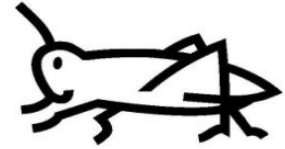




LOCUST BULLETIN No. 84



FAO - Plant Production and Protection Division (NSP)
Locusts and Transboundary Plant Pests and Diseases Team (NSPMD)

17 August 2022

Situation level: **DANGER** in Georgia (CIT), Russian Federation (DMA, CIT and LMI)

Situation level: **CAUTION** in Kazakhstan (CIT and LMI) and Kyrgyzstan (DMA and CIT)

Situation level: **CALM** elsewhere or for the other locust pests

General Situation during July 2022 Forecast for August 2022

Moroccan Locust (DMA) natural cycle completed in all Caucasus and Central Asian (CCA) countries, except in the Russian Federation where mating and egg-laying continued. Italian Locust (CIT) and Asian Migratory Locust (LMI) started mating and egg-laying in most countries. The situation was still classified as *dangerous* for CIT in Georgia as well as for all three species in the Russian Federation while it was deemed as *caution* or *calm* in the other countries. Summer surveys continued in most CCA countries, except in Afghanistan due to financial difficulties. In total, control operations in July covered more than 413 000 hectares (ha) in CCA, reaching 1 891 926 ha since the beginning of the 2022 campaign, which is about the same than in 2021 (1 898 300 ha). During the forecast period, CIT breeding will continue in Caucasus, Kazakhstan, Kyrgyzstan and the Russian Federation. LMI mating and egg-laying will continue in Kazakhstan and the Russian Federation.

Caucasus. DMA mating and egg-laying completed in the region. Serious situation for CIT continued in **Georgia**, while it was *calm* in **Armenia**, for CIT, and in **Azerbaijan**, for DMA, CIT and LMI. The **Russian Federation** classified the situation as *dangerous* for all three species, taking into account emergency situations announced in several areas. Control operations in Caucasus and the Russian Federation were

conducted on an area of 144 805 ha in July, and of 286 552 ha from the start of the campaign. In general, a decline of treated areas, as compared to 2021, was reported from Azerbaijan, Georgia and the Russian Federation, while in Armenia the treated area increased by about 60%. In August, CIT breeding will continue in all Caucasus countries and the Russian Federation, as well as LMI breeding in the latter country.

Central Asia. DMA natural cycle came to an end in all countries. LMI and CIT fledging, mating and egg-laying continued in **Kazakhstan** and **Uzbekistan**. Control operations were completed in **Afghanistan, Tajikistan, Turkmenistan** and **Uzbekistan**. According to received reports, 268 205 ha were treated in July in Central Asian (CA) countries against locusts and grasshoppers, for a total of more than 1.6 million ha since the start of the 2022 campaign, with more than half in Kazakhstan (971 220 ha). CIT and LMI breeding will continue in August in Kazakhstan while lifecycle will come to an end for CIT in Kyrgyzstan and LMI in Uzbekistan.

Weather and Ecological Conditions in July 2022

In **Caucasus** and the **Russian Federation**, the average temperature was generally hot and dry, which is typical for this period of the year. In most areas, precipitations were lower than the norm. Natural vegetation was drying out and harvesting of cereal crops was completed in Caucasus and southern parts of Russian Federation.



In Armenia, the weather in the first and last decades of the month was close to annual norm, but during the second decade it was hot in all areas with temperatures reaching +40°C in the valleys. Precipitations were lower than the annual norm. Natural vegetation started to dry out.

In Azerbaijan, the average temperatures were close to the annual norm however the precipitations in main locust affected areas were lower than the norm. Average monthly temperatures were of 23-27°C (21-24°C at night, 27-31°C at day, up to 36°C in some days) in Kudri steppe and of 22-25°C (20-23°C at night, 25-27°C at day, up to 34°C during hot days) in Djeyranchel steppe. Natural vegetation dried up in both areas.

In Georgia, the weather was hot with average monthly temperatures ranging from 18°C to 40°C and precipitations lower than the norm. Vegetation started to dry up in most pasture areas, which resulted in locust movements towards the nearest agricultural fields.

