



### LOCUST BULLETIN No. 3



FAO - Plant Production and Protection Division (AGPM)

15 June 2010

#### Situation level: CAUTION

- Moroccan Locust (DMA) in Georgia, Kyrgyzstan and Tajikistan
- Italian Locust (CIT) in Georgia and Kazakhstan
- Migratory Locust (LMI) in Kazakhstan

Situation level for DMA, CIT and LMI elsewhere: CALM

#### General Situation during May 2010 Forecast until mid-July 2010

**DMA** hopper development is coming to an end in southern CCA countries and control operations will decrease; however, monitoring of uncontrolled adult populations, which are maturing and laying eggs, should be continued in order to plan the 2011 DMA hopper campaign in particular in Georgia, Kyrgyzstan and Tajikistan. Focus will progressively shift to CIT and LMI management and a peak of control operations is expected by the end of the forecast period, especially in Georgia and Kazakhstan. So far, more than 1 million hectares have been treated during the 2010 locust campaign with about 75% in Kazakhstan (mainly CIT) and Uzbekistan (mainly DMA).

**Caucasus.** In south-eastern Georgia, about 14,000 ha of dense DMA hopper bands were controlled during May. In June, treatments will progressively focus on CIT, which is threatening more than 15,000 ha. In Azerbaijan, operations against DMA were hampered by bad weather conditions. In Armenia, no significant CIT development is expected due to the wet and cool weather conditions in spring.

**Central Asia.** Control operations against DMA hopper bands declined in May in Tajikistan and Uzbekistan, where a total of 63,000 ha was treated compared to more than 310,000 ha in April. They started in Kyrgyzstan and intensified in Kazakhstan and Turkmenistan. Control of CIT hopper bands started in Kazakhstan and Uzbekistan, where 247,000 ha and 11,000 ha were treated respectively. LMI control started also in these two countries on a total of about 14,000 ha. During the forecast period, DMA control will progressively come to an end and CIT and LMI treatments will intensify, particularly in Kazakhstan.

#### Weather and Ecological Conditions in May 2010

Variable weather conditions prevailed again in CCA. In Caucasus, cool and rainy weather continued to slow hopper development and delay fledging. In Central Asia, hopper development continued under more favourable ecological conditions in southern countries and started in Kazakhstan.



In **Caucasus**, the weather remained erratic throughout May with up to 18 days of rainfall.

In all regions of Armenia, variable weather conditions prevailed during May, with cloudy and sunny days and some heavy rains, which disrupted the cycle of usual agricultural works. Day temperatures ranged from 11 °C to 31 °C in lowlands, 5 °C to 27 °C at foothills and 4 °C to 22 °C in mountainous areas, which represents a very slight temperature increase compared to the previous month. In all surveyed areas (crops, perennial plantations, meadows and pastures, fallow lands), the natural vegetation was green and dense. As a result of the wet conditions, a significant increase of fungal diseases on crops was reported.

In Azerbaijan, weather conditions were mostly cool during May. Numerous heavy rains fell during the first half of the month and slowed down the hopper development. Average day temperature was of 14-16 °C. In DMA habitats (foothills, hills, plains and fallow lands), vegetation was predominantly green, continued its development and had a medium coverage. By the end of May, winter cereals were at the beginning of the milky ripe stage. Elsewhere in meadows, canyons, mountains and foothills, heavy rains resulted in intense development of annual herbaceous plants.

In Georgia, more than 18 days of rain were recorded during May. Average temperature was of 15-17 °C, which represented an increase of 2 °C compared to the previous month. Nevertheless, conditions were still unfavorable for hopper development. In surveyed areas, natural vegetation was green and dense. In the cultivated areas, sunflower, wheat, other crops and vegetables continued their development.

In **Central Asia**, variable weather conditions prevailed during May and temperatures increased slightly, which delayed hatching and slowed down hopper development.

In Kazakhstan, weather conditions were mainly unstable during May with variable cloud cover, sudden temperature changes, gusty winds and some rains.

In the southern region, day temperatures varied between 12 and 23 °C and could reach a maximum of +34 °C. The minimum night temperature fell to -1 °C in mountainous areas of Almaty region. Relative humidity ranged between 17 and 88%. North- and south-western winds prevailed, at an average speed of 1.3-8.5 m/s (with peaks of 25 m/s). In the eastern region, average day temperature was 12.1 °C (minimum of 0 °C and maximum of +29 °C). The relative humidity was 30-93%. Prevailing north-western and south-eastern winds had a speed of 1-6 m/s (up to 13 m/s during gusts). In the western region, day temperatures ranged from 13 to 21 °C (with minimum of -7 °C and maximum of +33 °C). The relative humidity ranged between 20 and 71.5%. South- and north-easterly winds had a speed of 1-6 m/s reaching 10 m/s locally. In the northern region, day temperatures ranged from 8 to 20 °C with minimum of -1 °C and maximum of +33 °C. The relative humidity was between 29 and 94%. South-western and north-easterly winds prevailed at speeds ranging from 0.5 to 12.1 m/s and occasionally up to 20 m/s. According to regions, cereal crops were from tillering stage to beginning of flowering, alfalfa from shooting to the first mowing, fruit trees in fruit growth and vegetable crops from shoot to harvest.

