

**Emergency Transboundary Outbreak
Pest (ETOP) Situation Report for May
with a Forecast till
Mid-July, 2014**

Summary

During May, several **Desert Locust (SGR¹)** swarms from northwestern **Somalia** invaded eastern **Ethiopia**. On May 14th, an immature swarm dominated the sky over the city of Addis Ababa, Ethiopia (see picture below). This is an extremely rare phenomenon that has not been in more than half a century. The swarm is believed to have escaped from eastern **Ethiopia** passing through the Rift Valley and crossing Awash where it destroyed a sugarcane plantation. No damage was reported in Addis and the swarm was later seen heading northwest and reached Gojjam.



A desert locust swarm over the city of Addis Ababa, Ethiopia, May 14, 2014, FAO-DLIS

More swarms from northeastern **Somalia** were reported reaching eastern **Ethiopia** during the last week of May and ground operations were launched against the swarms. Some swarms moved east along the **Somalia** plateau DLCO-EA, FAO-

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

DLIS).

In **Sudan**, solitary adults were detected in winter breeding areas in the River Nile State, Red Sea region and Northern State. Breeding is in progress in irrigated cropping areas along the Nile Valley. No locusts were reported in **Eritrea** during May (DLCO-EA²).

Hoppers and adult groups were reported controlled by air and ground in spring breeding areas in the interior of **Saudi Arabia**. In **Oman**, breeding continued and ground control operations treated hoppers and adult groups in northern part of the country near the border with **UAE**. Locusts were also controlled in UAE (FAO-DLIS, LCC/Oman).

The western outbreak region remained calm and only a few locust groups were controlled in irrigated cropping areas in central Sahara in **Algeria** during May.

Limited control operations were reported in southeastern **Iran**, but overall the situation remained calm (DPPQS/India, FAO-DLIS).

Forecast: Hopper bands and groups will appear in eastern **Ethiopia** where locust numbers will increase in the coming months. Swarms may also form in eastern **Somalia** and move to southwestern Asia and reach **Indo-Pakistan** borders. The eastern Red Sea region will experience calmness with locust numbers declining and some adults possibly moving west into the summer

² DLCO-EA member-countries = Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan, South Sudan, Tanzania, Uganda,

breeding areas in **Sudan**. Small-scale breeding is likely in areas of recent rain in parts of **Mali, Mauritania** and **Niger** during the forecast period, but significant developments are not likely.

Locusts from southeastern Iran and southwestern Pakistan will likely move to the summer breeding areas along the **Indo-Pakistan** borders and begin breeding in areas of recent rainfall (DPPQS/India, FAO-DLIS,).

OTHER ETOPS

Red (Nomadic) Locust (NSE): Large numbers of NSE populations were reported in the outbreak areas in **Tanzania, Malawi, Mozambique**, and **Zambia**. If left untreated, these swarms will migrate further and pose threats to crops.

Forecast: Vegetation burning in the outbreak areas will force locusts to further concentrate and form larger and denser swarms some of which may cross political boundaries and threaten food security in adjacent areas. (IRLCO-CSA).

The International Red Locust Control Organization for Central and Southern Africa (IRLCO-CSA) is appealing for resources to enable timely survey and control operations and avert serious damage to crops.

Madagascar Migratory Locust (LMC): A late received report indicated that more than 20 million ha have been reported surveyed. The current infestation areas span a 100 mile wide along the coastal strip from Morondava in the north to south Androka, excluding Mahafaly Plateau

(south of Toliara).

Forecast: Second generation swarms will further develop and appear in the interior of the country.

Aggressive surveillance, monitoring and timely preventive interventions remain imperative to avert any major crop damage in the coming months (DPV-FAO, OFDA/AELGA).

Moroccan (DMA), Italian (CIT), Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC): No update was received in May, but locusts are expected to continue developing in the region (OFDA/AELGA).

Forecast: DMA will further develop in most of the CAC outbreak areas and CIT will also continue developing in many places during the forecast period (OFDA/AELGA).

Tree locusts (*Anacridum* sps.): A Tree locust outbreak was reported in Turkana County in **Kenya**. Preparations to launch control operations were underway with assistance from FAO (DLCO-EA).

Tree locusts are known to cause substantial damage to fodder and commercial trees such as acacias that produce gum Arabic.

African Armyworm (AAW): AAW outbreaks were detected and controlled in **Ethiopia**. No outbreaks were reported elsewhere during this period (DLCO-EA, IRLCO-CSA).

