

**Emergency Transboundary Outbreak Pests (ETOPs) Situation for May with
a forecast through mid-July 2018**
résumé en français est inclus

SUMMARY

The **Desert Locust** (*Schistoseca gregaria* - **SGR**¹) situation remained calm in the western (WOR), central (COR) and eastern (EOR) outbreak regions in May and only a few solitary adults and hoppers were treated near irrigated areas in Algeria.

Forecast: SGR situation will likely remain calm in WOR and only a few solitary adults will likely appear in southeastern Mauritania, northern Mali and Niger. A few adults may appear in the interior of Sudan in COR and along the Indo-Pakistan borders in EOR during the forecast period. *Heavy rain and floods from cyclones Sagar and Mekunu in the Horn of Africa and southern Arabia will likely create favorable conditions for SGR to develop.*

Red (Nomadic) Locust (*Nomadacris septemfasciata*) (**NSE**): NSE continued to concentrate and form groups in Malawi, Mozambique, Tanzania and Zambia during May. As vegetation burning intensifies, NSE will further concentrate, form swarms and migrate to cropping areas and cause damage.

Central American Locust, *Schistocerca piceifrons piceiferons* (CAL/SPI): Mating and egg laying is expected to have begun in the Yucatan Peninsula in Mexico and in León, Nicaragua following the seasonal rains. *CAL/SPI is native to the tropical Central and South America and belongs to the same genus as SGR.*

South American Locust, *Schistocerca cancellata* (SCA): SCA outbreaks are usually reported in Argentina, Bolivia, and Paraguay during the warmer seasons. The current winter season will likely allow locusts to further develop and cause population increase.

Italian (CIT), Moroccan (DMA), and the Asian Migratory Locusts (LMI): DMA is expected to have begun hatching primarily in Central Asia and parts of the Caucasus. DMA and CIT will further develop during the forecast period and *active surveillance and timely preventive interventions remain essential.*

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

Fall Armyworm (*Spodoptera frugiperda*) (FAW): FAW continued being a problem to maize and other cereal crops in eastern, central and parts of southern Africa in May (refer to pages 9-10 for additional information).

African Armyworm (AAW) (*Spodoptera exempta*): AAW outbreak was not reported during May, however the pest will likely appear in Eastern Africa and the Horn region during the forecast period.

Southern Armyworm (*Spodoptera eridania*) (SAW), a pest native to the Americas and common in southern USA to Argentina poses a serious threat to European agriculture. So far, the pest has not been detected in Africa, however, it is suspected to be present in the southern and the central parts of the continent.

Quelea birds (QQU): QQU outbreaks were reported attacking small grain crops in several countries in **Kenya**, in a few regions in **Tanzania** and in Matebeleland Province in **Zimbabwe** during May. Control operations are being implemented in all countries.

Active surveillance, monitoring, reporting and timely preventive interventions remain critical at all times to abate the threats ETOPs pose to crops and pasture.

*USAID/OFDA/PSPM monitors ETOPs regularly in close collaboration with its network of national PPDs/DPVs, regional and international pest monitoring and/or control entities, including FAO, CLCPRO, CRC, DLCO-EA, and IRLCO-CSA, as well as Agency partners, and NGOs and provides timely analytical bulletins and reports to stakeholders across the globe. **End summary***

RÉSUMÉ

La situation du Criquet pèlerin (*Schistoseca gregaria* - SGR) est restée calme dans les régions ouest (WOR), centrale (COR) et orientale (EOR) et seuls quelques adultes et larves solitaires ont été contrôlés près des zones irriguées en Algérie en mai.

Prévoir: La situation du SGR devrait rester calme dans WOR et seuls quelques ailés solitaires apparaîtront probablement dans le sud-est de la Mauritanie, le nord du Mali et le Niger. Quelques ailés peuvent apparaître à l'intérieur du Soudan dans le COR et le long des frontières indo-pakistanaïses dans la région d'EOR au cours de la période de prévision. Les fortes pluies et les inondations provoquées par les cyclones Sagar et Mekunu dans la Corne de l'Afrique et dans le sud de l'Arabie créeront probablement des conditions favorables au développement du SGR.

