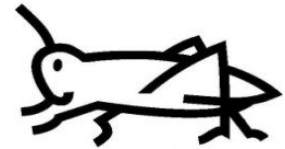




## LOCUST BULLETIN No. 90



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

17 July 2023

Situation level: **DANGER** in Russian Federation (DMA)

Situation level: **CAUTION** in Afghanistan and Turkmenistan (DMA), Georgia and Kyrgyzstan (DMA and CIT), Kazakhstan and Russian Federation (CIT and LMI), Kazakhstan (LMI)

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

### General Situation during June 2023

#### Forecast for July 2023

Moroccan Locust (DMA) lifecycle came to an end in most parts of Central Asia (CA); fledging, mating and egg-laying continued in some parts as well as in Caucasus. Due to increased number of DMA populations and large spread of adults in the south of the Russian Federation, the situation there was considered as *dangerous*. Italian Locust (CIT) fledging started in CA and its hopper development continued in Caucasus and the Russian Federation. Migratory Locust (LMI) hatching and hopper development continued in Kazakhstan and the Russian Federation. In the forecast period, DMA lifecycle will come to an end everywhere while CIT hopper development will continue in Caucasus, the Russian Federation and Kazakhstan. LMI hopper development will continue in northern and western regions of Kazakhstan and the Russian Federation while fledging will occur in other regions. Since the start of the campaign and till the end of the reporting period, a total of 2 077 205 hectares (ha) have been treated in all Caucasus and Central Asia (CCA), which is about 30% higher as compared to 2022 (1 478 345 ha at the same period). This is due to an increase of infestations in CA while they are decreasing in Caucasus.

**Caucasus.** DMA fledging, mating and egg-laying started in Azerbaijan, Georgia and the Russian Federation, while CIT hopper development continued. Hopper development of

LMI also continued in the Russian Federation. The situation was calm in Armenia (for CIT), where no locusts have been reported so far. Control operations in the Caucasus and the Russian Federation have reached 111 604 ha since the start of the campaign, which is about 30% lower compared to 2022 (144 076.5 ha).

**Central Asia.** DMA natural cycle came to an end in most provinces of Afghanistan, Tajikistan, Turkmenistan and Uzbekistan, where most control operations ended. As DMA populations started fledging at the end of June, some control operations may still take place in July in Ghor province of Afghanistan and Bakherden and Gyzylarbat districts of Turkmenistan. DMA mating and egg-laying was in progress in Kazakhstan and Kyrgyzstan. CIT fledging, mating and egg-laying continued in most areas. LMI hopper development continued in Kazakhstan and Uzbekistan. Control operations have covered 1 200 896 ha in June, and 1 965 601 ha from the start of campaign, which is for more than 30% higher compared to last year at the same period (1 334 269 ha).

### Weather and Ecological Conditions in June 2023

In Caucasus, the average temperatures were generally lower than the norm with higher precipitation, which was not favourable for locust development this year. However, in a major part of the Russian Federation, the weather conditions were close to norm.

In Armenia, the monthly average temperature was close

to annual norm, ranging from 12 to 21°C at nights and from 20 to 35°C during the days in the valleys and main agricultural areas. However, the precipitation was higher the norm.

In Azerbaijan, the temperature was lower than the norm while the precipitation was higher, than the norm in the beginning of June. Average monthly temperatures in Kudri steppe were close to annual norm however high rainfall, which is not common for the area, was recorded. Similarly, higher than the norm rainfall was observed in the Djeyranchel zone. The vegetation was sparse and started to dry up in most of the areas. Harvesting of winter cereal crops was in progress in many areas.

In Georgia, the average monthly temperatures were lower than the norm while precipitations were higher than the norm. Average daily temperature ranged from 11°C to 32°C, during the warmest days. Vegetation in most locust infested areas was of medium density and started to dry out by the end of the month in most areas. In addition to creating unsuitable conditions for locusts, abundant rains made difficult survey and control operations.