In the Russian Federation, the weather conditions in all Federal Districts (FD) were suitable for locust development. In the Central FD, the average temperature ranged from 14 to 23°C, reaching 32°C in some days. Rainfall ranged from 17 to 61 mm. In the South FD, the average monthly temperature was 20-24°C, which is lower than the norm, occasionally reaching 34°C. Rainfall ranged from 7 to 51 mm. In North Caucasus FD, the average monthly temperature was 22-28°C, with a maximum of 38°C, and precipitations ranged from 27 to 104 mm. In Volga FD, the weather was warm, average temperatures varied from 22° to 24°C with a maximum of 32°C and rainfall ranged from 27 to 144 mm. In the Ural FD, the temperature was 9-24°C occasionally reaching 33°C and rainfall varied from 25 to 34 mm. In the Siberian FD, the monthly temperature varied from 14 to 23°C, with a maximum 35°C and abundant rainfall ranged from 123 to 255 mm. In the Far East FD, the temperature ranged from 3° to 23°C with a maximum of 32°C; precipitation ranged from 24 to 58 mm.

In **Central Asia**, extremely hot days were recorded during the second and third decades of the month, reaching 47-49°C in some areas, while rainfall in general was close to annual norms. Lower than the norm precipitations were recorded in most regions of Kazakhstan, however, unusually for this time of the year rains fell at the end of the month in some parts of Afghanistan, Tajikistan, Turkmenistan and Uzbekistan.

In Afghanistan, the weather was generally hot and dry with temperatures reaching 45°C in southern and eastern provinces. However, rainfall and flooding occurred during the last decade in mountainous areas of the northern and north-

eastern provinces. Natural vegetation dried up in all provinces. Farmers finished harvesting their cereal crops.

In Kazakhstan, the weather was generally hot and temperature close to the norm while lower than the norm precipitations were registered in most regions. In the South, the weather was generally hot with mainly sunny and only some cloudy days. Average daily temperature ranged from 20.7 to 37.5°C with a maximum of 44°C and a minimum of 12°C. Monthly precipitation was from 1 to 15 mm, which is lower than the norm. In the East, the weather was changeable with sunny and cloudy days and some rain showers. The average daily temperature was around 21.5°C with a maximum of 32°C and a minimum of 9°C. Precipitations amounted to 30 mm, which is lower than the norm for this period of the year. In the West, hot days prevailed in July. Average daily temperature ranged from 21.2°C to 38.0°C, with a maximum of 43°C and a minimum of 14.9°C. Rainfall ranged from 15 to 62 mm. In the North, the weather was warm, with gusty winds and rain showers. Average daily temperature ranged from 18°C to 25.5°C, with a maximum of 31°C and a minimum of 7°C. Precipitations were overall lower than the norm in most areas.

In Kyrgyzstan, the average temperature was slightly higher than the annual norm in Batken, Chuy, Jalal-Abad and Osh and close to the norm in Issyk-kul, Naryn and Talas. The precipitation level in all regions was close to the annual norm. In Chuy region, the average temperature was 24-27°C, ranging from 25 to 39°C at day and from 13 to 24°C at night. Precipitations amounted 18-23 mm in the valleys and 50-62 mm in the mountainous areas. In Naryn region, the average temperature was 19-22°C, ranging from 19 to 34°C at day and from 4 to 16°C at night. Precipitations were close to the annual norm (24-41 mm). Natural vegetation in the locust infested areas was of medium density and started to dry out.

In Tajikistan, the weather in the first and second decades of July was close to the norm but extremely hot temperatures were recorded at the beginning of the third decade reaching 47°C in the south. Average monthly temperature was 25-28°C and unusually high rains fell in the valleys during the last days of July.

In Turkmenistan, the weather was changeable with some hot and dry days with temperatures reaching 48°C and some

rainy days. Average temperature was 32-35°C at day and 25-27°C at night.

