



LOCUST BULLETIN No. 23



FAO - Plant Production and Protection Division (AGPM)

15 July 2013

Situation level: THREAT for the Italian Locust (CIT) in Georgia, Kazakhstan and Tajikistan, the Moroccan Locust (DMA) in Afghanistan and the three locust pests in Russia

Situation level: CAUTION for the Italian Locust (CIT) in Kyrgyzstan and the Moroccan Locust (DMA) in Georgia, and Tajikistan

Situation level – CALM elsewhere

General Situation during June 2013 Forecast until mid-August 2013

The situation deteriorated during June in most Central Asian countries where hopper development of the Italian (CIT) and Asian Migratory locusts (LMI) continued under suitable conditions. Control operations were carried out on more than 4.5 million hectares (ha). During the forecast period, control operations will continue in most Central Asian countries, where the situation is still considered as very serious, as well as in Caucasus.

Caucasus. Moroccan Locust (DMA) hopper development was coming to an end, fledging continued and mating started in **Azerbaijan** and in **Georgia**, where CIT fledging also started. CIT hatching started in **Armenia**. Control operations were carried out on almost 26,000 ha in the region.

Central Asia. DMA was at the adult stage throughout the region and egg-laying was observed in some countries. CIT fledging started in **Kazakhstan**, **Kyrgyzstan**, **Russia**, **Tajikistan** and **Uzbekistan**. LMI hopper development was in progress in Kazakhstan, Russia and Uzbekistan. More than 4.5 million ha were treated against the three locust pests.

Weather and Ecological Conditions in June 2013

Warm and dry weather prevailed throughout Caucasus and Central Asia, except in Armenia. Rain fell at times in Kazakhstan and in Russia. Consequently, natural vegetation was dry or drying out.

In **Caucasus**, warm and dry weather prevailed and natural vegetation was dry except in Armenia.

In Armenia, the weather was unstable, mostly rainy (20-22 days) throughout the country with thunderstorms and hail in some areas. Cumulative rainfalls varied from 76-78 mm in the mountains and at foothills to 10-30 mm elsewhere; these important rains hampered the agricultural activities and slowed down the hopper development. The average temperature was mostly below normal with little variations of 1/3°C. Temperatures ranged from 9/13°C to 34/36°C in the lowlands, from 5/9°C to 23/27°C at foothills and from 2/7°C to 22/25°C in mountainous areas, which represented an increase of 2/6°C as compared to the previous month. Relative humidity was of 77-85% on average and of 62-67% in the Ararat Valley. The natural vegetation was mostly green in all regions with a dense cover in low- and highlands.



In Azerbaijan, the weather was mostly warm and dry, except from 27 to 29 June, when heavy rains fell. The average temperature was of 25/27°C, with peaks up to 34/36°C, which represents a slight increase of 2/3°C as compared to the previous month. South-easterly and north-westerly winds prevailed at speeds ranging from 3 to 5.7 m/s and up to 18-20 m/s in gusts. These weather conditions were suitable for hopper development and fledging. Natural vegetation was sparse and dry in traditional locust habitats. Cultivation was mainly at the stage of maturity; winter crops were ripe and harvest started.

In Georgia, dry and hot weather prevailed with average temperature of 26/32°C, sometimes reaching 38°C and more, an increase of 4°C compared with the previous month. There were 3-4 rainy days only. The vegetation was dry and had a medium cover. Crops (sunflower, sorghum, cucurbitaceae) continued developing.

In **Central Asia**, warm and dry weather prevailed but rains fell at times in Kazakhstan and Russia.

In Afghanistan, the weather was very warm and dry. The vegetation was green to dry depending on the regions.