Criquet nomade rouge (Nomadacris septemfasciata) (NSE): Les NSE ont continué à se concentrer et à former des groupes au Malawi, au Mozambique, en Tanzanie et en Zambie en mai. À mesure que la végétation s'intensifie, l'ESN se concentrera davantage et formera des essaims et migrera vers les zones de culture et causera des dommages.

Criquet Amérique centrale, Schistocerca piceifrons piceiferons (CAL): CAL / SPI: L'accouplement et la ponte devraient avoir commencé dans la péninsule du Yucatan au Mexique et à León, au Nicaragua, à la suite des pluies saisonnières. SPI est originaire de l'Amérique centrale et du Sud appartient au même genre que SGR.

Criquet d'Amérique du Sud, Schistocerca cancellata (SCA): Les éclosions de SCA sont habituellement signalées en Argentine, en Bolivie et au Paraguay durant les saisons de réchauffement. La saison hivernale actuelle permettra probablement aux criquets de se développer davantage et de provoquer une augmentation de la population.

Criquets italiens (CIT), marocains (DMA), Asian Migratory Locust (LMI): le DMA devrait avoir commencé à éclore principalement en Asie centrale et dans certaines parties du Caucase. Le DMA et le CIT se développeront davantage au cours de la période de prévision et une surveillance active et des interventions préventives opportunes restent essentielles.

Chenille Légionnaire d'automne (Spodoptera frugiperda) (FAW): Le FAW a continué à être un problème pour le maïs et d'autres cultures céréalières dans l'est, le centre et certaines parties de l'Afrique australe en mai (voir pages 9-10 pour plus d'informations).

Chenille Légionnaire africaine (AAW) (Spodoptera exempta): L'épidémie d'AAW n'a pas été signalée en mai, mais l'organisme nuisible apparaîtra probablement en Afrique de l'Est et dans la région de Horn pendant la période de prévision.

La chenille légionnaire du Sud (Spodoptera eridania) (SAW), un ravageur indigène des Amériques et commun dans le sud des États-Unis à l'Argentine, constitue une menace sérieuse pour l'agriculture européenne. Jusqu'à présent, le ravageur n'a pas été détecté en Afrique, cependant, il est soupçonné d'être présent dans le sud et le centre du continent.

Quelea birds (QQU): Des épidémies de QQU ont été signalées dans plusieurs pays du Kenya, dans quelques régions de Tanzanie et dans la province de Matebeleland au Zimbabwe en mai. Des opérations de contrôle sont en cours dans tous les pays.

La surveillance active, la surveillance, les rapports et les interventions préventives opportunes restent critiques à tout moment pour réduire les menaces que les ETOP font peser sur les cultures et les pâturages.

L'USAID / OFDA / PSPM surveille régulièrement les ETOP en étroite collaboration avec son réseau de PPV / DPV nationaux, d'organismes de contrôle et / ou de lutte antiparasitaire régionaux et internationaux, y compris la FAO, la CLCPRO, CRC, DLCO-EA et IRLCO-CSA, ainsi que des partenaires de l'Agence et des ONG. et fournit des bulletins analytiques et des rapports opportuns aux parties prenantes à travers le monde. **Résumé de fin**

OFDA's Contributions to ETOP Abatement Interventions

USAID/OFDA co-sponsored FAW disaster risk reduction project is being implemented by a consortium composed of the Center for Agriculture and Biosciences International (CABI), the Desert Locust Control Organization for Eastern Africa (DLCO-EA), International Center for Insect Physiology and Ecology (ICIPE) and National MinAgri and other partners and led by FAOSFE. The project has conducted national level ToTs and trained several dozen officers/staff in Tanzania, Ethiopia, Kenya and Rwanda, Uganda and Burundi and launched district level meetings for stakeholders involving more than 600 villages in 300 villages in 30 districts. The OFDA-BFS co-funded FAW Field manual:

https://feedthefuture.gov/sites/FallArmyworm_IPM_Guide_forAfrica.pdf and FAO's FAW IPM Manual for FFS.