In Uzbekistan, the weather was hot and dry. Average temperature in the Autonomous Republic of Karakalpakstan, Khorezm and northern part of Navoi regions was 1-2°C higher than the norm and averaged 28-30°C during the day and from 15 to 25 °C at night. In Tashkent, Syrdarya, Jizzakh, Samarkand, Bukhara and southern part of Navoi regions the weather was close to the norm, with temperatures varying from 28°C to 40°C at day and from 15°C to 28°C at night. Average temperature in Kashkadarya and Surkhandarya regions was 28-31°C, which is close to the norm, ranging from 30 to 42°C at daytime and from 17 to 28°C at night. In Fergana valley, temperature varied from 17-22°C during the nights to 32-37°C at day time. Although the precipitations in the country were generally close to the norm, some unusually high rains occurred at the end of July.

Area treated in July 2022

Information on areas treated since the start of the 2022 campaign is provided in brackets.

Afghanistan	0 (22 595) ha
Armenia	1470 (2330) ha
Azerbaijan	8780.5 (25 497) ha
Georgia	52 845 (74 945) ha
Kazakhstan	211 273 (971 220) ha
Kyrgyzstan	15 370 (47 440) ha
Russian Federation	81 710 (186 110) ha
Tajikistan	1338 (117 070) ha
Turkmenistan	0 (38 701) ha
Uzbekistan	40 224 (406 018) ha
Total	413 010.5 (1 891 926) ha

Locust Situation and Forecast

(see also summary on page 1)

CAUCASUS

Armenia

• SITUATION

In July, 30 000 ha were surveyed and CIT was observed at low densities not exceeding the economic threshold. Control operations were conducted on 1070 ha in Ararat and on 400 ha in Ijevan regions. Overall, 2330 ha have been treated



since the start of the campaign, which is about 60% higher than in the same period in 2021 (1398 ha). Chemical treatments were conducted using insecticide “Triumph” (active ingredient (a.i.) cypermethrin).

• FORECAST

CIT mating and egg-laying will take place in August.

Azerbaijan

• SITUATION

DMA and LMI lifecycles came to an end while CIT egg-laying has started. Control operations were carried out on 8780.5 ha in July, for a total of 25 497 ha since the start of the campaign, which is lower by about 9% than in the same period in 2021 (27 779 ha). Treatments more specifically covered: against DMA, 1715 ha in July, reaching 13 630 ha since the start of campaign; against CIT, 7065.5 ha in July, reaching 11 739.5 ha since the start of campaign; and against LMI, 127.5 ha since the start of campaign in Towuz area. It should be noted that if, historically, LMI was present in Shabran district near the Caspian Sea, during recent years LMI has also been observed in a small area on the left bank of the River Kura in Tovuz district. Control operations were carried out using sprayers mounted on tractors (low volume - LV) and on vehicles (ultra-low volume - ULV) with pyrethroid insecticides, a.i. cypermethrin (EC) and alpha-cypermethrin (ULV).

• FORECAST

CIT will finish egg-laying and dye off in August. Last control operations activities against CIT will take place in early August in some areas.

Georgia

• SITUATION

In total, 134 250 ha have been surveyed since the start of campaign, with locust hoppers and hopper bands observed on 93 080 ha. By the end of July, CIT started fledging. The situation remained critical in Kvemo Kartli district, where swarms started to enter agricultural fields, even reaching the capital, Tbilisi. Control operations covered an area of 52 845 ha in July, reaching 74 945 ha since the start of campaign, which is about 40% lower than in July 2021 (104 035 ha). Control operations were carried out using LV

and ULV sprayers mounted on vehicles using insecticides Karate 5 EC and Rider 20 ULV (a.i. lambda-cyhalothrin).

- **FORECAST**

CIT mating and egg-laying followed by die-off will take place in August. Based on the situation at the end of July, control operations will most probably continue in some areas.

Russian Federation

- **SITUATION**

Surveys of locust and grasshoppers continued in July and reached a total area of 3 676 470 ha since the start of the campaign, out of which 739 170 ha were found infested. Out of this, locust surveys specifically concerned 3 473 760 ha, where 624 580 ha were found infested. Among the three locust species (DMA, CIT and LMI) the highest average density of hoppers (776/m²) and adults (1314/m²) were observed in areas infested by LMI in South FD. The situation in some regions with densities exceeding the economic threshold on significant areas where emergency situations were declared by local administrations remained “dangerous” in July. Control operations against locusts and grasshoppers were carried out on 81 710 ha in July and a total area of 186 110 ha from the start of campaign, which is about 46% lower than in July 2021 (339 530 ha).

