Food and Agriculture Organization of the United Nations

Locust Watch
Locusts in Caucasus and Central Asia

LOCUST BULLETIN No. 88

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

19 May 2023

Situation level: DANGER in Afghanistan and Tajikistan (DMA)

Situation level: CAUTIN in Azerbaijan, Kazakhstan, Kyrgyzstan, Turkmenistan and Uzbekistan (DMA)

Situation level: CALM elsewhere or for the other locust pests

General Situation during April 2023

Forecast for May 2023

Moroccan Locust (DMA) hatching and hopper development was in progress in all Central Asian (CA) countries as well as in Azerbaijan and in Georgia. Critical situation in several north and north-east provinces of Afghanistan and south of Tajikistan was reported. Italian Locust (CIT) hatching had been recorded only in southern Kazakhstan at the end of April. In the forecast period, DMA hatching will start in the Russian Federation and hopper development will continue in Caucasus while fledging and mating will occur in CA countries. CIT hatching will start in all Caucasus and Central Asia (CCA) countries. Migratory Locust (LMI) hatching may start in Azerbaijan, Kazakhstan, southern Russian Federation, Turkmenistan and Uzbekistan at the end of the forecast period. In total, 283 969 ha have been treated in CCA countries from the start of the 2023 campaign, which is twice higher compared to 2022 at the same period (138 000 ha).

Caucasus. DMA hatching started at the end of April in **Azerbaijan** and **Georgia**.

Central Asia. DMA hopper development was in progress in **Afghanistan, Kazakhstan, Tajikistan, Turkmenistan and Uzbekistan**. According to received reports, 258 249 ha of DMA infested areas were treated in April, in all CA countries, which is 90% higher than in 2022 (134 979 ha). A critical situation with DMA was reported in Afghanistan, due to low treatments in 2022 and presumably also in 2023 with related population increase, and in Tajikistan with the risk of locust invading crops due to drought, mainly in the southern part of the country.

Weather and Ecological Conditions in April 2023

In Caucasus, the average temperature was close (Armenia) or lower than the norm (Azerbaijan and Georgia). Precipitation was higher than the norm in Georgia while it was lower than the norm in Armenia and Azerbaijan. The weather in the Russian Federation was close to annual norm.

In Central Asia, the temperature in the first and second decades of April was lower than the norm, while in the third decade it was close to the norm. Higher than the norm precipitation was observed in the first half of the month, especially in Tajikistan, Turkmenistan and central Kazakhstan, with high snowfalls in latter case.

In Armenia, the average temperature was close to annual norm, however, during the first days of April it was colder than the norm (-4 to 0ºC). Precipitation was generally lower than the norm. Vegetation in the pastures was at growing stage and with medium to high density.

In Azerbaijan, the temperature and precipitation were generally lower than the norm. Average monthly temperatures in Kudri steppe were 7-9ºC, with temperature of 4-6ºC at night and 9-12ºC at days. In Djeyranchel steppe, the average monthly temperatures were 6-8ºC, which was lower

than the norm (varying from 3-5ºC at night to 14-16ºC in the afternoons). The natural vegetation cover was of medium density in Kudri and of low density in Djeyranchel. Winter cereals were close to spike formation stage, while plantings of spring crops were in progress.

In Georgia, the temperature was lower than the norm while higher than the annual norm precipitations, in the form of rain and hail, fell in April. The vegetation in pasture areas was of medium density and at full growth stage.

In the Russian Federation, temperature and rainfall in April were variable but generally favourable for locust development in three Federal Districts (FD) – Central, South and Volga. Weather conditions were considered as suitable for locust development in other four FDs – North Caucasus, Ural, Siberia and Far East. In the Central FD, the average monthly temperature was 7-12°C, reaching up to 18°C. In the South FD, the average monthly temperature was 12-14°C; in the warmest days it reached 22°C. In the North Caucasus FD, the average temperature was 7-12,5°C, reaching 23°C during the warmest days, which was lower than in the previous years. In the Volga FD, average temperatures ranged from 8.5° to 12°C with a maximum of 21°C. In the Ural FD, daily average temperature was from 3 to 8°C, with a maximum of 18°C. In the Siberia FD, average daily temperatures ranged from -2° to 4°C, reaching a maximum of 16°C. In the Far East FD, the temperatures ranged from -9° to 9°C reaching up to 19°C, which was warmer than in the previous year. Precipitation was close to norm in most areas, but higher rainfalls were observed in Saratov region (Volga FD) and higher snowfalls in Altai krai (Siberia FDs).