In Kazakhstan, variable weather prevailed. In the South, the weather was clear and warm with some occasional rain. The average daily temperatures ranged from 23 to 27°C with a maximum up to 37°C, and the minimum night temperature was of 11°C in the mountains close to Almaty. Relative humidity varied from 22 to 80%. North and north-east winds prevailed at a speed of 1-12 m/s. In the East, the weather was clear and sunny, with short cloudy and rainy periods at times (14.2 mm). Average day temperature was of 14.6°C with minimum of +3°C and maximum of 36°C. Relative humidity was of 66.1%. North-westerly and north-easterly winds were variable at a speed of 5.1 m/s. In the West, there were hot days and occasional cool weather with short cloudy and rainy periods on some days. Average day temperatures

ranged from 22.1 to 25.2°C with minimum of 8.4°C and maximum of 36°C. The relative humidity varied from 23 to 43%. The wind direction was variable but north-westerly and north-easterly winds prevailed at a speed of 1.7 m/s. In the North, the weather was unstable with partly cloudy and overcast days followed by warm and sunny days, as well as occasional showers. The average day temperatures ranged from 17°C to 22.5°C, with minimum of 11°C and maximum of +30°C. The relative humidity was of 26-90%. Northerly- and north-westerly winds prevailed at a speed of 1-14 m/s. In Kyrgyzstan, the average monthly temperature was normal throughout the country. In the northern regions, it was of 20/22°C, ranging from 9/14°C to 23/28°C during the first half of the month and from 14/19° to 29/34°C during the second half. In the southern regions, the average monthly temperature was of 22/24°C, ranging from 10/15°C to 24/29°C during the first half of the month and from 14/19° to 30/35°C during the second half. The rainfall ranged from 24-40 mm to 52-82 mm at the foothills. Relative humidity was of 51-68%. Maximum soil temperature ranged from 49 to 71°C at the surface and from 22 to 29°C at a depth of 10cm. The maximum wind speed was of 5-14 m/s. The vegetation was dry with a height of 2-8 cm.

In the Russian Federation, hot and mostly dry weather prevailed except in the Siberian Federal District (FD). In the southern areas of the Central FD, the weather was characterized by relatively high temperatures (average of 17.5/35°C) and patchy rainstorms; humidity ranged from 58 to 68%. In North Caucasus and Southern FDs, the weather was hot with average daily temperature ranging from 21.9 to 36°C. Soil drought was reported in some areas. Rain fell as storms with hail at times. The average humidity ranged from 20 to 50%.

In the Volga FD, the average daily temperature ranged from 30 to 35°C. Rain fell locally. The average humidity ranged from 40 to 58%. In the Siberian FD, the average temperature was of 12-17°C with variable rain.

In Tajikistan, warm weather prevailed with temperatures higher by 8/12°C as compared to June 2012; and in some parts of the country, such as the foothills, the minimum was unexpectedly as high as 38/44°C. It was also very windy. Such hot weather contributed to the early maturation of fruits, vegetables and legumes and harvest continued. Forecast from the national meteorological centre indicate that July temperatures should be 2/6°C warmer than in the previous years.

In Uzbekistan, the weather was hot from the last decade of May to early July with average day temperature of 39°C. The natural vegetation was dry. In the Aral Sea area, the reeds were green and dense.

Area Treated in June 2013

Afghanistan	58,065 ha
Armenia	200 ha
Azerbaijan	13,341 ha
Georgia	12,204 ha (of which 5,070 by air)
Kazakhstan	3,320,145 ha
Kyrgyzstan	18,402 ha
Russia	959,700 ha
Tajikistan	18,595 ha
Uzbekistan	185,000 ha

Locust Situation and Forecast

(see also the summary on page 1 and maps on last page)

CAUCASUS

Armenia

• SITUATION

In June, surveys were carried out by the Phytosanitary Service on 15,000 ha.



CIT hoppers were observed on 12,000 ha at a density below the economical threshold except in some areas of Aragatsotn (Aruch, Arteni) and Ararat (Yeraskh, Paruyr Sevak) provinces, where ground spraying was undertaken by farmers against CIT hopper groups on a total of 200 ha.

• FORECAST

Rainy and cold weather slowed down CIT hopper development. In any case, no CIT large-scale distribution is expected and only local infestations may occur, which will be controlled as needed, including with pesticides purchased against the State budget if required. No threat from the two other locust pests is expected except if they cross over from neighboring countries.

