



LOCUST BULLETIN No. 5



FAO - Plant Production and Protection Division (AGPM)

15 August 2010

Situation level for DMA, CIT and LMI elsewhere: CALM

General Situation during July 2010 Forecast until mid-September 2010

Locust situation was becoming calm in all CCA countries with completion of life cycle of the pests. Areas treated in July were less than 4% of those treated in June. DMA laid eggs and its life cycle is about to be completed in all CCA countries where it was still present. During the month of July, more than 50,000 hectares were treated against DMA, mainly in Turkmenistan, compared to 185,000 ha (updated figure) in June. No further development is expected until the next egg-bed surveys in autumn this year. CIT hopper development continued in Armenia, fledging started or continued in Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, and egg-laying started in Kazakhstan, Tajikistan and Turkmenistan. Less than 15,000 ha were treated during the month against this species, compared to 1,150 million ha in June. LMI hopper development continued in Kazakhstan and Uzbekistan, but the situation remained unclear. So far during this campaign, slightly less than 3 million hectares have been treated.

Caucasus. In Georgia, DMA completed its life cycle while CIT late instar hoppers and fledglings infested additional 6,000 ha; control operations were conducted on 3,000 ha. In Azerbaijan, DMA fledged and started laying eggs; only limited treatments were carried out. In Armenia, on 5,000 ha of 30,000 ha surveyed in July high CIT densities were detected and limited control operations will be carried out in early August.

Central Asia. DMA egg-laying was reported from all CCA countries and control operations were carried out on more than 50,000 ha in only two countries, Kyrgyzstan and Turkmenistan. Less than 15,000 ha were treated against CIT in Kyrgyzstan, Tajikistan and Uzbekistan. No control was undertaken against LMI.

Weather and Ecological Conditions in July 2010

Generally hot weather conditions prevailed during July in CCA (except in Armenia), resulting in a severe drying out of the vegetation and concentration of locust populations.

In **Caucasus**, the weather was mainly dry and hot except in Armenia.



In most parts of Armenia, some showers and thunderstorms were reported during the first half of July. From two provinces, hail stones as big as 8 to more than 16 mm reported. Day temperatures ranged from 39°C to 42°C in lowlands, 36°C to 40°C at foothills and 28°C to 32°C in mountainous areas; this represents an average increase of about 4°C as compared to June. In all surveyed areas (crops, perennial plantations, meadows and pastures, fallow lands) the natural vegetation was predominantly green and dense but started drying out in some places. Harvest of winter cereal crops began during the second half of the month.

In Azerbaijan, mostly hot and dry weather conditions prevailed during July and caused increased DMA mating and mass egg-laying. Average day temperature was of 32-36°C with peaks up to 38-40°C, which corresponds to an increase of 8-10°C as compared to June. In DMA habitats (foothills, hills, plains and fallow lands), herbaceous vegetation was still dense but was drying out or already dry. Crops and perennial plants were ripe and harvest of grain crops was completed by the end of the month.

In Georgia, there were only few rainy days during July. Average day temperature was of 33-38°C, which stands for an increase of 10°C as compared to June. In the surveyed areas, natural vegetation was dry and in neighboring cultivated parts, crops were ripening or ready for harvesting.

In **Central Asia**, the weather was generally hot with a slight increase of temperature as compared to June.

In Kazakhstan, the weather was generally clear, sunny and hot during July with very little rain in particular in the western part where crops suffered significantly. In the southern part, weather was clear with variable cloud cover and some rainfall. Day temperatures varied a lot, from 14°C to 33°C and up to a maximum of 44°C. The minimum night temperature fell under 4°C in mountainous areas of Almaty region. Relative humidity ranged between 13 and 70%. South-

