** were forced to concentrate due to wide spread vegetation burning and form swarms.

Damage caused to maize plants by NSE in Kafue Flats in Zambia (Source: IRLCO-CSA, May 2016).

Locusts that were detected in **Zambia, Malawi** and **Tanzania** will further concentrate and form groups and swarms and move to adjacent areas and threaten crops and pasture. Regular survey, monitoring and timely control interventions remain critical to preventive crop and pasture damage.

Madagascar Migratory Locust (LMC): No update was received at the time this report was compiled, but the final phase of the 3-year campaign was in progress and reported treated/protected more than 2.1 million ha and significantly reduced locust populations.

Italian (*CIT*), Moroccan (*DMA*), Asian Migratory (*LMI*) Locusts, Central Asia and the Caucasus (CAC): DMA, CIT continued to develop and breed in several countries in the CAC where control operations continued during June.

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 Caucus

Mountains adjacent to Azerbaijan and Russian Federation. During the survey operations, the technical advisor observed early hatching of the DMA (see pictures above, Belayneh, 5/2016 – maggot like whitish 1st instar hoppers and 3 black dots on the rock are 2nd instar hoppers).

African Armyworm (AAW): The AAW season has ended in the southern outbreak region and no outbreaks were reported in the central and norther region during June.

***Quelea* (QQU)**: QQU bird outbreaks were reported in several regions in **Tanzania** and **Kenya** in June where they were reported attacking small grain cereal crops.

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 (SGR) situation relative au Criquet pèlerin a poursuivi le développement au **Yémen** en Juin où de nouveaux essaims et des groupes larvaires ont été signalées causant des dommages aux cultures à l'intérieur du pays. enquête et de contrôle Limited (365 ha) opérations ont été effectuées dans des zones accessibles à l'équipe de criquets.

En **Mauritanie** seulement 375 ha ont été traités au cours de Juin et dispersés ailés solitaires ont été signalés contrôlée sur 38 ha en **Algéri**. Des ailés isolés ont été signalés au **Niger**. Aucun criquet n'a été signalé ailleurs dans la Région de l'Ouest Outbreak (WOR) au cours de Juin.

Quelques adultes ont été signalés dans le nord d'**Oman**, sur la côte nord-ouest de la **Somalie** et dans le nord de la côte de la mer Rouge en **Erythrée**. Le reste de la région du Centre du foyer (COR) et la Région de l'Est Outbreak (EOR) est restée calme en Juin.

Prévoir:

Une reproduction à petite échelle est probablement dans les zones de pluies récentes dans le sud et le sud-est de la **Mauritanie**, le nord du **Mali**, au **Niger** et au **Tchad** et légèrement accroître les activités de criquets au cours de la période de prévision.

Les essaims qui se forment dans l'intérieur du **Yémen** continuera à faire progresser vers les hauts plateaux et peut-être atteindre les côtes de la mer Rouge et / ou la côte sud, où les vents de mousson vont les mener à la côte d'Oman dans la mer d'Oman vers les zones de reproduction estivale en Indo-frontières du Pakistan. Quelques criquets peuvent rester à l'intérieur du pays et continuer l'élevage prévu précipitations se produit au cours des prochains mois. Les pluies saisonnières qui ont commencé en Juin à l'intérieur du Soudan et ouest de l'Érythrée va probablement causer des criquets se reproduire au cours de la période de prévision. Ailleurs dans COR la situation restera probablement calme au cours des prochains mois. Une reproduction à petite échelle peut commencer au Pakistan et le long des frontières indo-pakistanaises au cours de la période de prévision.

La surveillance active et les interventions préventives en temps opportun sont essentielles pour réduire les menaces majeures.

Il est à noter qu'au cours de 2003-05 recrudescences acridiennes, les pays de première ligne acridienne touchées au Sahel en Afrique occidentale et en Afrique du Nord manquaient bien équipées, autonomes unités de lutte antiacridienne bien organisés. 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 aux engagements des autorités nationales et les supports des communautés régionales et internationales, le développement et les donateurs humanitaires, y compris l'USAID, FAC, FAO, BAfD et beaucoup d'autres, les pays de première ligne, à savoir, l'Algérie, le Tchad, la Libye, le Mali, la Mauritanie, Maroc, le Niger, le Sénégal et la Tunisie, ont depuis établi des entités de gestion et de lutte antiacridienne autonomes pleinement opérationnels au niveau national. Ces entités ont été en mesure de diminuer plusieurs menaces acridiennes, y compris une urgence acridienne potentiellement dévastateur en 2012 et de nouveau en 2015. La coordination et le soutien que CLCPRO a fourni aux pays de première ligne restent une valeur inestimable.

