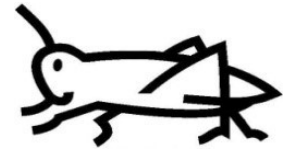




## LOCUST BULLETIN No. 70



FAO - Plant Production and Protection Division (AGP)

14 July 2020

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

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

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

Favored by hot and dry weather, Moroccan Locust (DMA) hopper development accelerated in Azerbaijan, Georgia, Russian Federation and mating and egg-laying took place in the second half of the month. DMA mating and egg-laying gradually subsided by the end of June in most Central Asia (CA) countries. In some CA countries transboundary DMA swarm flights occurred, requiring repeated chemical treatments. In general, chemical campaign against DMA was over by the end of June. Hopper development of the Italian Locust (CIT) continued, including with band formation, in Azerbaijan and Georgia where treatments were carried out while it was accomplished followed by fledging and mating in the southern CA countries. Migratory Locust (LMI) hopper development in Azerbaijan, Kazakhstan, Russian Federation and Uzbekistan was accelerated by hot weather. An area of over 900 000 ha was treated in May 2020; in total, about 1.5 million ha have been treated since the beginning of the campaign, which is close to 2019 level.

**Caucasus.** DMA hopper development was accelerated by hot weather in Azerbaijan and fledging occurred in mid-June, followed by mating and egg-laying. CIT continued its hopper development requiring application of chemical treatments. LMI hoppers were also found on a limited area near the Caspian Sea. In Georgia, DMA infestations were relatively limited while CIT hopper development and band formation

were widespread presenting a threat to crops and pastures and requiring chemical interventions. Hopper development of CIT continued in Armenia, but no treatments were applied yet. In total, 42 629 ha were treated in Caucasus in June.

**Central Asia.** DMA mating and egg-laying occurred in most countries and chemical campaign against this species finished at the end of the month. CIT hopper development continued in Kazakhstan, Kyrgyzstan, Russian Federation, Tajikistan and Uzbekistan. LMI hopper development took place in Kazakhstan, Russian Federation and Uzbekistan. A total of almost 870 000 ha were treated, mostly against CIT but also against DMA and LMI.

### Weather and Ecological Conditions in June 2020

Weather was hot and dry in both Caucasus and Central Asia, accelerating locust hopper development and providing favorable conditions for mating and egg-laying.

In Caucasus, the first decade of June was relatively cool but then, hot and dry weather established and prevailed through the month.

In Armenia, the weather was warm in the beginning of the month and became hot during the last two decades with temperatures between 30 and 33°C in the daytime and 16-18°C at night.

In Azerbaijan, after some precipitations in the beginning of the month, the weather was hot and dry throughout June. The natural vegetation cover remained very poor and



completely dry except for some *Artemisia* and camelthorn plants. Average temperatures were 25-27°C (up to 29°C), which is close to the climatic norm.

In Georgia, the weather was hot and dry with minimum temperatures 18-20°C and maximum of 35°C. Vegetation in locust-infested areas was of low density and started to dry out.

In **Central Asia**, the weather was mostly hot and dry with temperatures close to the norm and below-normal precipitations.

In Afghanistan, weather in June was hot and dry.

In Kazakhstan, the weather was generally hot and dry. It was the case in the South, with only 1.5 mm of precipitations falling in Turkestan oblast. The average daily temperature ranged from 19 to 31°C with minimum of 13°C (at night) and maximum of 37°C. In the East, the weather was unstable with sunny days prevailing. The average daily temperature ranged from 11 to 23.5 °C with minimum of 3°C and maximum of 32° C. Only 12.7 mm of precipitations, below the monthly norm, fell. In the West, the weather was sunny and dry. The average daily temperature ranged from 18°C to 35°C, with minimum of 12°C and maximum of 40°C. In the North, the weather was mostly warm and sunny. The average daily temperature ranged from 11°C to 24°C, with minimum as low as 2°C and maximum of 36°C. Precipitations varied from 1 to 23 mm (close to the norm).

In Kyrgyzstan, the weather was mostly hot. In the south, average monthly temperatures ranged from 22° to 24°C in the plains and from 18 to 20°C at foothills, which is close to the norm. More specifically, temperatures ranged from 11-16°C to 17-22°C at night and from 23-28°C to 31-36°C during the day in the plains and from 7-12°C to 13-18°C at night and 19-24°C to 27-32°C during the day at foothills. Precipitations were 13-39 mm in the valleys (close to the norm) and 39-92 mm in the foothills (above the norm). In Naryn oblast, average monthly temperatures ranged from 15 to 17°C, which is above the norm. More specifically, temperatures ranged from 2-7°C to 8-13°C at night and from 15-20°C to 24-29°C during the day; the amount of precipitations (38-56 mm) was close to the norm. Natural vegetation (grasses and *Artemisia* spp. mixed with ephemerals) started to dry out, it had a 3-5 cm height and a medium cover.