In the Russian Federation, the weather was variable but mostly favourable for locust development in all Federal Districts (FD). In the Central FD, the average temperature was 15-20°C, reaching 30°C in the warmest days. Rainfall averaged 61 mm. In the South FD, the average monthly temperature was 23-24°C, reaching 33°C in some parts. Average monthly rainfall in the area was 43 mm. In North Caucasus FD, the average temperature was 19-25°C, with a maximum of 35°C, and precipitation reached 152 mm, which is higher than the norm. In Volga FD, the average temperatures varied from 17° to 22°C with a maximum of 38° C and rainfall was 43 mm. In the Ural FD, the average temperatures ranged from 16 to 19°C reaching 37°C and rainfall averaged 31 mm. In the Siberian FD, the average temperatures were 18-21°C, reaching 36°C in the warmest days, and rainfall reached 136 mm, which is higher than the norm. In the Far East FD, the temperatures ranged from 12 to 19°C reaching 28°C at maximum, and rainfall averaged 102 mm.

In **Central Asia**, the temperatures and rainfall were generally close to the annual norm in the southern part of the subregion while lower than the norm precipitation was observed in most parts of Kazakhstan.

In Afghanistan, the weather conditions were close to annual norm, and generally it was dry and hot. The temperature reached 40°C in the valleys and the natural vegetation started to dry up in most areas.



In Kazakhstan, the temperature was close to or higher than the norm in most areas while the precipitation was lower than the norm in most of the southern, eastern and western regions. In the South, average daily temperature ranged from 14.2 to 34.5°C, with a maximum of 41°C (at day) and a minimum of 12.2°C (at night). Monthly precipitation in the region was only 0.1 mm in Kyzylorda and 6 mm in Shymkent, which is lower than the norm. In the East, average daily temperature was 20°C with a maximum of 37.1°C and a minimum of 4.3°C. Only 14% of the annual norm of precipitation fell (6 mm). In the West, the average daily temperature ranged from 15.9°C to 35.0°C, with a maximum of 40°C and a minimum of 7°C. Precipitation was lower the norm, varying from 0.1 to 24 mm. In the North, the average daily temperature ranged from 12.1°C to 33.5°C, with a maximum of 39°C and a minimum of 4.8°C. Precipitation ranged from 4 mm (Pavlodar) to 87 mm (North-Kazakhstan).

In Kyrgyzstan, weather conditions in June were close to annual norm. The temperature in Osh, Jalal-Abad and Batken reached 38°C in daytime and averaged 11°C at night. In Talas, it reached 33°C at days and 5°C at night, while in Chuy the highest temperature reached 37°C at daytime and averaged 8°C at night. The weather in Issyk-kul and Naryn was cool, with temperature up to 28°C at days and as cold as 3°C at nights. In most of the country, precipitation was close to the norm, except in the mountainous areas of Osh, Jalal-Abad, Batken regions and the eastern part of Issyk-kul region, where it was higher than the norm. Natural vegetation in the locust infested areas was of medium density and started to dry up.

In Tajikistan, the weather conditions were generally close to annual norm. The average daily temperature was of 21-25°C but it increased during the last decade of June reaching up to 43°C in southern districts of Khatlon. The precipitation was close to annual norm. Harvesting of winter cereals was completed in many areas and farmers started to plant a second crop in their irrigated lands.

In Turkmenistan, the weather in June was hot and temperature exceeded the annual norm in some areas, reaching 38-45°C. Wheat crop harvesting continued in June and planting of rice started in Lebap and Dashoguz regions.

In Uzbekistan, the temperature was close to the norm in most areas, and higher than the norm by 1-2°C in some

northwestern parts. In the Autonomous Republic of Karakalpakstan, Khorezm and northern part of Navoi regions, the temperature was close to the norm and averaged 26-29° C, ranging from 15 to 25°C at nights and from 30 to 41°C at days. The temperature in Tashkent, Syrdarya, Jizzakh, Samarkand, Bukhara and southern part of Navoi regions was close to norm, with average daily temperature of 25-30°C, varying from 15-25°C at nights to 29 40°C at days. In Kashkadarya and Surkhandarya regions, the monthly temperature varied from 17-26°C at night to 21-42°C at days. In Fergana valley, the average temperature varied from 13-23°C at nights to 18-39°C at days. The precipitation was close to the annual norm in Kashkadarya and Surkhandarya and lower than the norm in the other regions.

