Locust Watch
Locusts in Caucasus and Central Asia

LOCUST BULLETIN No. 4

FAO - Plant Production and Protection Division (AGPM) *15 July 2010*

Situation level: CAUTION

- **Moroccan Locust (DMA) in Tajikistan**
- **Italian Locust (CIT) in Georgia**
- **Migratory Locust (LMI) in Kazakhstan**

Situation level for DMA, CIT and LMI elsewhere: CALM

General Situation during June 2010 Forecast until mid-August 2010

DMA fledging started during June in all CCA countries where populations were already present, egg-laying began at least in Kazakhstan, Georgia and Tajikistan, and life cycle completed in Uzbekistan and probably in Afghanistan and Turkmenistan. About 100,000 ha were treated against this species in CCA, mainly in Kyrgyzstan. No further development is expected this year.
CIT hatching started in Kyrgyzstan, hopper development continued in Armenia, Georgia, Kazakhstan, Tajikistan and Uzbekistan, and fledging started in Georgia, Kazakhstan and Uzbekistan. About 1,150 million hectares were treated during the month against this species, mainly in Kazakhstan. LMI hopper development continued in Kazakhstan and Uzbekistan, where at least 500,000 ha were treated. So far during this campaign, more than 2,8 million hectares have been treated, of which about 70% in Kazakhstan (mainly CIT) and 16% in Uzbekistan (mainly DMA).

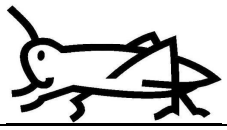
Caucasus. In south-eastern **Georgia**, while control operations against DMA hoppers came to an end, 10,000 ha have been treated against CIT hopper bands and additional 10,000 ha should be treated. In **Azerbaijan**, about 25,000 ha of DMA hoppers were treated. In **Armenia**, 1,000 ha among 100,000 ha surveyed in late June presented harmful CIT densities.

Central Asia. DMA hopper band treatments came to an end in all CCA countries except in **Kyrgyzstan** and **Tajikistan**, where more than 70,000 ha were sprayed. Control operations against CIT hopper bands intensified in **Kazakhstan** and **Uzbekistan**, where more than 1 million ha and 90,000 ha were treated respectively. LMI control also intensified with more than 500,000 ha treated in Kazakhstan. CIT control operations should be completed by the end of the forecast period but LMI treatments will probably continue beyond, particularly in Kazakhstan.

Weather and Ecological Conditions in June 2010

Weather conditions became suitable for locust development almost everywhere in CCA.

The FAO Bulletin on Locusts in Caucasus and Central Asia (CCA) is issued every month by the Plant Production and Protection Division (AGPM), Rome, Italy. It presents the locust situations of the previous month in nine countries from Caucasus and Central Asia concerning the three following locust pests: the Italian Locust (CIT), the Moroccan Locust (DMA) and the Migratory Locust (LMI).



In Caucasus, weather was mostly unstable but that did not affect locust development. In Central Asia, clear and dry weather prevailed. Previous abundant rains and related floods will have an impact on LMI bio-ecology.

In **Caucasus**, except in Azerbaijan, weather was still unstable and rainy but temperatures increased everywhere by at least 10°C.

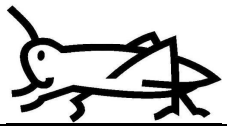
In all regions of Armenia, weather conditions were still unstable; showers and thunderstorms were reported throughout the month. In eight of the ten provinces, hail whose diameter ranged from 10 to more than 35 mm, was repeatedly observed and caused some damage to crops. Day temperatures ranged from 36°C to 39°C in lowlands, 30°C to 33°C at foothills and 26°C to 30°C in mountainous areas; this represents an average increase of 25°C of the lowest temperatures and of 7°C of the highest ones compared to the previous month. In all surveyed areas (crops, perennial plantations, meadows and pastures, fallow lands), the natural vegetation was green and dense.

In Azerbaijan, weather conditions were mostly warm during June and highly suitable for nymphal development of locusts (mainly DMA) and grasshoppers. Average day temperature was of 24-26°C, which represents an increase of 10°C compared to the previous month. South-eastern and north-westerly winds prevailed, at an average speed of 2 to 6.4 m/s (up to 20 m/s during gusts). In DMA habitats (foothills, hills, plains and fallow lands), vegetation was predominantly green, with medium density and in phase of maturation; an important development of annual herbaceous plants and weeds has been reported due to the very rainy spring. Crops and perennial plants were mostly green and ripening. By the end of June, winter cereals were fully ripe and harvests started in the South.