Forecast: AAW outbreaks will likely occur in central and northern **Ethiopia**,

southern **Eritrea** and perhaps, parts of **Kenya** and **Tanzania** during the forecast period (IRLCO-CSA, DLCO-EA, OFDA/AELGA, PHS/Tanzania).

Quelea (QQU): QQU bird outbreaks were reported in southwestern **Ethiopia**, **Tanzania** and **Kenya** where control operations were being launched (DLCO-EA, IRLCO-CSA, OFDA/AELGA).

Forecast: QQU birds will likely remain a problem to small grain cereal growers. Active surveillance and timely reporting remain essential (DLCO-EA, IRLCO-CSA, OFDA/AELGA).

OFDA/TAG's Pest and Pesticide Monitoring, Reporting and Response unit (Assistance for Emergency Pest [Locust/Grasshopper] Abatement) will continue monitoring ETOP situations closely and issue alerts and monthly updates and advise as necessary. End summary

SGR frontline countries (FCs) in Sahel West Africa, namely **Chad**, **Mali**, **Mauritania**, and **Niger** have established autonomous national locust control units (CNLA) responsible for all SGR activities.

OFDA ETOP Activities and Impacts

- Contributions from OFDA and other donors enabled FAO to establish Pesticide Stock Management System (PSMS) in 50 countries around the globe. As a result, participating countries can now conduct regular inventories and make informed decisions to prevent unnecessary accumulations of obsolete stocks, avoid

costly disposal operations, ensure safety of their citizens and protect their shared environment.

- OFDA-sponsored, three year program on scaling up community-based armyworm monitoring, forecasting and early warning which was launched in FY 2013 is progressing well. The program aims at reducing the risk of armyworm threats to food security and livelihoods of rural communities and vulnerable populations. Activities are being coordinated by the DLCO-EA in collaboration with partners in Ethiopia, Kenya and Tanzania. Among partners' latest achievements is a successful launching of a mobile based information collection and transmission by local farmers. OFDA/TAG intends to expand this innovative technology to other armyworm affected districts and countries.

- OFDA continues its assistance to sustainable pesticide risk reduction initiatives through stewardship network (SPRRSN) programs by strengthening capacities of host-countries and partners to ensure safety of vulnerable populations and protect their assets and the shared environment against pesticide contamination. OFDA/TAG has successfully launched two sub-regional SPRRSNs in Eastern Africa and the Horn. The Horn of Africa SPRRSN initiative has created a "model" Association dubbed as Pesticide Stewardship Association-Ethiopia (PSA-E) which is viewed as a boiler plate for future initiatives. OFDA is considering expanding the SPRRSN initiatives to North Africa, West Africa, the Middle East, CAC and other regions.

- OFDA continued its support for capacity strengthening as part of its DRR programs through a cooperative agreement with FAO. This program assists countries to mitigate, prevent, and respond to ETOP outbreaks and reduce such emergencies. It also helps avoid misuse and mishandling of pesticides, pesticide-incorporated materials and application platforms.

- OFDA DRR program aimed to strengthening national and regional capacities for ETOP operations in Central Asia and the Caucasus (CAC) is in progress. The program focuses on improving national and regional capacities to better coordinate locust monitoring and reporting as well as launch joint plans for survey and prevention to minimize ETOP threats to food security and livelihoods of vulnerable populations.

Note: All ETOP SITREPs, including the current one can be accessed on our websites:

<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>

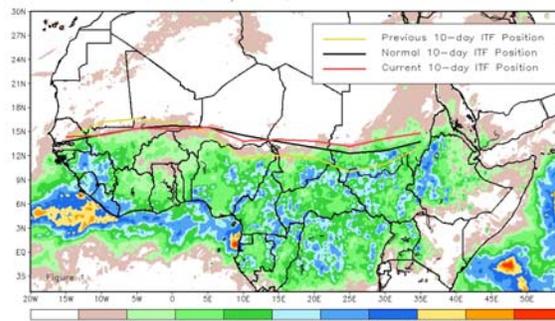
Detailed accounts of the weather, ETOP situation and forecast for the next six weeks are discussed hereafter.