easterly and north-westerly winds prevailed, at an average speed of 1-11 m/s. In the East, weather was variable with some rains. Day temperature fluctuated a lot around an average of 19.9°C (minimum of 6.3°C and maximum of 35.6°C). Relative humidity varied from 26 to 93%. Prevailing north-westerly winds had a speed of 1-7 m/s (up to 44 m/s during gusts). In the West, weather was hot and dry with very little rain, which caused severe damage to crops. Day temperatures ranged usually from 13.8 to 33.5°C (with minimum of 12°C and maximum of 43°C). The relative humidity ranged between 8 and 51%. South- and north-easterly winds had a speed of 1-8 m/s. In the North, weather was unstable with variable cloud cover, sudden changes in temperature and some rains. Day temperatures ranged usually from 13.2 to 28.5°C with minimum of 2°C and maximum of 34.8°C. The relative humidity was between 37 and 98%. South-westerly, north-westerly and north-easterly winds prevailed at a speed ranging from 0.1 to 18 m/s and occasionally up to 43.4 m/s. Depending on the regions, cereal crops were from milky stage to full ripeness and harvest was ongoing; alfalfa from shooting to re-growth after the 3rd mowing; fruit trees from ripening to full ripeness and harvest; and vegetable and melon crops from ripening to harvest.

In Tajikistan, average day temperature was of 38-44°C in Khatlon province (south-west), 36-38°C in the Region of Republican Subordination (central part) and of 33-37°C in Sughd province (north).

In Turkmenistan, a late report indicated that weather conditions were stable with very little rain (11.9 mm) during June, average day temperature was of 28-30°C (with minimum of 12°C and maximum up to 48°C). The natural vegetation was dry, cereal harvest was completed, cotton flowering and fruit ripening. In July, the weather was stable and only traces of rainfall were

recorded. Average day temperature ranged from 28 to 32°C with maximum up to 50°C. Natural herbaceous vegetation was fully dry everywhere in the country.

Crop harvest continued in the north while cotton continued to blossom and started forming bolls.

In Uzbekistan, average day temperatures were of 38-40°C and average night temperature of 28°C, which represents a slight increase of 2°C compared to June. Natural vegetation was dry and even burnt in some places.

Area Treated in July 2010

Azerbaijan	Some DMA treatments (no figure)
Georgia	3,000 ha (CIT)
Kyrgyzstan	20,482 ha
Tajikistan	2,352 ha (CIT)
Turkmenistan	85,250 ha (mainly DMA) – June 42,010 ha (mainly DMA) – July
Uzbekistan	Some CIT treatments (no figure)

Locust Situation and Forecast

(see also the summary on page 1)

CAUCASUS

Armenia

• SITUATION

The most recent surveys carried out by national plant protection officers confirmed as predicted in May, that the country will not face any locust outbreak this year. Populations of isolated hoppers were observed on approximately 30,000 ha, but density reached the threshold of significant harm on 5,000 ha only. CIT was the main species present in the areas of the three provinces where it was reported last year; grasshoppers were also observed. In Gegharkunik Province (centre-east), densities of CIT 3-4 instar hoppers ranged from 5 to 19 hoppers/m² in an area of 800-900 ha. In Aragatsotn Province (west), 2-3 instar hoppers at a density of 2-10 hoppers/m² were observed on 1,500-1,700 ha.



In Shirak Province, which is a mountainous area and the most northerly one, stretching along the Georgian border, 1-3 instar hoppers at density of 9-12 hoppers/m² were present over 2,400 ha. Some limited ground treatments will be carried out against localized infestations starting in early August. Training courses were carried out.

• FORECAST

CIT hopper development will come to an end and mass fledging will occur during August. Neither large *CIT* populations nor spread out is expected.

Azerbaijan

• SITUATION

In July, DMA hopper populations fledged and adults matured, mated and started laying eggs, favored by dry and hot conditions. In the North-West (Djeiranchel, Eldar steppes), along the Georgian border, residual hoppers and adults continued their development and mating and egg-laying were observed on 11-17 July. In the South-East (Garas, Padar plain), adult maturation continued and mating and egg-laying started. Some limited ground treatments were carried out during the first half of July using tractor-mounted and hand-held sprayers; chemical insecticides were pyrethroids (α -cypermethrin and cypermethrin) in emulsifiable concentrate (EC) formulation sprayed at a volume of 200-400 litres/ha. More than 90% mortality was observed. Local people (mainly farmers and rural residents) were informed after completion of the control operations. Up to the 1st July, the revised figures showed that a total of 25,040 ha have been treated.