## Area treated in June 2023

Information on areas chemically treated since the start of the 2023 campaign is provided in brackets.

Afghanistan	9892 (42 726) ha
Armenia	0 (0) ha
Azerbaijan	3679 (4854) ha
Georgia	23 400 (28 110) ha
Kazakhstan	1 024 191 (1 237 848) ha
Kyrgyzstan	24 130 (38 780) ha
Russian Federation	71 010 (78 640) ha
Tajikistan	11 171 (129 021) ha
Turkmenistan	1412 (43 262) ha
Uzbekistan	130 100 (473 964) ha
<b>Total</b>	<b>1 298 985 (2 077 205) ha</b>

## Locust Situation and Forecast

(see also summary on page 1)

### CAUCASUS

#### Armenia

- **SITUATION**

Locust surveys have covered 30 000 ha so far: no CIT hoppers were observed. Rarely observed grasshoppers were in their 3<sup>rd</sup>-5<sup>th</sup> instars, reaching fledging at the end of June in the valleys. Grasshopper infestations did not reach economic threshold; thus no treatments were carried out. However, 720 ha were treated against the increased populations of



*Tettigoniids* in the forest areas of Aragatsotn and Kotayk provinces during the second half of June with active ingredient (a.i.) cypermethrin.

- **FORECAST**

*CIT surveys will continue in July. It is expected that there will be no significant CIT infestations in 2023.*

#### Azerbaijan

- **SITUATION**

DMA lifecycle came close to its end while CIT hopper development continued. No LMI was observed. Treatments against DMA concerned 2550.5 ha in June, reaching 3425.5 ha since the start of the campaign. Treatments against CIT in June covered 1128.5 ha and 1428.5 ha from the start of the campaign. Control operations have been carried out so far on 4854 ha since the start of the campaign, which is almost three and half times less than in the same period of 2022 (16 716 ha). The control operations were carried out by Low Volume (LV) tractor sprayers such as Scout 28-s 300 and Ultra-Low Volume (ULV) vehicle-mounted sprayers, such as AU8115, with a.i. alpha-cypermethrin and cypermethrin and cypermethrin.

- **FORECAST**

*DMA lifecycle will be completed, as well as its treatments. CIT fledging, mating and egg-laying will take place, with control operations planned on a limited area. LMI survey will continue.*

#### Georgia

- **SITUATION**

In total, 88 780 ha have been surveyed since the start of campaign. Locust development slowed down due to less than optimal weather conditions. By the end of the month, DMA egg-laying had started. CIT hoppers were in their 2<sup>nd</sup>-4<sup>th</sup> instars and very rarely in 5<sup>th</sup> instar. Control operations covered 23 400 ha in June, and 28 110 ha from the start of the campaign, which is 20% higher as compared to the same period in 2022 (22 100 ha). Insecticides with a.i. teflubenzuron (Insect Growth Regulator) were used in the pasture areas, as well as lambda-cyhalothrin in other areas. Overall, 17 sprayers were involved in the control operations, 11 ULV sprayers "Micron AU8115" and six LV sprayers "MMT Hunter".



- **FORECAST**

*DMA lifecycle will come to an end. CIT hopper development will continue, with fledging and mating in July; in some areas, egg-laying may start. Control operations will continue against this pest.*