In the Russian Federation, the weather was warm with variable amount of precipitations and generally favorable for locust development. In the Central Federal District (FD), the average monthly temperatures ranged from 17° to 21°C (up to 27-33°C) and rainfall ranged from 34 to 73 mm, which is above the norm. In the South FD, the weather was hot with

average temperatures ranging from 25° to 27°C (sometimes reaching 37-41°C). Precipitations fell below the norm ranging from 16 to 36 mm. In North Caucasus FD, average temperatures ranged from 20° to 23°C with maximum up to 33°C and rain fell slightly above the norm ranging from 52 to 69 mm. In Volga FD, average temperatures ranged from 14° to 20°C with maximum up to 32°C and rain ranged from 31 to 86 mm, slightly above the norm. In the Ural FD, the weather was very unstable, with hot days with temperatures from 29 to 32°C (up to 35°C in the south) and cool days with temperatures from 15 to 18°C. Rainfall ranged from 20 to 67 mm, slightly above the norm. In the Siberian FD, the average temperatures ranged from 15° to 17°C (sometimes up to 31°C) and rainfall ranged from 24 to 40 mm, within the norm. In the Far East FD, average temperatures ranged from 11° to 16°C and rainfall ranged from 36 to 40 mm, which is close to the norm.

In Tajikistan, the weather was generally hot, with temperatures above the norm, some rain showers and high winds. In Khatlon oblast, the average temperature was 25°C at night and 36°C during the day. In Sughd oblast, the average temperature ranged from 26°C at night to 32°C during the day. In Districts of Republican Subordination (DRS), average temperatures ranged from 21°C at night to 31°C during the day. Precipitations fell below the norm. Harvesting of orchard fruit, melons, onion and winter cereals progressed from south to north.

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

In Uzbekistan, weather was very hot and dry. Average daily temperatures ranged from 28 to 30°C, with maximum of 40°C and higher and minimum of 22°C at night. In Karakalpakstan, daily temperatures were 29-35°C.

## Area treated in June 2020

Afghanistan	24 263 ha
Azerbaijan	14 629 ha
Georgia	28 000 ha
Kazakhstan	344 000 ha
Kyrgyzstan	30 030 ha
Russia	270 860 ha
Tajikistan	14 455 ha
Turkmenistan	no data
Uzbekistan	186 353 ha
TOTAL	912 590 ha

## Locust Situation and Forecast

(see also summary on page 1)

### CAUCASUS

#### Armenia

##### • SITUATION

Italian Locust (CIT) hopper surveys were conducted on 59 950 ha out of which 1 130 ha were found infested by CIT hoppers at a density between 0 and 2 individuals per m<sup>2</sup> in Ararat (1 030 ha) and Artashat (100 ha) districts. No chemical treatments were conducted yet.

##### • FORECAST

*CIT fledging will start in mid-July; chemical treatments will take place in Ararat and Artashat districts.*

#### Azerbaijan

##### • SITUATION

DMA fledging followed by mating and egg-laying occurred in Kudiri plains as well as Djeyranchel and Eldar steppes. CIT hopper development continued in Eldar steppe (Samukhi district) and Djeyranchel steppe (Akstafa and Tovuz districts); in some areas fledging started. LMI mid-instar hoppers were discovered on 8 June in wetland areas of Shabran district near the Caspian Sea. Chemical treatments against all three species were implemented on 14 629 ha including against CIT on 10 711 ha, DMA on 3 458 ha (it is unusual that CIT>DMA) and LMI on 460 ha. Two pyrethroid insecticides, alpha-cypermethrin and cypermethrin were applied by vehicle-mounted Ultra-Low Volume (ULV) sprayers (dose rate 1 l /ha), tractor-driven ventilator sprayers (dose rate 200-400 l /ha) and "Scout" sprayers (against LMI). Treatment efficacy was 90%.