Azerbaijan

• SITUATION

In the DMA outbreak areas of Djeiranchel area/Eldar steppe in the northwest, Garasu Padar plain in the east, Haramin and Kudirin plains in the central south, only 5th instar DMA hoppers were still present, fledging continued and mating started. Ground control operations were in progress in the two first above-mentioned areas using hand-held, knapsack and tractor-mounted sprayers. Pyrethroids in low-volume formulation (200-400 litres/ha) were used and the efficiency was of 85-90%. A total of 13,341 ha were treated in June. Awareness campaigns continued to inform farmers and rural inhabitants of spraying operations.

• FORECAST

With the persistence of warm weather, fledging will occur for all remaining DMA hoppers before mid-July. Consequently, control operations will come to an end at that time. DMA mass mating is expected to start during the 2nd decade of July, followed by egg-laying.

Georgia

• SITUATION

During surveys carried out jointly by the staff from the Phytosanitary Department and the regional specialists on 50,000 ha, DMA hoppers of 5th instar and CIT hoppers of 2nd to 5th instars as well as immature adults of both species were observed. At the end of June, 4th instar hoppers of CIT represented 10% of the population only, while 5th instar and young adults counted for 50 and 40% respectively. Organophosphate, pyrethroid and IGR in ULV formulations were sprayed by ground and also by air – in Kakheti, where there aerial operations concerned almost half of the treated area. A total of 12,204 ha were treated of which 10,446 ha in Kakheti region (Dedoplistskaro and Signagi), 1,684 ha in Kvemo Kartli and 74 ha in Shida Kartli, which represented more than 6 times the area treated in May.

• FORECAST

CIT hopper development will come to an end and egg-laying will start. It is anticipated that, as usual, control operations will focus on *CIT* populations in Kakheti during July.

CENTRAL ASIA

Afghanistan

• SITUATION

In June, DMA fledging occurred and mating was observed. Ground control operations continued against DMA infestations in 11 provinces in the northern half of the country, namely Badakhstan, Badghis, Baghlan, Balkh, Faryab, Ghor, Heart, Kunduz, Samangan, Sar-i-pul and Takhar, covering a total of 58,065 ha in plains, hills, deserts and crops; this represented 1.7 fold the area treated in May. In addition, 2,730 ha were treated against grasshoppers in the central provinces of Kabul, Logar and Parvan. In both cases, pyrethroids were used. By the end of June, the control campaign against DMA had been completed in nine provinces.



The situation continued to be considered as very serious in the northern, north-eastern and north-western parts of the country.

• FORECAST

Control operations will continue against DMA in July in Badakhstan and Ghor, where cool weather slowed down the locust development. DMA life cycle will be completed during the forecast period.

Kazakhstan

• SITUATION

DMA hopper surveys were completed by 14 June. In South Kazakhstan, after fledging which started on 14 May, mating on 19-22 May and egg-laying on 27 May, massive egg-laying occurred in late May and natural mortality in early June.

In Zhambyl, fledging started by mid-May and, during the 1st half of June, 5th instar hoppers represented 33% of the population, while adults represented 67%; mating started on 5 June and became massive on the 15 June while egg-laying started on 8 June and became massive on the 20 June. Natural mortality was observed from 23 June. Surveys of adult populations were carried out on 784,950 ha of which 173,382 ha were infested (up to 5 adults/m² on 83,712 ha, up to 10 adults/m² on 75,670 ha and more than 10 adults/m² on 14,000 ha). A total of 112,580 ha were treated against DMA.

In the South, CIT fledging started during the 3rd decade of June; at the end of the month; 3rd-5th instar hoppers only were still present and adults represented 25% of the population in Kyzylorda, 15-25% in Almaty and 4% in Zhambyl. In the West, hopper densities were of 1-76/m² reaching up to 500/m².



