

**Emergency Transboundary
Outbreak Pest (ETOP) Situation
Update for July with a Forecast till
mid-September, 2015
avec un résumé en français**

SUMMARY

The **Desert Locust (SGR¹)** situation remained calm in the primary outbreak areas in Northwest Africa and Sahel West Africa, along the Red Sea coasts, and in the Iran-Pakistan borders during July.

Active surveillance, monitoring and preventive interventions contributed to the overall calmness of the locust situation across the outbreak areas in several frontline countries.

Forecast: Small-scale breeding is likely during the forecast period in a few places where rainfall has occurred in the primary outbreak regions.

OTHER ETOPS

Red (Nomadic) Locust (NSE): NSE populations persisted in the primary outbreak areas in **Mozambique** and **Zambia** as well as in Lake Chilwa/Lake Chiuta plains that traverse bordering areas in **Malawi** and **Mozambique**. Unfavorable conditions coupled with continued vegetation burning forced locusts to

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

concentrate in patches of green vegetation. Locusts will form small swarms and likely move to adjacent cultivated cropping areas.

Madagascar Migratory Locust

(LMC): No update was received at the time this report was compiled, but some locust populations are expected to have persisted in a few places in July.

Italian (CIT), Moroccan (DMA), Asian Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC): No update was received at the time this report was compiled. Nevertheless, DMA is expected to have begun diminishing and CIT and LMI are likely to have continued developing in the outbreak areas.

African Armyworm (AAW): AAW situation remained calm in July. Significant developments are not expected during the forecast period.

***Quelea quelea* (QQU):** QQU outbreaks were reported attacking irrigated rice in Tana County in **Kenya** and control operations are underway. The bird will likely continue being a problem in irrigated crops during the forecast period.

Active surveillance and monitoring as well as timely preventive interventions remain essential to avoid unexpected

surprises in all ETOP outbreak countries.

USAID/OFDA Plant Health and Pesticide unit (AELGA) will continue monitoring ETOP situations closely and provide updates and advise as often as necessary. **End summary**

RÉSUMÉ

La situation acridienne (SGR) est restée calme dans les zones de reproduction primaires en Afrique du Nord-Ouest et du Sahel en Afrique de l'Ouest, le long des côtes de la mer Rouge, et dans les frontières Iran-Pakistan au cours de Juillet.

La surveillance active et les interventions préventives ont contribué à la sérénité d'ensemble de la situation acridienne dans les zones de foyers dans plusieurs pays de première ligne.

Prevision: Une reproduction à petite échelle aura probablement au cours de la période de prévision dans quelques endroits où les précipitations ont eu lieu dans les régions de foyer primaire.

AUTRES ETOPS

Rouge (Nomade) Locust (NSE): populations NSE a persisté dans les zones des foyers primaires au Mozambique et en Zambie ainsi que dans les plaines du lac Chilwa / Lac

Chiuta plaines qui traversent les zones frontalières au Malawi et au Mozambique. Conditions défavorables couplés avec la végétation suite combustion forcés criquets à se concentrer dans des taches de végétation verte. Criquets formeront de petits essais et mouvement susceptible de zones cultivées adjacentes de culture.traversant les zones frontalières au Malawi et au Mozambique.

Criquet migrateur Madagascar

(LMC): Aucune mise à jour a été reçu au moment où ce rapport a été compilé, mais certaines populations de criquets pèlerins devrait avoir persisté dans quelques endroits en Juillet.

Italien (CIT), Marocaine (DMA), Asiatique migrants (LMI) Criquets en Asie centrale et dans le Caucase (CAC): Pas de mise à jour a été reçu au moment où ce rapport a été compilé. Néanmoins, DMA devrait avoir commencé diminuer et CIT et l'IMT sont susceptibles d'avoir poursuivi le développement dans les aires grégaires.

Chenille légionnaire africaine

(AAW): la situation est restée calme AAW en Juillet. Développement significatif ne devrait pas au cours de la période de prévision.

Quéléa (qqu): QQU épidémies ont été signalées attaquer riz irrigué dans le

comté de Tana au **Kenya** et les opérations de contrôle sont en cours. L'oïseau sera probablement continuer à être un problème dans les cultures irriguées au cours de la période de prévision.