Rouge (Nomadic) Locust (NSE): adultes immatures dans Kafue Flats en Zambie, les plaines du lac Chiuta et Mpatsanjoka Dambo au Malawi et Ikuu plaines en Tanzanie ont été contraints de se concentrer en raison de larges essaims de combustion de la végétation de la propagation et la forme. Criquets qui ont été détectés en Zambie, le Malawi et la Tanzanie vont encore se concentrer et former des groupes et des essaims et se déplacer vers des zones adjacentes et menacer les cultures et les pâturages. enquête régulière, surveillance et de contrôle en temps opportun les interventions restent essentielles à la

culture préventive et des dommages aux pâturages.

Locust Madagascar migratrices (LMC): Aucune mise à jour a été reçue au moment où ce rapport a été établi, mais la phase finale de la campagne de 3 ans était en cours et a rapporté traité / protégé plus de 2,1 millions d'hectares et les populations de criquets considérablement réduits.

Italien (CIT), du Maroc (DMA), d'Asie migrateurs (IMT) Criquets, l'Asie centrale et du Caucase (CAC): DMA, CIT a continué à développer et se reproduire dans plusieurs pays dans le CAC, où les opérations de lutte se sont poursuivies au cours de Juin

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 décade de mai. Il a voyagé avec l'équipe à Kakheti District dans le sud et sud-est de la Géorgie le long des montagnes Caucus adjacentes à l'Azerbaïdjan et la Fédération de Russie. Au cours des opérations d'enquête, le conseiller technique observé début éclosion du DMA (voir les photos ci-dessus, Belayneh, 5/2016 - asticots blanchâtres 1er larves de stade 3 et points noirs sur la roche sont 2e larves de stade).

Chenillie de Légionnaire africaine (AAW): La saison AAW a pris fin dans la région sud de l'épidémie et aucun foyer n'a été signalé dans la région centrale et norther au cours de Juin.

Quelea (qqu): foyers d'oiseaux de qqu ont été signalées dans plusieurs régions en Tanzanie et au Kenya en Juin où ils ont été déclarés attaquant de petites céréales des cultures céréalières (DLCO-EA, IRLCO-CSA).

USAID / OFDA / PSPM surveille ETOPS de près grâce à son réseau avec PPDs / DPV, unités ravageurs migrateurs 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

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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.

Note: *ETOP SITREPs can be accessed on USAID Pest and Pesticide Management website: USAID/OFDA PPM Website*

Weather and Ecological Conditions

Western Outbreak region

Seasonal rainfall began in several places across northern Sahel from Mauritania to Sudan during June. In contrast, vegetation has dried out in northern Mauritania, southern Morocco and neighboring areas during this time (CNLA/Mauritania, CNLAA/Morocco, CNLCP/Mali, FAO-DLIS).

Central Outbreak Region

With the northerly migration of ITF in progress light rains have begun falling in northern Sudan, the Horn of Africa, western lowlands in Eritrea, and southern mountains of Saudi Arabia

during June. This will likely continue and improve ecological conditions for locust to survive and breed.

Eastern Outbreak Region

Mostly hot, dry weather dominated the scheduled desert areas (SDA) in **India** where only light showers were reported during this month (DPPQS/India).

NSE Outbreak Region

Dry and cool weather prevailed in most of the NSE areas. In the Lake Chilwa/Lake Chuita plains in Malawi low rainfall and grass burning caused vegetation to dry out. The low rainfall also significantly reduced flooded areas with the exception of parts of Wembere plains that received considerable amount of water from the catchment areas.

In **CAC**, warmer and to some extent wet weather prevailed in the locust breeding areas in Georgia during late May into June. The situation improved in most of the CAC allowing locusts to hatch, mate, lay eggs and form groups. Above normal temps persisted across Central Asia and eastern Kazakhstan and likely to continue with near to below-normal temperatures expected for the remainder of the region. 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** appears 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 habitats remain critical to help avoid and minimize potential damages to crops, pasture, 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: Locust population significantly decreased in northwestern Africa during June and control operations were carried out in northern **Mauritania** (375 ha) and central Sahara in **Algeria** (38 ha).

In **Mauritania**, mature and immature adults arrived from the north-western part of the country and reached Tagant

north of Zouerate and around Choum. Despite the overall decline in groups of adult locust coming from the northwestern part of the country, survey and control teams detected 3 groups of mature and immature adults at densities up to 3,000 individuals/ha in Tiris Zemmour, Adrar, Inchiri and Tagant regions during the 2nd dekad of June (cumulative total areas treated since November 2, 2015 has reached 8,413 ha).

