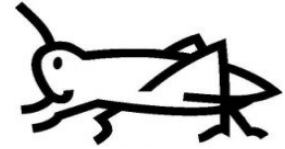




LOCUST BULLETIN No. 87



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

18 April 2023

Situation level: CAUTION in Afghanistan, Tajikistan, Turkmenistan and Uzbekistan (DMA)

Situation level: CALM elsewhere or for the other locust pests

General situation during March 2023

Forecast for April 2023

Moroccan Locust (DMA) hatching started in Tajikistan earlier than in other countries, in the beginning of March. First DMA hatching in Uzbekistan and Turkmenistan was recorded during the second decade of March and in Turkestan region of Kazakhstan at the end of month. During the forecast period, DMA hopper development will continue in the above countries and Afghanistan, while hatching will begin in Zhambyl region of Kazakhstan, in Kyrgyzstan, the Russian Federation, as well as in Azerbaijan and Georgia. Italian Locust (CIT) hatching may start in the southern countries of Caucasus and Central Asia (CCA) at the end of the forecast period. Asian Migratory Locust (LMI) hatching is not expected in April. In March, 25 720 ha were treated against DMA in Tajikistan, Turkmenistan and Uzbekistan, which is higher compared to the last three years: 2022 (2950 ha); 2021 (5818 ha) and 2020 (13 000 ha).

Caucasus. No locust hatching was reported so far. DMA hatching should start during the second half of April in Azerbaijan and in the Russian Federation and at the end of April in Georgia. CIT hatching is not expected before the end of the forecast period.

Central Asia. DMA hatching started in March in Afghanistan, Kazakhstan, Tajikistan, Turkmenistan and Uzbekistan. Treatment campaign is ongoing in Afghanistan, Tajikistan, Turkmenistan and Uzbekistan. DMA hopper

development will continue in those countries, mass fledging will begin at the end of April; hatching will start in early April in Kyrgyzstan and in Zhambyl region of Kazakhstan; CIT hatching is forecasted to start from the second decade of April; LMI hatching is not expected during the forecast period.

Weather and Ecological Conditions in March 2023

In March, the weather was generally warm, precipitations were close to the norm in almost all **Central Asian (CA)** countries or lower (southern Tajikistan). In Caucasus, the temperature was generally close to the norm. Precipitation in Armenia was below the norm, while in Azerbaijan and Georgia it was close to the norm.

In **Caucasus** the weather in winter was generally favorable for overwintering of locusts.

In Armenia, the temperature in March was close to the climatic norm. However, the precipitation was lower than the multiannual norm. The winter crops were at tillering stage and stone fruits started to flower in the lowlands.

In Azerbaijan, the average monthly temperature in March was close to the climatic norm, although some fluctuations were observed during a few days with higher than the norm temperatures. Average monthly temperatures in the Kudri steppe were 7-9°C (5-7°C at night and 8-12°C at daytime). Precipitation in this zone was close to the norm. In Djeyranchel steppe, average monthly temperatures were 5-7°C (3-8°C at night and 10-15°C at daytime). Rainfall was also close to the norm. Vegetation on the pastures was green and of medium density, winter cereals were at tillering stage.

The preparatory work for spring sowing had already started.

In Georgia, the winter was relatively warm and without significant precipitation. These weather conditions were favorable for the survival of eggs in egg-pods and no significant egg mortality is thus expected. Vegetation in locust-affected areas was of medium density.

In the Russian Federation, the weather in March was close to the norm in a majority of areas. The winter weather conditions were favorable for overwintering of locust eggs in the soil in four Federal Districts (FD) – Central, Southern, Volga and Ural – and were satisfactory in three others – North Caucasus, Far East and Siberian FDs. In the Central FD, the average temperature varied from -2 to 2°C, rising to +12°C in some days; the precipitation was 32-37 mm. In the Southern FD, the average temperature was 5-9°C, reaching a maximum of +19°C; the precipitation amount was 18-44 mm. In the North Caucasus FD, the average temperature was +4.5-8°C, with a maximum of +19°C; the precipitation was 11-45 mm. In the Volga FD, the average temperature was -2.5-4.5°C, rising to +17°C in warm days; the average precipitation was 18-45 mm. In the Ural FD, the average temperature was -3.5/-1.5°C, with a maximum observed at +10°C; the total precipitation was 20-39 mm. In the Siberian FD, the average temperature varied from -6 to -3°C, reaching a maximum of +7°C; the rainfall was 7-34 mm. In the Far East FD, the average temperature varied from -9.2 to 1.5°C, with a maximum of +11°C; the precipitation was from 14 to 54 mm.