In Afghanistan, the weather was rainy with temperatures lower than the norm at the beginning of April, but generally suitable for locust hatching and development. Later during the month, the temperatures started to increase exceeding 30°C in most provinces.

In Kazakhstan, the weather was variable in the reporting period. In the South, the weather was unstable, with both sunny and cloudy days. The average daily temperature ranged from 3.1 to 24°C with a maximum of 33°C and a minimum of -3.3°C (at night). Rainfall ranged from 10 mm (Kyzylorda) to 66 mm (Almaty region). In the East, the weather was unstable with cloudy, cool and windy days. The average daily temperature was around 7.5°C with a maximum of 25°C and a minimum of -4°C. Precipitations varied from 24 mm (Abay region) to 39 mm (East-Kazakhstan region). In the West, the average daily temperature ranged from 1°C to 26°C, with a maximum of 34.5°C and a minimum of -1.8°C. Precipitations in the form of rain varied from 4 mm (Mangistau region) to 29 mm (Aktobe region). In the North, the weather was very unstable with gusty winds and high precipitation. The average daily temperature ranged from -7°C to 20°C, with a maximum of 24°C and a minimum as low as -19.1°C. High snowfalls in the middle of the month were recorded in Akmola region, where the precipitation was higher than the norm by 233%.

In Kyrgyzstan, the average monthly temperature was by 1-2°C higher than the annual norm. In Jalal-Abad region, where DMA hatching started, the temperatures varied from 3-8°C to 9-14°C at night and from 13-18°C to 24-29°C during the day. Monthly precipitations were close to the norm. Natural vegetation in the DMA-infested areas was of medium density and had already started to dry out.

In Tajikistan, during the first half of April, the weather was colder than the norm with higher than the norm rainfalls, while in the second half of the month both temperature and rainfall were close to the annual norm. The average monthly temperature ranged from 10°C at night to 26°C during the day, reaching a maximum of 35ºC in the south by the end of the month. Natural vegetation in DMA breeding areas in foothills of Khatlon region was sparse and became dry at the end of the month.

In Turkmenistan, the temperature was generally lower than the annual norm with prevailing cool and rainy days, especially during the first decade of April. By the third decade of the month the temperature started to increase, reaching 37-39°C at daytime in some areas.

In Uzbekistan, the weather was variable, but generally close to the norm. Relatively lower than the norm precipitation in Surkhandarya, Kashkadarya, Samarkand and Jizzakh regions resulted in early dry-out of vegetation in the pasture areas. In the Autonomous Republic of Karakalpakstan and Khorezm region, the average temperature was 14-16°C, varying from 0-5°C (some nights) to 22-27°C (hotest days). In Tashkent, Syrdarya, Jizzakh, Samarkand, Bukhara and Navoi regions, the weather was close to the norm, with average temperature of 14-18°C, reaching 32°C at maximum. Average monthly temperature in Kashkadarya and Surkhandarya regions was 15-19°C. In Fergana valley, temperature varied from 5-10ºC during the nights to 25-30ºC at day time with an average of 14-17°C.

Area treated in April 2023

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

Afghanistan	15 931 (15 931) ha
Armenia	0 ha
Azerbaijan	0 ha
Georgia	0 ha
Kazakhstan	48 710 (48 710) ha
Kyrgyzstan	2680 (2680) ha
Russian Federation	0 ha
Tajikistan	50 681 (66 455) ha
Turkmenistan	22 409 (25 199) ha
Uzbekistan	117 838 (124 994) ha
Total	**258 249 (283 969) ha**

Locust Situation and Forecast

(see also summary on page 1)

CAUCASUS

Armenia

- **SITUATION**

Locust survey or other field works have not started yet.

- **FORECAST**

CIT hatching may start from mid-May in the lowlands and will continue till mid-June. Continuous favourable weather conditions may result in increase of CIT infestations in the Ararat region.

Azerbaijan

- **SITUATION**

DMA hatching started on 19 April in Agstafa district (Djeyranchel steppe). No treatment has been caried out yet.