##### • FORECAST

*DMA will finish egg-laying and start to die off in Kudiri plains, Eldar and Djeyranchel steppes. CIT and LMI will start mating and egg-laying.*

#### Georgia

##### • SITUATION

DMA hopper development continued through June followed by fledging, mating and egg-laying. CIT hatching started in late May (Tbilisi), first week of June (Samtskhe-Javakheti, Shida-Kartli, Mtskheta-Mtianeti) and mid-June (Kvemo-Kartli, Kakheti). As a result, by the end of the month, fourth and fifth instar hoppers and immature adults prevailed in CIT populations, which spread to wide areas and threatened crops. Particularly dangerous situation was near Armenia - Azerbaijan – Georgia borders. Nymphal surveys took place on over 150 000 ha with largest areas surveyed in Kvemo-Kartli (70 000 ha) and Kakheti (68 000 ha). Chemical treatments with pyrethroid deltamethrin (25 g/l) took place against DMA on 4 400 ha and against CIT on 23 600 ha in the above-mentioned areas. They were applied by vehicle-mounted ULV and Low Volume (LV) sprayers and covered 28 000 ha with an efficacy of 80-85% (Kvemo-Kartli) and 85-90% (all other areas). The bulk of treatments concerned Kvemo-Kartli (13 170 ha) and Kakheti (11 580 ha). In some areas, the treatments were not possible because the infested areas were intensively used as pastures.

##### • FORECAST

*DMA egg-laying will gradually subside and die-off will start. CIT fledging will occur in July followed by mating and egg-laying. The situation will remain threatening as swarms will be formed, which may start flying into crop areas requiring protective chemical treatments.*

### CENTRAL ASIA

#### Afghanistan

##### • SITUATION

In most provinces, DMA populations were in adult stage, mating and egg-laying except Ghor province where 4-5<sup>th</sup> instars still prevailed. Hot and dry weather contributed to active mating and egg-laying. In total, 24 263 ha were treated in June, with largest areas treated in Ghor (9 506 ha), Faryab (3 298 ha), Baghlan (2 524 ha) and Badghiz (2 484 ha)



provinces. Treatments were finished in Balkh in May. 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 Takhar province, requiring immediate control efforts. Overall, control operations in 2020 were implemented on larger area than forecasted because some zones, which were inaccessible for security reasons in 2019, were open this year.

- **FORECAST**

*DMA mating and egg-laying will continue in Ghor. In other provinces, egg-laying will subside and die-off will start.*

### Kazakhstan

- **SITUATION**

DMA was mating and egg-laying. Surveys during this period covered 1 017 000 ha out of which 180 900 ha were infested, including with densities below 5 egg-pods per m<sup>2</sup> on 90 000 ha, from 5 to 10 egg-pods per m<sup>2</sup> on 58 200 ha and over 10 egg-pods per m<sup>2</sup> on 32 700 ha.

CIT hopper surveys covered 1 110 000 ha out of which 789 600 ha were infested including 278 500 ha with densities above the Economic Threshold (ET). Largest infested areas with densities above ET were in West-Kazakhstan (67 400 ha), Almaty (59 000 ha), Zhambyl (40 300 ha) and Aktobe (24 900 ha). Age of CIT populations varied from first instar hoppers to adults. Chemical treatments were applied to 268 000 ha. LMI hopper surveys were conducted on 2 478 100 ha out of which 176 100 ha were infested, including 107 000 ha with densities above ET. Largest areas infested with densities above ET were in Kyzyl-Orda (55 700 ha) and Almaty (28 900 ha) oblasts. Hoppers from first to fifth instars prevailed in the populations. Chemical treatments against LMI took place on 93 400 ha.

- **FORECAST**

*DMA mating and egg-laying will subside and die-off will start. CIT will continue hopper development and mass fledging followed by mating will occur all over the country. LMI mating and egg-laying will take place in the south and in the west while hopper development will continue in the north and in the east.*

### Kyrgyzstan

- **SITUATION**

DMA hopper and adult surveys were conducted on

15 553 ha out of which 12 425 ha were infested with densities ranging from 5 to 20 individuals/m<sup>2</sup>. DMA populations were in adult stage and from 20 June, egg-laying started. CIT hopper surveys were implemented on 29 020 ha out of which 21 330 ha were infested (Naryn oblast - 14 400 ha, Tchuy – 4 380 ha, Talass – 2 550 ha) with densities from 5 to 35 individuals/m<sup>2</sup>. CIT populations were fourth and fifth instar hoppers (Naryn) and fifth instar hoppers (Tchuy, Talass).