Weather and ecological conditions:

From May 21-31, 2014, the ITF did not migrate much across western Africa and its mean western portion from 10W-10E was located at approximately 14.9 N, 0.2 degrees south of the mean climatological position and Although this was the second consecutive dekad that the ITF was located south of the

previous dekad's position, average to above average rain continued across much of West Africa. In the eastern portion (20E-35E) the ITF was located around 14.0 N, 1.1 degrees north of the mean climatological position and 2.6 degrees north of its position in the previous dekad (see dekad 3 map). of the previous dekad's position.

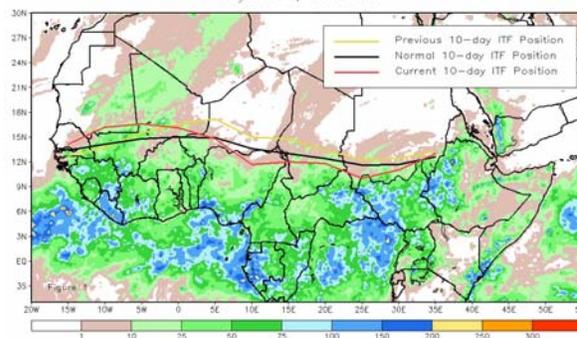
Current vs. Normal Dekadal ITF Position and RFE Accumulated Precipitation (mm)
May 2014, Dekad 3



The return of the ITF to the south helped push the ITF north and bring heavy rain to South Sudan and Sudan (NOAA).

During the second dekad of May, the ITF continued migrating northward and was positioned in both the West and Eastern portions of Africa (see Dekad 2 map).

Current vs. Normal Dekadal ITF Position and RFE Accumulated Precipitation (mm)
May 2014, Dekad 2

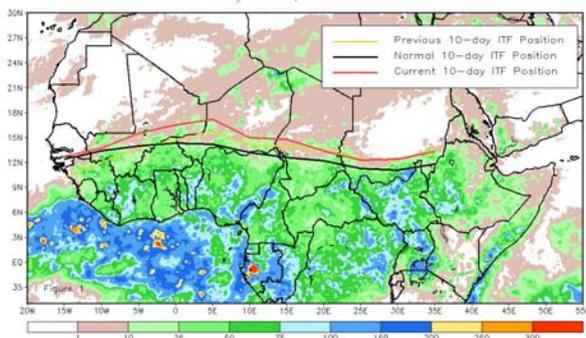


The mean western portion (10W-10E) of the ITF was located around 15.1 N, leading the climatological mean position over parts of Mali, but falling behind both the climatological mean and previous dekadal position over parts of Nigeria and Niger. The sharp southern slope of the ITF in the latter region was associated with strong anomalous

northerly winds, and dry air entrainment also causing reduced rainfall during the past dekad. The mean eastern portion of the ITF was approximately located at 11.4 N, and remained displaced to the south of both climatology and the previous dekadal position (NOAA, May 2014).

From 1-10 May, the ITF continued moving northward throughout many parts of western Africa. The mean western portion (10W-10E) of the ITF was located at around 15.6 N, nearly 2 degrees N of the climatological mean position of 13.8 N. The most northerly ITF position during this dekad was centered over Mali and Niger where increased rainfall and moist southerly winds were observed by ground reports and models in the region. In Sudan, winter season has come to an end for the most part and only moderate to heavy rain fell in Suwakin to Port Sudan in the Central Red Sea hills and northern and western parts of the Red Sea hills as well as in Sinkat and Samad in the summer breeding areas during the first dekad of May.

Current vs. Normal Dekadal ITF Position
and RFE Accumulated Precipitation (mm)
May 2014, Dekad 1



Vegetation was dry and only patched of green areas are present in a few places in Toker Delta and the southern parts of the Red Sea region during this period (PPD/Sudan).

Good rains fell in SGR breeding and invasion areas in the Horn of Africa and in the interior of **Saudi Arabia** during May. Low to moderate rains were reported in eastern **Ethiopia** and adjacent areas in northwestern **Somalia**. Heavy rainfall was reported in the highlands

and Ogaden regions of **Ethiopia**. In **Sudan**, moderate to heavy rain fell in Suwakin to Port Sudan in the Central, northern and western parts of the Red Sea hills as well as in Sinkat and Samad during the first dekad of May. Light to moderate rains were reported in parts of **Eritrea** and northern **Oman**, but vegetation remained dry in most places. Ecological conditions will likely improve during the forecast period in most of the areas that received moderate to good rains (DLCO-EA, FAO-DLIS, LCC/Oman).