- **FORECAST**

DMA hopper development will continue in Agstafa district and hatching will start in other districts of Djeyranchel and Kudri steppes. Control operations for DMA will start in early May using insecticides in ULV formulation (active ingredient - a.i.- alpha-cypermethrin) and EC formulation (a.i. cypermethrin and deltamethrin). CIT hatching will begin during the second half of May and LMI hatching at the end of May or early June.

Georgia

- **SITUATION**

Spring survey of the areas infested by DMA was conducted on 230 ha. DMA first hatching was observed on 24 April in Kakheti region, with first and second instar hoppers present at the end of the reporting period. The CIT egg-pod survey covered a total area of 635 ha; in the infested areas, the average density observed was 2 to 5 egg pods per m^2. No damage to egg-pods was observed.

- **FORECAST**

DMA will continue its development and CIT hatching will begin from the second half of May. Chemical treatments of locust-infested areas will start in May using lambda-cyhalothrin insecticides in EC and ULV formulations.

Russian Federation

- **SITUATION**

DMA egg-pod surveys were conducted on 16 520 ha during the reporting period in the South and North Caucasus FDs, with 5440 ha found infested in North Caucasus. The average density of DMA egg-pods was 0.24/ m². CIT egg-pod surveys were conducted on 72 260 ha; egg-pods were recorded on 3500 ha, in the South, Siberia and Volga FDs, with an average density of 1.13 egg-pods/m². LMI egg-pod surveys covered an area of 32 300 ha, out of which 880 ha were found infested, in South FD. The average density of LMI egg-pods was 0.01 per m².

- **FORECAST**

DMA hatching will start in late May and early June in the South and Northern Caucasus FDs. CIT and LMI hatching are expected from the end of May, starting from the southern regions.

CENTRAL ASIA

Afghanistan

- **SITUATION**

More then 24 000 ha were surveyed till the end of reporting period, with first DMA hatching observed in mid-March. DMA hopper development continued in April; at the end of the month, some populations were already in their fourth instars. Chemical treatments concerned a total of 15 931 ha in eight

provinces, as follows: Badghis (4530 ha), Baghlan (3342 ha), Samangan (2340 ha), Takhar (2340 ha), Herat (2240 ha), Saripul (550 ha), Balkh (449 ha) and Faryab (140 ha); they were conducted with deltamethrin (ULV 2.5%) and diflubenzuron (ULV 2.5%). Besides chemical control, mechanical control techniques, such as hoppers' collection with cloth sheets or trapping ditches, covered an area of 19 409 ha. This was conducted in five provinces, in Kunduz (the only method used so far, covering 5095 ha), Baghlan (5600 ha), Samangan (4682 ha), Balkh (3447 ha) and Takhar (585 ha).

- **FORECAST**

While DMA hatching will start in early May in the mountainous areas, its development will continue in most areas: mass fledging, followed by mating and egg-laying, is expected from the middle of the month in most provinces.

Kazakhstan

- **SITUATION**

Spring surveys of DMA egg-pods were completed on 7 April covering 27 300 ha, out of which 3672 ha were infested. Egg-pods infestations by parasites varied from 2.2 to 22%. DMA hatching in Turkestan region occurred from 28 March to 17 April (in the mountainous areas) and in Jambul region from 19 April to 29 April. DMA hoppers survey covered a total area of 578 870 ha, out of which 90 841 ha were found infested; this included an area of 48 710 ha with densities above the economic threshold, which was treated. CIT spring survey has so far covered 135 577 ha, out of which 18 035 ha were found infested with an average density of up to 1 egg-pod/m² on 9020 ha, from 1 to 5 egg-pods/m² on 6320 ha, from 5 to 10 egg-pods/m² on 1080 ha and of more than 10 egg-pods/m² on 1615 ha. Egg-pods infestations by parasites varied from 1 to 43%, mostly in the central regions, which may be also due to the high snowfalls in mid-April and increased moisture level in the soil. First CIT hatching was recorded on 28 April in Jambul region. LMI spring egg-pod surveys were conducted on 39 470 ha, out of which 3118 were infested. Average density was found of up to 1 egg-pod/m² on 1245 ha, from 1 to 5 egg-pods/m² on 1863 ha, and from 5 up to 10 egg-pods/m² on 10 ha. From 9.7 to 35% of egg-pods were found parasitized or damaged.

- **FORECAST**

DMA hopper development will end and fledging will occur from the second decade of May in Turkestan region, while hopper development will continue in Jambul. CIT hatching and hopper development will continue in the South while hatching will start during the second decade of May in other regions. LMI hatching may start in the second decade of May in the southern regions and by the end of May or in early June elsewhere.