• FORECAST

DMA life cycle will come to an end after completion of egg-laying. An egg-bed survey will be carried out during autumn in order to assess egg-pod density and distribution and to plan the 2011 locust campaign.

Georgia

• SITUATION

DMA life cycle was probably completed in early July and no further control operations were needed.

CIT continued its development and mass fledging occurred during July. In the surveyed areas of Kakheti (Dedoplistskaro, Gurjaani, Sagarejo and Signaghi districts) and Kvemo Kartli (Gardabani, Marneuli, Rustavi and Tetri Tskaro districts) regions, 6,000 ha were found infested with CIT populations consisting of 20% of 5th instar hoppers and 80% of immature flying adults. Approximately 3,000 ha were treated by ground (52%) and air (48%) in July. It has been planned to continue survey and control operations until mid-August. In the framework of the locust emergency project, FAO provided ultra-low volume (ULV) pesticides and sprayers as well as technical support, which was highly appreciated.

• FORECAST

Treatments against CIT populations will progressively come to an end and egg-bed survey will probably be carried out during the forecast period.

CENTRAL ASIA

Afghanistan

• SITUATION

No report was received for the month of July.

• FORECAST

Autumn egg-bed survey will probably be carried out by the end of the forecast period.

Kazakhstan

• SITUATION

Extensive surveys on more than 1.3 million ha to assess end of summer DMA adult populations, of which approximately 740,000 ha targeting egg-beds, reported mass egg-laying in early July and adult disappearance from 25 July onwards.

In the South, in Jambyl province, 65% of CIT mature



adults were mating and 35% laying eggs. Maximum density observed was between 12-15 adults/m². Beginning of egg-laying was reported on 8 July. In the West, mating was observed from 1 to 8 July in West-Kazakhstan province and 14-22 July in Aktobe province, and egg-laying reported from 21 July onwards. The density ranged between 1-3 and 8-14 adults/m². In the North, mass fledging was reported from 8 to 20 July. By 23 July, almost the whole population had fledged and the density ranged from 0.01 to 15.5 adults/m². Mating started between 3 and 5 July in Kostanay and Pavlodar provinces and 12-23 July elsewhere; egg-laying was observed throughout the second half of the month. In East-Kazakhstan province, mass fledging was reported on 14 July and egg-laying started from mid-July onwards. Natural mortality was first noted in late July. Extensive surveys covered more than 9.4 million ha and mating and egg-bed monitoring more than 4.5 million ha.

Due to persistent flooding of traditional LMI breeding areas, hatching continued up to 8-15 July in East- and South-Kazakhstan and Jambyl provinces. Density ranged from 20-116 to 320-720 hoppers/m². Fledging started from 3 to 25 July according to the area and mating was first reported on 28 July. Extensive surveys covered more than 3 million ha and mating and egg-bed monitoring more than 610,000 ha. To be noted that control operations against the three locust pests were completed in June.

• FORECAST

DMA natural mortality will start during the first half of August. CIT mating and egg-laying will continue during the first half of August and natural mortality will start by the third decade. LMI mating and egg-laying will continue in August.

DMA, CIT and LMI mating and egg-laying monitoring will continue in order to appropriately plan next year locust campaigns.

Kyrgyzstan

• SITUATION

In July, 20,482 ha were treated and control operations came to an end. More than 90,000 ha have been treated during the 2010 campaign of which about 58% sprayed by air using fixed-wing aircraft Antonov-2.

• FORECAST

DMA and CIT will complete their life cycles and will progressively disappear. Only egg-bed survey operations should be carried out during the forecast period.