Dry weather persisted in the **NSE** outbreak areas in **Tanzania**, **Malawi** and **Zambia** and vegetation was drying. Heavy rainfall was reported in Buzi-Gorongosa in **Mozambique** (unusual for May (IRLCO-CSA).

In **Madagascar** a late received report indicated reduced rainfall (0 to 5.3 mm) in the outbreak areas, in the South Bay, in the initial multiplication in Tanandava Tsivory, in the transitional multiplication areas in Amboahangy, Amboasary Tranomaro and condensation areas in Antaritrika, Erada, Marovato and False Cape during the 2nd dekad of April. The soil moisture reserves remained high in areas of high rainfall. Vegetation was mature and green with nearly 100% coverage. The height of the grasses ranged from 10 to 150 cm depending on the grass species and habitats. Prevailing winds are easterly in the outbreak and invasion areas (DPV-FAO).

Note: *Changes in the weather patterns contribute to ecological shift in ETOP habitats and can increase the risk of pest outbreaks, resurgence and even emergence of new pests.*

Moroccan locust in **Uzbekistan** has shown a considerable vertical habitat expansion by up to 1,000 feet or 300 meters from its normal development altitude. The **Asian migratory**

locust which was once known as *univoltin* (a single generation per year) in the recent past exhibited two generations per year. These phenomena are a serious concern to farmers' rangeland managers. Regular monitoring and timely reporting of anomalous manifestations in pest habitats and behavior remain essential. **End note.**

DETAILED ACCOUNTS OF ETOP SITUATION AND FORECASTS FOR THE NEXT SIX WEEKS

SGR - Western Outbreak Region: The SGR situation remained calm in spring breeding areas in the western outbreak region during May due largely to dry conditions. Only a few locust groups were controlled in 40 ha in irrigated cropping areas in central Sahara in **Algeria** during this month. Summer breeding areas in Sahel West Africa also remained calm (CNLA/Chad, CNLA/Mali, CNLA/Mauritania, CNLAA/Morocco, CNLA/Niger, FAO-DLIS, NCDLC/Libya).

Forecast: The locust situation will likely remain calm and significant developments are unlikely in the western outbreak region. Only some activities will likely occur in the northern parts of the summer breeding in the Sahel west Africa where rains fell. Hence, northern Mali, northern Niger and southeastern and central Mauritania may see small-scale locust activities (CNLA/Chad, CNLA/Mali, CNLA/Mauritania, CNLAA/Morocco, CNLA/Niger, FAO-DLIS, NCDLC/Libya).

SGR (Desert Locust) - Central Outbreak Region: Swarms were detected in several locations in eastern **Ethiopia** where aerial control operations by DLCO-EA and ground operations by MoA/Ethiopia treated 2,442 ha during this month (more than 5,020 ha have been treated since control operations commenced in April). On May 14th, an immature swarm was observed flying over the city of Addis Ababa, an extremely rare phenomenon. The swarm was believed to have escaped from eastern **Ethiopia** passing through

the Rift Valley and crossing the Awash region where it reported destroyed more than 2,000 ha (5,000 acres) of sugarcane plantation. The swarm later headed northwest. More swarms from northeastern **Somalia** were reported reaching eastern **Ethiopia** during the last week of May and ground control was launched during that time. Egg-laying and hopper development are underway in Shinile, Aysha and some areas adjacent to northwestern **Somalia** (DLCO-EA).

*Given the limited operational resources of the Desert Locust Control Organization for Eastern Africa (DLCO-EA) -- an organization exclusively funded by member-states and responsible for managing all major transboundary outbreak pests, namely locusts, armyworm, *Quelea* birds and *Tse-Tse* fly in the Horn and Eastern Africa -- aerial operations will likely stop in the coming weeks. If so, swarms will have a field day and continue to mature, breed further and become more threats to agriculture, farmers and pastoralists in the region. The Organization and its member-states need to take this situation more seriously and work on making the necessary resources available in time to launch surveillance and preventive control interventions. Vigilance and preventive control remain essential at all times (DLCO-EA).*



Maize plants destroyed by locust in Jijjiga, eastern Ethiopia, April 2014, Zana

*In **Sudan**, scattered mature/immature, solitary and gregarious adults and groups were reported in cropping areas near Berbar and Eddamer in River Nile State. Immature low density solitary adult locusts were detected in winter breeding areas in the Red Sea region and Northern State where*

surveys were carried out on more than 12,250 ha in the Red Sea and Northern States) during the 1st dekad of May. Aerial control treated some 786 ha during the second dekad of May (PPD/Sudan).