Kyrgyzstan

- **SITUATION**

In total, 11 230 ha were surveyed in April, mainly in Jalal-Abad and Batken regions. DMA hatching started on 1 April in Jalal-Abad, which is 10 days earlier than the previous year, and on 24 April in Batken, two days later than in 2022. A total of 6400 ha were found infested, with an average hopper density of 6 to 14 individuals/m^2. Control operations against DMA covered 2680 ha, including 2200 ha in Jalal-Abad and 480 ha in Batken regions. EC insecticides (a.i. alpha-cypermethrin) were sprayed using knapsack and vehicle mounted sprayers.

- **FORECAST**

DMA mass hatching and hopper development will continue till the end of May in Jalal-Abad, Osh and Batken regions. CIT mass hatching is expected during the third decade of May in Tchuy and Talas regions.

Tajikistan

- **SITUATION**

DMA hopper development continued in Khatlon region and Districts of Republican Subordination (DRS) while hatching started on 24 April in Sughd region. By the end of the month, the total treated area reached 66 455 ha including 61 673 ha against DMA and 4782 ha against grasshoppers. While treatments were conducted in the three regions, the largest treated areas were in Khatlon, with the most critical situation in Vakhsh, Kushoniyon and Panj districts (the latter at the border with Afghanistan). This is an increase of more than 50%, compared with the same period in 2022 (43 692 ha). Treatments were carried out using EC pyrethroid insecticides (a.i. lambda-cyhalothrin and alpha cypermethrin), and 17 vehicle-mounted sprayers Micron AU 8115, 42 Tractors MTZ 82.1 as well as more than 600 hand-held and knapsack sprayers.

- **FORECAST**

DMA fledging followed by mating will occur in the south while hopper development will continue in the north. CIT hatching will start during the first decade of May. Control

operations against DMA and CIT will continue in all infested regions, including in the above districts of Khatlon region.

Turkmenistan

- **SITUATION**

An total of 70 837 ha were surveyed by the end of the reporting period. DMA hopper development continued in Lebap region, with locusts reaching the 4th instar by the end of month. First DMA hatching was observed on 9 April in Akhal region and on 11 April in Balkan region. Mass hatching of non-swarming saxaul humpback (*Dericorys albidula*) grasshopper and other species were observed in the last decade of April in Mary and Dashoguz regions. Control operations were carried out with EC insecticides (a. i. alpha-cypermethrin and imidacloprid+alpha-cypermethrin), using vehicle-mounted ULV sprayers and tractor-mounted sprayers.

- **FORECAST**

DMA fledging followed by mating will occur in Lebap region while hopper development and fledging will start in Akhal region. Based on the results of surveys conducted in April and by comparing DMA hatching dynamics with previous years, an increase of locust populations and infested areas is expected this year.

Uzbekistan

- **SITUATION**

Locust survey continued in April, during which 155 945 ha were found infested, including 147 192 ha by DMA, 2166 ha by CIT, 3108 ha by saxaul humpback grasshopper and 3479 ha by other grasshoppers. DMA hopper development continued in April in southern and central regions, with locusts reaching 5th instars and adult stage at the end of the month. Average densities of hopper bands varied from 80 to 130 individuals/m^2. Overall, 117 838 ha were treated in April for a total of 124 994 ha since the start of the campaign, which is more than 60% higher than the previous year (74 476 ha at the same period). EC insecticides with a.i. lambda-cyhalothrin, imidacloprid and combination of lambda-cyhalothrin+imidacloprid were applied, using 94 tractor-mounted and 194 hand-held knapsack sprayers, 37 ULV sprayers and 33 water tank lorries.

- **FORECAST**

DMA fledging followed by mating and egg-laying will take place during the first half of May in Surkhandarya and Kashkadarya regions while fledging will occur during the second half of May in Jizzakh and Samarkand regions. CIT hatching will start during the first decade of May in Samarkand, Jizzakh and Navoi regions. LMI hatching will start at the end of the second decade of May in Karakalpakstan. Hatching of saxaul humpback grasshopper in Karakalpakstan and Khorezm is expected during the first decade of May.