Pheromone traps have been issued to all participating countries and mobile phones have been distributed to some countries and will be distributed to others in due course. The mobile apparatus will utilize the application that has been developed by FAO.

CABI (Nairobi) has drafted a field manual for community training on FAW. The Manual has been under review for design layout format and audience-specific content validation. It focuses on district

officers, extension staff and rural communities.

OFDA/PSPM is working with interested parties to explore means and ways to expand innovative technologies to AAW affected countries to contribute to food security 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 avoid potentially threatening pesticide related contaminations and improve safety of vulnerable populations and their shared environment remain high on the agenda.

The online Pesticide Stock Management System (PSMS) that was developed by the UN/FAO with financial assistance from USAID/OFDA and other partners continues benefiting participating countries across the globe. Thanks to this tool, ETOP-prone countries and others have been able to avoid unnecessary procurements and stockpiling of pesticides. This practice has significantly contributed to minimize and avoid costly disposal operations and improved safety and well-being of their citizens and the shared environment.

USAID/OFDA-sponsored FAO implemented DRR projects has been strengthening national and regional capacity for emergency locust control and prevention and helped tens of millions of

farmers, pastoralists across Sahel West Africa, Northwest Africa, Eastern and Northeastern Africa, Caucasus and Central Asia (CAC), and the Middle East.

The projects created, enhanced, and facilitated collaborations among neighboring countries for joint monitoring, surveillance, information sharing and technical support. The projects supported several dozen training on ETOP monitoring and control. Thanks to these and other similar efforts, potentially serious locust outbreaks and invasions had been abated several times in many countries across the primary outbreak regions for more than a decade

The **USAID/OFDA-FAO-DLCO-EA** sponsored Horn of Africa emergency desert locust management project is progressing well. Technical and material supports that have been provided to participating frontline countries and DLCO-EA are strengthening the capacity to better monitor, report, prevent, and abate locusts in the sub-region.

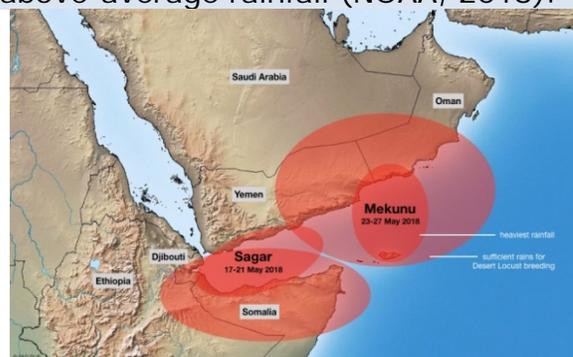
Note: ETOP SITREPs can be accessed on USAID Pest and Pesticide Management website: <https://www.usaid.gov/what-we-do/working-crises-and-conflict/responding-times-crisis/how-we-do-it/humanitarian-sectors/agriculture-and-food-security/pest-and-pesticide-monitoring>

Weather and Ecological Conditions

In **WOR** ecological conditions remained largely dry and unfavorable except in the surroundings of irrigated areas in the Haggar wadi in Algeria and very limited areas in the Ziz and Ghris Valley and southeastern Morocco in May. During the past 30 days, parts of southern Mali

received below-average rainfall. In contrast parts of Burkina Faso and western Niger had above-average rainfall during this time (CNLA/Mali, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, FAO-DLIS, INPV/Algeria, NLCC/Libya, NOAA).

COR – during the past 30 days, local areas in South Sudan, Uganda, portions of Ethiopia, and local areas in Kenya and Somalia had below-average rainfall. In contrast, parts of southern Sudan, South Sudan, parts of Kenya, western Ethiopia, and parts of southern Somalia received above-average rainfall (NOAA, 2018).