In **Central Asia**, higher than the norm temperature was observed in Kazakhstan, Kyrgyzstan and Tajikistan. In Turkmenistan and Uzbekistan, it was close to the annual norm. Locust hatching started from 2 to 7 days earlier than in 2022.

In Kazakhstan, the weather was variable in March with temperatures higher than the multiannual averages. In the South, the weather was variable, with sunny and cloudy days and precipitations in the form of rain (8.1-56 mm). The temperature was 6-7°C higher than the norm, with average daily temperature ranging from -1.8 to +17°C, a minimum of -5.3°C (at night) and a maximum of +28.6°C. In the East, the weather was unstable with significant temperature variations; average daily temperature was of 5.6°C, with a minimum of -15.3°C and maximum of +17.7°C; precipitations in the form of rain and snow were higher than the norm (up to 32 mm). In the West, the weather was variable and windy with sunny and rainy days. Average daily temperature varied from -5°C to +12.5°C, which was higher than the norm, with a minimum of -13.5°C and maximum of +25.3°C. The precipitation was close to annual norm (3-36 mm). In the



North, the weather was variable with sunny, cool and cloudy days, precipitations and gusty winds. Average daily temperature was higher than the norm, ranging from -9.5°C to +9.5°C, with a minimum of -18.5°C (at night) and a maximum of +17.1°C. The precipitation was from 19 to 33 mm.

In Kyrgyzstan, in Jalal-Abad region, the average monthly temperature in March was 1-1.5°C higher than the climatic norm and ranged from 6 to 8°C in the valleys and from 4 to 6°C in the foothills. The minimum temperature observed was -2°C at night and at maximum it reached 25°C during the day. The monthly precipitation was close to the norm and amounted to 68-70 mm on the plains and 87-122 mm in the foothills. In Chuy region, the average monthly temperature was 1-1.5°C higher than the norm and ranged from -6°C (at night) to 24°C (during the day). The monthly precipitation was within the norm, amounting 43-61 mm in the valley and 30-52 mm in the foothills.

In Tajikistan, the weather in March was warmer than the norm, the average temperature varied from 8-11°C in the afternoon to 2-5°C at nights. The precipitation was close to multi-annual norm in most areas; however, it was drier than usual in the southern part of Khatlon region. The winter cereals in the valleys started booting and the sowing of spring crops, including cotton started in Khatlon region. More rainy days with lower temperatures are expected in April.

In Turkmenistan, the weather in March was unstable. The first decade of March was rather warm and without precipitation, the second and the third decade were rainy and windy (with gusts up to 12/15 m/s). The average monthly temperature was 10-15°C at nights and 18-30°C at daytime. The winter crops began their growth and the sowing of cotton started on 24 March.

In Uzbekistan, the weather was generally close to the annual norm; temperature was higher than the norm only in some western regions (Republic of Karakalpakstan, Khorezm and Navoi region). Daily average temperature varied from 3-7°C to 10-12°C. The precipitation in March was close to the climatic norm, from 19 to 48 mm.

Area treated in March 2023

Tajikistan	15 774 ha
Turkmenistan	2 790 ha
Uzbekistan	7 156 ha
Total	25 720 ha

Locust Situation and Forecast

(see also summary on page 1)

CAUCASUS

Armenia

• SITUATION

No anti-locust activities have been carried out so far. Locust surveys are planned in June and July over 60 000 ha.

• FORECAST

No hatching of locust is expected in April, in case if the temperature and precipitation being favorable, hatching of grasshoppers may occur in early May and CIT hatching is expected in mid-May.

Azerbaijan

• SITUATION

The spring surveys of egg-pods started by the end of the reporting period; no hatching of any species was observed so far.

• FORECAST

It is expected that the temperature in April will be close to the norm in most of the areas and higher than the norm in a few zones. The DMA hatching is expected to start from the second decade of April.

Georgia

• SITUATION

No activities have been carried out so far: precipitation in form of rain felt in late March and spring surveys were thus postponed to April.