In Georgia, more than 20 days of rain were recorded during June. Average temperature was of 23-28°C, which represented an increase of 10°C compared to May. In surveyed areas, natural vegetation was drying out. In the cultivated areas, sunflower, wheat, other crops and vegetables were continuing their development.

In **Central Asia**, weather was generally clear and dry and temperatures increased by 10°C, becoming suitable for locust development.

In Kazakhstan, weather was generally clear and sunny during June with an average increase of temperatures of 10°C compared to May, sudden temperature changes, gusty winds, some rains and a general decrease of related humidity. In the southern region, day temperatures varied usually between 20 and 30°C and could reach a maximum of 44°C. The minimum night temperature fell to 4°C in mountainous areas of Almaty region. Relative humidity ranged between 22 and 70%. North- and south-western winds prevailed, at an average speed of 2-7 m/s (with peeks of 15 m/s). In the eastern region, average day temperature was 19.2°C (minimum of 4.6°C and maximum of 36°C). Relative humidity varied from 40 to 78%. Prevailing north-western and south-eastern winds had a speed of 1-7 m/s (up to 44 m/s during gusts). In the western region, day temperatures ranged usually from 25 to 31°C (with minimum of 9.8°C and maximum of 41°C). The relative humidity ranged between 11 and 51%. South- and north-easterly winds had a speed of 1-5 m/s reaching 9 m/s locally. In the northern region, day temperatures ranged usually from 22 to 28°C with minimum of 6.5°C and maximum of 39°C. The relative humidity was between 29 and 94%. South-western and north-easterly winds prevailed at speeds ranging from 12.1 to 15.2 m/s and occasionally



up to 47.8 m/s. According to regions, cereal crops were from tillering stage to harvesting, alfalfa from budding to regrowth after the first mowing, fruit trees in fruit growth and ripening, and vegetable and melon crops from ripening to harvest.

In Kyrgyzstan, during control operations, morning and evening temperatures were of 23-25°C. In surveyed areas, cereals were of 10-15 cm high.

In Tajikistan, in Khatlon province (south-west), average day temperature was of 30-34°C, grasslands were dry and harvest of vegetable and melons was ongoing. In Sughd province and the Region of Republican Subordination (central and northern parts), rainy weather conditions and cool temperatures prevailed (lower by 4-8°C compared to the same period in 2009).

In Uzbekistan, day temperatures ranged from 30 to 38°C and average night temperature was of 26°C, which represents an increase of 8°C compared to May. A decrease of rainy days was noted during the month. In the Aral Sea area, current water level fluctuations will probably have an impact on locust populations.

Area Treated in June 2010

Azerbaijan	25,720 ha (DMA & grasshoppers)
Georgia	10,000 ha (CIT)
Kazakhstan	1,545,710 ha (up to 7 July)
Kyrgyzstan	69,606 ha
Tajikistan	24,651 ha (total of 73,461 ha treated up to 21st June)
Uzbekistan	93,000 ha

Locust Situation and Forecast

(see also the summary on page 1)

CAUCASUS

Armenia

• **SITUATION**

During the monitoring of all plant pests, which was carried out in late June on 100,000 ha across the country, plant protection specialists observed isolated CIT hoppers only on approximately 12,000 ha, in three different areas where CIT was already reported last year. Locust densities did not reach the harmfulness threshold except in one site of 1,000 ha, in Gegharkunik Province (centre-east), where densities ranged from 2 to 5 hoppers/m². Hoppers were at 2-4 instars in lowlands, at the 2nd instar in foothills and at 1-2 instars in mountainous areas. Grasshoppers were also present. Some limited treatments against local infestations of CIT and grasshoppers are planned in late July.

• **FORECAST**

CIT hopper development will continue during the forecast period with fledging starting by mid-July. Neither large CIT populations nor spread out is expected.

Azerbaijan

• **SITUATION**

During June, DMA hopper development continued, fledging occurred and adults started maturing, all these biological events being favored by high temperatures. In the North-West (Djeiranchel, Eldar steppes), along the Georgian border, as well as in the East (Garas, Padar plain), 4th and 5th instar hoppers, fledglings and maturing adults were reported. In these two areas, 25,040 were treated against DMA hoppers and 680 ha against grasshoppers, benefiting from appropriate weather conditions. Ground control operations were carried out using tractor-mounted and hand-held sprayers; chemicals were pyrethroids (α-cypermethrin and cypermethrin) in EC formulation (200-400 litres sprayed/ha). More than 90% mortality was observed.