Cyclones Mekuru (12-21 May, 2018) and Sagara (22-27 May, 2018) (source FAO-DLIS)

EOR: Light rain was reported in spring breeding areas in western Pakistan bordering areas in southeastern Iran during the 2nd dekad of April (FAO-DLIS).

Weather Forecast - 5-11 May, 2018: There is an increased chance for above-average rainfall over parts of Guinea-Conakry, Sierra Leone, and Liberia; below-average rainfall over parts of Ghana, Togo, Benin, and western Nigeria; an increased chance for below-average rainfall over parts of DRC, northern Congo-Brazzaville, and Central African Republic; an increased chance for above-average rainfall over parts of South Sudan Republic, Uganda, western Kenya, and western Ethiopia. There is an

increased chance for above-average rainfall over much of Guinea-Conakry, Sierra Leone and parts of Liberia. From 12-18 May, an increased chance for below-average rainfall over parts of Congo-Brazzaville and DRC and an increased chance for above-average rainfall over eastern South Sudan, northern Uganda, northwestern Kenya and Ethiopia is likely (NOAA).

NSE Outbreak Regions: Generally dry weather conditions will light rains in a few places persisted in the NSE outbreak areas except local areas in Tanzania that received above-average rainfall during May. Rainfall has begun tapering off in most outbreak areas signaling the end of the rainy season for the year most of the primary breeding areas (IRLCO-CSA, NOAA).

Note: *Combinations of precipitation, warm weather and green vegetation MUST be closely watched as this mix coupled with the seasonal wind trajectory can favor, breeding and facilitate migration and further spread of migratory pests. End note.*

Note: *Changes in the weather pattern and increased 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 ambient altitude due to warmer higher elevations.*

The Asian migratory locust, an insect that normally breeds once a year, has begun exhibiting two generations per year. These anomalies which are largely

attributed to the change in the weather patterns and associated ecological shift are serious concerns to farmers, rangeland managers, crop protection experts, development and humanitarian partners, etc. Regular monitoring, documenting and reporting anomalous manifestations in pest behavior and on habitat shifts remain critical to help avoid/minimize potential damage to crops, pasture and livestock and reduce subsequent negative impacts on food security and livelihoods of vulnerable populations and communities.

http://www.cpc.ncep.noaa.gov/products/international/casia/casia_hazard.pdf

End note.

Detailed Accounts of ETOP Situation and a Forecast for the Next Six Weeks are provided below

SGR – WOR: The SGR situation remained generally calm in WOR. In **Algeria** 3 survey and control teams were deployed to Adrar, Tamanrasset and Illizi wilayas during May and detected and controlled mature and immature hoppers and adults on 228 ha near irrigated areas in Adrar in central Algeria during this month. No surveys were conducted or no locusts were reported in Chad, Libya, Mali, Mauritania, Morocco, or Tunisia or in other countries in WOR during May (CNLA/Chad, CNLA/Mali, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, FAO-DLIS, INPV/Algeria, NCDLC/Libya).

Forecast: The SGR situation will likely remain calm in WOR and only a few solitary adults from spring breeding areas will appear in summer breeding areas in southeastern Mauritania, northern Mali and Niger, but significant developments are not expected during the forecast

period (CNLA/Chad, CNLA/Mali, NLCC/Libya, CNLA/Mauritania, CNLAA/Morocco, CNLA/Tunisia, INPV/Algeria).

SGR (Desert Locust) - COR: No locusts were detected during surveys in North and South Al Batinah, Musandam, Al Bureimi and Al Dakhlyia in **Oman**, only a few solitary adults were detected in southern coast of **Yemen** and no locusts were reported in Djibouti, Ethiopia, Somalia, Eritrea or Egypt during May (DLMCC/Yemen, FAO-DLIS, LCC/Oman).

Forecast: In COR, a few solitary adults will likely appear in the interior of Sudan, and in areas where heavy rains and floods from cyclones Sagar and [Mekunu](#) occurred in southern coast of Yemen, Oman, northeastern Somalia and Saudi Arabia in May and likely create favorable conditions and cause locusts to breed during the forecast period (DLMCC/Yemen, FAO-DLIS, LCC/Oman).