Chemical treatments against DMA were applied by four vehicle-mounted ULV sprayers to 13 100 ha including 7 150 ha in Batken, 3 850 ha in Osh and 2 100 ha in Jalal-abad oblasts. Chemical treatments against CIT were implemented by six vehicle-mounted ULV sprayers and four tractor sprayers on 16 930 ha including 10 600 ha in Naryn, 3 780 ha in Tchuy and 2 550 ha in Talass oblasts. Against both locusts, pyrethroid insecticides alpha-cypermethrin and lambda-cyhalothrin were used.

- **FORECAST**

*In the south, DMA egg-laying will subside and die-off will start. CIT fledging followed by mating and egg-laying will occur in Naryn, Tchuy and Talas oblasts.*

### Russian Federation

- **SITUATION**

During June, locust surveys covered in total 4 130 110 ha out of which 437 780 ha were infested with hoppers and 13 660 ha with adults. Grasshopper surveys were implemented on 4 255 470 ha out of which 593 440 ha were infested with hoppers and 38 650 ha with adults. In three administrative regions – Chechen Republic, Republic of Kalmykia and Volgograd oblast – the locust situation was particularly threatening, and a “higher readiness” or “emergency” regime was declared. In the South Federal District (FD), locust infestations covered the largest area in the country and densities were the highest. Locust (CIT, DMA and LMI) hopper surveys took place on 1 549 910 ha out of which 149 080 ha were infested with an average density of 29.15/m<sup>2</sup> and a maximum density of 2 000/m<sup>2</sup>. In North Caucasus FD, locust infestations were widespread but to a lesser extent, compared to South FD. Locust (CIT, DMA and LMI) hopper surveys were conducted on 941 340 ha out of which 268 700 ha were infested with an average density of

14.95 hoppers/m<sup>2</sup> and a maximum density of 350 hoppers / m<sup>2</sup>. Adult locust surveys were conducted on 35 700 ha out of which 10 110 ha were infested with an average density of 11 individuals/m<sup>2</sup> and a maximum density of 17 individuals/m<sup>2</sup>. In all other FD, the locust situation was generally calm; however, some localized heavy grasshopper infestations occurred in the eastern part of the country. In the Central FD, CIT hopper surveys were conducted on 58 220 ha out of which 2 340 ha were infested with an average density of 0.25 individuals/m<sup>2</sup> and a maximum density of 1.20 individuals/m<sup>2</sup>. In the Volga FD, CIT hopper surveys were conducted on 327 380 ha out of which 10 170 ha were found infested with an average density of 0.61 hoppers/m<sup>2</sup> and a maximum density of 30 hoppers/m<sup>2</sup>. In the Ural FD, out of 132 700 ha surveyed, locust hoppers were found only on 400 ha with very low densities below 1 individual/m<sup>2</sup>. In the Siberia FD, CIT hopper surveys were conducted on 134 270 ha out of which 7 090 ha were infested with an average density of 0.4 hoppers/m<sup>2</sup> and a maximum density of 4 hoppers/m<sup>2</sup>. In the Far East FD, only grasshopper surveys were conducted on 102 270 ha out of which 45 570 ha were infested with an average density of 3.72 hoppers/m<sup>2</sup> and a maximum density of 85 hoppers/m<sup>2</sup>. Anti-locust treatments were conducted by 519 units of ground sprayers and 27 aircraft on 270 860 ha, which brought the total area treated since the beginning of the campaign to 360 960 ha.

- **FORECAST**

*DMA egg-laying will subside and die-off will start. CIT and LMI fledging will take place followed by mating and egg-laying (in the south). High density populations and potential swarm flights are expected in several areas of the South FD and North Caucasus FD.*

### **Tajikistan**

- **SITUATION**

DMA egg-laying was completed in Khatlon oblast and Districts of Republican Subordination (DRS) but continued in Sughd oblast where CIT was also present in some areas. In areas of Sughd oblast bordering Kyrgyzstan and Uzbekistan, the threat of swarm flights across borders persisted. In eastern Khatlon oblast, Dangara area, 17 000 ha of rangelands were destroyed by DMA swarms. In June, 14 455 ha were treated against locusts, mostly in Sughd oblast, which brought the total treated area since the beginning of the campaign to 107 955 ha. In some cases, treatments were applied to adults and certain areas were



treated more than once because of the recurrent swarm flights.

- **FORECAST**

*DMA natural cycle will end in Khatlon; egg-laying will subside and die-off will start in Sughd. CIT egg-laying will take place in Sughd. In July, egg-pod surveys will start.*

### **Turkmenistan**

- **SITUATION**

No report was received. Based on the situation in the neighboring countries, DMA egg-laying came to an end.

