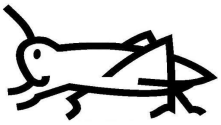
Locust Watch
Locusts in Caucasus and Central Asia

LOCUST BULLETIN No. 11



FAO - Plant Production and Protection Division (AGPM) *31 July 2011*

Situation level: CAUTION

- **Moroccan Locust (DMA) in Tajikistan and in the Russian Federation**
- **Italian Locust (CIT) in Kazakhstan and in the Russian Federation**

Situation level: CALM elsewhere for the three locust species

General Situation during June 2011 Forecast until mid-August 2011

During June, fledging of the Moroccan Locust (DMA) occurred or started in all Caucasian and Central Asian (CCA) -except in Armenia where DMA is not a pest- and its life cycle should be completed in Afghanistan, Turkmenistan and Uzbekistan. No further development is expected this year but egg-laying should be carefully monitored in areas where adult flights were reported to identify high density egg-beds. CIT and LMI hopper development was in progress and large areas had to be controlled, especially in Kazakhstan against CIT hopper bands. So far, more than 3 million ha have been treated in CCA against the three species.

Caucasus. Despite unfavorable ecological conditions, DMA fledging probably occurred in June and breeding started in **Azerbaijan**. CIT hopper development was in progress in **Armenia** but no control was needed. In **Georgia**, DMA hopper development came to an end while CIT hopper development continued, requiring the treatment of 500 ha.

Central Asia. In June, DMA breeding was in progress in all Central Asian countries and Afghanistan while fledging started in the Russian Federation. CIT fledging started in southern Central Asia and hopper development was in progress in Kazakhstan and in the Russian Federation. LMI hopper development was in progress in Kazakhstan, the Russian Federation and probably Uzbekistan. During the forecast period, DMA will progressively disappear while CIT and LMI adults will be present and breed. The 2011 locust campaigns came to an end in Afghanistan and probably Turkmenistan and Uzbekistan, and at least 0.6 million ha treated in these three countries. Control operations were carried out in Kazakhstan, Kyrgyzstan, Tajikistan and the Russian Federation. So far in 2011, more than 3 million ha have been treated of which 60% in Kazakhstan, 15% in Russia and 10% in Uzbekistan.

Weather and Ecological Conditions in June 2011

Temperatures increased in all CCA countries. Rains continued in Caucasus.

In **Caucasus**, unstable but warm weather prevailed.

In Armenia, unstable weather prevailed in all regions with cloudy and sunny days. During the first half of June, there were heavy rains, which hampered agricultural work, thunderstorms and sometimes hail, the latter causing heavy damage to crops and fruit plantations in five provinces. Day temperatures ranged from 10-12°C to 34-36°C in lowlands and up to 38°C in some areas, from 6-8°C to 29-31°C at foothills and from 3-4°C to 23-26°C in mountainous areas. This represented an increase of 3 to 6°C in lowlands, 3°C at foothills and 5-6°C in mountainous areas as compared to the previous month. The average relative humidity was of 75-85% but it was lower in the Ararat Valley (60-67%). These bad and wet weather conditions continued to favor the development of fungal diseases on crops and fruits and slowed down the development of crops as well as of locust hoppers. In areas where survey operations were conducted (plantations of perennial crops, meadows, pastures and fallow lands), the vegetation was green with a dense cover.

In Georgia, June was a rainy and warm month with more than 10 days of precipitation and an average temperature of 26-30°C. Natural vegetation and crops developed well.

In **Central Asia**, warm weather prevailed.