La surveillance active et la surveillance ainsi que des interventions préventives en temps opportun demeurent essentiels pour éviter les surprises inattendues dans tous les pays d'épidémie ETOP.

USAID / OFDA la santé des plantes et de l'unité de pesticides (AELGA) continuera de surveiller de près les situations ETOP et fournir des mises à jour et de conseiller aussi souvent que nécessaire. Résumé Fin

*Thanks to the increased awareness among national authorities and the support from USAID/OFDA and other development partners, frontline and primary invasion countries in Northern Africa and Sahel West Africa, namely **Algeria, Chad, Libya, Mali, Mauritania, Morocco, Niger, Senegal and Tunisia** have established autonomous unit for the prevention and control of SGR.*

OFDA ETOP Activities and Benefits

Support from USAID/OFDA and other donors enabled FAO to establish an online Pesticide Stock Management System (PSMS) in more than 50

countries around the globe. Thanks to the PSMS system, participating countries are now able to maintain current inventories and make informed decisions to prevent unnecessary accumulations of obsolete pesticide stocks and empty containers. This system has enabled many countries to prevent unnecessary procurement or stockpiling of pesticides. As a result, costly disposal operations have been minimized in several countries as well as the safety of their citizens and their shared environment has improved.

OFDA-sponsored tri-state scaling up community-based armyworm monitoring, forecasting and early warning (CBAMFEW) project continues making progresses. The project aims at reducing the threats AAW pose to food security and livelihoods of vulnerable populations through improved information collection, analysis; reporting and early warning has significantly contributed to farmers' skills, knowledge and perceptions of the AAW.



CBAMFEW forecaster (the man in white polo shirt) in Nkama village, Kilindi District in Tanzania explains monitoring procedures and the benefits the pheromone trap and the rain gauge brought to the community. The forecaster

received training through OFDA-funded project (photo courtesy: Y. Belayneh).

*OFDA Senior Plant Health Pests and Pesticides Advisor visited more than 18 CBAMFEW project implementation and monitoring sites in **Kenya** and **Tanzania** during the second and third dekads of May, 2015.*

During his project site visits, Technical Advisor witnessed farmer forecasters at all 18 AAW monitoring sites declaring AAW outbreaks a no-mystery or a curse or a threat to them.



Farmer forecasters, district Agricultural Development Officer, and a field agent are proudly posed next to the pheromone trap that the farmer forecasters manage; Masasa village, Handeni District, Tanzania (Photo courtesy: Y. Belayneh)

With the support from USAID/OFDA and partnering organizations, farmers now know how to prevent AAW outbreaks from occurring and stop the caterpillars from causing damage to their crops and pasture.

*As of now, the total number of villages where the project has installed pheromone traps and rain gauges has reached 278 in **Ethiopia**, **Kenya** and **Tanzania** – you can view the map that*

shows the locations of all project sites by clicking on this link:

<http://bit.ly/1C782Mk> (the map is work in progress and will be continuously updated with additional important data layers from National staff and DLCO-EA. The additional data layers include cropping patterns, AAW outbreak frequencies, request for AAW outbreak interventions, population load, weather,



etc.

Mr Michael Nyaga (R), a farmer forecaster in Ngura sub-location in Mbeere North County in Kenya explains to the MoA staff the benefits his village gained from the CBAMFEW project (photo courtesy: Y. Belayneh).

Over the course of the past two and a half years, the project has conducted several training programs, national, district and village meetings and workshops. The project has also launched an innovative mobile phone-based data collection and management technology. This technology is being implemented in all three countries.

OFDA/PSPM intends to work with other partners to explore means and ways of expanding this innovative technology to benefit other AAW affected countries.



The mobile technology training held by the Tanzania national armyworm monitoring unit and the DLCO base manager in Tengeru, Arusha. OFDA staff advised partners on the implementation of the technology (see photo above, courtesy: Y. Belayneh).

OFDA continued its support for sustainable pesticide risk reduction initiatives through stewardship network (SPRRSN). This initiative is aimed at strengthening capacities to help reduce pesticide related risks and improve safety of vulnerable populations, their assets and the environment.

