



## LOCUST BULLETIN No. 56

FAO - Plant Production and Protection Division (AGP)

18 July 2018

**Situation level: THREAT in Kyrgyzstan (CIT)**

**CAUTION in Kazakhstan (DMA and CIT), Russia (DMA and CIT), Tajikistan (DMA) and Uzbekistan (DMA and LMI)**

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

### General situation during June 2018 Forecast until mid-August 2018

Moroccan Locust (DMA) mating and egg-laying were in progress in most countries. During the forecast period, its natural cycle will come to an end. Italian Locust (CIT) hopper development was in progress and fledging started in Kazakhstan, Tajikistan and Uzbekistan. Migratory Locust (LMI) hopper development continued in Kazakhstan and Uzbekistan and started in the Russian Federation. For both CIT and LMI, mating and egg-laying will start during the forecast period. Since the beginning of the national campaigns, about 3 066 000 ha have been treated in Caucasus and Central Asia (CCA).

**Caucasus.** DMA mating and egg-laying were in progress in Azerbaijan and Georgia. CIT hopper development came to an end in Georgia where its bands damaged a variety of crops. CIT mating and egg-laying will take place during the forecast period. Over 23 000 ha were treated in June in Azerbaijan and Georgia.

**Central Asia.** DMA fledging occurred in all countries, followed by mating in Kazakhstan, Kyrgyzstan and Tajikistan; egg-laying was reported in Kazakhstan and Tajikistan. DMA natural cycle was already ending in Uzbekistan (and probably in Afghanistan and Turkmenistan) and it will be the case in the other countries during the forecast period. CIT hopper

development was in progress in most countries and fledging started in Southern Kazakhstan, Tajikistan and Uzbekistan. In Kyrgyzstan, the state of emergency was declared in Naryn province. LMI hopper development continued in Kazakhstan and Uzbekistan and probably started in the Russian Federation. In June, about 1.6 million ha were treated against locusts and grasshoppers.

### Weather and ecological conditions in June 2018

Warm weather with temperatures close to climatic norms prevailed. Precipitations were generally lower than the multiannual averages and the natural vegetation continued to dry out, except in Kyrgyzstan.

In **Caucasus**, warm and favorable weather for locusts prevailed. Locally fallen rains did not slow down the senescence of natural vegetation, which was rapidly drying out in Azerbaijan and Georgia.

In Azerbaijan, the weather was mostly warm and favorable for hopper and adult development of the Moroccan Locust (DMA). Temperature maximums reached 38-44°C. On 15-17 June and in the end of the month rain showers fell, accelerating DMA development. South-easterly winds prevailed at a speed of 3 to 5 m/s and up to 15-20 m/s in gusts. Dominated by sagebrush

(*Artemisia* spp.), natural vegetation cover in traditional locust habitats rapidly dried up. Elsewhere, vegetation (agricultural crops, perennial plantations, meadows and pastures) was at the maturity stage; winter cereals ripened and their harvesting continued.

In Georgia, temperatures ranged from a minimum of 10.5°C to a maximum of 34.5°C and amount of precipitation was of 110 mm. Abundant rains slowed down locust development. Despite the precipitations, natural vegetation continued to dry out.

In **Central Asia**, the weather was highly variable throughout the region with temperatures close to climatic norms.

In Kazakhstan, the weather was highly variable and often unstable. In the South, the weather was changeable, with sunny days followed by cloudy days with rain showers (from 7 to 34 mm). The average daily temperature ranged from 12.0 to 30.0°C with minimum of 9.3°C at night and maximum of 38.0°C. Relative humidity ranged from 19 to 97 %. North-easterly and north-westerly winds prevailed at a speed of 1-15 m/s and up to 25 m/s in gusts. In the East, the weather was unstable with sunny and cloudy days and 17.1 mm of rain. The average daily temperature was of 19.9°C with minimum of 4.0°C and maximum of 35.0°C. Relative humidity was of 55 %. South-easterly winds prevailed at a speed of 1-12 m/s and up to 25 m/s in gusts. In the West, the weather was variable with sunny and cloudy days and pronounced differences between daily and nightly temperatures. The average daily temperature ranged from 7.2°C to 35.5°C, with minimum of 2.1°C and maximum of 40.0°C. Relative humidity ranged from 18 to 77 %. North-westerly winds prevailed at a speed of 1.2-8.0 m/s. Precipitation ranged from 2.9 to 8.8 mm. In the North, the weather was variable with warm and rainy days with gusty winds and abundant precipitations (from 29.2 to 107.5 mm). The average daily temperature ranged from 5.3°C to 24.5°C, with minimum as low as 2.0°C and maximum of 31.0°C. Relative humidity ranged from 28 to 97 %. South-westerly and north-westerly winds prevailed at a speed of 1-7 m/s and up to 13 m/s in gusts.