In **Oman**, groups of late instar hoppers were reported in northwestern part of the country during the first week of May and low density 2nd to 5th instar hoppers and mature and immature adults were detected in Safa (232901N554234E). A single adult was observed laying eggs in Sinaina (233239N 555158E) in Bureimi Region in northwestern part of the country on May 7th. As vegetation continued drying out in wadis and plains in Dhahera region, hoppers began invading cropping areas and formed small groups (5-25 m²). Ground control treated hopper bands and groups as well as adults on 4,960 ha during May (LCC/Oman). Locusts were also reported invading cropping areas in **UAE** where control operations treated 2,500 ha during this month.

Hoppers and adult groups were controlled in close to 16,500 ha spring breeding areas in the interior of **Saudi Arabia** in May. Vigilance and preventive interventions remain essential at all times (DLMCC/Yemen, FAO-DLIS).



SGR situation in May with a potential migration pattern during the coming months, FAO-DLIS, 6/2014

Forecast: Hopper groups and bands will form in eastern **Ethiopia** and **Somalia**. Breeding will continue in **Sudan** and some adults may arrive from **Saudi Arabia** and perhaps **Ethiopia**. Small adult groups will form in the interior **Saudi Arabia** and a few scattered adults may appear in the interior of **Yemen**. Adult groups and small swarms may form in **Oman** during the forecast

period. Some swarms from **Oman** and **Somalia** may move into summer breeding areas in **Indo-Pakistan** border (DLCO-EA, FAO-DLIS, PPD/Oman, PPD/Sudan).

Vigilance and active monitoring, reporting and preventive interventions remain essential to abate locust migration to neighboring countries (CRC, DLCO-EA, DLMCC/Yemen, FAO-DLIS, LCC/Oman, PPD/Sudan).

SGR - Eastern Outbreak Region: Control operations treated hoppers and adult in 2,400 ha in southeastern **Iran**, but overall the situation remained calm in the region during this month. No locusts were reported in southwestern **Pakistan** or **India** during this period (DPPQS/India, FAO-DLIS).

Forecast: Breeding will commence along both sides of the **Indo-Pakistan** border in areas of recent rainfall. Some swarms may also arrive from **Oman** and perhaps northeastern **Somalia** and begin breeding during the forecast period (DPPQS/India, FAO-DLIS)

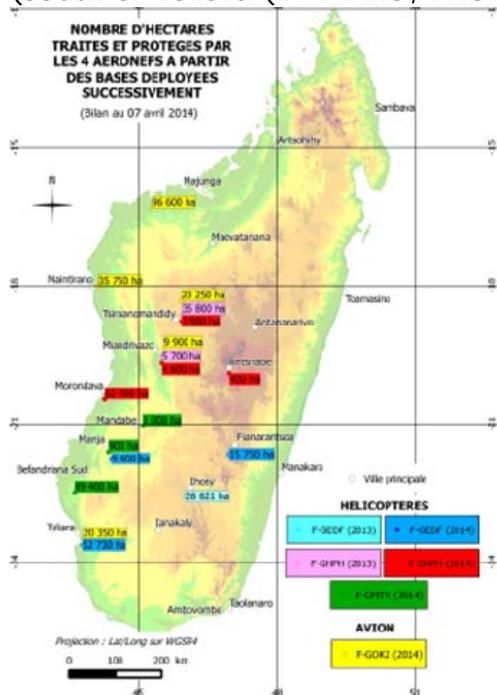
Red (Nomadic) Locust (NSE): Gregarious NSE populations continued infesting outbreak areas in Ikuu-Katavi, Malaragasi Basin, Wembere plains and Rukwa Valley in **Tanzania**, Buzi-Gorongosa and Dimba plains in **Mozambique** and Kafue Flats in **Zambia**. Many high-density (8-50 insects/m² = 80,000 to 500,000 insects/ha) on close to 7,000 ha (70 km²) were detected in **Malawi** during surveys carried out in Lake Chilwa plains in **Malawi** and **Mozambique** (IRLCO-CSA).

Forecast: Vegetation burning has begun in the NSE outbreak areas and will concentrate locusts and form dense and larger swarms. If left uncontrolled these swarms will migrate from the breeding areas and threaten cultivate crops. Swarms may also migrate further and cross political borders and threaten food security.