• **FORECAST**

Last DMA hoppers having escaped control operations will eventually fledge during the first half of July and therefore hopper treatments will stop by

mid-July. Copulation and egg-laying will start from the 2nd and 3rd decades of July. Related monitoring should be done during that period.

Georgia

• **SITUATION**

Breeding and egg-laying of remaining DMA adults were observed on 16-20 June in previously infested areas. Control operations were already completed at that period.

CIT hatching and hopper development continued and fledging started in June in all areas surveyed in Kakheti region (Dedoplistskaro, Gurjaani, Sagarejo, and Sighnaghi districts) and in Kvemo Kartli region (Gardabani, Marneuli, Rustavi and Tetri Tskaro districts). By the end of the month, the average situation in infested areas was as follows: 5% of 3rd instar hoppers; 45% of 4th instar hoppers, 40% of 5th instar hopper and 10% of immature adults. Approximately 10,000 ha have been sprayed with Chlorpyrifos by ground and air (40 and 60% respectively). Survey and control operations were still ongoing and field reports indicated that additional 10,000 ha were infested.

• **FORECAST**

DMA life cycle will be completed and no further development is expected this summer. CIT fledging will continue during July and hopper control operations will progressively come to an end.

CENTRAL ASIA

Afghanistan

• **SITUATION**

No report was received for the month of June.

• **FORECAST**

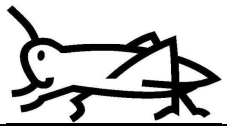
DMA and CIT biological cycles are likely to be completed with egg-laying coming to an end. Neither locust activity nor control operations are expected during the forecast period.

Kazakhstan

• **SITUATION**

In South-Kazakhstan province, DMA mass fledging followed by breeding was observed during the first decade of June in Arys and Saryagash districts, while 4th-5th instar hoppers (at densities of 55-75 and 25-45 hoppers/m² respectively) were present in northern foothills, where breeding and egg-laying started from 26-28 June. In Jambyl province, peak of fledging was noted on 12 June, breeding on 8-19 June and egg-laying from 24 June. Maximum adult densities were of 15-20 adults/m² in South-Kazakhstan province and of 3-12 adults/m² in Jambyl province. Survey operations were carried out on fixed sites for monitoring a total area of 661,850 ha from 8 June to 7 July. Control operations came to an end and limited treatments only were carried out in early June. Updated figures indicated that 74,880 ha have been treated in these two provinces during the 2010 campaign, from the second half of April up to the first decade of June.

CIT hopper development continued in the provinces where hatching occurred last month. In the South (Almaty, Jambyl, Kyzylorda and South-Kazakhstan provinces), 2nd to 5th instar hoppers as well as adults were present, at densities ranging from 2-7 to 20-27 individuals/m². Fledging started on 6 June in South-Kazakhstan province and was completed by the 5th July; it started on 24 June in Jambyl province, where 20% of the population was at immature adult stage in early July. In the West (Aktobe, Atyrau and West-Kazakhstan provinces), 2nd to 5th instar hoppers (with prevalence of 3rd instar) as well as immature adults (up to 10% of the CIT population) were present on 5th July. Maximum hopper densities were of 34 individuals/m² and up to 120 individuals/m² within the bands. Fledging started on 16-18 June with peak



on 23 June. In the North, mass hatching was observed on 7-18 June and densities ranged from 0.01 to 14.5 hoppers/m²; in Kostanay and Pavlodar provinces, bands were present at densities of 120-600 hoppers/m². Fledging started on 26-30 June. On 5th July, 1st to 5th instar hoppers as well as immature adults (5 to 100% according to the areas) were present. In East-Kazakhstan province, mass hatching was observed on 7 June and in some areas, density within bands reached 25 hoppers/m². First fledglings appeared on 14 June. From 7 June to 7 July, monitoring of CIT concerned a total area of more than 6 million ha and 1,041,060 ha were treated.

Due to abundance of spring rains and subsequent raising of lake and river levels and increase of lake size, LMI egg-beds were flooded, resulting in stretching of hatching, which started during the second half of May and continued until the end of June in Kostanay (North) and East-Kazakhstan provinces. Hopper densities ranged from 90-116 to 580-730 individuals/ha up to a maximum of 1,300-1,500 individuals/ha in Almaty and Kyzylorda provinces. Depending from areas, hoppers were from 1st to 5th instar (4th prevailing) and fledging started in Atyrau province. From 7 June to 7 July, survey operations concerned more than 2 million ha and treatments covered about 504,000 ha.

• **FORECAST**

Concerning DMA, the forecast period will be marked by natural death of populations in South-Kazakhstan province and egg-laying in Jambyl province, which will continue probably until the 3rd week of July.