• FORECAST

DMA hatching is expected to start by the end of April. In 2023, locust control (ground spraying only) should cover from 60 000 to 70 000 ha, which is less than the area treated in 2022 (99 700 ha). Based on the results of the surveys carried out in 2022, it is forecasted that no mass outbreak of locusts



(mostly CIT with some DMA) will occur in Kakheti, Shida Kartli and Samtskhe-Javakheti, while the situation should require attention in Kvemo Kartli.

Russian Federation

• SITUATION

Locusts were in winter diapause in all regions of the Russian Federation. DMA surveys covered 11 140 ha, out of which 8380 ha were found infested with an average density of 0.73 egg-pods/m². CIT survey covered 13 650 ha, including 2830 ha infested with an average density of 2.83 egg-pods/m². LMI survey was conducted on 36 140 ha with 150 ha infested with an average density of 3.34 egg-pods/m².

• FORECAST

Based on the surveys conducted in 2022 and early 2023, the 2023 infestations are forecasted to be similar to the area in 2022. However, it is considered that density may increase in 2023. Hatching may start in April for DMA and during the first half of May for CIT and LMI.

CENTRAL ASIA

Afghanistan

• SITUATION

DMA hatching started from mid-March in Kunduz, Balkh, Samangan, Sar-i-pul, Takhar, Baghlan and Badakhshan provinces. Mainly mechanical treatments are carried out, like collecting hoppers with cloth sheets, driving hopper bands into trapping ditches with subsequent collection and killing the hoppers. Information on the treated areas will be included in bulletins once available.

• FORECAST

According to the preliminary forecast, around 27 000 ha should be treated in 2023 but it will depend on budget availability. DMA hatching and hopper development will continue throughout April and fledging will occur by the end of the month.

Kazakhstan

• SITUATION

The spring egg-pod surveys started in the Southern regions (while they will begin in April in other regions). Concerning

DMA, a total of 25 550 ha was surveyed during March. The egg-pods were found on 3440 ha, at the following average densities: up to 1 egg-pod/m² on 1251 ha, from 1.1 to 2 egg-pods/m² on 280 ha, from 2.1 to 5 egg-pod/m² on 1041 ha and higher than 5 egg-pod/m² on 870 ha. The number of eggs per pod varied from 16 to 35. From 2.2 to 22.2% of egg-pods were found infested by parasites or affected by diseases. DMA first hatching was recorded on 28 March in Turkestan region, which is earlier than in previous years. With regard to CIT, a total of 29 500 ha were surveyed and 1530 ha were found infested. The number of eggs per pod was 18 to 37. The percentage of infested egg-pods was 3.7-28.2%. LMI survey covered 8100 ha, out of which 156 ha were found infested. The number of eggs per pod was 55 to 58. The percentage of infested egg-pods was 12-19%.

- **Forecast**

DMA hatching will continue in Turkestan region and is expected to start at the beginning of the second decade of April in Zhambyl region.

Kyrgyzstan

- **Situation**

Egg-pod spring surveys began in the southern regions at the end of March. No DMA or CIT hatching was observed during the reporting period.

- **FORECAST**

DMA mass hatching is expected in the second decade of April in Jalal-Abad, Batken and Osh regions. CIT hatching is expected in the first decade of May in Chui and Talas regions.

Tajikistan

- **SITUATION**

The onset of DMA hatching was recorded on 6-8 March in southern areas of Khatlon region, which is similar to 2022. At the end of March, hatching had been registered in 15 districts of the Khatlon region and in 5 districts of Republican Subordination (DRS). No CIT hatching was observed. Chemical treatments against DMA were carried out on an area of 15 774 ha (2600 ha in 2022) using insecticide with active ingredient (a.i.) - alpha-cypermethrin 10% EC. The following machineries and sprayers are available for the 2023 campaign: 36 Tractors MTZ 82.1, 26 units of EC sprayers TOS-2000, TOS-600, OVKh-600, three Tifones, ten ULV vehicle-mounted sprayers AU8115 and 412 knapsack sprayers.



- **FORECAST**

In Khatlon region and in the DRS, DMA hopper development will continue in April, followed by fledging at the end of the month. Starting from the second decade of April, DMA and CIT hatching will begin in Sughd region.