OFDA/PSPM has successfully launched two sub-regional SPRRSNs in Eastern Africa and the Horn. The Horn of Africa SPRRSN initiative has created an Association dubbed as Pesticide Stewardship Association-Ethiopia (PSA-E) and PSA-E is considered a model for future similar initiatives across similar regions.

OFDA-PSPM has plans to extend the SPRRSN initiative to other parts of Africa, the Middle East, CAC and other regions. In his recent visit, OFDA Senior Technical Advisor for Pesticides and Pests observed PSA-N activities in Ethiopia and noted

progresses and constraints among beneficiaries.

A PhD candidate that OFDA/PSPM is co-sponsoring with the Swedish University of Agricultural Sciences and Institute of Sustainable Development recently gave a presentation to USAID staff and other interested groups. The candidate's presentation was focused on some of the research work he had conducted on pesticide stewardship networking in Ethiopia. The presentation was well received by the attendees.

OFDA DRR program on strengthening national and regional capacities for ETOP operations in Central Asia and the Caucasus (CAC) is on track. The program also promotes collaboration among neighboring countries and encourages coordination of joint monitoring, surveillance, reporting and preventive interventions to help minimize the threats of ETOPs to food security and livelihoods of vulnerable populations.

OFDA continued its support for the DRR program to strengthen national and regional capacities for ETOP operations. The program which is implemented through FAO has assisted frontline countries to mitigate, prevent, and respond to ETOP outbreaks. It has also helped participating countries avoid potential emergencies that emanate from misuse and mishandling of pesticides, pesticide-incorporated materials and application platforms.

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

<http://www.usaid.gov/what-we-do/working-crises-and-conflict/responding-times-crisis/how-we-do-it/humanitarian-sectors/agriculture-and-food-security/pest-and-pesticide-monitoring>

Detailed information on ETOP situation and forecast as well as weather and ecological conditions is provided hereafter.

Weather and ecological conditions:

During the last dekad of July, the ITF experienced a significant northward migration from its previous dekadal position. The mean western portion (10W-10E) was approximated at 20.4N. The anomalous ITF position in the west was associated with ample moisture into parts of northern Mali and southern Algeria. The mean eastern portion (20E-35E) of the ITF was approximated at 16.6 degrees North.

Current vs. Normal Dekadal ITF Position and RFE Accumulated Precipitation (mm)
July 2015, Dekad 3

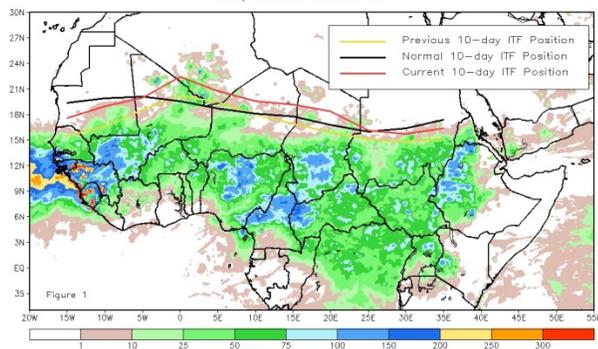
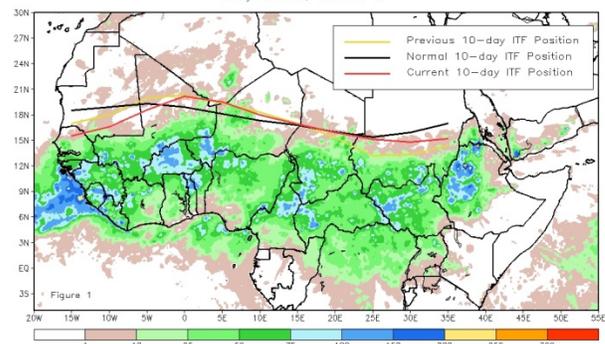


Figure above (NOAA, 8/2015) shows the current position (**red**) of the ITF relative to its climatological position during the third dekad of July (**black**) and its former

position during the second dekad of July (**yellow**).

From July 11-20, 2015, the Inter-Tropical Front (ITF) exhibited a northward advancement along its eastern segment, but a southern retreat in the western segment. In its central segment, the Front approximated roughly over its position during the 1st dekad of July. As a result, slightly below-average rainfall was observed over parts of western West Africa and northern Eastern Africa, while above-average rainfall persisted throughout central West Africa.