IRLCO-CSA has issued an alert and appealed for resources from its member-states (IRLCO-CSA³) and development partners to maintain aggressive and timely survey, monitoring and coordinated control operations in **Tanzania** (Ikuu-Katavi, Malagarasi Basin, Wembere and Rukwa Valley), Lake Chilwa plains in **Malawi** and **Mozambique** (Buzi-Gorongosa and Dimba plains) and **Zambia** (Kafue Flats). to avert any serious damage the pest could cause to crops and pasture and impact food security in the affected regions down the line.

Madagascar Migratory Locust (LMC): A late received report indicated that more than 20 million ha have been reported surveyed and close to 264,000 ha were reported treated and/or protected in just the first two dekads of April alone.

The current infestation areas span a 100 mile wide coastal strip, stretching from Morondava in the north to south Androka (near the mouth of the Linta River), excluding Mahafaly Plateau (south of Toliara (DPV-FAO, FAO-ECLLO).



³ IRLCO-CSA member-countries = Botswana, Kenya, Malawi, Mozambique, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe

Areas treated and/or protected by air thru May 7th, FAO-ECLLO

Control operations have treated and/or protected more than 867,280 ha since the current campaign began in September 2013 (238,785 ha were treated in just the 2nd dekad of April) (DPV-FAO, FAO-ECLLO).

Crop loss: A late received report indicated that during the 2nd dekad of April, locust Operational Air Base in Bemelo (Betioky district) reported 60% damage in a 160 ha corn field. Other sources also indicated that passing through swarms and locusts groups caused crop damage in Vakinankaratra and Itasy regions and Ivohibe, but more info was not available (DPV-FAO, FAO-ECLLO).

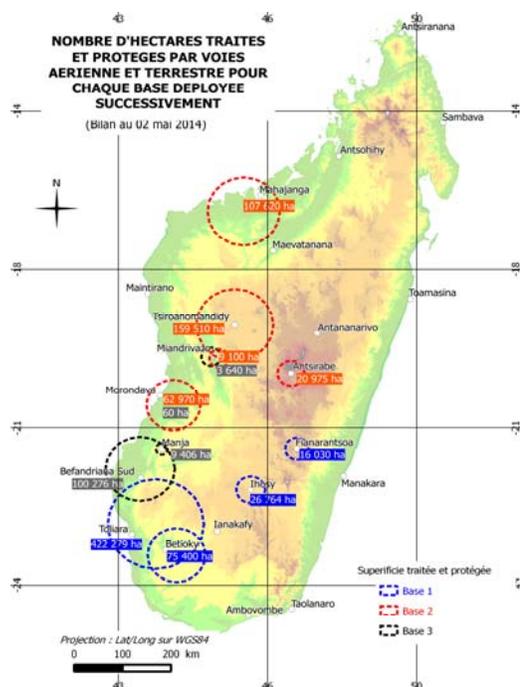
Resources: The three-year, \$43.9 million locust emergency and preventive program received an addition \$2 million from the government of Japan, bringing the total funds received to date to \$28.2 million. In addition, hundreds of thousands of liters of pesticides worth millions of dollars have been donated by Morocco, Mauritania and Algeria through pesticide triangulation.

Pesticides: As of 20 April, 2014, close 351,565 l/kg of pesticides (including 672 kg of GM) were reported available (details: 268,643 Chlorpyrifos 240 ULV; 43,850 l Nomolt 50 UL; 38,400 l Teflubenzuron 50 UL IGR and 672 kg GM (DPV-FAO).

Forecast: As the rainy season progressively comes to an end and the wind pattern is changing, the coastal areas will progressively dry out. As a result, swarms from the second generation will continue migrating towards the interior of the country.

For more detail, please, visit the following web:

<http://www.fao.org/emergencies/resources/documents/resources-detail/en/c/224857/>



Areas controlled and/or prevented by air and ground means thru May 2nd, FAO-ECLC

Moroccan (DMA), Italian (CIT), Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC): No update was received during May, but the locust situation is expected to have begun developing in several places during this period. DMA hoppers that hatched previously in Takhar, Kunduz, Samangan and Balkh provinces in northeastern **Afghanistan** in late March must have further developed and matured by now.



(Locust prone CAC countries, FAO)

Hatching and hopper formations are expected to have continued in **Tajikistan, Kazakhstan,**

Kyrgyzstan, Uzbekistan, Turkmenistan, Azerbaijan and Georgia. Control operations are expected to have begun/continued in areas of recent infestations. (OFDA/AELGA).