Turkmenistan

- **SITUATION**

DMA spring surveys were carried out on an area of 11 324 ha, i.e. in the foothills of Akhal region (394 ha), Balkan region (321 ha), Lebap region (9030 ha) and Mary region (1579 ha). First DMA hatching was observed on 17 March in Koytendag district of Lebap region and on 31 March in Balkan region. Chemical treatment was conducted on 2790 ha in March 2023 (none in March 2022) using insecticides with a.i. alpha-cypermethrin and imidacloprid + alpha-cypermethrin, both in water-soluble formulations, using ULV vehicle-mounted sprayers.

- **FORECAST**

In April, DMA hatching and development will continue in Lebap and Balkan regions. DMA hatching is expected during the second half of April in the foothills of Akhal and Mary regions.

Uzbekistan

- **SITUATION**

DMA hatching started on 13 March in Surkhandarya region, on 15 March in Kashkadarya region and on 21 March in Jizzakh and Samarkand regions. By the end of March, DMA hoppers were in their first and second instars at an average density of 150 to 200 individuals/m² in hopper bands. Neither CIT nor LMI hatching was observed in the reporting period. In March, 7516 ha (against 350 ha in March 2022) were treated with a.i. lambda-cyhalothrin and lambda-cyhalothrin+imidacloprid against DMA in Kashkadarya (5603 ha) and Surkhandarya (1553 ha) regions. So far, 42 tractor mounted sprayers, 76 knapsack sprayers and 8 ULV sprayers are involved in the control operations.

- **FORECAST**

DMA hopper development will continue in Surkhandarya, Kashkadarya, Jizzakh and Samarkand regions while

hatching is expected in other regions. CIT hatching will begin during the first decade of April in Jizzak, Navoi, Samarkand and Tashkent regions. No LMI hatching is expected in April.

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 March 2023

- **Training-of-Trainers on locust management/ national and briefing sessions:**
 - **Kyrgyzstan:** two national sessions held to the benefit of 32 staff, on 6-10 March in Osh (13 persons) and on 13-17 March in Karakol, Issyk-Kul region (19 persons);
 - **Tajikistan:** four briefing sessions held to the benefit of 77 staff/local manpower, on 2-3 February in Bokhtar, Vakhsh zone (27 persons) and on 7-8 February in Kulob zone (15 persons), Khatlon, on 14-15 February in Tursunzoda, DRS (14 persons) and on 24-25 February in Khujand, Sughd (21 persons); three information sessions on general issues of locust management, including risk reduction, held to the benefit of 50 persons, on 1 February in Bokhtar, Vakhsh zone (20 persons) and on 6 February in Kulob zone (15 persons),



Khatlon, and on 23 February 2023 in Khujand, Sughd (15 persons);

- **Uzbekistan:** four national sessions held to the benefit of 64 staff, on 3-5 March in Karshi (20 persons), on 9-12 March in Jizzakh (24 persons), on 16-18 March in Namangan (7 persons) and on 23-26 March in Nukus (13 persons).
- **Exposure visit to Morocco on locust management** (technical and organizational aspects), carried out on 26 February-12 March in the national anti-locust center (Agadir) for two experts from Turkmenistan and Uzbekistan.
- **Publications** (available on FAO website “Locust Watch in CCA”):
 - **Practical Guidelines on the three locust pests in CCA:** layout for the Turkmen version under preparation;
 - **Leaflet “Locust control: Ultra-Low Volume vs Full Volume Spraying”:** delivered to Azerbaijan (<https://www.fao.org/3/cc2513en/cc2513en.pdf>);
 - **Brochure on USAID project:** delivered to Azerbaijan (<http://www.fao.org/3/cc2109en/cc2109en.pdf>);
 - **New publications** published in English and in Russian :
 - o **Leaflet “Biopesticides – Operational use against locusts”**(<http://www.fao.org/3/cc4176en/cc4176en.pdf> and <https://www.fao.org/3/cc4176ru/cc4176ru.pdf>);
 - o **Poster “How to use biopesticides in locust control?”**(<https://www.fao.org/3/cc4173en/cc4173en.pdf> and <https://www.fao.org/3/cc4173ru/cc4173ru.pdf>);
 - o **Poster “Personal Protective Equipment (PPE) – Why using PPE in locust control?”** (<https://www.fao.org/3/cc4174en/cc4174en.pdf> and <https://www.fao.org/3/cc4174ru/cc4174ru.pdf>);
 - o **Poster “Empty containers - How to manage empty containers in locust control?”** (<https://www.fao.org/3/cc4172en/cc4172en.pdf> and <https://www.fao.org/3/cc4172ru/cc4172ru.pdf>).



