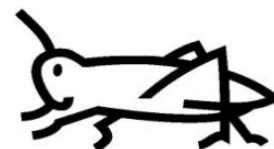




## LOCUST BULLETIN No. 69



FAO - Plant Production and Protection Division (AGP)

12 June 2020

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

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

### General situation during May 2020 Forecast for June 2020

Moroccan Locust (DMA) hopper development continued in Azerbaijan and Georgia and finished in most Central Asia (CA) countries followed by fledging, mating and egg-laying. In many countries, particularly in Kyrgyzstan and Tajikistan, anti-locust campaign was seriously hampered by COVID-19, and some DMA infestations were not treated in time. As a result, swarm flights including transboundary ones took place in many areas in CA. Hopper development of the Italian Locust (CIT) started in most countries and will continue in June; in May the situation generally remained under control. In Caucasus, cool and wet weather slowed down hopper development of both CIT and DMA. Migratory Locust (LMI) hatching started in Uzbekistan, Kazakhstan and Russian Federation; hopper development will occur in June. A total of over 600 000 ha were treated in May 2020, which is 50% more than in May 2019.

**Caucasus.** DMA hopper development continued in Azerbaijan and chemical treatments were applied. In Georgia, hatching of both DMA and CIT started later than usual because of cool and wet weather; chemical treatments started. Hatching of CIT started also in Armenia. In all countries, locust hopper development was slowed down by excessive precipitations and lower than usual temperatures. Because of that, only about 8 000 ha were treated in Caucasus in May.

**Central Asia.** DMA fledging occurred and mating and egg-laying started in most countries. CIT hopper development continued in Kazakhstan, Kyrgyzstan, Russian Federation, Tajikistan and Uzbekistan. A total of almost 600 000 ha were treated, mostly against DMA but also against CIT; this is significantly higher than in May 2019.

### Weather and Ecological Conditions in May 2020

Weather was cooler and wetter than usual in Caucasus, delaying locust hatching and slowing down locust hopper development. Weather was generally warm and dry in almost all Central Asia (CA) countries, providing favorable conditions for locust development.

In Caucasus, the weather conditions were generally cool and wet in the first half of May but then gradually improved. In Azerbaijan, the temperatures were below the norm while the precipitations exceeded the norm during the first two weeks. The natural vegetation cover remained very sparse and completely dried out even despite of rains. In the second half of the month, average temperatures were 23-25°C (up to 27°C) in the south, which is close to the climatic norm.

In Armenia, the weather was variable with temperatures between 25 and 28°C (up to 32 °C) in the daytime and 12-15°C at night in valleys and between 10 and 15°C in the daytime and 5-7°C at night in foothills.

In Georgia, the weather was rainy and cool, which delayed locust hatching and slowed down hopper development.

Vegetation in locust infested areas was green and medium dense.

In **Central Asia**, the weather was highly variable throughout the region, with temperatures close to the norm and above normal precipitations. the temperatures and precipitations were generally within the multi-annual norm.

In Kazakhstan, the weather was highly variable. In the South, the weather was unstable, with clear and cloudy days, and precipitations above the monthly norm (from 25 mm in Qzyl-Orda to 100 mm in Turkestan oblasts). The average daily temperature ranged from 12 to 32°C with minimum of 11°C (at night) and maximum of 41°C. In the East, the weather was sunny and dry. The average daily temperature ranged from 5 to 24 °C with minimum of -1.5°C and maximum of 33°C. Precipitations (only 7 mm, below the monthly norm) fell in the form of rain. In the West, the weather was variable with sunny and cloudy days and light rains below the monthly norm (from 11 mm in Aktobe to 23 mm in Mangystau oblasts). The average daily temperature ranged from 10°C to 28°C, with minimum of 4°C and maximum of 37°C. In the North, the weather was warm and sunny. The average daily temperature ranged from 6°C to 28°C, with minimum as low as -1.5°C and maximum of 36°C. Precipitations varied from 6 mm in Pavlodar (below the norm) to 82 mm in Kostanai (above the norm) oblasts.

In Kyrgyzstan, the weather was unstable with cool days and abundant rains in the first two decades and became hot and dry in the third decade. In the south, average monthly temperatures ranged from 17° to 19°C in the plains and from 13° to 15°C at foothills, which is close to the norm. More specifically, temperatures ranged from 6-11°C to 12-17°C at night and from 17-22°C to 27-32°C during the day in the plains and from 3-8°C to 9-14°C at night and 13-18°C to 22-27°C during the day at foothills. In Tchuy oblast, average monthly temperatures ranged from 16 to 18°C on the plains and from 10 to 12°C at foothills. More specifically, temperatures ranged from 4-9°C (sometimes as low as 1-6°C) at night and from 17-22°C to 25-30°C (sometimes as low as 11-16°C) during the day; the amount of precipitations (53-73 mm in Tchui valley and 89-91 mm in the foothills) was above the norm. Thanks to abundant precipitations, natural vegetation (grasses and *Artemisia* spp. mixed with ephemerals) was green with a 6-10 cm height and a dense cover.