- **FORECAST**

In August, DMA life cycle will come to an end in all areas, while CIT and LMI will continue fledging followed by mating and egg-laying. Adult surveys as well control operations will continue in most regions.

CENTRAL ASIA

Afghanistan

- **SITUATION**

DMA life cycle came to an end in all areas. Locust campaign was completed at the end of June in all provinces, including Badakhshan, since no survey nor control operations could be carried out in July because of financial difficulties. In total, 22 595 ha were treated in 2022, which is 3.5 times lower than in 2021 (78 983 ha). The decrease in treated areas is due to insufficient budget for manpower and inputs such as pesticides and fuel.

- **FORECAST**

Locust life cycle ended in all provinces. Subsequent survey of egg-laying sites will depend on the availability of funds.



Kazakhstan

- **SITUATION**

DMA adult survey during mating and egg-laying continued in July on a total area of 859 100 ha, out of which 175 500 ha were infested, with an average density of up to 5 adults/m² on 145 300 ha, from 5 to 10 adults/m² on 23 400 ha and of more than 10 adults/m² on 6800 ha. Spring and summer surveys of CIT hoppers were conducted on a total area of 12 675 800 ha since the start of campaign, out of which 1 413 600 ha were found infested with 761 100 ha exceeding the economic threshold, which were treated. LMI hopper surveys covered a total area of 3 428 200 ha since the start of campaign, out of which 335 500 ha were infested, including 193 500 ha exceeding economic threshold, which were treated. In total, treatments were carried out on 211 273 ha in July, reaching 971 220 ha from the start of the campaign, which is more than 50% higher than in July 2021 (625 900 ha). This included 16 620 ha against DMA, 761 100 ha against CIT and 193 500 ha against LMI.

- **FORECAST**

CIT mating and egg-laying will continue, followed by the die-off during the forecast period. LMI mating and egg-laying are expected to start in August.

Kyrgyzstan

- **SITUATION**

DMA natural lifecycle came to an end in July while CIT development continued. DMA adult survey covered 2100 ha, out of which 1700 ha were infested with an average density from 6 to 12 adults/m². CIT surveys were conducted on 21 020 ha in July, out of which 17 330 ha were infested, mostly in Naryn region, with an average density from 8 to 24 hoppers/m²; most of the hopper populations were in their 4th and 5th instars. Control operations were carried out on 15 370 ha in July and on a total area of 47 440 ha since the start of campaign, which is 10% higher than in the previous year (42 908 ha). Treatments were carried out using ULV vehicle-mounted sprayers AU8115M and EC sprayers installed on tractors, with pesticides Alpha 100 EC (a.i. alpha-cypermethrin), Chlorpmyfos 240 ULV (a.i. chloprpyrifos), Delta extra 125 ULV (a.i. deltamethrin).

- **FORECAST**

CIT fledging followed by mating and egg-laying will continue in Naryn and Talas regions, where control operations will also be carried out using the above-mentioned equipment and pesticides.

Tajikistan

- **SITUATION**

In July, DMA completed life cycle in all areas while CIT egg-laying continued in Sughd. A total area of 180 060 ha has been surveyed since the start of the campaign, out of which 114 420 ha were found infested by hoppers and adults of DMA and CIT. Control operations were completed in all areas (in June in Khatlon and DRS and in July in Sughd), covering 117 070 ha, which is 11% lower than in 2021 (130 503 ha). Treatments were carried out using EC sprayers, such as TOS-600 and 2000, Agromaster, and ULV sprayers Micronair AU8115 and Micronair AU8000. Chemical pesticides Karate (a.i. lambda-cyhalothrin), Fastak (a.i. alpha-cypermethrin) and Nurell-D (a.i. chlorpyrifos+cypermethrin) were applied.

- **FORECAST**

Natural life cycle of CIT will come to an end in August in Sughd. Summer surveys will continue in egg-laying sites.