### **Russian Federation**

- **SITUATION**

DMA surveys were conducted on 304 820 ha, out of which hoppers of various ages were found on 116 320 ha and adults on 5950 ha. Average density of hoppers was 4.69 individuals/m<sup>2</sup> and adults 5.95/m<sup>2</sup>. Start of mass fledging and migration of DMA into crops made the situation critical at the end of June. CIT survey was conducted on 537 090 ha, out of which 72 990 ha were infested by hoppers and 12 500 ha by adults. The density of hoppers averaged 6.09 individuals/m<sup>2</sup> and of adults 2.14/m<sup>2</sup>. LMI survey was conducted on 312 290 ha, with hoppers observed on 17 020 ha at an average density of 66.96 individuals/m<sup>2</sup> and adults observed on 540 ha at an average density of 3.15/m<sup>2</sup>. The highest density of LMI hoppers was observed in South FD, where it averaged 117.53/m<sup>2</sup>. Along with the three main locust species, surveys of grasshoppers were also conducted on 184 250 ha, with 66 070 ha found infested, including 58 770 ha with hoppers at an average density of 3.64 individuals/m<sup>2</sup> and 510 ha with adults at an average density of 2.78 individuals/m<sup>2</sup>.

Control operations against locusts and grasshoppers covered 71 010 ha in June, for a total of 78 640 ha from the start of the campaign, which is for more than 30% lower than at the same period of 2022 (104 400 ha). Out of it, one-third of this area (41 990 ha) was treated against DMA in the South and Caucasus FDs.

- **FORECAST**

*DMA and CIT hopper development will come to an end and fledging followed by mating will take place in all areas by mid-July. LMI hopper development will continue followed by fledging and mating in July. Adult surveys and control operations against locusts and grasshoppers will continue.*

### **CENTRAL ASIA**

#### **Afghanistan**

- **SITUATION**

DMA fledging and egg-laying continued in most provinces while DMA hoppers were still in their 4<sup>th</sup> and 5<sup>th</sup> instars in Ghor province at the end of month. Control operations in June continued in four provinces, covering 9892 ha during

the month, including in Badghis (6858 ha), Kunduz (1376 ha), Ghor (1150 ha) and Badakshan (508 ha). By the end of June, the total treated area since the campaign start reached 42 726 ha, which is about twice as high as in the previous year (22 595 ha in 2022). The following pesticides were applied: a.i. diflubenzuron ULV, deltamethrin ULV/EC and lambda-cyhalothrin ULV. In addition to chemical treatments, mechanical control covered 28 116 ha by the end of June.

- **FORECAST**

*DMA lifecycle will come to an end in most provinces. Control operations in Ghor will be completed during the first decade of July.*

#### **Kazakhstan**

- **SITUATION**

Since the start of the campaign, DMA hopper surveys covered a total area of 957 560 ha, out of which 171 251 ha were found infested. DMA adult and egg-laying surveys covered an area of 766 900 ha, where 349 142 ha were found infested. An area of 78 797 ha with densities exceeding the economic threshold had been treated against DMA from the start of the campaign till the end of June. CIT hopper surveys were conducted on 11 469 838 ha, during 2023, out of which 1 953 434 ha were found infested. CIT adult survey was conducted so far only in Turkestan on 107 500, where no infestation was observed. Total treated area against CIT has reached 1 058 304 ha from the start of the campaign. In June, LMI egg-pod surveys were conducted on 74 350 ha, out of which 8966 ha were found infested. LMI hopper surveys were conducted on 2 073 759 ha, with 167 269 ha found infested and 100 747 ha treated. By the end of the reporting period and since the start of the campaign, the total treated area against the three locust species reached 1 237 848 ha, including 1 024 191 ha in June. Treatments increased by about 38% as compared to 2022 at the same period (759 947 ha). Such increase of infestations had been forecasted based on the surveys conducted last year, and favourable weather conditions during May and June also played an important role.

- **FORECAST**

*DMA will start to die off in Jambyl and Turkestan from*

early July. CIT mating and egg-laying will start in the south in the beginning of July and from the second half of July in other regions. Due to the faster development of CIT this year, active movement of swarms is expected in some areas. LMI is expected to hatch in Kostanay in early July, while in other regions it will start fledging.