In Kyrgyzstan, temperatures ranged from 13 to 18°C at night and from 25/30°C to 32/37°C during the day in the



plains and from 10 to 15°C at night and 22/27°C to 28/33°C during the day at foothills. In the South, average monthly air temperature was of 21/23°C (17/19°C at foothills) and of 13/15°C in Naryn (5/10°C at night and 14/19°C to 22/27°C during the day). Overall, temperatures were below the climatic norm by 1°C. Rain amount was of 13-39 mm in the plains and 30-92 mm at foothills (below the norm). Vegetation was green with a 6-10 cm height and a dense cover.

In the Russian Federation, the weather was warmer than usual (by at least 1°C) except in the Volga and Ural Federal Districts (FD). June was dryer than usual everywhere with 7 to 77% of the normal rain amounts. In southern regions of the Central FD, the average monthly temperature was of 17.7°C, i.e. 0.2°C below the norm. Rain averaged 19 mm, representing 26% of the norm. In the Southern FD, average temperature was of 22°C, i.e. 1.2°C above the normal. Rain amount of 3.4 mm represented only 6.8 % of the norm. In North Caucasus FD, the average temperature of 21°C was above the norm by 1.5°C; rain amounted to 32.8 mm, representing 47.3 % of the norm. In the Volga FD, average temperatures was of 15.3°C, i.e. 2.7°C above the norm. Rain amounted to 38.4 mm, representing 56.5 % of the norm. In the Ural FD, average temperature was of 13°C, i.e. 3.6°C below the norm. Rain amounted to 38.8 mm, representing 64.8 % of the norm. In the Siberian FD, the average temperature was of 18.3°C, i.e. 1.5°C above the norm. Rain amounted to 41.5 mm, representing 72.7 % of the norm. In the Far East FD, the average temperature was of 11.8°C, i.e. close to the norm, and rain amounted to 56.5 mm, representing 77.3 % of the norm.

In Tajikistan, the month of June was warmer than in 2017 by 3-5°C, with minimum of 31°C and maximum of 45°C in the foothills. In Khatlon valleys, temperatures exceeded 45°C while they were between 33 and 38°C in Sughd and Districts of Republican Subordination (DRS). From 14 to 15 June, there were heavy rains. Usual agricultural works continued in cotton plantations. In southern Khatlon, harvest of vegetable and fruits (onions, potatoes, apricots, sweet cherries, melons grown under

films) was completed as well as grain harvesting. In the South the second campaign of crop sowing started. According to meteorological forecast, July should be very hot with temperatures exceeding 40°C in the South and ranging from 33 to 39°C in the central part of the country and in Sughd.

In Uzbekistan, daily temperatures were of 24 to 26°C and 2 to 3°C lower than usual. A severe drought prevailed everywhere, with pasture vegetation down to none.

## Area treated in June 2018

Azerbaijan	17 200 ha
Georgia	6 760 ha
Kazakhstan	852 700 ha
Kyrgyzstan	58 612 ha
Russia	495 540 ha
Tajikistan	62 845 ha including 950 ha against <i>Dericorys albidula</i>
Uzbekistan	142 012 ha

## Locust situation and forecast

(see also summary on page 1)

### CAUCASUS

#### Armenia

##### • SITUATION

No report was received.

##### • FORECAST

*Based on analysis from last year campaign, limited Italian Locust (CIT) infestations only are expected, mainly in Ararat and Artashat regions. Adult mating and egg-laying will take place during the forecast period.*

#### Azerbaijan

##### • SITUATION

DMA late instar hoppers and fledglings were still present in four of the six traditional areas but adults prevailed: Jeyranchel and Eldar steppes in the North-West, near the border with Georgia; Garasu and Padar plains in the South-East; as well as Kharamin and Kudirin plains in the South. Mating started everywhere and continued through the month. Control operations against late instar hoppers and adults using two pyrethroid



formulations in Ultra-Low Volume (ULV) and Emulsifiable Concentrate (EC) were carried out on 17 200 ha in the first two of the above-mentioned areas (Jeyranchel/Eldar and Garasu/Padar).