Solitary adults were reported in northern **Niger**. No locusts were reported in Chad, Mali, Libya or Tunisia during this month (CNLA/Mauritania, CNLAA/Morocco, CNLCP/Mali, CNLA/Tunisia, FAO-DLIS, NCDLC/Libya).

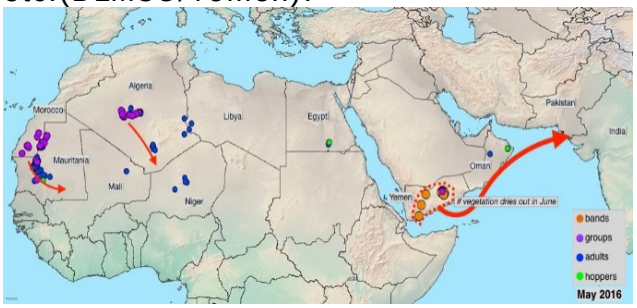
Forecast: Small-scale breeding will likely commence in southern and southeastern **Mauritania**, northern **Niger**, northern **Mali** and northern **Chad** and extreme southern **Algeria** during the forecast period areas where seasonal rains have commenced and adult locusts are present (CNLA/Mauritania, CNLAA/Morocco, FAO-ECLO, NALC/Chad, NLCC/Libya, OFDA/AELGA).

SGR (Desert Locust) - Central Outbreak Region: SGR continued developing in **Yemen** during June where more swarms and hopper and adult groups have been reported in the interior of the country and limited control treated 365 ha during June. The pest was reported causing damages to crops in some areas in the interior of the country. FAO is providing financial and technical support for survey and control operations, but the insecurity and remoteness continue being a problem to gather sufficient information and launched comprehensive interventions.

A few isolated adults were reported in northern **Oman** and northern Red Sea coasts in **Eritrea**, but the situation remained calm in **Sudan**, **Ethiopia**, **Djibouti**, northern **Somalia** and **Saudi Arabia** during June (DLMCC/Yemen, DLCO-EA, FAO-DLIS, LCC/Oman).

Forecast:

In **Yemen**, swarms will continue moving from the interior of the country to the highlands towards the Red Sea coasts and some may fly to the southern coast where monsoon winds will carry them to the summer breeding areas along the **Indo-Pakistan** borders passing through the coast of **Oman** and the Arabian Sea. Some swarms and adult groups may also remain in the interior of the country and continue breeding in areas where rains have fallen (see map below, FAO-DLIS). If left unabated, the locusts will continue threatening crops and pasture and affect assets of local farmers, herders and nomads, beekeepers etc.(DLMCC/Yemen).



Small-scale breeding will likely commence in North and West Darfur and Kordofan, along the Nile Valley and Kassala in **Sudan** and the western lowlands in **Eritrea** where seasonal rains have commenced as of June. Other countries in COR will likely remain calm during the coming months (DLCO-EA, DLMCC/Yemen, DPPQS/India, FAO-DLIS, LCC/Oman, OFDA/AELGA, PPD/Sudan).

SGR - Eastern Outbreak Region:

No locusts were reported in the Eastern Outbreak Region (EOR) during June (DPPQS/India, FAO-DLIS).

Forecast: Small-scale breeding may begin in the desert areas in **Pakistan** following the monsoon rains. A few swarms may arrive from Yemen and begin breeding along the **Indo-Pakistan** borders during the forecast period.

Red (Nomadic) Locust (NSE):

Extensive aerial survey by IRLCO-CSA and MinAgri revealed the presence of NSE populations (3-9 locust/m^2) in Kafue Flats in **Zambia**, Vegetation burning forced locusts to concentrate and form swarms. In **Malawi** a joint survey by IRLCO-CSA, FAO/Malawi and MinAgri revealed the presence of groups of NSE (3-7 locusts/m^2) in Lake Chilwa/Lake Chiuta plains and Mpatsanjoka Dambo. Significant NSE populations were also detected in Ikuu plains in **Tanzania** during aerial surveys in June. The Malagarasi Basin and North Rukwa plains in **Tanzania** are likely to have been infested. Ground surveys in Buzi Gorongosa in Mozambique have confirmed the presence of high density NSE populations.

Forecast:

Mozambique and **Tanzania** where rainfall created favorable conditions will likely witness swarms. NSE presence in Malawi and Zambia will also be noticed during the forecast period.