## Kyrgyzstan

- **SITUATION**

DMA hopper and adult surveys were conducted on 26 130 ha in June, out of which 19 950 ha were infested with an average density from 5 to 25 individuals/m<sup>2</sup>. DMA was in mass egg-laying stage in most areas at the end of the month. CIT hopper surveys were conducted on 9270 ha in Chuy region, out of which 4250 ha were found infested mainly by 4<sup>th</sup> and 5<sup>th</sup> instar hoppers with densities from 5 to 20 hoppers/m<sup>2</sup>. During the month, 24 130 ha were treated, including 20 350 ha against DMA and 3780 ha against CIT. The total treated area since the start of the campaign reached 38 780 ha, which is 17% higher compared to the same period in 2022 (32 070 ha). Control operations were carried out by seven ULV vehicle-mounted sprayers AU8115M and four sprayers mounted on tractors, using several pesticides with a.i. alpha-cypermethrin (EC), chlorpyrifos (ULV) and deltamethrin (ULV).

- **FORECAST**

*DMA egg-laying will be completed and natural die-off will occur in July. CIT hopper development will continue in Chuy, Talas and Naryn regions. Control operations against DMA will come to an end in the south and will continue against CIT in the north.*

## Tajikistan

- **SITUATION**

Locust survey covered 188 875 ha from the campaign start, out of which 128 364 ha were found infested. A total of 11 171 ha were treated in June, for a total of 129 021 ha during the 2023 campaign, which is 10% higher compared to the previous year (115 732 ha in 2022). Control operations were completed by the end of June in all regions. Pesticides with a.i. lambda-cyhalotrin, alpha-cypermethrin and chlorpyrifos+cypermethrin were used. In June, applied by 11 ULV sprayers AU8115 mounted on Toyota Hilux, 18 sprayers mounted on tractors and other hand-held and knapsack sprayers.

Egg-laying sites and egg-pod surveys were also conducted on 17 500 ha in the areas adjacent to the border



with Afghanistan in June, with DMA egg-pods recorded on 500 ha.

- **FORECAST**

*DMA lifecycle will come to an end in the areas where egg-laying had been completed by the end of June. CIT egg-laying and subsequent die-off will take place in Sughd region. Summer surveys of egg-laying sites will continue.*

## Turkmenistan

- **SITUATION**

DMA hopper surveys continued in June, covering 12 551 ha in four regions. Control operations were carried out in two regions this month, in Akhal (102 ha) and in Balkan (1310 ha), reaching in total 43 262 ha since the start of the campaign, which is about 10% higher than the last year (38 701 ha). Treatments took place mainly against DMA (37 334 ha); in addition, 2 639 ha were treated against Large Saxaul Humpback Grasshopper (*Dericorys albidula*) and 3289 ha against grasshoppers. Chemical treatments were carried out using ULV vehicle-mounted sprayers AU8115, and tractor mounted sprayers "Wind 634 Flexigun", with insecticides a.i (alpha-cypermethrin) and imidacloprid+alpha-cypermethrin).

- **FORECAST**

*DMA situation will require attention at the border between Akhal and Balkan regions, particularly in the districts Bakherden and Gyzyrlybat, where control may take place in early July. DMA natural die-off will finish in July.*

## Uzbekistan

- **SITUATION**

By the end of June, DMA lifecycle came to an end in southern regions while CIT egg-laying was completed in central regions. In Karakalpakstan, CIT egg-laying started. LMI situation is calm this year: only scattered populations not exceeding economic threshold were observed in their natural habitats. Control operations were completed in all regions except Karakalpakstan, where treatments against CIT and saxaul grasshoppers continue. In total, 130 100 ha were treated in June, reaching 473 964 ha from the start of the campaign, which is about 23% higher than in 2022 at the

same period (365 224 ha). This includes 278 383 ha against DMA, 78 638 ha against CIT, 73 809 ha against saxaul grasshoppers and 43 134 ha against other non-swarming grasshopper species. Control operations in June were carried out using 15 tractor sprayers, 68 knapsack sprayers and ten ULV sprayers. Insecticides with the following a.i. were applied: lambda-cyhalothrin, lambda-cyhalothrin and imidacloprid, imidacloprid.