In the Russian Federation, the weather was variable but generally favorable for locust hatching and hopper development. In the Central Federal District (FD), the average monthly temperatures ranged from 9° to 12°C (up to 26°C)



and rainfall ranged from 34 to 73 mm, which is above the norm. In the South FD, average temperatures ranged from 14° to 19°C sometimes reaching 26-29°C). Precipitations fell generally below the norm ranging from 33 to 88 mm although in some oblasts they reached 121 mm, which is above the norm. In North Caucasus FD, average temperatures ranged from 14° to 17°C with maximum up to 29°C and rain fell above the norm ranging from 55 to 215 mm. In Volga FD, average temperatures ranged from 11° to 14°C with maximum up to 30°C and rain ranged from 16 to 93 mm, slightly below the norm. In the Ural FD, the weather was warmer and drier than usual. Average temperatures ranged from 14° to 16°C and rainfall ranged from 8 to 50 mm. In the Siberian FD, the weather was much warmer and drier than usual, average temperatures ranged from 12° to 19°C and rainfall ranged from 17 to 52 mm. In the Far East FD, average temperatures ranged from 9° to 12°C and rainfall ranged from 20 to 73 mm, which is close to the norm.

In Tajikistan, the weather was generally warm and dry, which contributed to fast hopper development of DMA. In Khatlon oblast, the average temperature was 17°C at night and 29°C during the day; in Sughd oblast, the average temperature ranged from 17°C at night to 28°C during the day. In Districts of Republican Subordination (DRS) average temperatures ranged from 18°C at night to 23°C during the day. Precipitations fell below the norm. Harvesting of orchard fruit, melons, onion and winter cereals started in the south while cotton plants were in the flowering bud phase.

In Turkmenistan, the temperatures and precipitations were close to the multiannual norm.

In Uzbekistan, weather was generally warm and dry. Average temperatures ranged from 19 to 24°C, with maximum of 37°C at the end of the month, and precipitations were below the norm. In Karakalpakstan, daily temperatures were 28-30°C in the second half of the month. In the middle of May, high winds were registered across the country, particularly in central oblasts.

## Area treated in May 2020

Afghanistan	35 413 ha
Azerbaijan	6 360 ha
Georgia	1 210 ha
Kazakhstan	84 400 ha
Kyrgyzstan	14 817 ha
Russia	91 100 ha
Tajikistan	57 414 ha (till 8 June)
Turkmenistan	62 840 ha (April + May)
Uzbekistan	253 571 ha
TOTAL	607 125 ha

## Locust Situation and Forecast

(see also summary on page 1)

### CAUCASUS

#### Armenia

##### • SITUATION

Hatching of the Italian Locust (CIT) started in May. Hopper surveys were conducted on 19 250 ha out of which 2 700 ha were found infested by 1<sup>st</sup> and 2<sup>nd</sup> instar CIT hoppers at a density up to 1 individual per m<sup>2</sup>. No chemical treatments were conducted yet.

##### • FORECAST

*Italian Locust (CIT) hopper development will continue on limited areas in Ararat, Armavir and Artashat districts. Fledging may occur in late June.*

#### Azerbaijan

##### • SITUATION

DMA hopper development continued in Kudiri plains where 2<sup>nd</sup> to 4<sup>th</sup> instar hoppers prevailed in populations. In Djeyranchel and Eldar steppes hoppers were still in early instars. In these areas, chemical treatments took place on 6 360 ha. Two pyrethroid insecticides, alpha-cypermethrin and cypermethrin were applied by vehicle-mounted Ultra-Low Volume (ULV) sprayers (dose rate 1 l/ha) and tractor-driven ventilator sprayers (dose rate 200-400 l/ha). Treatment efficacy exceeded 85%. Surveys for CIT took place in Adjinour steppe and in areas near the border with Georgia but no hatching was recorded yet.