Current vs. Normal Dekadal ITF Position and RFE Accumulated Precipitation (mm)
July 2015, Dekad 2

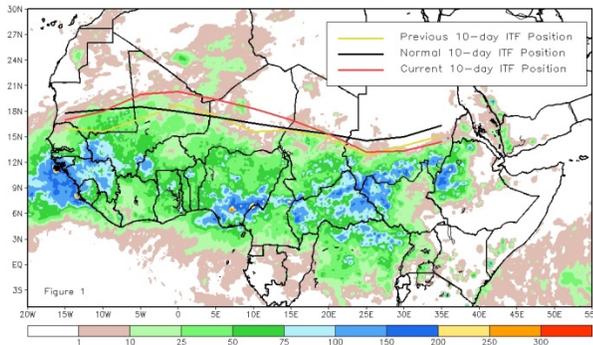


The mean western (10W-10E) portion of the ITF was located at 18.6N, which is to the north of the mean position by 0.1 degree, but to the south of last year's position during the same period by 0.4 degree. The mean eastern (20E-35E) portion of the ITF was approximated at only 15.2N, which was both to the south of the long-term average position and last year's position by 0.9 degree and 1.2 degrees, respectively. The map above displays the current position of the ITF (**red**), relative to its climatological position during the 2nd dekad of July (**black**) and its former position during the 1st dekad of July (**yellow**).

During the 1st dekad of July, 2015, the ITF advanced further north along its western segment. The mean western

portion of the Front was located approximately at 19.2N. This, resulted in wetter than average conditions across much of the Sahel and West Africa. In contrast, the Front slightly retreated to the south across Eastern Africa compared to its position during the 3rd dekad of June.

Current vs. Normal Dekadal ITF Position
and RFE Accumulated Precipitation (mm)
July 2015, Dekad 1



The mean eastern portion of the ITF was 14.1N (0.8 degrees south of the climatological position of 15.3N. This unusual southerly tilt was possibly responsible for the drier than average conditions over parts of Sudan, South Sudan, and Ethiopia during the period. The map below shows the position of the Front during the 1st dekad of July (red), its current position relative to its climatological position during the 1st first dekad of July (black) and its previous position during the 3rd dekad of June (yellow) (NOAA, 7/2015).

Light to moderate rains were recorded in agricultural areas in the Sahel-Sahara locust breeding areas. Ecological conditions improved with the gradual regeneration of vegetation coverage in the outbreak areas especially in Wadi Eleoudj, Ratai (west side) and in the Anefif (Tilemsi Valley) sector during July.

In **Chad**, moderate to heavy rains were recorded southeast of Kanem, the Lake region, the center of Batha, Arada, Kalait

and southeast of Fada during the 2nd dekad of July. Light to moderate rains were also recorded during the 1st dekad of the month in most of the SGR breeding areas. Temperatures ranged between 27° C and 41° C. The easterly winds prevailed during this period. Ecological conditions have begun to improve in Kanem, Lake, Batha, Ouaddai, Wadi Fira regions and southeast of Ennedi and this will likely continue and allow locusts to begin breeding during the forecast period.

Morocco experienced warm dry weather during this month with lower rainfall in the higher and Middle Atlas, the surrounding areas, and Eastern parts with maximum temperatures reaching 40-44°C in the southeast, the extreme south and inland. Vegetation was generally dry in the south and southeast of the country.

In **Oman**, ecological condition was favorable in SGR breeding areas in South and North Sharqiya and Wusta Regions where good rainfall were reported during Ashobaa Deep Depression Storm from 11 to 12 June 2015 (LCC/Oman).

Weather conditions in Red Locust outbreak areas remained dry during the month of July. Vegetation continued to dry out and burning intensified in most outbreak areas causing locusts to form concentrations/swarms in the unburnt areas.

In CAC, generally hot and dry weather persisted during July creating conducive conditions for LMI and CIT locusts to further develop. In Madagascar, dry weather persisted on the plateaus and warm weather prevailed in the mid to low altitude zones.

Note: Changes in the weather pattern can contribute to ecological shift in ETOP

habitats and increase the risk of pest outbreaks, resurgence and even emergence of new pests. 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 in **Uzbekistan**.