- **FORECAST**

*DMA lifecycle will come to an end in all areas. In Karakalpakstan, CIT mating and egg-laying followed with die off will occur in the second half of July; treatments against both CIT and saxaul grasshoppers will continue during the first half of July.*

## 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](mailto:CCA-Bulletins@fao.org). Monthly information received by the 5<sup>th</sup> 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 June 2023

- **Cross-border survey between Turkmenistan and Uzbekistan** carried out on 30 May-3 June in Lebap, Turkmenistan (by experts from both countries) and Kashkadarya, Uzbekistan (by Uzbek experts).



- **Egg-pod surveys carried out in Tajikistan in adjacent areas to Afghanistan**, on 12-14 June in Farkhor, Sh. Shohin and Hamadoni districts of Kulob zone and on 19-21 in Panj, Jayhun, Shahritus and Dusti districts of Vakhsh zone, Khatlon.
- **Training-of-Trainers on locust management/ national and briefing sessions** (by Master-Trainers):
  - **Georgia**: second national session delivered on 21-24 June in Kakheti, to the benefit of 25 persons;
  - **Kyrgyzstan**: fourth and fifth/last briefing sessions delivered on 5-7 June in Talas and 20-22 June in Naryn (15 persons/each), to the benefit of 30 persons;
  - **Turkmenistan**: national training session delivered on 5-9 June 2023 in Ashgabat, to the benefit of 16 persons.
- **Practical Guidelines on pesticide risk reduction for locust control in CCA (PG RR)**: Turkmen version dispatched and handed-over to Turkmenistan (200 copies).
- **Demonstration/trial on biopesticide use (*Metarhizium acridum*) against locusts**, carried out on 8-11 June in Kakheti, Georgia, to the benefit of Caucasus countries, with a total of 32 participants, including from Uzbekistan and Sardinia, Italy, as well as a representative from the United States Agency for International Development (USAID).
- **Human Health and Environmental Monitoring Teams**:
  - **Azerbaijan**: second to fourth monitoring mission (out of five) carried out on 1-4 June in Eldar plain, 19-22 June in Kudru steppe and 28 June-1 July in Ajinohur;
  - **Georgia**: second monitoring mission (out of three) started, on 28 June-13 July in Kakheti, Mtskheta-Mtianeti, Kvemo-Kartli, including vegetation sampling in view of pesticide residue analysis, as well as treatments with remaining *Metarhizium acridum*;
  - **Kyrgyzstan**: fifth and last monitoring missions

carried out on 12-17 June in At-Bashi, Ak-Tala and Naryn districts, Naryn;

- **Meeting on a third Automated System for Data Collection (ASDC) Form on human health and environmental aspects**, held on 22 June involving members of the Human Health and Environmental Monitoring Teams from the above mentioned four countries and FAO Experts.
- **Procurement** (GCP/GLO/917/USA & GCP/INT/384/JCA):
  - **Equipment delivered/handed-over:** camping equipment (second batch) to Azerbaijan;
  - **Procurement in progress**, at various stages: IT equipment, vehicles for survey/control operations, water-tank lorry, camping equipment and GPS.

#### **Forthcoming events and activities in July 2023:**

- **E-Committee on Caucasus and Central Asia Locust Management System (CCALM):** scheduled on 26 and 27 July.
- **Human Health and Environmental Monitoring Teams:**
  - **Azerbaijan:** fifth and last monitoring mission scheduled on 5-8 July in Shabran;
  - **Georgia:** third and last monitoring mission scheduled on 27 July – 7 August, in Kakheti, Mtskheta-Mtianeti and Kvemo-Kartli;
  - **Kyrgyzstan:** fifth and last monitoring missions scheduled on 12-17 June in At-Bashi, Ak-Tala and Naryn districts, Naryn;
  - **Tajikistan:** as part of the second set, four missions scheduled on 3-5 July in Vakhsh and on 10-12 July in Kulob, Khatlon, as well as on 14-16 July in DRS and on 18-21 July in Sughd; visit of Uzbek experts to take part in field monitoring activities envisaged in Sughd, on 18-21 July.
- **Procurement** ongoing, with expected delivery of GPS for Azerbaijan.