- **Annual Workshop on locust data collection, analysis, forecast and reporting in CCA (GIS Workshop)** held online on 16-17 February 2023, with up to 56 experts from CCA countries and FAO.
- **Draft national locust contingency plan for Tajikistan** received from State Enterprise “Locust Control Expedition” (SE-LCE), Tajikistan, for review jointly with FAO.
- **Procurement** (GCP/GLO/917/USA & GCP/INT/384/JCA):
 - **Equipment delivered/handed-over** (GCP/INT/384/JCA, GCP/GLO/917/USA, TCP/GEO/3801): entomological kits for Armenia and Azerbaijan; motorbikes and digital cameras for Azerbaijan; minibuses and cholinesterase kits for Tajikistan; nitrile gloves for Armenia, Azerbaijan, Georgia and Kyrgyzstan; and biopesticide for the regional demonstration scheduled in April 2023 in Uzbekistan.
 - **Equipment delivered in-country and yet to be handed-over** (GCP/INT/384/JCA): entomological kits, binoculars, nitrile gloves and environmental monitoring material for Uzbekistan.
 - **Procurement in progress**, at various stages (GCP/INT/384/JCA and GCP/GLO/917/USA): entomological kits and binoculars, IT equipment, vehicles for survey/control operations, water-tank lorry, camping equipment, environmental monitoring material for several countries.
- **Hand-over ceremony in Tajikistan** held on 1 March 2023, for the delivery of water-tank lorries and minibuses to the State Enterprise “Locust Control Expedition” (SE-LCE).
- **Media/Visibility:** news published on website “Locust Watch in CCA” (<http://www.fao.org/locusts-cca/en/>) as well as press-releases issued in Tajikistan and Uzbekistan.
- **Third Project Task Force (PTF 3) of project GCP/INT/384/JCA** held on 9 February 2023, involving FAO Headquarters and Representations/Offices in CA countries on project implementation during the 2023 campaign.

Forthcoming events and activities in April 2023

- **Cross-border survey between Tajikistan and Uzbekistan** scheduled on 3-8 April 2023 in Khatlon and DRS, Tajikistan, and Surkhandarya, Uzbekistan.

- **Joint survey for Caucasus countries**, scheduled in Georgia on 30 April-4 May 2023, cancelled.
- **Training-of-Trainers on locust management/ national and briefing sessions:**
 - **Azerbaijan:** five one-day sessions scheduled on 26 April in Barda, 27 April in Shamkir, 4 May in Saatli, 5 May in Fuzuli and 11 May in Shabran, for about 15 persons each;
 - **Georgia:** national session scheduled on 10-12 April in Kakheti, for about 25 persons;
 - **Kyrgyzstan:** first briefing session (out of five) scheduled on 10-12 April, in Jalal-Abad, for about 15 persons;
- **Demonstration/trial on biopesticide use against locusts**, scheduled on 25-29 April 2023 in Jizzakh, Uzbekistan, to the benefit of all Central Asian countries, with *Metarhizium acridum* and *Beauveria bassiana*.
- **Development of a national monitoring system of the quality and human health and environmental impacts of control operations in Turkmenistan:** mission of the FAO Environmental Expert scheduled on 10-19 April 2023 in Ashgabat and Ak Bugday district, Ahal region.
- **Human Health and Environmental Monitoring Teams:**
 - **Azerbaijan and Uzbekistan:** Action Plans for 2023 expected;
 - **Kyrgyzstan:** first two monitoring missions (out of five) scheduled on 17-22 April, Aksy and Nookan districts, Jalal-Abad, and on 24-29 April, Nookat and Aravan districts, Osh;
 - **Tajikistan:** as part of the first set of missions (out of three), four missions scheduled on 10-15 April and 17-20 April in Khatlon (Vaskh and Kulob), 24-27 April in RRS and 30 April-5 May in Sughd.
- **Procurement** ongoing, with expected delivery of entomological kits, binoculars and environmental monitoring material for Turkmenistan, camping equipment for Azerbaijan, biopesticide (Georgia) and other equipment (Georgia and Uzbekistan) for the regional demonstrations scheduled in April and June.