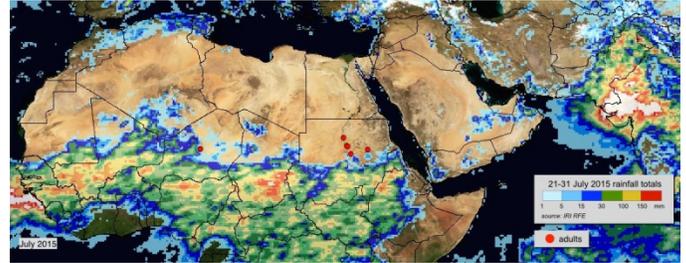
The **Asian migratory locust**, once a univoltin (a single generation per year) insect, recently began exhibiting two generations per year. These anomalous manifestations and phenomena, which are largely attributed to the change in the weather pattern and associated ecological shift, are a serious concern to farmers, rangeland managers, crop protection experts and others. Regular monitoring and documenting anomalous manifestations in pest behavior and habitats and timely reporting remain critical to help avoid and minimize potential damages to crops, pasture and subsequent negative impact on livelihoods of vulnerable communities and populations. **End note.**

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

SGR – Western Outbreak Region: The SGR situation remained calm in **Algeria, Chad, Libya, Mali, Mauritania, Morocco, Niger** and **Tunisia** during July (CNLA/Chad, CNLCP/Mali, CNLA/Mauritania, CNLAA/Morocco, CNLA/Niger, CNLA/Tunisia, NCDLC/Libya).

Forecast: Small-scale breeding is likely in summer breeding areas in **Chad, Mali, Mauritania** and **Niger** where the seasonal rains have begun (OFDA/AELGA, FAO-ECLO).

SGR (Desert Locust) – Central Outbreak Region: Surveys were not conducted and no locusts were reported in **Eritrea, Saudi Arabia, Yemen, Oman, Ethiopia, Somalia** or **Djibouti** and only a few isolated adults were detected in northern **Sudan** during this month (DLCO-EA, FAO-DLIS, LCC/Oman, PPD/Sudan).



Locust and weather map for July, FAO, 7/2015)

Forecast: Small-scale breeding is likely in the summer breeding areas in the interior of **Sudan** and western **Eritrea** during the forecast period (DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Sudan).

SGR - Eastern Outbreak Region: The SGR situation remained calm in **India** and **Pakistan** during July.

Forecast: Widespread and heavy rains fell on both sides of the summer breeding areas along the **Indo-Pakistan** borders. This will create favorable conditions for the SGR to breed and likely increase during the forecast period. Active surveillance and monitoring remain critical to assess population increases and determine the need for intervene in the coming months (FAO-DLIS, OFDA/AELGA).

Red (Nomadic) Locust (NSE): In July, NSE populations persisted in Ikuu and Norh Rukwa plains in **Tanzania**, in Buzi-Gorongosa and Dimba plains in **Mozambique** and in Kafue Flats in **Zambia**. Isolated populations were also reported in Lake Chilwa/Lake Chiuta plains that traverse bordering areas in **Malawi** and **Mozambique**. Dry weather coupled with continued vegetation burning forced locusts to further concentrate in patches of green vegetation (IRLCO-CSA).

Forecast: Small swarms will form and likely migrate and threaten cropping areas during the forecast period. IRLCO-CSA and MoAs from frontline member-states are encouraged to carry out regular surveillance and monitoring and institute preventive interventions as necessary (IRLCO-CSA, OFDA/AELGA).

Madagascar Migratory Locust (LMC):

No update was received at the time this report was compiled. However, limited scale locust activities likely persisted in some places.

Forecast: A few locusts will likely appear in a few places during the forecast period.

Note: A successful completion of the three year Malagasy locust campaign will depend on closing the gap of resources in time to ensure expedited launching of aerial survey and control operations and finish the job. The 2nd phase of the three-phase locust campaign began in September 2014 and is expected to be concluded in the second half of August, 2015. **End Note.**

Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC):

No update was received at the time this report was compiled.. Nevertheless, DMA is expected to have begun diminishing and CIT and LMI are likely to have continued further developing in several outbreak areas (OFDA/AELGA).