SGR - EOR: The SGR situation remained calm in EOR during May and only isolated solitary adults were detected in the southern coast of Iran (FAO-DLIS).

Forecast: Low numbers of solitary adults will likely appear in summer breeding areas along the Indo-Pakistan borders during the forecast period.

Active monitoring, timely reporting and preventive interventions remain critical to abate any major developments that could pose serious threats to crops and pasture in areas where locust activities are present.

*The **USAID/OFDA-FAO-DLCO-EA** sponsored Horn of Africa emergency desert locust management project is in*

progressing. Technical and material supports that have been provided to participating frontline countries and/or DLCO-EA are strengthening the capacity to better monitor, report, prevent, and abate locusts in the sub-region.

Red (Nomadic) Locust (NSE):

Vegetation burning continued forcing NSE populations to concentrate and form groups in Lake Chilwa/Lake Chiuta plains in Malawi and Mozambique. Swarms are expected to have started forming in Ikuu-Katavi plains, Malagarasi Basin and Rukwa plains in **Tanzania**; Buzi Gorongosa and Dimba plains in **Mozambique** and in Kafue Flats in **Zambia**. MoA staff and Community Locust Monitoring Groups continued reporting high density adult populations in Lake Chilwa/Lake Chiuta plains and locusts continued being sold on the market near the outbreak areas in **Malawi** during May (IRLCO-CSA).

Forecast: Vegetation burning will continue forcing locusts to further concentrate and form larger and denser populations and swarms. If left uncontrolled locusts will escape from the outbreak areas and cause damage to crops and pasture in adjacent regions. IRLCO-CSA is coordinating with MoA in the region to carry out [aerial] surveys to assess locust situation and launch control as necessary (IRLCO-CSA, OFDA/AELGA).

Given the significance of the NSE to food security and livelihoods of vulnerable populations, IRLCO-CSA continues appealing to its member-states to avail resource for early detection and timely control in the pest's primary outbreak areas.

Schistocerca piceifrons piceifrons -

Central American Locust (SPI): During May SPI is expected to have begun mating following the beginning of the seasonal rains that usually begin in late April into May and cause the soil to become ideal for oviposition.



Mating adult CAL in Yucatan, Mexico (photo courtesy: Marion Poot, 2018)

Forecast: First generation hoppers will begin appearing in the Yucatan Peninsula in **Mexico** and in León, **Nicaragua** during the forecast period and continue developing in the region.



Adult CAL basking in the morning sun in Yucatan Mexico (photo courtesy: Mario Poot, 2018)

Note: SPI CAL belongs to the same genus as the Desert Locust and it is native to the Central and South America. It is an important pest in the tropical

regions of the Americas. It is found in Belize, México, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panamá. The Pest is bi-voltine - has two generations per year. Outbreaks often occur in the Yucatán Peninsula every 4 years, probably this year the locust may appear in higher density due to favorable ecological conditions. National entities routinely monitor the pest. The Federal and State Governments coordinate with farmers to prevent increased population build ups. In addition, training and other supports are also provided through OIRSA – the Regional office of the International Organization for Animal and Plant Health (Mario Poot).

South American Locust, *Schistocerca*

cancellata (SCA): SCA outbreaks are usually reported in Argentina, Bolivia, Paraguay during the summer/warmer seasons. Currently the SCA situation is relatively calm, however, due to a potentially warmer winter season it is likely that locust population will increase during the forecast period.



(File photo of SAL swarm in Chaco, Argentina July 2017 (Medina)).

Italian (CIT), Moroccan (DMA) and Migratory (LMI) Locusts in Central Asia and the Caucasus (CAC): No update was received from CAC at the time this bulletin was prepared, however, DMA is expected to have begun hatching

primarily in Central Asia and parts of the Caucasus Azerbaijan and Georgia.