##### • FORECAST

*DMA will finish its hopper development in mid- to late May, which will be followed by fledging, mating and egg-laying. CIT*



*hatching is expected in early June.*

#### Georgia

##### • SITUATION

Because of cool and rainy weather, DMA and CIT hatching started later and hopper development was slower than usual. Mass hatching of DMA occurred in mid-May while mass hatching of CIT occurred in late May. In some areas, sudden drops of temperature caused mortality of young DMA hoppers. Surveys were conducted in Kakheti on 18 000 ha, in Kvemo-Kartli on 12 000 ha and in Mtskheta-Mtianeti on 2 000 ha. Chemical treatments with pyrethroid deltamethrin started against both locust species in the above-mentioned areas. They were applied by vehicle-mounted ULV and Low Volume (LV) sprayers and covered 1 210 ha with an efficacy of 90%.

##### • FORECAST

*DMA hopper development will be accomplished in mid-to late June followed by fledging, mating and egg-laying. However, because of unfavorable weather, DMA infestations will be reduced in areas and its damage will be insignificant. CIT will continue its hopper development in June and should the warm and dry weather prevail, it can form large hopper bands, which may spread into crops requiring chemical treatments. Presence of cattle and sheep in CIT-infested areas may hamper the chemical treatments.*

### CENTRAL ASIA

#### Afghanistan

##### • SITUATION

DMA hopper development continued throughout May and by the end of the month, most populations were in 4<sup>th</sup> and 5<sup>th</sup> instars; in some areas fledging occurred and mating and egg-laying started. Anti-locust treatments continued in the Northern, Northeastern and Western parts of the country. In total, 35 413 ha were treated in May, with largest areas treated in Kunduz, Badghiz, Baghlan and Balkh provinces. Applications were done using hand-held and vehicle-mounted ULV sprayers with Insect Growth Regulator diflubenzuron (ULV) as well as with pyrethroids lambda-cyhalothrin (ULV) and deltamethrin (ULV and EC formulations). Swarm flights were reported in areas bordering Tajikistan. In general, lack of coordination with neighboring countries (Tajikistan, Turkmenistan and Uzbekistan) is a serious obstacle to DMA

management in the region.

- **FORECAST**

*DMA mating and egg-laying will continue in June. Arrival of DMA swarms from areas, in which survey and control operations were impossible due to security concerns, may pose a serious threat to crops.*

### **Kazakhstan**

- **SITUATION**

DMA hopper surveys covered 1 687 400 ha in the south of Kazakhstan out of which 151 600 ha were found infested including 67 400 ha with densities above the Economic Threshold (ET). Chemical treatments were applied to 67 000 ha including 60 300 ha in Turkestan and 6 700 ha in Zhambyl oblasts. CIT egg-pod surveys were conducted on 204 700 ha out of which 41 600 ha were found infested. Number of eggs in egg-pod ranged from 9 to 45 and the percentage of egg-pods damaged by parasites and microorganisms ranged from 1 to 50%. CIT hopper surveys were conducted on 1 801 700 ha out of which 114 100 ha were found infested including 30 200 ha with densities above ET (Zhambyl 11 600 ha, Almaty 8 800 ha, Pavlodar 8 100 ha and Karaganda 1 700 ha). CIT hoppers were from 1<sup>st</sup> to 3<sup>rd</sup> instars. Chemical treatments were applied to 17 400 ha in the above four oblasts. LMI egg-pod surveys were conducted on 70 200 ha out of which 4 600 ha were found infested. The number of eggs in egg-pod ranged from 40 to 105 and the percentage of egg-pods damaged by parasites and microorganisms ranged from 3 to 30%. LMI hopper surveys were conducted on 168 000 ha out of which 2 000 ha were found infested, all with densities below ET. First instar hoppers prevailed in the populations.

- **FORECAST**

*DMA mating and egg-laying will take place in the first and second decades of June in Turkestan oblast and in the second and third decades of June in Zhambyl oblast. CIT will continue hopper development and fledging will occur in the south. LMI hopper development will continue in the south followed by fledging while in other areas hatching and hopper development until 4<sup>th</sup> instar will take place.*

### **Kyrgyzstan**

- **SITUATION**

DMA hopper surveys were conducted on 17 450 ha out of which 12 367 ha were found infested with densities of 3<sup>rd</sup> and 4<sup>th</sup> instar hoppers ranging from 5 to 14 individuals/m<sup>2</sup>. Chemical treatments against DMA were applied to 14 817 ha including 9 150 ha in Batken, 3 500 ha in Osh and 2 167 ha



in Jalal-abad oblasts. They were implemented by four vehicle-mounted ULV sprayers with pyrethroid insecticides alpha-cypermethrin and lambda-cyhalothrin. No treatments against CIT have been applied so far.