In Kazakhstan, the weather became more stable in all regions and temperatures increased by 5-9°C as compared to May. In the South, sunny and clear conditions prevailed with variable cloudiness, gusty winds and rains. Average day temperatures ranged from 19°C to 30°C and up to 38°C and the night ones were of 12°C. Relative humidity varied from 1 to 91%. South- and north-westerly winds prevailed at a speed of 1-14 m/s with gusts up to 25 m/s. In the East, weather was variable with rapid changes of temperatures. Rainfall amounted 67.9 mm. Temperatures ranged from 17.7 to 25.3°C (minimum of 13.1°C and maximum of 33.9°C). Relative humidity varied from 40.5 to 72.3%. Prevailing south-westerly and -easterly winds had a speed of 1-14 m/s with gusts reaching up to 23 m/s. In the West, the weather was cloudy and variable with some rains. Temperatures ranged from 19.9 to 33.5°C (minimum of 7.4°C and maximum of 41°C). The relative humidity varied from 18 to 75%. North- and south-westerly winds prevailed at a speed of 1-10 m/s. In the North, warm and sunny days were followed by cloudy and rainy periods, including thunderstorms in some places. Temperatures ranged from 12 to 25.6°C with minimum dropping to 2.2°C and maximum of 33°C. The relative humidity ranged from 42 to 100%. Southeast, northeast and north winds prevailed at a speed ranging from 1 to 22 m/s with sometimes gusts up to 44.7 m/s. According to regions, cereal crops were from ear and flowering stages to maturation and up to ripeness in the South, where harvest started; alfalfa from re-growth to second mowing; fruit from growth to maturation and ripening.

In Tajikistan, the average day temperatures were of 40-43°C in Khatlon province, 37-39°C in the Region of Republican Subordination (RRS) and 36-38°C in Sughd province during June, which represented an increase of 2-4°C as compared to the previous month.

In the Russian Federation, the weather was warm (average daily temperatures of 19-25°C) with scattered low to moderate rains in the southern areas of the Central Federal District (FD). In North Caucasian and Southern FDs, the average temperatures of 21-23°C corresponded to the norm. In the Volga FD, temperature ranged from 16-18°C to 20-22°C and rains fell during the 3rd decade. In the Siberian FD, average temperatures were of 17-22°C and light rains ranged from 6-10 to 11-20 mm.

Area Treated in June 2011

Afghanistan	240,028 ha
Georgia	500 ha

Kazakhstan	1,846,410 ha (up to 10 July)
Kyrgyzstan	61,436 ha (up to 7 July)
Russia	451,000 ha
Tajikistan	133,622 ha (up to 24 June)

Locust Situation and Forecast

(see also the summary on page 1)

CAUCASUS

Armenia

• **SITUATION**

During surveys conducted in June, the specialists from the state plant protection service identified locust infestations over 16,071 ha, i.e. more than half of the monitored area. The locusts were mainly in solitary phase and their density did generally not exceed the harmful threshold. Infestations by CIT hoppers were observed in many areas and significant damage reported on 6,500 ha in five provinces (Aragatsotn, Ararat, Gegharkunik, Shirak, Syunik). Density was of 4-5 individuals/m² reaching 8-9 inds/m² over 1,500 ha in two farms of the Shirak province. Across the country, 4th and 5th instar hoppers as well as some imagos were present in the lowlands, while hoppers only were found in the foothills (2-3 instars) and the mountains (1-2 instars). No control operations have been carried out so far.

• **FORECAST**

CIT hopper development will come to an end in all areas with fledging occurring before the end of the forecast period. So far, due to the spring and summer weather conditions, only local infestations are expected, which would probably require limited treatments.

Azerbaijan

• **SITUATION**

No report was received in June.

• **FORECAST**

DMA adults will lay eggs during the forecast period and then progressively disappear.

Georgia

• **SITUATION**

In June, surveys were carried out in three municipalities (Gardabani, Marneuli and Rustavi) of the Kvemo Kartli region: 95% of the CIT population was at the hopper stage with prevalence of the 4th instar (5% of 2nd instar, 25% of 3rd, 50% of 4th and 15% of 5%) and the adults were still immature. An area of 500 ha was treated by ground using Chlorpyrifos in ULV formulation. Survey and control operations were in progress, indicating that at least 5,000 ha were threatened by CIT infestations.

• **FORECAST**

DMA adults will lay eggs during the forecast period in the Kakheti region, including along the Azeri border, and start disappearing by mid-August. CIT hopper development will come to an end with mass fledging occurring early during the forecast period.