Forecast: Locusts will continue appearing in several places in CAC during the forecast period (FAO-ECLC, OFDA/AELGA).

Timor and South Pacific: No update was received from East Timor in May, but acridid activities may be in progress (OFDA/AELGA).

African Armyworm (AAW): Small-scale AAW outbreaks were detected and controlled in **Ethiopia** in May. AAW activities were not reported in other countries during this period (DLCO-EA, IRLCO-CSA).

Forecast: AAW activities will likely occur in central and northern **Ethiopia**, southern **Eritrea** and perhaps, **Kenya** and **Tanzania** during the forecast period (IRLCO-CSA, DLCO-EA, OFDA/AELGA, PHS/Tanzania).

Quelea (QQU): QQU bird outbreaks were reported in Konso region in southwestern of **Ethiopia**. Aerial control was launched using DLCO-EA spray aircraft controlled QQU colonies and roots on more than 460 ha in Bahi, Kongwa, Igunga, Ikungi, Singida and Hanang districts in **Tanzania**. Outbreaks were also reported in Siaya county in **Kenya** where control operations were expected to have commenced (DLCO-EA, IRLCO-CSA, OFDA/AELGA).

Forecast: QQU bird outbreaks will likely remain a problem to small grain cereal growers in parts of **Ethiopia** and continue in **Tanzania** and **Kenya**. The bird may also become a problem in **Zimbabwe**. Active surveillance and timely reporting are essential (DLCO-EA, IRLCO-CSA, OFDA/AELGA).

Facts: *QQU* birds can travel ~ 100 km/day looking for food. An adult *QQQU* bird can consume 3-5 g of grain and perhaps destroy the same amount each day. A *QQQU* colony can contain up to a million or more birds (very common) and is capable of consuming and destroying 6,000 to 10,000 kg of seeds/day, enough to feed 12,000-20,000 people for a day.

Rodents: No rodent outbreaks reports were received during May. However, rodents remain a constant threat to cereal and other crops and produces in many countries and require regular surveillance and preventive interventions (OFDA/AELGA).

Front-line countries are advised to remain vigilant. Invasion countries are cautioned to maintain regular monitoring. DLCO-EA, IRLCO-CSA, national PPDs, CNLAs, DPVs, ELOs, and others are encouraged to continue sharing ETOP information with partners and stakeholders as quickly and as often as available. Lead farmers and community forecasters are encouraged to remain vigilant and report any ETOP sightings to concerned authorities immediately.

Inventories of National Stocks of Acridid Pesticides

Pesticide inventory showed a minor change in April as few countries were engaged in limited control operations: Algeria (40 ha), Ethiopia (2,442 ha), Madagascar (263,385 ha); Sudan (786 ha), Oman (4,960), UAE (2,500 ha), Iran (2,400 ha), Saudi Arabia (16,448 ha),

Note: Some of the inventories shown below are not necessarily current, as many countries tend to their inventories after activities are concluded and/or use acridid pesticides for controlling other agricultural pests. **End note.**

If stored for a prolonged time, pesticides can become obsolete and pose serious threats to human health and the environment as well as become heavy financial burdens. Therefore, ETOP countries with large inventories and less

likely to use them within a reasonable time period, are encouraged to test their stocks regularly and determine whether they should use, retain, share or safely discard them.

With the support from USAID/OFDA, Japan, the Netherlands and other donors, FAO has been able to install a web-based tracking system – Pesticide Stock Management System (PSMS) - in more than 50 countries around the globe. The System has enabled dozens of countries to identify stocks that require testing, or put to an immediate use, or shared or promptly disposed.

OFDA/AELGA encourages countries to continue exploring alternative options to prevent risks associated with pesticide stockpiling. OFDA promotes IPM as an alternative at all times. A judiciously executed triangulation of usable stocks from countries with large inventories to where they are much needed is a win-win situation worth considering.