Turkmenistan

- **SITUATION**

Locust surveys covered a total area of 148 654 ha, out of which 38 701 ha were infested, since the start of the campaign. Control operations, which were completed in June, were carried on all these infested areas (i.e. 38 701 a), which is 11% lower than in the previous year (43 387 ha). The treatments were carried out using ULV vehicle-mounted sprayers AU8115 and “Wind 634 Flexigun” operated by the tractor Class 340 Axoss, with insecticides Fascord 100 EC (a.i. alpha-cypermethrin) and Espero EC (a.i. imidacloprid 200 + alpha-cypermethrin 120).

- **FORECAST**

Summer locust and grasshopper surveys of egg-laying sites will continue in August.

Uzbekistan

- **SITUATION**

DMA natural cycle came to an end in all areas. CIT and LMI mating and egg-laying continued mainly in



Karakalpakstan. In July, control operations covered 40 224 ha. Overall, 406 018 ha were treated since the start of campaign, which is 24% lower than at the same period in 2021 (503 876 ha). The majority of the area was treated against DMA (253 576 ha) followed by saxaul grasshopper (*Dericorys albidula*) (90 876 ha), CIT (39 360 ha) and grasshoppers (22 200 ha). During the 2022 campaign, insecticides with the following a.i. were used: lambda-cyhalothrin, imidacloprid, alpha-cypermethrin and fipronil. They were applied using 141 tractor sprayers, 186 backpack sprayers, 1 ultra-light aircraft and 34 vehicle-mounted ULV sprayers.

- **FORECAST**

CIT and LMI life cycles will come to an end in Karakalpakstan.

Announcements

Locust warning levels. A color-coded scheme indicates the seriousness of the current situation for each of the three main locust pests: green for calm, yellow for caution, orange for threat and red for danger. The scheme is applied to the Locust Watch web page dedicated to the current locust situation (“Locust situation now!”) and to the regional monthly bulletin header. The levels indicate the perceived risk or threat of current locust infestations to crops and appropriate actions are suggested for each level.

Locust reporting. During calm (green) periods, countries should report at least once/month and send standardized information using the national monthly bulletin template. During caution (yellow), threat (orange) and danger (red) periods, often associated with locust outbreaks and upsurges, updates should be sent at least once/week. Affected countries are also encouraged to prepare decadal bulletins summarizing the situation. All information should be sent by e-mail to CCA@Bulletins@fao.org. Monthly information received by the 5th of each month will be included in the CCA Locust Bulletin to be issued by mid-month; otherwise, it will not appear until the next bulletin. Reports should be sent even if no locusts were found or if no surveys were conducted.

Events and activities in July 2022

- **Technical Workshop on Locusts in CCA**, 21-25 November 2022, Dushanbe, Tajikistan: invitations under dispatch.
- **Training-of-Trainers on Locust Management:**
 - **National and briefing sessions:**
 - **Georgia:** training session carried out to the benefit of 20 staff, mainly new one, on 30 June-3 July 2022 in Kakheti;
 - **Azerbaijan:** fifth and last briefing session conducted to the benefit of 20 staff, seasonal workers and farmers, on 4 July 2022 in Shaki;
 - **Regional sessions:** preparation ongoing for sessions scheduled on 12-16 and 18-23 September 2022 in Caucasus and on 17-21 and 23-28 October 2022 in Central Asia.
- **Publications:**
 - **Practical Guidelines** on pesticide risk reduction for locust control in CCA: Turkmen version officially approved and published online;
 - **Monograph on Italian Locust:** print-out received in mid-July and shipped to most CCA countries.
- **E-Committee on Caucasus and Central Asia Locust Management System (CCALM):** online meeting held on 14 July 2022 with all CCA countries.
- **In-depth introduction of CCALM – Uzbekistan:** visit of the FAO Geographic Information System (GIS) Expert, as well as of the FAO Agricultural Expert (Plant Protection/Locusts), on 24-30 July 2022 in Tashkent and in Bostonliq district, to deliver a training to the benefit of 25 experts and the Automated System for Data Collection (ASDC) and CCALM and also closely work on CCALM with four national staff responsible for CCALM management.
- **Contingency planning – Tajikistan** (pilot country): draft national contingency plan under preparation.
- **E-Committee on pesticides and biopesticides:** E-Committee, composed of a few FAO and CCA experts, to carry out its work in July/August 2022.
- **Locust-Pesticide Management System (PMS) – Georgia** (pilot country): second visit of the FAO Pesticide and IT Experts carried out on 16-23 July 2022 allowing to complete training and pesticides inventory with the National Food Agency (NFA), Georgia.