- **FORECAST**

*DMA fledging, mating and egg-laying will take place in June in the south. CIT hopper development will take place in Tchuy and Talas oblasts and hatching will start in Naryn oblast.*

### **Russian Federation**

- **SITUATION**

During May, locust egg-pod surveys continued and hopper surveys started. In the South FD, egg-pod survey was conducted on 264 950 ha out of which 14 040 ha were infested with an average density of 1.18/m<sup>2</sup> and a maximum density of 15/m<sup>2</sup>. Hopper surveys took place on 408 480 ha out of which 26 120 ha were infested with an average density of 28.65/m<sup>2</sup> and a maximum density of 300/m<sup>2</sup>. In five districts of the Republic of Kalmykia, "a higher readiness regime" was announced because of heavy locust infestations. In North Caucasus FD, egg-pod survey covered 211 340 ha out of which 53 430 ha were found infested with an average density of 0.69 egg-pods/m<sup>2</sup> and a maximum density of 12 egg-pods/m<sup>2</sup>. Hopper surveys were conducted on 589 670 ha out of which 148 440 ha were infested with an average density of 13.87 hoppers/m<sup>2</sup> and a maximum density of 300 hoppers/m<sup>2</sup>. In the Volga FD, egg-pod surveys were conducted on 160 000 ha out of which 10 610 ha were found infested with an average density of 1.34 egg-pods/m<sup>2</sup> and a maximum density of 2 egg-pods/m<sup>2</sup>. Hopper surveys were conducted on 115 790 ha out of which 7 150 ha were found infested with an average density of 1.09 hoppers/m<sup>2</sup> and a maximum density of 3 egg-pods/m<sup>2</sup>. In the Ural FD, locust egg-pod and hopper surveys were conducted on 30 090 ha and 24 870 ha but neither egg-pods nor hoppers were detected. In the Siberia FD, egg-pod surveys were implemented on 148 340 ha out of which 8 810 ha were infested with an average density of 0.28 egg-pods/m<sup>2</sup> and a maximum density of 4 egg-pods/m<sup>2</sup>. Hopper surveys were conducted on 48 510 ha out of which 4 880 ha were infested with an average density of 0.3 hoppers/m<sup>2</sup> and a maximum density of 2 egg-pods/m<sup>2</sup>. In the Far East FD, 2 200 ha were

surveyed for locust egg-pods but no egg-pods were found. To sum up, the total area of locust egg-pod and hopper surveys was 2 044 780 ha including 831 990 ha of egg-pod surveys (86 940 ha or 10% infested) and 1 212 790 ha of hopper surveys (186 630 ha or 15.3% infested). In addition to locust surveys, a total of 1 999 100 ha were surveyed in Russia against grasshoppers and 272 480 ha were found infested (13.6%). Anti-locust treatments were conducted by 123 units of ground sprayers and 11 aircraft on 91 100 ha.

- **FORECAST**

*Locust hopper development will continue across the country and fledging will occur in the southern FDs*

#### **Tajikistan**

- **SITUATION**

DMA hopper development continued in Khatlon, Districts of Republican Subordination (DRS) and in Sughd. Fledging started in the south (Khatlon). CIT hatching and hopper development took place mostly in Sughd. In total, from the beginning of the campaign, 148 515 ha were surveyed out of which 102 668 ha were infested with locally very high densities of hundreds per m<sup>2</sup>. In border areas with Afghanistan, Kyrgyzstan and Uzbekistan, transboundary swarm flights were recorded. DMA infestations are particularly severe in the Vakhsh River valley, which can be a source of other cropland area infestations in Khatlon. Anti-locust treatments in May covered 57 414 ha. From the beginning of the 2020 campaign and till 8 June, a total of 93 500 ha were treated against DMA and CIT including 59 640 in Khatlon, 24 516 ha in Sughd, 9 089 ha in DRS and 255 ha against grasshoppers in Gorno-Badakhshan Autonomous Oblast; 18 917 liters of pesticides such as pyrethroids alpha-cypermethrin and lambda-cyhalothrin and a mixture of chlorpyrifos and alpha-cypermethrin were used.

- **FORECAST**

*DMA swarm flights and egg-laying will occur in all areas. CIT hopper development will continue, fledging will occur at the end of June.*

#### **Turkmenistan**

- **SITUATION**

DMA hopper development occurred in May followed by fledging. From the beginning of the 2020 campaign and till 8 June, 62 840 ha were treated with alpha-cypermethrin and imidacloprid. Tractor-driven and vehicle-mounted ULV sprayers were used in the treatments. In areas bordering Uzbekistan, transboundary swarm flights were recorded. In



addition to locusts, 1 000 ha were treated against grasshoppers in Koytendag and Dovletli districts .