Forecast: DMA hoppers will continue appearing and maturing in several countries - Afghanistan, Azerbaijan, Georgia, Tajikistan, Turkmenistan and Uzbekistan during the forecast period. CIT will also begin appearing in a number of countries during the forecast period.

Tree locust: *Anacridium spp.* outbreak was reported in Isiolo County in Kenya during May. Surveys planning for control were in progress at the time this bulletin was compiled (IRLCO-CSA).

Fall armyworm (FAW) (*S. frugiperda*)

FAW continued being a problem to maize and other cereal crops in eastern, central and parts of southern Africa. The pest may be present in irrigated crops in other regions as well during this period.



A perfect biometrics image of FAW larva (File photo KSU)

In **Kenya**, FAW outbreaks were reported in Kericho, Nyeri, Embu, Nakuru and Meru Counties attacking early planted maize. In **Tanzania**, FAW was reported in the northern region where maize crops are attacked and control is being effected by the affected farmers with technical and material assistance from the MinAgri. Awareness raising among farmers and

rural communities continued through the CBFAMFEW and PHS (IRLCO-CSA, PHS/Tanzania). Control operations were launched by the affected farmers during May (PHS/Tanzania). In **Uganda**, FAW was reported in western and northeastern parts of the country, including Busoga and Karamoja during May. Late planted maize crops were the most affected during this time. MinAgri is providing technical and material and material assistance to the affected farmers and intensifying information dissemination and training. In **Ethiopia**, the pest was reported in hundreds of districts in seven administrative regions where thousands of ha of maize crops have been reported affected (PPD/Ethiopia). In **South Sudan**, the pest was reported affecting maize crops in several states.



FAW larvae attacking maize plant (source: FAO South Sudan, 3/2018)

In **Madagascar**, FAW was reported in maize fields in Betsioky and Bekily and other parts of the country in March 2018 and by May it had reached 14 regions. MinAgri and FAO launched awareness raising sessions through the mass media and field visits to sensitize farmers and provided training on how to safely and effectively protect crops against FAW. It was also reported in maize fields and other irrigated crops in Zimbabwe, and Zambia.

Forecast: FAW will continue being a threat to irrigated and rain-fed maize and other crops across several regions in Africa during the forecast period. This has become more evident in countries with bimodal rainfall patterns and where continued irrigations allow uninterrupted presence of favorable host plants for the pest's survival and perpetual breeding and cause damage to crops.

As of May 2018, FAW has been reported in all of sub-Saharan African countries, but Eritrea, Lesotho, Mauritius and Seychelles (FAO).

Active surveillance and timely reporting and interventions remain critical.

The need to develop safer and ecologically sustainable, economically sound and socially acceptable IPM based management interventions and assessment tools remain critical.

FAOSFE is providing support to SSD and Somalia through country specific FAO Trust Fund projects and other means (Japan funded FAW project, etc.).
<https://reliefweb.int/report/uganda/uganda-food-security-outlook-update-october-2017-january-2018>

Additional info sources on FAW

Armyworm Network: A web resource for armyworm in Africa and their biological control:
<http://www.lancaster.ac.uk/armyworm/>

Latest African and Fall Armyworm Forecast from IRLCO-CSA - 5th Jul 2017:
http://www.lancaster.ac.uk/armyworm/forecasts/?article_id=002971

Invasive Species Compendium Datasheets, maps, images, abstracts and full text on invasive species of the world:
<http://www.cabi.org/isc/datasheet/29810>

Drought and armyworm threaten Africa's food security:
<http://www.theeastafrican.co.ke/news/Drought-and-armyworm-threaten-Africa-food-security/2558-3996692-ggws8q/index.html>

<http://www.fao.org/food-chain-crisis/how-we-work/plant-protection/fallarmyworm/en/>
<https://fallarmywormtech.challenges.org/>
http://www.fao.org/fileadmin/templates/fcc/map/map_of_affected_areas/Fall_Arm_yworm_brief_-_15Dec2017_.pdf

FAO Food Chain Crisis Early Warning Bulletin for January, 2018:
<http://www.fao.org/3/I8520EN/i8520en.PDF>