Mass fledging occurred from 19 June; at the end of June, 5th instar represented 45% of the hopper population in Aktobe and 75% in Mangystau while adults represented 70% of the population in Atyrau and 95% in West-Kazakhstan. In the East-Kazakhstan, hatching was observed from the 2nd decade of May and 1st-3rd instar hoppers were present in June. In Karaganda, up to 5th instar hoppers were present in June with 3rd instar hoppers prevailing, and the density was of 5-20 hoppers/m² and up to 40-50. In the North, CIT hatching started from 20 May to 12 June according to the areas with mass hatching occurring on 10-18 June. In Kostanay, all hopper instars (with prevalence of 2nd and 3rd ones) were present on 25 June at a density 20-200 hoppers/m². In Akmola, all hopper instars (with prevalence of 2nd-4th instar hoppers) were present on 27 June at density varying from 0.02-33 hoppers/m² up to 15-500 hoppers/m² within the bands. In Pavlodar, 1st instar hopper prevailed at a density of 0.1-12.8/m². In North-Kazakhstan, 2nd and 3rd instar hoppers were equally present at a density of 0.5-5.7/m². Hopper surveys were carried on 11.4 million ha of which more than 3.8 million ha were infested by CIT (up to 5 hoppers/m² on 951,000 ha, up to 10 hoppers/m² on 1.4 million ha) and more than 10 hoppers/m² on almost 1.5 million ha). More than 2.9 million ha were treated.

In the South, LMI hatching started during the 1st decade of June in South-Kazakhstan. Hoppers were present as follows: in Kyzylorda, 2nd to 5th instars (4th one prevailing) at a density of 2.5-12 hoppers/m²; in Almaty, 2nd to 5th instars (2nd one prevailing) at a density of 5-15 hoppers/m²; in Zhambyl, 2nd to 4th instar hoppers (3rd one prevailing) at a density of 2-10 hoppers/m². In the West, hatching starting on 27 May and mass hatching occurred from 4 June in West-Kazakhstan; on 29 June, 2nd to 5th instar hoppers were present as well as adults (25% of the population) at density of 2-9 locusts/ m² and up to 45. In Aktobe, hatching started in early June. In Atyrau, fledging started during the 3rd decade of June.

In the East, LMI habitats were still flooded. Hopper surveys were carried on 2.5 million ha of which almost 447,000 ha were infested by LMI (up to 5 hoppers/m² on 148,850 ha, up to 10 hoppers/m² on 205,520 ha and more than 10 hoppers/m² on 92,420 ha).

A total of 3,320,145 ha were treated against the three locust pests in June, almost 5 times the area sprayed in May.

• FORECAST

DMA will complete its life cycle and eventually disappear in South-Kazakhstan. In Zhambyl, mass mating and egg-laying will occur in July. CIT mass fledging is expected during the 2nd decade of July in the South followed by mass mating and egg-laying during the 3rd decade. In the West, mating should start during the 1st decade of July and egg-laying should be completed by the 2nd one. In the East, fledging should start during the 1st decade of July and mating and egg-laying occur by mid-July. In the North, fledging should start from the 1st decade of July. LMI hopper development will come to an end in all regions with mass fledging expected from the 1st half of July according to the areas.

Kyrgyzstan

• SITUATION

In June, during surveys carried out on 18,777 ha in Batken, Chui, Jalal-Abad, Naryn, Osh and Talas, 16,372 ha were found infested at a density ranging from 2 to 60 hoppers/m², of which 15,692 ha at a density higher than the economical threshold. Infestations were due to CIT in Naryn (large groups of 3rd-4th instar hoppers at a density of 2-10/ m²), DMA in Chui and to both species with CIT prevalence in the three other provinces (Batken, Jalal-Abad and Osh).



In these three provinces, control operations were still difficult to plan because of different hatching periods and hopper development duration. A total of 18,402 ha were treated in June (half the area controlled in May), of which 8,347 ha against CIT in Naryn, 1,340 ha against DMA in Chui and 9,515 ha against mixed CIT and DMA populations (6,285 ha in Batken, 650 ha in Jalal-Abad and 2,580 ha in Osh). Control operations came to an end except in Naryn.

• **FORECAST**

DMA life cycle will come to an end. *CIT* hopper development will continue in Naryn, requiring additional control operations.