Note: *The core message of sustainable Pesticide Stewardship Program is to strengthen the national and regional pesticide delivery systems by linking partners at different levels to help reduce pesticide related health risks as well as minimize and prevent environmental pollution, and thereby improve food security and ultimately contribute to the national and regional economy.* **End note.**

Estimated Quantities of pesticides available for ETOP operations in frontline countries

Country	Quantities I/kg ^{\$}
Afghanistan	~
Algeria	1,190,000~ ^D
Chad	43,400
Eritrea	-9,885~
Egypt	Data not available
Ethiopia	-1,442~
Libya	25,000
Madagascar	351,565~
Mali	32,000 ^D
Mauritania	49,000 ^D

Morocco	3,757,000~ ^D
Niger	42,805~
Oman	14,440
Senegal	156,000~ ^D
Saudi Arabia	Data not available
Sudan	773,214~
Tunisia	36,575~
Yemen	22,000@ + 300 kg GM~
<p>[§]Include 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 2013; GM = <i>GreenMuscle</i>TM (fungal-based biological pesticide); @includes donations from Saudi Arabia</p>	

	<i>Desert Locust Control in the Western Region)</i>
CNLA/CNLAA	<i>Centre National de Lutte Antiacridienne (National Locust Control Center)</i>
CRC	<i>Commission for Controlling Desert Locust in the Central Region</i>
CTE	<i>Chortoicetes terminifera</i>
DDLC	<i>Department of Desert Locust Control</i>
DLCO-EA	<i>Desert Locust Control Organization for Eastern Africa</i>
DMA	<i>Dociostaurus maroccanus</i>
DPPQS	<i>Department of Plant Protection and Quarantine Services</i>
DPV	<i>Département Protection des Végétaux (Department of Plant Protection)</i>
ELO	<i>EMPRES Liaison Officers</i>
EMPRES	<i>Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases</i>
ETOP	<i>Emergency Transboundary Outbreak Pest</i>
Fledgling	<i>immature adult locust /grasshopper that has pretty much the same phenology as mature adults, but lacks fully developed reproductive organs and hence cannot breed</i>
GM	<i>Green Muscle (a fungal-based biopesticide)</i>
ha	<i>hectare (= 10,000 sq. meters, about 2.471 acres)</i>
	<i>Integrated Regional Information Networks</i>
IRLCO-CSA	<i>International Red Locust Control Organization for Central and Southern Africa</i>
ITCZ	<i>Inter-Tropical Convergence Zone</i>
ITF	<i>Inter-Tropical Convergence Front = ITCZ)</i>
FAO-DLIS	<i>Food and Agriculture Organizations' Desert Locust Information Service</i>

LIST OF ACRONYMS

AAW	<i>African armyworm (Spodoptera expempta - SEX)</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</i>
APLC	<i>Australian Plague Locust Commission</i>
APLC	<i>Australian Plague Locust Commission</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</i>
CLCPRO	<i>Commission de Lutte Contre le Criquet Pèlerin dans la Région Occidentale (Commission for the</i>

Hoppers	young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)
Hopper bands	groups of hoppers aggregated and marching in unison and pretty much in the same direction
Kg	Kilogram (~2.2 pound)
L	Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)
LMC	<i>Locusta migratoriacapito</i>
LMM	<i>Locusta migratoria migratorioides</i> (African Migratory Locust)
LPA	<i>Locustana pardalina</i>
MoAFSC	Ministry of Agriculture, Food Security and Cooperatives
MoARD	Ministry of Agriculture and Rural Development
NCDLC	National Desert Locust Control, Libya
NOAA	National Oceanic and Aeronautic Administration
NSD	Republic of North Sudan
NSE	<i>Nomadacris septemfasciata</i>
OFDA	Office of U.S. Foreign Disaster Assistance
PHD	Plant Health Directorate
PHS	Plant Health Services, MoA Tanzania
PPD	Plant Protection Department
PPSD	Plant Protection Services Division/Department
PRRSN	Pesticide Risk Reduction through Stewardship Network
QQQU	QQUelea QQUelea
SARCOF	Southern Africa Region Climate Outlook Forum
SGR	<i>Schistoseca gregaria</i>
SWAC	South West Asia DL Commission
TAG	Technical Assistance Group
Triangulation	The process whereby pesticides are donated by a country or countries, with large inventories with no immediate need, to a country or countries with dire need and a third party steps into the negotiation table and assists with shipments, etc. Usually FAO plays the third party role.

USAID	Unites States Agency for International Development
UN	the United Nations
ZEL	<i>Zonocerus elegans</i> , the elegant grasshopper
ZVA	<i>Zonocerus variegatus</i> , the variegated grasshopper; this insect is believed to be emerging as a fairly new distractive dry season pest, largely due to the clearing of its natural habitat through deforestation, i.e. land clearing for agricultural and other development efforts.

Who to Contact:

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