##### • FORECAST

*Late instar hoppers having escaped control operations will fledge during the first half of July. Mating will continue and mass mating and egg-laying will occur from second and third decades of July.*

#### Georgia

##### • SITUATION

During surveys in Kakheti and Kvemo Kartli, near the border with Azerbaijan, DMA adults in mating and egg-laying and CIT 5<sup>th</sup> instar hoppers and fledglings were observed. After cereals harvest, CIT hopper bands attacked other crops (sunflower, cucurbits, vegetables, etc.). Areas treated in June against CIT amounted to 4 800 ha in Kakheti and 1 960 ha in Kvemo Kartli.

##### • FORECAST

*DMA natural cycle will end. Late instar CIT hoppers will fledge at the beginning of July and breeding and egg-laying will occur. Control operations against CIT are expected to continue until mid-July.*

### CENTRAL ASIA

#### Afghanistan

##### • SITUATION

No report was received.

##### • FORECAST

*Based on previous years' information, DMA life cycle should come to an end at the beginning of the forecast period.*

#### Kazakhstan

##### • SITUATION

DMA surveys during mating and egg-laying took place in June in South-Kazakhstan and Zhambyl provinces.



They were carried out on 1 295 400 ha of which 239 900 ha (18.5%) were infested, including 34 500 ha above the economical threshold (ET), i.e. more than 5 adults/m<sup>2</sup>. Control operations were completed in May.

CIT hopper monitoring was carried out on 8 516 700 ha throughout the country. In the southern provinces, 2<sup>nd</sup> to 5<sup>th</sup> instar hoppers as well as imagoes were present while hoppers only, from 1<sup>st</sup> to 4<sup>th</sup> instars, were observed in the western, central, northern and eastern provinces. The infested area was 1 384 200 ha (16.3%) including 756 750 ha (8.9%) above ET. The most infested provinces were West-Kazakhstan (176 700 ha infested above ET), Aktobe (172 800 ha) and Almaty (104 900 ha). An area of 705 000 ha was treated against CIT up to 27 June.

LMI hopper monitoring was carried out on an area of 2 075 400 ha out of which 238 200 ha were infested (11.5%) including 155 800 ha above ET (7.5%). Populations consisted of hoppers from the 1<sup>st</sup> to the 4<sup>th</sup> instar. The largest areas infested above ET were found in Kyzylorda (78 800 ha) and in Almaty provinces (64 200 ha). An area of 147 700 ha was treated against LMI up to 2<sup>nd</sup> July.

• **FORECAST**

*DMA mating and egg-laying will continue in July followed by natural disappearance. CIT fledging will continue in the South and start elsewhere; it will be followed by mating and egg-laying in southern and western provinces. LMI mating and egg-laying are expected in the South and in the West while hopper development and fledging will occur in the North.*

**Kyrgyzstan**

• **SITUATION**

DMA surveys were conducted on 14 110 ha of which 11 557 ha (89.4%) were infested at an average density of 7-25 individuals/m<sup>2</sup>. DMA populations consisted of 5<sup>th</sup> instar hoppers and adults, which started mating in mid-June. An area of 14 857 ha was treated including 5 327 ha in Jalal-Abad, 5 730 ha in Osh and 3 800 ha in Batken provinces.

CIT hopper surveys were carried out on 39 250 ha of which 37 503 ha (95.5%) were infested at an average

density of 11-32 hoppers/m<sup>2</sup>, including 36 034 ha in Naryn (4<sup>th</sup>/5<sup>th</sup> instars) and 1 469 ha in Chui (5<sup>th</sup> instar). As in the previous years, mixed populations of DMA and CIT were observed in Jalal-Abad, Osh and Batken provinces. In Naryn, a mass CIT outbreak occurred; in order to prevent crop losses, the Kyrgyz Government declared there a state of emergency on 13<sup>th</sup> June. An area of 43 755 ha was treated, of which 42 250 ha in Naryn and 1 505 ha in Chui.

• **FORECAST**

*DMA egg-laying will continue and no further control operations against that pest are expected. CIT mating and egg-laying will start. CIT control operations will continue in Naryn and Talas on an expected area of 10 000 ha.*

**Russian Federation**

• **SITUATION**

During surveys, locust hoppers were found on 538 370 ha, including 404 110 ha (75.1%) above the ET. Adult locust infestations were found on 133 890 ha including 21 130 ha (15.8%) above ET. In addition, non-swarming grasshopper nymphs were found on 560 750 ha, including 59 370 ha (10.6%) above ET. Grasshopper adults infested 11 990 ha, all below ET.