CENTRAL ASIA

Afghanistan

• **SITUATION**

During the 3-month locust campaign (from 2nd April to 5th July), a total area of 240,028 ha was treated by ground (hand-held and vehicle-mounted sprayers), of which the 2/3rd in the four northern provinces of Baghlan, Kunduz, Samangan and Takhar, mainly against DMA and CIT infestations. From 36,000 to 45,000 ha were treated in each of these four provinces and 24,000 to 28,000 ha were also treated in the two western neighboring provinces of Balkh and Sar-i-Pol. The pesticides used were pyrethroids (more than 56%) and benzoylurea (IGR). Survey and control operations were hampered by remote location in hilly or arid areas of numerous infestations, security issues, lack of information or late reports concerning adult flights from Tajikistan, and bad communication tools.
Nevertheless, no damage was reported on wheat while

losses were observed on sesame, cumin on some other crops like melon. Despite control operations, egg-laying occurred over large areas, which will have to be carefully surveyed and probably treated next year.

• **FORECAST**

No further development is expected during the forecast period. Egg-bed surveys should be carried out whenever possible to locate the most infested areas in order to plan the 2012 campaign.

Kazakhstan

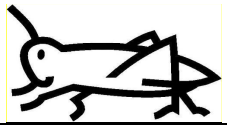
• **SITUATION**

DMA egg-laying came to an end in the southern districts of the South-Kazakhstan province; in the northern districts and at foothills, as well as in Zhambyl province, copulation and egg-laying were in progress. In Zhambyl, mating started on 2nd June and egg-laying on 15 June. The density was of 0.5 to 5 adults/m² with a sex ratio of 6 females for 4 males. A total of 12 to 18 eggs were laid by each female. Summer egg-laying surveys were in progress while control operations were completed.

CIT hatching started on 4th June in North-Kazakhstan and the peak occurred on 15-16 June with a density of 5-6 hoppers/m². In Akmola, mass hatching was observed on 6-12 June with a density of 8-12 hoppers/m². In Kostanay, due to frequent rains and temperature changes, hatching and hopper development lasted more than usual. In Pavlodar, hopper band merging resulted in size of 2 km length by 1 km width. The daily moves were of 150-200 m for 2nd and 3rd instar hoppers and of 300-400 m for older hoppers. The density was of 12,000 hoppers/m² within the bands and of 500-1,000 hoppers/m² in their vicinity, due to hopper dispersal over 1,000 to 1,500 m. It was also observed that a density as low as 5 hoppers/m² could lead to band formation and that the density of these newly-formed bands could exceed quickly 50

hoppers/m². Due to high temperatures, the hopper development was rapid, with a whole duration of 33 days with some instars lasting 4 days only. Density of scattered populations was of 1-16 hoppers/m² in West-Kazakhstan, 0.1-8 hoppers/m² in North-Kazakhstan and 30-50 hoppers/m² in Pavlodar. Fledging started on 17 June in Zhambyl, on 19-22 June in West-Kazakhstan and Pavlodar and on 27-30 June in Akmola but the main part of the CIT population (75 to 100% according to the areas) was still at hopper stage by the end of the month, with prevalence of 3rd to 5th instars. Adults were present and breeding started in the southern provinces of Almaty and South-Kazakhstan, where related surveys were in progress. So far, 1,451,240 ha have been treated against CIT infestations during the 2011 campaign.

LMI hatching started on 1st--2nd June in Atyrau, was in progress on 10 June in Zhambyl, occurred in mass on 11-23 June in East-Kazakhstan and began on 15-17 June in Kostanay, Aktobe and West-Kazakhstan. LMI hatching in Almaty, East-Kazakhstan and Kyzylorda lasted more than usual because of flooded egg-bed areas. On 27 June, the prevailing hopper instars were the 1st one in Kostanay (100% of the hopper population) and Kyzylorda (65%), the 2nd intar in Atyrau (50%), equally the 1st and 2nd instars in East-Kazakhstan (80%) and the 3rd instar in Almaty (up to 40%), where the population was older than in the other provinces. The average density ranged from 150-520 to 1,120-1,400 hoppers/ha. So far, 311,340 ha have been treated against LMI hopper infestations during the campaign.