- **Development of a human health and environmental monitoring system of locust control operations - Uzbekistan:** visit of the FAO Environmental Expert carried out on 27 June - 6 July, as well as of the FAO Agricultural Expert (Plant Protection/Locusts), both in Tashkent and in Bostonliq district for on-the-job training on monitoring techniques.
- **Human Health and Environmental Monitoring Teams:**
 - **Azerbaijan:** fifth and last mission carried out on 4-8 July in Ajinohur steppe (Shaki, Qakh, Oghuz districts);
 - **Georgia:** second mission (out of the three envisaged ones) carried out on 4-20 July in Kakheti, Mtskheta-Mtianeti, Kvemo-Kartli, including vegetation sampling for pesticide residue analysis;
 - **Tajikistan:** as part of the third set of missions, field visits carried out on 4-8 July in Vakhsh valley, Khatlon, on 18-20 July in DRS and on 25-29 July in Sughd.
- **2023 calendars on safety measures related to locust control - Caucasus countries:** calendars ready for Armenia and Georgia and under finalization for Azerbaijan.
- **Press tour in Kyrgyzstan** organized on 6 July 2022, in presence of the Deputy Minister for Agriculture in the Kyrgyz Republic, the Ambassador Extraordinary and Plenipotentiary of Japan to the Kyrgyz Republic and the Representative of the Japan International Cooperation Agency (JICA), on the Japan/JICA-funded project and results obtained.
- **Procurement:**
 - **Delivered in July:** last batch of EC sprayers to Kyrgyzstan and camping equipment to Tajikistan (GCP/INT/384/JCA) as well as spare parts for tractors and vehicles (OSRO/TAJ/200/GER) and Geographic Positioning Systems (GPS) to Georgia (GCP/GLO/917/USA).
 - **In progress**, at various stages: tablets, motorbikes, IT equipment, camping equipment (GCP/GLO/917/USA); water tank lorries and minibuses

(GCP/INT/384/JCA); vehicles for survey/control, entomological kits, binoculars, Personal Protective Equipment - PPE (GCP/INT/384/JCA, GCP/GLO/917/USA and TCP/GEO/3801).



Forthcoming events and activities in August 2022

- **Annual Technical Workshop on Locusts in CCA**, 21-25 November 2022, Dushanbe, Tajikistan: nominations to be received from countries (by 15 September 2022).
- **Training-of-Trainers on Locust Management - Regional sessions**: preparation ongoing for sessions scheduled on 12-16 and 18-23 September 2022 in Caucasus (all nominations received) and on 17-21 and 23-28 October 2022 in Central Asia (missing nominations expected as soon as possible from participating countries).
- **Publications**:
 - **Monograph on Italian Locust**: print-out to be shipped to remaining CCA countries.
- **E-Committee on pesticides and biopesticides**: E-Committee, composed of a few FAO and CCA experts, to carry out its work in July/August 2022.
- **Human Health and Environmental Monitoring Teams**:
 - **Georgia**: third mission (out of the three envisaged ones) scheduled on 28 July - 7 August in Kakheti, Mtskheta-Mtianeti, Kvemo-Kartli;
 - **Tajikistan**: as part of the third set of missions, field visits to Kulob area of Khatlon region scheduled on 2-4 August.
- **2023 calendars on safety measures related to locust control - Caucasus countries**: calendars to be finalized for Azerbaijan and all versions, for each Caucasus country, to be submitted for official approval.
- **Procurement**: ongoing for above-mentioned items, with expected delivery of: five water-tank lorries to Tajikistan (GCP/INT/384/JCA); tablets to Armenia (10 units) and Georgia (20 units) as well as IT equipment to Azerbaijan (computers and printers) (GCP/GLO/917/USA); and entomological/survey kits and binoculars to Azerbaijan, Armenia, Georgia, Kyrgyzstan, Uzbekistan, Turkmenistan, including for Master-Trainers (GCP/INT/384/JCA and GCP/GLO/917/USA).