Forecast: CIT and LMI will likely continue further developing during the forecast period (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 land, pasture land and affect livelihoods of more than 20 million vulnerable rural 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 these three locust species are relatively new and lack the capacity to effectively prevent and control these pests (The once robust centralized pest control capacity in these countries disappeared with the downfall of the Soviet system leaving each country to fetch for itself).

Currently, USAID/OFDA is sponsoring project activities through the UN/FAO to help strengthen/build national and regional capacity to prevent and control the threats these notorious pests pose to the vulnerable 20 plus million people in these regions.

Timor and South Pacific: No update was received from East Timor during July, but ETOP presence is likely.

African Armyworm (AAW): AAW activities were absent in all outbreak areas in July (IRLCO-CSA, OFDA/AELGA).

Forecast: AAW situation will remain calm during the forecast period (IRLCO-CSA, OFDA/AELGA).

Quelea (QQU): QQU birds were reported attacking irrigated rice in Tana River County in **Kenya** in July. Preparations were underway by MoA/PHS and DLCO-EA to launch control operations. QQU activities were not reported in other countries during July (IRLCO-CSA).

Forecast: QQU birds will likely continue threatening irrigated crops in Tana, Busia, Siaya and Kisumu counties in **Kenya** and winter wheat in **Zimbabwe** in October when large flocks will appear. Regular monitoring, reporting and preventive interventions remain crucial to avoid any major crop damage (IRLCO-CSA, OFDA/AELGA).

Facts: QQU birds can travel ~100 km/day looking for 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.

Rodents: No reports were received during July, however, this pest is a constant threat to crops and produce and always requires active surveillance and preventive interventions to avoid any major threats (OFDA/AELGA).

Front-line countries must remain vigilant. Invasion countries should maintain regular monitoring. DLCO-EA, DLCCs, IRLCO-CSA, national PPDs, CNLAs, DPVs, ELOs, etc., are encouraged to continue sharing ETOP information with stakeholders as often and as early as possible. Lead farmers and community forecasters must remain vigilant and report ETOP detections to relevant authorities immediately.

Inventories of Pesticide Stocks for ETOP Control

Control operations were not carried out in July in all outbreak areas and pesticide inventories remained unchanged during this month.

Note: Some of the data on pesticide inventories provided in the following table are not necessarily current due delayed updates in some countries **End note.**

OFDA/AELGA encourages countries to continue exploring alternatives such as IPM to minimize and reduce risks associated with pesticide stockpiling. A judiciously executed triangulation of surplus stocks from countries with large inventories to countries where they are much needed is a win-win situation worth considering.

Note: A Sustainable Pesticide Stewardship (SPS)

can considerably 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 ultimately contribute to the national economy. An SPS can be effectively established by linking key stakeholders in neighbouring countries.

End note.

Table 1. ETOP Pesticide Inventory in Frontline Countries

Country	Quantity (l/kg) ^{\$}
Algeria	1,190,000~ ^D
Chad	43,400
Eritrea	-16,897~
Ethiopia	-3,975~
Libya	25,000~
Madagascar	206,000~
Mali	32,000 ^D
Mauritania	43,400
Morocco	3,757,000~ ^D
Niger	75,800
Oman	14,440
Senegal	156,000~ ^D
Sudan	632,718~
Tunisia	77,530
Yemen	22,000@ + 300 kg GM~

^{\$}Includes different kinds of pesticides in ULV, EC and dust formulations; ~ data not current; ^D = Morocco, Mauritania and Algeria donated/pledged 200,000, 25,000 l, and 30,000 l of pesticides to Madagascar in 2013; Mali donated 21,000 l for NSE to Malawi, Mozambique and Tanzania in 2012 and FAO facilitated the triangulation Mauritania donated 25,000 and

30,000 l of pesticides to Libya in 2012 and Madagascar in 2013; GM = *GreenMuscle*TM (fungal-based biological pesticide); @includes donations from Saudi Arabia