• **FORECAST**

DMA egg-laying will continue in July in the southern part of the country and the adults will eventually disappear. Fledging of CIT hopper populations will progressively occur from early July in the northern provinces, followed by mating and egg-laying during the 2nd decade of July. During the forecast period, LMI hopper development will take place in the North while fledging followed by maturation, mating and egg-laying will occur in the western and eastern regions.

Kyrgyzstan

• **SITUATION**

Up to 6 July, DMA and CIT infestations were controlled on 61,436 ha. Jalal-Abad is the province where the largest surface was treated (22,875 ha representing 37% of the total area treated), followed by Batken (27%) and Naryn (25%), Osh (10%) and Chui (0.3%). Control operations were mainly carried out by air (61%), using three Antonov-2 airplanes.

• **FORECAST**

During the forecast period, DMA adults will progressively disappear, once their life cycle is completed, while CIT breeding will take place.

Tajikistan

• **SITUATION**

Mass DMA egg-laying was observed during June in Khatlon province and RRS. There were also many reports of flights arriving from the neighboring countries in these two regions. Southerly strong and dusty winds on 25-29 June probably further favored these moves. Control operations were in progress against CIT in the northern Sughd province, along the Kyrgyz border,,mainly against scattered populations, where almost 20,000 ha were treated in June. So far in 2011, control operations were carried out on 133,622 ha in Khatlon (58% of the treated areas), Sughd (27%) and RRS (15%) provinces. As compared to the same period in 2010, almost twice more hectares were treated. From on-going analysis, it was again highlighted that locust appeared earlier and that their development was quicker than usual as a consequence of the drought, which also forced them to look for green areas and to settle at the edge of farmlands, orchards and vineyards. This resulted in losses in crop production.

• **FORECAST**

DMA adults will progressively disappear in the southern provinces of Khatlon and RRS after completion of egg-laying. All CIT populations will progressively fledge, mature and lay eggs during the forecast period. Persistent dry conditions will probably result in high concentrations of egg-pods in suitable sites, which should be carefully monitored.

Turkmenistan

• **SITUATION**

No bulletin was received in June.

• **FORECAST**

DMA adults will progressively disappear after completion of their life cycle.

Uzbekistan

• **SITUATION**

No bulletin was received in June

• **FORECAST**

No further DMA and CIT development is expected during this campaign. Some control operations may be required against LMI infestations.

Russian Federation

• **SITUATION**

The results of hopper surveys carried out in June in 5 Federal Districts (FD) were the following: average of 6.4 hopper/m² on 24% of the surveyed area in the

Central FD; average of 32.3 hoppers/m² on 33.6% of the surveyed area in the Southern FD; average of 18.5 hoppers/m² on 75% of the surveyed area in the North Caucasian FD; average of 8.5 hoppers /m² on 38.5% of the surveyed area in the Volga FD, and average of 8.7 hoppers/m² on 44% of the surveyed area in the Siberian FD. DMA populations were at last hopper instar and fledgling stages. CIT hoppers from 4th and 5th instars were present and fledging started during the 3rd decade of June. LMI hoppers continued their development, reaching 4-5 instars and starting fledging. A total of 451,000 ha were treated in June (more than 10 times as compared to May) mobilizing 887 ground- and 58 air-sprayers.

• **FORECAST**

During the forecast period, mass fledging of the 3 locust pests will occur and be followed by mating and egg-laying.

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's 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.

New information on Locust Watch in Caucasus and Central Asia. Recent additions to the website (http://www.fao.org/ag/locusts-CCA/en/index.html) are: none

2011 events. The following activities occurred or are scheduled:

- Annual Technical Workshop on Locusts in Caucasus and Central Asia, 24-28 October 2011, Georgia.