- **FORECAST**

*DMA swarm flights and egg-laying will take place in June.*

#### **Uzbekistan**

- **SITUATION**

DMA fledging occurred in mid-May in the south and in late May in other oblasts. Swarm flights were recorded in many areas, particularly near borders with Afghanistan, Tajikistan, Kyrgyzstan and Turkmenistan. CIT hopper development continued in Tashkent, Syrdarya oblasts, Fergana valley and in Karakalpakstan. LMI hatching started on 25 May in Karakalpakstan. Anti-locust campaign continued with 253 571 ha treated in May including 209 400 ha against DMA and 18 227 ha against CIT. In addition, 25 944 ha were treated against saxaul humpback grasshopper in Karakalpakstan and Bukhara oblast since the beginning of the campaign. The total area of treatments against locusts and grasshoppers since the beginning of the campaign is 309 690 ha. Pesticides used are lambda-cyhalothrin and imidacloprid.

- **FORECAST**

*DMA swarm flights and egg-laying will continue in June. CIT fledging will occur in Karakalpakstan, Tashkent and Syrdarya oblasts and in Fergana valley. LMI hopper development will continue in June 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](mailto:CCA@Bulletins@fao.org). Monthly information received by the 1<sup>st</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 May 2020**

- **Practical Guidelines on the three locust pests in CCA** finalized in order to be submitted in the internal FAO approval system of publications.
- **Caucasus and Central Asia Locust Management System (CCALM)** interface translated into Azeri, Dari, Georgian, Kyrgyz and Uzbek.
- **Human Health and Environmental Monitoring Teams:**
  - o Azerbaijan: 1<sup>st</sup> and 2<sup>nd</sup> monitoring missions carried out on 8-13 May in Kudri and on 22-27 May in Eldar steppe;
  - o Georgia: 1<sup>st</sup> monitoring mission carried out on 13-31 May in Kakheti, Mtskheta-Mtianeti and Kvemo kartli, including collection of vegetation for pesticide residue analysis.
- **Emergency project TCP/KYR/3801 for Kyrgyzstan**, funded by the FAO Technical Cooperation Programme (USD 250 000), approved and operationally started to provide assistance for the 2020 locust campaign.
- **Equipment:**
  - o Pesticides and Personal Protective Equipment: tender launched to the benefit of Kyrgyzstan;
  - o Cholinesterase kits: two reagents ordered for Georgia.

### **Forthcoming events and activities in June 2020**

- **Practical Guidelines on the three locust pests in CCA** to be submitted in the internal FAO approval system of publications.
- **Caucasus and Central Asia Locust Management System (CCALM)** interface to be translated into the remaining national languages.
- **Remote online sessions on Automated System for**



**Data Collection (ASDC) and CCALM** to be organized for Azerbaijan and Georgia as well as for other countries upon request (dates/periods to be determined).

- **Briefing sessions on locust spraying and pesticide risk reduction, Kyrgyzstan:** three sessions (out of the five envisaged) to be delivered by Master-Trainers to spraying staff/local manpower in Jalal-Abad, Osh and Batken regions.
- **Human Health and Environmental Monitoring Teams:**
  - o Azerbaijan: 3<sup>rd</sup> and 4<sup>th</sup> monitoring missions planned on 2-7 June in Dzheyranchel steppe and on 10-15 June in Ajinokhursky steppe;
  - o Georgia: 2<sup>nd</sup> monitoring mission planned around 10-30 June in Kakheti, Mtskheta-Mtianeti and Kvemo kartli, including collection of vegetation samples for pesticide residue analysis. Reagents for Cholinesterase kits to be delivered in early June;
  - o Kyrgyzstan: Action Plan to be prepared and monitoring missions to be started.
- **Equipment:**
  - o Pesticides and Personal Protective Equipment: tender to be closed and purchase order to be placed for Kyrgyzstan;
  - o Cholinesterase kits: two reagents to be delivered in early June for Georgia; one testmate and two reagents to be ordered for Kyrgyzstan.
- **New project GCP/INT/384/JCA - Central Asia:** date of official signature of exchanges of notes and Grant Agreement between Japan International Cooperation Agency (JICA) and FAO being fixed.

### **Activities planned during spring 2020 but postponed due to COVID-19**

- **Best long-term solution for sustainable regional cooperation:** advocacy round-trip visits to all CCA countries (several missions by a FAO Team scheduled between March and September 2020).
- **Training on locust monitoring and ASDC and CCALM use for Azerbaijan** (initially planned in Baku on 30 March-3 April 2020).

- **Joint survey in Caucasus**, involving Locust Experts from Armenia, Azerbaijan, Georgia and the Russian Federation (initially scheduled in Georgia in early May 2020).