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 April 2023

- **Cross-border survey between Tajikistan and Uzbekistan** carried out on 3-8 April in Khatlon and DRS, Tajikistan, and in Surkhandarya, Uzbekistan.
- **Training-of-Trainers on locust management/ national and briefing sessions (by Master-Trainers):**
  - **Azerbaijan**: two one-day sessions (out of five) carried out to the benefit of 36 staff on 26 April in

Barda (16 staff) and 27 April in Shamkir (20 persons);

- **Georgia**: first national session (out of two) carried out on 10-12 April in Kakheti, to the benefit of 24 staff;
- **Kyrgyzstan**: first briefing session (out of five) carried out on 10-12 April, in Jalal-Abad, to the benefit of 15 staff;
- **Tajikistan**: information session on locust management, including risk reduction, held on 26 April in DRS to the benefit of 11 persons.

- **Demonstration/trial on biopesticide use against locusts**, to the benefit of Central Asian countries (with a total of 33 participants), carried out on 25-29 April in Jizzakh, Uzbekistan 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 carried on 10-19 April in Ashgabat and Ak Bugday district, Ahal region.

- **Human Health and Environmental Monitoring Teams:**
  - **Kyrgyzstan:** first two monitoring missions (out of five) carried out on 17-22 April, Aksy and Nooken 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 carried out on 10-15 April and 17-20 April in Khatlon (Vaskh and Kulob), on 24-27 April in DRS and on 29 April - 4 May in Sughd.
- **Procurement** (GCP/GLO/917/USA & GCP/INT/384/ JCA)**:**
  - **Equipment delivered/handed-over**: entomological kits and binoculars as well as environmental monitoring material for Turkmenistan, and biopesticide for the regional demonstration scheduled in April 2023 in Uzbekistan.
  - **Procurement in progress**, at various stages: IT equipment, vehicles for survey/control operations, water-tank lorry, camping equipment, GPS, biopesticide and other equipment for the regional demonstration scheduled in June 2023 in Georgia.

Forthcoming events and activities in May 2023:

- **Cross-border survey between Kyrgyzstan and Uzbekistan** scheduled on 15-20 May in Osh, Batken and Jalal-Abad, Kyrgyzstan, and in Andijan, Namangan and Ferghana, Uzbekistan.

- **Cross-border survey between Turkmenistan and Uzbekistan** scheduled on 29 May-3 June in Lebap, Turkmenistan, and in Bukhara and Kashkadarya, Uzbekistan.

- **Training-of-Trainers on locust management/ national and briefing sessions:**
  - **Armenia**: national session scheduled on 10-13 May in Jermuk, for about 20 persons (delivered by FAO Experts);
  - **Azerbaijan:** three last sessions scheduled on 4 May in Saatli, 5 May in Fuzuli and 11 May in Shabran, for about 15 persons each (by Master-Trainers);
  - **Georgia**: five briefing sessions of two days each scheduled on 4-5 May in Kakheti, 7-8 May in Kvemo Kartli, 9-10 May Mtskheta-Mtianeti, 11-12 May in Shida Kartli and 13-14 May in Samtskhe-Javakheti, for about 40 persons (by Master-Trainers);
  - **Kyrgyzstan**: second and third briefing sessions (out of five) scheduled on 2-5 May in Osh and 22-24 May in Batken, for about 15 persons each (by Master-Trainers).
- **CCALM In-depth introduction in Turkmenistan:** mission of the FAO Geographic Information System (GIS) Expert scheduled on 15-18 May in Ashgabat and Ak Bugday district, Ahal region.

- **Human Health and Environmental Monitoring Teams:**
  - **Azerbaijan:** first monitoring mission (out of five) scheduled on 23-26 May in Ceyranchol;
  - **Georgia:** first monitoring mission (out of three) scheduled on 17 May-2 June in Kakheti, Mtskheta-Mtianeti, Kvemo-Kartli, including vegetation sampling in view of pesticide residue analysis;

  - **Kyrgyzstan:** third monitoring missions (out of five) scheduled on 8-13 May, Batken and Leilek districts, Batken, and on 29 May-3 June in Manas and Kara-Buura districts, Talas;
  - **Tajikistan:** as part of the second set, four missions scheduled in Khatlon (Vaskh and Kulob), DRS and Sughd (dates to be communicated).
- **Procurement** ongoing, with expected delivery of camping equipment for Azerbaijan, biopesticide and other equipment (Georgia) for the regional demonstrations scheduled in June 2023.

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