FAO FAWRisk-Map has been developed to provide information on the risk of household food insecurity due to FAW across Africa (see below)
<http://www.fao.org/emergencies/resources/maps/detail/en/c/1110178/>

USAID issued prize for mobile technology to detect and help monitoring of FAW has attracted 225 applicant of which some 20 will be shortlisted for collaborative operations
<https://feedthefuture.gov/lp/partnering-combat-fall-armyworm-africa>

African Armyworm (AAW): AAW season had ended in the southern outbreak region and outbreaks were reported in the central region in May. **Forecast:** AAW outbreak will likely appear during the forecast period and likely cause damage to crops in the

central northern outbreak areas in Tanzania and Kenya and perhaps southern Ethiopia where seasonal rains have been reported.

Trap operators are advised to actively monitor their traps. Trap monitoring must be accompanied by routine crop scouting to detect and report/act on egg, larval and damage *to help facilitate rapid interventions. Vigilance and timely and appropriate preventive interventions remain critical to avoid crop damage (IRLCO-CSA, OFDA/AELGA).*

Note: PSPM continuous collecting, analyzing and reporting on AAW. USAID/OFDA has developed printable and web-based maps for AAW trap monitoring locations, for participating outbreak and invasion countries in the central region: <http://usaid.maps.arcgis.com/apps/View/index.html?appid=8ff7a2eefbee4783bfb36c3e784e29cb>. A similar map is also being developed for southern region: <http://usaid.maps.arcgis.com/apps/View/index.html?appid=9d2ab2f918284595819836d1f16a526f> (click on the links for the maps). OFDA/PSPM intends to develop a similar map for FAW DDR project).

Southern Armyworm (*Spodoptera eridania*) (SAW/SER) - native to the Americas and widely present from southern USA to Argentina, SAW is a serious pest of broad leaf crops such as cassava, cotton, cowpea, tomatoes, soybean, etc. It feeds on more than 200 host plants belonging to 58 plant families including many important crops, the species is probably the most polyphagous species within the genus *Spodoptera*. Depending on the host plant and temperature, the SAW can complete its life cycle within 30-40 days and is able to

produce 1,500-3,000 eggs over its lifetime making it prolific breeder and a highly polyphagous and serious pest.

Quelea (QQU): QQU bird outbreaks were reported attacking rice and sorghum in Siaya and Busia Counties in **Kenya**. Aerial control operations were carried out by the Crop Protection Services Division of the MinAgri in collaboration with DLCO-EA. In **Tanzania**, the pest was reported in Dodoma (Kondoa, Dodoma districts) and Morogoro Regions during May. Control operations were underway at the time this bulletin was compiled. In **Zimbabwe**, QQU bird outbreaks were reported in Matebeleland Province where ground control was undertaken by the Department of National Parks. QQU outbreaks were not reported in other countries in the central, eastern or southern outbreak regions during May (IRLCO-CSA, OFDA/AELGA).

Forecast: QQU outbreaks will likely continue being a problem to small grain cereal crops in **Kenya, Tanzania, Ethiopia** and other countries in the regions as well as in winter crops in **Zimbabwe** during the forecast period (IRLCO-CSA, OFDA/AELGA).

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

Rodents: No update was received on rodents during May, but the pest is a constant threat to field and storage crops.

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

All ETOP front-line countries must maintain regular monitoring and surveillance. During crop in-seasons, scouting must be implemented on a regular basis. Invasion countries should remain on 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.

Note: A sustainable Pesticide Stewardship (SPS) can improve and strengthen pesticide delivery system (PDS) at the national and regional levels. A strong and viable PDS can effectively reduce pesticide related human health risks, minimize environmental pollution, reduce pest control cost, improve food security and contribute to the national economy. A viable SPS can be effectively established by linking key stakeholders across political borders and geographic regions. **End note.**

OFDA/PSPM encourages the use of alternatives to hard core pesticides and at all times promotes IPM to minimize risks associated with pesticide stockpiling. A judiciously executed triangulation of surplus stocks from countries with large inventories to countries in need and

where they can be effectively utilized is a win-win situation worth considering.