More specifically, in the Central FD, locust hoppers infested only 50 ha at densities from 0.33 to 2 hoppers/m<sup>2</sup>. Adult locust infestations were not found while adult grasshoppers infested 580 ha at density below 1 adult/m<sup>2</sup>. Grasshopper nymphs were present on 12 650 ha at densities from 0.13 to 1.3 hopper/m<sup>2</sup>. In the South FD, locust hoppers infested 114 070 ha at a density ranging from 23 to 350 hoppers/m<sup>2</sup>. Adult locust infestations were found on 17 190 ha with densities ranging from 20.13 to 70 adults/m<sup>2</sup>. Grasshopper nymphs were also found on 51 180 ha at a density ranging from 1.49 to 15 hoppers/m<sup>2</sup>. Adult grasshoppers infested 2 990 ha with densities between 0.57 and 9 adults/m<sup>2</sup>. In North Caucasus FD, locust hopper populations were recorded on 421 430 ha at a density of

62.59-1 000 hoppers/m<sup>2</sup>. Adult locusts infested 116 700 ha with densities ranging from 44.8 to 100 adults/m<sup>2</sup>. Grasshopper nymphs were found on 140 060 ha at a density of 3.16-19 hoppers/ m<sup>2</sup>. Adult grasshopper infestations were recorded on 7 900 ha with density ranging from 2 to 4 adults/m<sup>2</sup>. In the Volga FD, locust hoppers were observed on 720 ha at a density of 0.36-3 hoppers/m<sup>2</sup>; nymphs of grasshoppers were found on 82 930 ha at a density of 0.75-8 hoppers/ m<sup>2</sup>. In the Ural FD, no locust hoppers were recorded but grasshopper nymphs were found on 57 780 ha at a density of 2.26-8 hoppers/m<sup>2</sup>. In the Siberian FD, locust hoppers were recorded on 2 100 ha at a density of 0.45-2 hoppers/m<sup>2</sup>. Grasshopper nymphs were present on 201 820 ha at a density of 5.75-86 hoppers/m<sup>2</sup>. Adult grasshoppers were found on 520 ha at a density 0.09-3 adults/m<sup>2</sup>. In the Far East FD, no locust hoppers were observed but grasshopper nymphs were found on 14 350 ha at a density of 0.8-20 hoppers/m<sup>2</sup>.

An area of 495 540 ha was treated in South and North Caucasus, Volga, Ural and Siberian FDs.

#### • FORECAST

*Locust and grasshopper hoppers will fledge and adult development will take place everywhere in July; control operations will continue.*

#### Tajikistan

##### • SITUATION

DMA mating and egg-laying started in Khatlon, Sughd and Districts of Republican Subordination (DRS). Surveys to monitor adult group movements, mating and egg-laying took place.

CIT hopper development continued in June and fledging started. Mating probably also started locally.

To be noted that *Dericorys albidula* greatly increased its densities, producing an outbreak in South-West Khatlon (Kabodiyon district, which borders Afghanistan and Uzbekistan); 950 ha were treated against that pest.

In June, an area of 62 845 ha was treated against locusts, of which 58 346 ha against DMA (more than 92% of the treatments) mainly in Khatlon and Sughd, and 3 549 ha against CIT, in Sughd.



#### • FORECAST

*DMA life cycle will end during the forecast period. CIT mating will generalize and egg-laying will start. Survey of locust egg-beds is planned for July.*

#### Turkmenistan

##### • SITUATION

No report was received. In view of the situation in the neighbouring countries, DMA mating and egg-laying should have occurred.

#### • FORECAST

*DMA life cycle will probably end at the beginning of the forecast period.*

#### Uzbekistan

##### • SITUATION

DMA life cycle came to an end and control operations, which concerned about 65 000 ha during the month, were completed against that pest.

CIT hopper development continued in all areas as well as control operations, which were carried out on about 25 000 ha. To be noted that CIT populations were often mixed with another species from the same genus, *Calliptamus turanicus*. By the end of June, populations consisted of mostly 4<sup>th</sup> and 5<sup>th</sup> instar hoppers. First fledglings appeared in the South.

LMI hopper development was in progress in the Aral Sea zone and control operations started on over 6 000 ha in Karakalpakstan; however, the situation is complicated because most breeding areas are remote and very difficult to access.