LIST OF ACRONYMS

AAW	<i>African armyworm (Spodoptera expempta)</i>	DLCO-EA	<i>Desert Locust Control Organization for Eastern Africa</i>
AELGA	<i>Assistance for Emergency Locust Grasshopper Abatement</i>	DMA	<i>Dociostaurus maroccanus</i>
AFCS	<i>Armyworm Forecasting and Control Services, Tanzania</i>	DPPOS	<i>Department of Plant Protection and Quarantine Services</i>
AfDB	<i>African Development Bank</i>	DPV	<i>Département Protection des Végétaux (Department of Plant Protection)</i>
AME	<i>Anacridium melanorhodon</i>	ELO	<i>EMPRES Liaison Officers</i>
APLC	<i>Australian Plague Locust Commission</i>	EMPRES	<i>Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases</i>
APLC	<i>Australian Plague Locust Commission</i>	ETOP	<i>Emergency Transboundary Outbreak Pest</i>
Bands	<i>groups of hoppers marching pretty much in the same direction</i>	Fledgling	<i>immature adult locust /grasshopper that has pretty much the same phenology as mature adults, but lacks fully developed reproductive organs to breed</i>
CAC	<i>Central Asia and the Caucasus</i>	GM	<i>GreenMuscle[®] (a fungal-based biopesticide)</i>
CBAMFEW	<i>Community-based armyworm monitoring, forecasting and early warning</i>	ha	<i>hectare (= 10,000 sq. meters, about 2.471 acres)</i>
CERF	<i>Central Emergency Response Fund</i>	IRIN	<i>Integrated Regional Information Networks</i>
CIT	<i>Calliptamus italicus</i>	IRLCO-CSA	<i>International Red Locust Control Organization for Central and Southern Africa</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>	ITCZ	<i>Inter-Tropical Convergence Zone</i>
CNLA(A)	<i>Centre National de Lutte Antiacridienne (National Locust Control Center)</i>	ITF	<i>Inter-Tropical Convergence Front = ITCZ)</i>
CRC	<i>Commission for Controlling Desert Locust in the Central Region</i>	FAO-DLIS	<i>Food and Agriculture Organizations' Desert Locust Information Service</i>
CTE	<i>Chortoicetes terminifera</i>	Hoppers	<i>young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)</i>
DDLC	<i>Department of Desert Locust Control</i>	Kg	<i>Kilogram (~2.2 pound)</i>
		L	<i>Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)</i>
		LMC	<i>Locusta migratoriacapito</i>
		LMM	<i>Locusta migratoria migratorioides</i>

	<i>(African Migratory Locust)</i>	UN	<i>the United Nations</i>
LPA	<i>Locustana pardalina</i>	ZEL	<i>Zonocerus elegans, the elegant grasshopper</i>
MoAFSC	<i>Ministry of Agriculture, Food Security and Cooperatives</i>	ZVA	<i>Zonocerus variegatus, the variegated grasshopper (This insect is emerging as a fairly new distractive dry season pest, largely due to the destruction of its natural habitat through deforestation, land clearing, for agricultural and other development efforts and from associated weather variability.)</i>
MoARD	<i>Ministry of Agriculture and Rural Development</i>		
NCDLC	<i>National Desert Locust Control, Libya</i>		
NOAA (US)	<i>National Oceanic and Aeronautic Administration</i>		
NSD	<i>Republic of North Sudan</i>		
NSE	<i>Nomadacris septemfasciata</i>		
OFDA	<i>Office of U.S. Foreign Disaster Assistance</i>		
PHD	<i>Plant Health Directorate</i>		
PHS	<i>Plant Health Services, MoA Tanzania</i>		
PPD	<i>Plant Protection Department</i>		
PPSD	<i>Plant Protection Services Division/Department</i>		
PRRSN	<i>Pesticide Risk Reduction through Stewardship Network</i>		
QU	<i>Quelea bird</i>		
SARCOF	<i>Southern Africa Region Climate Outlook Forum</i>		
SGR	<i>Schistoseca gregaria</i>		
SWAC	<i>South West Asia DL Commission Preparation, Strategic Planning and Mitigation (formerly Technical Assistance Group - TAG)</i>		
PSPM			
Triangulation	<i>The process whereby pesticides are donated by a country, with large inventories, but often no immediate need, to a country with immediate need with the help of a third party in the negotiation and shipments, etc. Usually FAO plays the third party role in the case of locust and other emergency cases.</i>		
USAID	<i>the Unites States Agency for International Development</i>		

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