Inventories of Pesticide Stocks for SGR Prevention and Control

Inventory of national strategic stocks of SGR pesticides was reduced by 228 liters due to control operations in Algeria during May.

Table 1. Inventory of Strategic SGR Pesticide Stocks in Frontline Countries

Country	Quantity (l/kg)*
Algeria	1,188,680~
Chad	38,300
Egypt	68,070~ (18,300 ULV, 49,770 I)
Eritrea	17,122~ + 20,000 ^D
Ethiopia	9,681~
Libya	25,000~
Madagascar	206,000~ + 100,000 ^D
Mali	5,000
Mauritania	14,998 ^{DM}
Morocco	3,490,732 ^D
Niger	75,750~
Oman	10,000~
S. Arabia	89,357~
Senegal	156,000~
Sudan	169,710~
Tunisia	68,514 obsolete
Yemen	40,090 ^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

AGRA Agricultural Green Revolution in Africa

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

ASARECA Association for Strengthening Agricultural Research in Eastern and Central Africa

CABI Center for Agriculture and Biosciences International

CAC Central Asia and the Caucasus

CBAMFEW Community-based armyworm monitoring, forecasting and early warning

CERF Central Emergency Response Fund

CIT *Calliptamus italicus* (Italian Locust)

CLCPRO Commission de Lutte Contre le Criquet Pèlerin 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)

DPPOS 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	PPSD	Plant Protection Services Division/Department
ITCZ	Inter-Tropical Convergence Zone	PRRSN	Pesticide Risk Reduction through Stewardship Network
ITF	Inter-Tropical Convergence Front = ITCZ)	QQU	Quelea Quelea (Red Billed Quelea bird)
FAO-DLIS	Food and Agriculture Organizations' Desert Locust Information Service	SARCOF	Southern Africa Region Climate Outlook Forum
Hoppers	young, wingless locusts/grasshoppers (Latin synonym = nymphs or larvae)	SCA	Schistocerca cancellata (South American Locust)
JTWC	Joint Typhoon Warning Center	SFR	Spodoptera frugiperda (SFR) (Fall armyworm (FAW))
Kg	Kilogram (~2.2 pound)	SGR	Schistoseca gregaria (the Desert Locust)
L	Liter (1.057 Quarts or 0.264 gallon or 33.814 US fluid ounces)	SPI	Schistocerca piceifrons piceiferons (Central American Locust)
LCC	Locust Control Center, Oman	SSD	Republic of South Sudan
LMC	Locusta migratoriacapito (Malagasy locust)	SPB	Southern Pine Beetle (Dendroctonus frontalis) – true weevils
LMM	Locusta migratoria migratorioides (African Migratory Locust)	SWAC	South West Asia DL Commission
LPA	Locustana pardalina	PBB	Pine Bark Beetle
MoAFSC	Ministry of Agriculture, Food Security and Cooperatives	PSPM	Preparedness, Strategic Planning and Mitigation (formerly known as Technical Assistance Group - TAG)
MoAI	Ministry of Agriculture and Irrigation	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.
MoARD	Ministry of Agriculture and Rural Development	USAID	the United States Agency for International Development
NALC	National Agency for Locust Control	UN	the United Nations
NCDLC	National Center for the Desert Locust Control, Libya	WOR	Western SGR Outbreak Region
NOAA (US)	National Oceanic and Aeronautic Administration	ZEL	Zonocerus elegans, the elegant grasshopper
NPS	National Park Services	ZVA	Zonocerus variegatus, the variegated grasshopper, is emerging as a fairly new dry season pest, largely due to the destruction of its natural habitat
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		

through deforestation, land clearing, etc. for agricultural and other development efforts and due to climate anomalies

Point of Contact:

If you need more information or have any questions, comments or suggestions or know someone who would like to freely subscribe to this report or unsubscribe, please, reach out to:

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