In June, control operations were carried out on 142 012 ha, mostly in central and northern provinces. The largest areas were treated in Jizzax (30 166 ha - DMA, CIT and grasshoppers), Navoiy (25 115 ha – DMA, CIT and grasshoppers) and Tashkent (9 302 ha – CIT and grasshoppers) provinces.

Pesticides remained the same as previous months, i.e. pyrethroids and imidacloprid; additionally, 50 000 ha in



ecologically sensitive areas were allocated for treatments with an Insect Growth Regulator (IGR). About 50% of all treatments were done with ULV formulations by nine vehicle-mounted sprayers.

#### • FORECAST

*CIT* fledging will start in early July in the South and be followed by mating and egg-laying; in the North, fledging will start later and mating and egg-laying will continue through the entire forecast period. As far as *C. turanicus* is concerned, its life cycle should come to an end by early August.

*LMI* mass breeding followed by egg-laying are expected to start from mid-July around the Aral Sea. In areas with recently receded water, fledging is expected in early August.

## Announcements

**Locust warning levels.** A color-coded scheme indicates the seriousness of the current situation for each of the three main locust pests: green for calm, yellow for caution, orange for threat and red for danger. The scheme is applied to the Locust Watch web page dedicated to the current locust situation ("Locust situation now!") and to the regional monthly bulletin header. The levels indicate the perceived risk or threat of current locust infestations to crops and appropriate actions are suggested for each level.

**Locust reporting.** During calm (green) periods, countries should report at least once/month and send standardized information using the national monthly bulletin template. During caution (yellow), threat (orange) and danger (red) periods, often associated with locust outbreaks and upsurges, updates should be sent at least once/week. Affected countries are also encouraged to prepare decadal bulletins summarizing the situation. All information should be sent by e-mail to [CCA-Bulletins@fao.org](mailto:CCA-Bulletins@fao.org). Monthly information received by the 5<sup>th</sup> of each month will be included in the CCA Locust Bulletin to be issued by mid-month; otherwise, it will not appear until the next bulletin. Reports should be sent even if no locusts were found or if no surveys were conducted.



### June 2018 events and activities

#### • Training-of-Trainers on locust management:

- Two briefing sessions on locust spraying and risk reduction, including ASDC, delivered to the benefit of 29 Kyrgyz Locust Experts, by the Master-Trainers, on 6-7 June in Zhayilsky (Chuy) and 20-21 June in Bakay-Ata (Talas);
- One briefing session on ASDC use delivered to the benefit of 13 Afghan Locust Experts, by the Master-Trainers, on 30 June-1<sup>st</sup> July in Kabul.

#### • Human Health and Environmental issues:

- Kyrgyzstan: fourth and fifth missions of the Human Health and Environmental Monitoring Team carried out on 29 May-2 June in Leilek and Batken districts (Batken) and on 11-15 June in Panfilov and Jayyl districts (Chuy);
- Tajikistan: second set of missions of the Human Health and Environmental Monitoring Team carried out on 26-28 June in Vakhsh Valley and on 29-30 June in Kulob area (Khatlon).

#### • Approval of the FAO project TCP/KAZ/3701/CA under the FAO "Technical Cooperation Programme Facility" (TCPf) to the benefit of Kazakhstan (USD 36 000) for technical advisory missions on the Moroccan Locust situation and survey and control methodologies. This six-month project was approved on 11 June.

#### • 2018 Technical Workshop on locusts in CCA: scheduled on 19-23 November 2018 in Bishkek, Kyrgyzstan, following agreement received from the hosting country.

#### • Procurement of locust survey and control equipment: ongoing process.

#### • Resource mobilization: ongoing process.



- **Training-of-Trainers on locust management:** last briefing session on locust spraying and risk reduction, including ASDC, to be delivered to the benefit of about 15 Locust Experts, scheduled in early July in Zhungal (Talas), Kyrgyzstan;
- **Human Health and Environmental issues:**
  - Kyrgyzstan: sixth and last mission of the Human Health and Environmental Monitoring Team scheduled in mid-July in Naryn and Ak-Talin districts (Naryn);
  - Tajikistan: second set of missions of the Human Health and Environmental Monitoring Team to be pursued in early July, in Sughd and DRS, followed by a third set of missions.
- **Procurement of locust survey and control equipment:** ongoing process.
- **Resource mobilization:** ongoing process.

**New technical staff at FAO headquarters:**

Mr Alexandre Latchininsky joined the “Locusts and transboundary plant pests and diseases” Team on 3<sup>rd</sup> July 2018 as Agricultural Officer, Locust management.