Tajikistan

• SITUATION

DMA egg-laying occurred and came to an end during July in all areas of Khatlon province and in the Region of Republican Subordination (RRS). Long-term observations on appearance of CIT adults during the second half of July in Sughd province were again confirmed this year; limited ground chemical control treatments were needed on 2,352 ha. Due to shortage of pesticide during the campaign, uncontrolled locusts laid eggs in areas where egg-beds were not reported before. A total of 78,863 ha have been treated during the 2010 campaign (about 9,000 ha less than in 2009 despite almost similar infestations) mainly in Khatlon province (against DMA). Twenty-two tractor-mounted sprayers and 450 hand-held sprayers were used by a total of 590 workers to carry out control operations. Based on first results of campaign analysis, a project for controlling locusts and other dangerous pests in 2011 has been prepared by the national anti-locust service for submission to the Government.



• FORECAST

With completion of their biological cycles, DMA and CIT will eventually disappear. Not further development is expected this year.

Turkmenistan

• SITUATION

A late report indicated that during surveys carried until 23 June on approximately 170,000 ha, only adult populations of DMA were observed. In the East (Lebap province), in Koyten Dag foothills and mountains, mature adults were mating and forming swarms, moving westwards, at density of 25-30 locusts/m²; drying vegetation contributed to adult concentration. In the South (Ahal province) and West (Balkan province), in Kopet Dag foothills and mountains, early June was characterized by mass mating, beginning of egg-laying and movement of adults towards depressions, near water sources and green patches of vegetation; densities reached 60-70 adults/m². CIT development continued in May and June in eastern and southern regions, in areas where DMA was also present; numbers remained low. Only sporadic presence of LMI was reported. Numbers of *Dericorys albidula* increased in the Karakum Desert (east of the Caspian Sea) and fledging started during the first decade of June. In June, ground control with pyrethroids was carried out on 85,000 ha against DMA (35,000 ha in the East, 30,000 ha in the South and 20,000 ha in the West). More than 250 ha were also treated against *Dericorys* in the Karakum Desert.

Surveys were carried out until 23 July on 90,000 ha. In the East, DMA mating, egg-laying and swarm movements continued, adult concentration, at density

of 20-25 adults/m², on remaining patches of green vegetation intensified resulting in increasing gregarious behaviour, and adult disappearance started. In the South and West, mass mating and swarm movements continued; density was of 50-55 adults/m². CIT fledging started but numbers remained low. LMI was sporadically present in the Murghab Valley, in the South. *Dericorys* matured and laid eggs throughout a large area within the Karakum Desert. In July, 42,010 ha have been treated: 11,000 ha in the East, 20,000 ha in the South and 10,000 ha in the West against DMA as well as 1,010 ha against *Dericorys*.

• FORECAST

After dense egg-laying, which will result in more gregarious locust populations in next year, DMA will progressively disappear. CIT and LMI will also complete their life cycles during the forecast period.

Uzbekistan

• SITUATION

With completion of its life cycle and further decline of locust numbers, DMA is not a threat any longer and no control was needed during the month. CIT fledged and adults were mating in Karakalpakstan, where treatments came to end. In Syr Darya and Tashkent areas, CIT density reached 15 individuals/m² near cotton crops and treatments were carried out on up to 20-50 ha/day using imidacloprid. Densities up to 2-5 individuals/m² were observed in the mountains close to Tashkent. LMI situation in Karakalpakstan remained unclear. In areas where water receded, 4-5 instar hoppers were present. Elsewhere, inundations still persisted. A better overview of the current situation and its likely developments is expected from the technical field mission in Aral Sea and Lake Aydarkul areas to be carried out from 10 to 25 August in the framework of the regional FAO project (TCP/INT/3202).

So far this year a total of 620,000 ha have been treated against locusts.



• FORECAST

DMA and CIT populations will progressively disappear. Egg-bed survey will take place in October-November with focus in areas which received flights from neighboring countries in June and July.

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).
- Bibliography in Russian on Orthopteroid Insects (Section Documents)

2010 events. The following activities occurred or are scheduled:

- **Training** of 12 national technical and senior staff on ULV technology –theory and practice- in the framework of the FAO locust emergency project, 23-26 July, Georgia.
- **Technical assistance** for assessing LMI situation, in the framework of the FAO regional project, 10-25 August, Uzbekistan.
- **Regional technical workshop on control techniques.** 18-22 October, Dushanbe, Tajikistan.