In the South, mass fledging of CIT will continue during the first half of July and will be followed by maturation, mating and egg-laying during the second half of the month. In the western and northern parts of the countries as well as in Pavlodar and East-Kazakhstan provinces, hatching will come to an end during the first decade of July, hoppers will concentrate in green vegetation of fallow lands, fledging will progressively become widespread and be followed by maturation, mating and egg-laying during the second half of July. Some local adult movements are likely.

LMI hatching will come to an end and fledging will become widespread by mid-July.

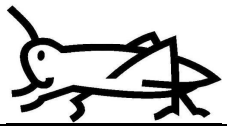
Kyrgyzstan

• **SITUATION**

DMA hopper development continued during June in the western part of the country, where a total of 88,265 ha was surveyed and 60,439 ha treated; control operations are now completed. The detailed situation is as follows: Batken province –20,985 ha surveyed, 14,760 ha treated and average density of 12-20 hoppers/m²; Jalal-Abad province –56,430 ha surveyed, 37,434 ha treated and average density of 5-19 hoppers/m²; Osh provinces –10,850 ha surveyed, 8,245 ha treated and average density of 1-8 hoppers/m².

CIT hatching continued in Naryn province (center-south) and started in Talas (north-west) and Issyk-Kul (east) provinces. In these three provinces, 17,767 ha were surveyed and 9,167 treated against hopper bands as follows: Naryn –11,843 ha surveyed of which 9,118 ha over the harmfulness threshold with density of 4-19 hoppers/m² and 6,393 ha treated using tractor-mounted sprayers, airplane Antonov-2 and micronairs; Talas –4,104 ha surveyed, 2,474 ha treated using tractor-mounted sprayers and density of 3-6 hoppers/m²; Issyk-Kul –1,820 ha surveyed and 300 ha treated for the first time. Control operations are still ongoing in Naryn province and are completed in Talas province.

In June, a total of 106,032 ha have been surveyed and 69,606 treated, of which 60,439 against DMA and 9,167 against CIT.



• **FORECAST**

CIT will progressively fledge in Naryn, Talas and Issyk-Kul provinces and hopper control operations come to an end.

Tajikistan

• **SITUATION**

DMA egg-laying as well as important movements of adults and swarms started in all areas of Khatlon province and in the Region of Republican Subordination (RRS). From 5 to 23 June, an increase by 27,000 ha of DMA infested areas was observed, probably due to locust flights coming from neighboring countries; all efforts were made to control these infestations.

CIT hopper development continued during June in Sughd province and 5th instar was dominant by the end of the month. In those districts located along the border with Uzbekistan, joint control operations were carried out by the national services of the two countries.

LMI individuals were frequently observed in DMA swarms flying in all areas of RRS. A total area of 24,651 ha was treated during June.

• **FORECAST**

With completion of its biological cycle and egg-laying, DMA will progressively disappear. All CIT populations will progressively fledge, mature and lay eggs during the forecast period. Only limited treatments are expected.

Turkmenistan

• **SITUATION**

No report was received for the month of June. DMA life cycle is probably completed in all previously infested areas.

• **FORECAST**

No further development is expected during the forecast period.

Uzbekistan

• **SITUATION**

DMA has completed its life cycle with egg-laying and control operations against this species came to an end. Treatments were still ongoing against CIT last instar hoppers and young adults as well as against grasshoppers, in particular in Karakalpakstan. Daily treatments are amounted 2,339 ha. LMI situation in Karakalpakstan remained unclear, in particular concerning the most appropriate way to manage young instar hoppers at density of 10-15 individuals/m², which have escaped treatments carried so far. In addition, impact on LMI and CIT populations of lake and Aral Sea recent flooding and expected drying out is unknown. A seminar on locusts and grasshoppers was held in this autonomous republic.

So far this year a total of 606,000 ha have been treated against locusts, of which 480,000 ha against DMA and 126,000 ha against CIT, *Dericorys albidula* (Saxaul Locust) and other grasshoppers.

• **FORECAST**

With progressive fledging of CIT and grasshopper populations, control operations will come to an end in July. Some limited treatments are likely to be carried out against LMI hoppers in Karakalpakstan.

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:

- Pictures (section Photos).

2010 events. The following activities are scheduled:

- **Joint control operations** against CIT were carried out by Tajik and Uzbek teams along their common border in the Sughd province of Tajikistan.
- **Regional technical workshop on control techniques**. 18-22 October, Tajikistan (tentative date and revised location).