Note: NSE swarms remain a serious threat to food security and livelihoods of vulnerable communities in southcentral and southern Africa where the on-going drought condition has adversely affected agriculture and livestock. Recent surveys revealed an increase in NSE populations in **Zambia, Tanzania** and **Malawi** compared to previous years, a situation most likely associated with low rains and less flooded fields increasing hatchings and hopper developments.

IRLCO-CSA is appealing to its Member-States for resources to launch timely surveys and control interventions. If left unaddressed promptly, the locusts can further threaten the already precarious food security situation in the region (IRLCO-CSA, OFDA/AELGA).

Madagascar Migratory Locust (LMC): The final phase of the 3-year campaign that began on 26 August, 2015 is in progress and is expected to be concluded by June 2016.

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

Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC): A late received report indicated that DMA began maturing in May in most of the central Asia countries and hoppers began developing in Azerbaijan, Georgia, Kazakhstan and Russia. CIT hoppers were reported in Kazakhstan, Kyrgyzstan, Georgia, Russian and Uzbekistan and fledging was reported in Tajikistan during late May and adults are expected to have begun mating and laying. In May 530,000 ha were reported treated against the three locust species in Central Asia and parts of the Caucasus. Control operations are expected to have continued in June in a number of countries.

Forecast: Maturing, mating and/or egg laying, hatching and band formations of one or more of the three CAC locust species is expected to progress in some countries (FAO-ECLO, OFDA/AELGA).

Italian, Migratory and Moroccan locusts *are a constant threat to the CAC region. These pests can 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 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. Most of the countries affected by the three locust species lack well established capacity to effectively prevent and control these pests.*

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

African Armyworm (AAW): The AAW season has ended in the southern outbreak region and no outbreaks were reported in either southern or the central outbreak region during June (DLCO-EA, IRLCO-CSA).

Forecast: AAW will likely appear in southern and eastern **Ethiopia** during the forecast period. AAW coordinators and CBAMFEW and non-CBAMFEW forecasters are advised to remain vigilant and report trap catches to concerned authorities on time for 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 bird outbreaks were reported damaging sorghum and millet crops in Dodoma (Bahi), Tabora (Nzega and Igunga), Singida (Manyoni) and Shinyanga regions in **Tanzania** where joint aerial operations were in launched by MoA and DLCO-EA and in progress at the time this report was compiled. The birds were also reported causing damage to irrigated rice crops in Kisumu County in **Kenya** where aerial operations were launched by MoA in collaboration with DLCO-EA. A Quelea roost was detected and monitored in Narok Country in **Kenya**. QQU outbreak may have commenced in **Zimbabwe** (not confirmed) during the last dekad of June (IRLCO-CSA).

Forecast: QQU birds will likely continue being a problem to small grain cereal

growers in **Tanzania**, **Kenya** and may affect irrigated wheat in **Zimbabwe** 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 rodent outbreaks in June. 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

Algeria, Mauritania and **Yemen** treated 38 ha, 375 ha, and 365 ha, respectively (778 ha in total) during June. In CAC estimated 520,000 ha were reported treated during May (no data was available for June at the time this report was compiled).

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	44,500
Egypt	68,070~ (18,300 ULV, 49,770 l
Eritrea	18,250~ + 20,000[D]
Ethiopia	10,000~
Libya	25,000~
Madagascar	206,000~ + 100,000[D]

Mali	27,000
Mauritania	27,505[DM]
Morocco	3,491,025[D]
Niger	75,800~
Oman	10,000~
S. Arabia	100,000~
Senegal	156,000~
Sudan	171,780~
Tunisia	68,514 obsolete
Yemen	41,635[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 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 Criquett 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® (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

ITF Inter-Tropical Convergence Front = ITCZ)

FAO-DLIS Food and Agriculture Organizations' Desert Locust Information Service

Hoppers young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)

JTWC Joint Typhoon Warning Center

Kg Kilogram (~2.2 pound)

L Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)

LCC Locust Control Center, Oman

LMC Locusta migratoriacapito (Malagasy locust)

LMM Locusta migratoria migratorioides (African Migratory Locust)

LPA Locustana pardalina

MoAFSC Ministry of Agriculture, Food Security and Cooperatives

MoAI Ministry of Agriculture and Irrigation

MoARD Ministry of Agriculture and Rural Development

NALC National Agency for Locust Control

NCDLC National Center for the Desert Locust Control, Libya

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

PRRSN Pesticide Risk Reduction through Stewardship Network

QQU Quelea Qulelea (Red Billed Quelea bird)

SARCOF Southern Africa Region Climate Outlook Forum

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 Unites 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 you should contact:

If you have any questions, comments or suggestions or know someone who would like to freely subscribe to this report, please, feel free to contact us:

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