- **FORECAST**

*DMA will finish its natural cycle and eggs will remain in the soil until hatching next spring.*

### **Uzbekistan**

- **SITUATION**

DMA mating and egg-laying occurred and gradual die-off of the population started in the end of June. CIT hopper development continued in Tashkent and Syrdarya oblasts, Fergana valley and in Karakalpakstan followed by fledging, mating and egg-laying. LMI hopper development progressed rapidly in Karakalpakstan because of hot weather. Anti-locust treatments were implemented on 242 472 ha, bringing the total area treated since the beginning of the campaign to 496 043 ha. The largest area (141 625 ha) was treated against DMA (total 351 015 ha), followed by CIT (49 325 ha in June, total 57 552 ha), Saxaul grasshopper (22 992 ha in June, total 48 936 ha), LMI (18 540 ha) and *Calliptamus turanicus* (10 000 ha). Pesticides used are lambda-cyhalothrin and imidacloprid.

- **FORECAST**

*DMA natural cycle will end and eggs will stay in the soil until hatching next spring. CIT and LMI mating and egg-laying will continue 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 June 2020**

- **Practical Guidelines on the three locust pests in CCA** submitted in the internal FAO approval system of publications.
- **Briefing sessions on locust spraying and pesticide risk reduction, Kyrgyzstan:** two sessions delivered by Master-Trainers to a total of 20 spraying staff/local manpower on 14-16 June 2020 in Aksy and Nookan districts, Jalal-Abad region, and on 26-28 June 2020 in Nookat and Aravan districts, Osh region.
- **Human Health and Environmental Monitoring Teams:**
  - o Azerbaijan: 3<sup>rd</sup> and 4<sup>th</sup> monitoring missions carried out on 2-7 June in Dzheyranchel steppe and on 10-15 June in Ajinokhur steppe;
  - o Georgia: 2<sup>nd</sup> monitoring mission carried out on 10-30 June in Kakheti, Mtskheta-Mtianeti and Kvemo Kartli, including collection of vegetation samples for pesticide residue analysis;
  - o Kyrgyzstan: Action Plan prepared and 1<sup>st</sup> and



2<sup>nd</sup> monitoring monitoring missions carried out on 16-22 June 2020 in Aksy and Nookan districts, Jalal-Abad region, and on 28 June- 4 July 2020 in Nookat and Aravan districts, Osh region.

- **Equipment:**
  - o Pesticides and Personal Protective Equipment (PPE) for Kyrgyzstan: tenders closed; evaluation conducted for pesticides and in progress for PPE;
  - o Cholinesterase kits: two reagents delivered in early June to Georgia.
- **Webinar on the development of the current Locust situation globally, in Caucasus and Central Asia and the Russian Federation** held on 23 June 2020.  
<http://www.fao.org/russian-federation/news/detail-events/en/c/1295527/>

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

- **Practical Guidelines on pesticide risk reduction for locust control in CCA:** 200 additional copies to be delivered to Kyrgyzstan.
- **Briefing sessions on locust spraying and pesticide risk reduction, Kyrgyzstan:** 3<sup>rd</sup> and 4<sup>th</sup> sessions to be delivered by Master-Trainers to spraying staff/local manpower on 2-4 July 2020 in Batken and on 12-14 July 2020 in Talas.
- **Human Health and Environmental Monitoring Teams:**
  - o Georgia: 3<sup>rd</sup> monitoring mission scheduled on 15-29 July in Kakheti, Mtskheta-Mtianeti and Kvemo Kartli;
  - o Kyrgyzstan: 3<sup>rd</sup> and 4<sup>th</sup> monitoring missions scheduled on 11-17 July in Batken and on 24-30 July 2020 in Talas.
- **Equipment:**
  - o Pesticides and Personal Protective Equipment (PPE) for Kyrgyzstan: pesticides to be delivered and PPE to be ordered;
  - o Cholinesterase kits: two reagents to be delivered to Kyrgyzstan;
  - o Tablets for the Automated System for Data Collection (ASDC) use to be transferred to

Kazakhstan (20 units) and Turkmenistan (five units), with four entomological kits to the latter country.

- **New project GCP/INT/384/JCA - Central Asia:** official signature of exchanges of notes and Grant Agreement between Japan International Cooperation Agency (JICA) and FAO envisaged in July.

**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).*