Russian Federation

• **SITUATION**

In June, surveys were carried out on more than 9.8 million hectares. *DMA* hoppers fledged and mating started. *CIT* hopper development continued and 3rd to 5th instars were observed as well as first fledglings. *LMH* was about to complete its hopper development and 4th-5th instars as well as adults were present.

The density was of 3-60 locusts/m² in Central FD, 17.8-600 locusts/m² in North Caucasus FD, 12.3-950 locusts/m² in Southern FD, 8.9-1,000 locusts/m² in Volga FD and 4.8-150 locusts/m² in Siberian FD. A total of 959,700 ha were sprayed (more than 10 times the area treated in May), of which 4,500 ha in the Central FD, 165,200 ha in North Caucasus FD, 137,200 ha in the Southern FD and 620,100 ha in the Volga FD. A state of emergency was declared in the Astrakhan and Orenburg subjects of the Southern and Volga FDs respectively as well as in the Republics of Altai Krai, Bashkortostan, Kalmkia and Stravropol Krai.

• **FORECAST**

Mass fledging followed by movements and mating as well as widespread infestations are expected for the three locust pests during the forecast period.

Tajikistan

• **SITUATION**

Unusual weather conditions had an impact on locust development and behavior. Higher-than-normal temperatures speeded up locust maturation, mating and egg-laying, and related early drying out of the vegetation resulted in movements of locusts from mountains and foothills to the valleys. In addition, gusts favored mass migration of adults on 14-15 June, in particular along the Uzbek border. During surveys carried out throughout the country, no fledging of *CIT* and *LMH* was observed elsewhere than in Sughd. In June, a total of 18,595 ha were treated, of which 5,250 ha in Khatlon and 449 ha in RRS mainly against *DMA* and 12,896 ha in Sughd mainly against *CIT*. In June, broadcasts and press releases were issued to inform the populations of locust control operations.

• **FORECAST**

Locusts and grasshoppers will complete their life-cycle during the forecast period. Therefore, it is planned to carry out summer surveys on 200,000 ha.

Turkmenistan

• **SITUATION**

No bulletin was received for June.

• **FORECAST**

DMA will complete their life-cycle and eventually disappear.

Uzbekistan

• **SITUATION**

DMA control operations were completed and no damage on crops was reported. Until 22 June, intense movements of adult populations from Tajikistan were observed.

CIT infestations were detected in Jizzakh, Navoi and Syrdarya provinces, where control operations were carried out along irrigation ditches, canals and reservoirs using tractor-mounted and hand-held sprayers. In Karakalpakstan, early instar hoppers of LMI were observed in areas where water receded. Control operations were in progress and 1,000 ha treated every day using three Antonov-2 aircraft and six hang-gliders. The chemicals sprayed were pyrethroid, imidacloprid and Insect Growth Regulator, the later only in Karakalpakstan and away from water bodies. The total area was of 185,000 ha of which 83,000 ha against DMA, 72,000 ha against CIT and 30,000 ha against LMI.

• **FORECAST**

During the forecast period, DMA and CIT will complete their life-cycle and eventually disappear. More LMI hatching will occur until August as water will recede from currently flooded areas.

Announcements

Locust warning levels. A colour-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 Annie.Monard@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.

June 2013 events and activities. The following activities occurred or were ongoing:

- **Training session on mitigating and monitoring the impact of locust control operations on human health and the environment** delivered by Mr H. van der Valk in Naryn, **Kyrgyzstan**, on 3-7 June 2013, to 12 locust experts.
- **Joint survey** carried out on 18-20 June 2013 in Sughd region, **Tajikistan**, with locust experts from Afghanistan, Tajikistan and Uzbekistan.
- Meetings of FAO Experts with **Minister of Agriculture, Tajikistan**, organized during the 38th Session of the FAO Conference, held in Rome, Italy, on 15-22 June 2013.

July 2013 events and activities. The following activities are scheduled:

- Meeting of FAO Experts scheduled on 1-2 July at FAO Headquarters with H. Van der Valk to discuss future for actions on reducing the risks associated to locust control on human health and the environment (Result 5 of the Five-year Programme on locusts in CCA). Delivery of pesticides planned on 19 July in **Tajikistan** against the national FAO project.