In Kyrgyzstan, weather conditions were erratic with frequent rains during May. In locust habitats, the day average temperature ranged from 17 to 22 °C, which was cooler than in previous years and resulted in low vegetation cover and height (above 10-15 cm).

In Tajikistan, the month of May was characterized by very unstable weather conditions with temperatures lower than usual (9-11 °C), heavy rains and thunderstorms causing mudslides. As a result, grassland became green and dense, with natural vegetation of 20-30 cm high, better developed than previous year. In Khatlon province, the average day temperature was

between 26 and 30°C; heavy rains caused mudslides with casualties. Nevertheless, natural vegetation started drying out in some areas and harvesting of the first alfalfa cut was completed. In the Republican Subordination (RRS) and Sughd regions, average day temperature ranged between 16 and 20°C and the sky was often cloudy and rainy.

In Turkmenistan, the weather conditions in May were marked by light rains and occasionally hail storms. The average temperature ranged between 20 and 26°C (with a minimum of 4°C and a maximum of 38°C). The average monthly rainfall was 15-33 mm. Natural vegetation was dry in the southern and south-western parts and drying out in the east. Grain harvest started in the southern and south-eastern parts; stone fruits (apricot, cherry, etc.) and apples began ripening.

In Uzbekistan, day temperatures ranged from 25 to 30°C and the average night temperature was 15°C. After an early spring marked by drought, rain fell increasingly from 20<sup>th</sup> April onwards and resulted in a raise of the water level in the lakes.

## Area Treated

Azerbaijan	1,320 ha (DMA & grasshoppers)
Georgia	14,500 ha
Kazakhstan	334,620 ha (up to 6 June)
Kyrgyzstan	34,334 ha
Tajikistan	13,000 ha
Turkmenistan	57,900 ha (April) 103,500 ha (May)
Uzbekistan	61,900 ha

## Locust Situation and Forecast

(see also the summary on page 1)

### CAUCASUS

#### Armenia

##### • SITUATION

During surveys, only isolated CIT hoppers were reported in lowlands during the second half of May and no hatching was observed in foothills and mountainous



areas. Cool and rainy conditions delayed hatching everywhere.

##### • FORECAST

*CIT hatching should start during the first half of June in foothill areas. However, due to the wet and cool conditions, which prevailed during spring, favoring the development of pathogens, it is considered that CIT egg-pods are highly infected by micro-organisms; therefore, mass development of CIT is not expected in 2010.*

#### Azerbaijan

##### • SITUATION

DMA hopper development continued in the North-West (Djeiranchel Eldar steppes), along the Georgian border, and in the East (Garasu Padar plain). Because of bad weather conditions, only 800 ha infested by 2<sup>nd</sup> and 3<sup>rd</sup> instar DMA hopper bands were treated in these two areas in addition to 520 ha against grasshoppers. Ground control operations were carried out using tractor mounted sprayers and hand-held sprayers; the chemicals were pyrethroids ( $\alpha$ -cypermethrin and cypermethrin) in EC formulation.

##### • FORECAST

*As weather conditions will improve with temperature increase, it is expected that DMA hoppers will develop faster and that fledging will occur during the second half of June.*

#### Georgia

##### • SITUATION

DMA hopper development continued slowly in May and fledging started; consequently populations observed during surveys carried out in the South-East (Samukhi area and Iori hills) were composed of 4-5 instar hopper bands and fledglings, with predominantly 5<sup>th</sup> instar hoppers. In Samukhi area,



14,000 ha were treated by air and in low hills, 500 ha were treated by ground using pyrethroid (Deltamethrin) in ULV formulation. Control operations resulted in more than 80% mortality.

CIT infestations by dense hopper bands of young instars were observed in four municipalities of Kakheti and Kvemo Kartli regions (Akhmeta, Dedoplistskaro, Marneuli and Signaghi). It is considered that more than 15,000 ha are already under threat.

• **FORECAST**

*DMA* hoppers which escaped treatments will fledge during the first half of June and will become unsuitable targets for control operations. During the same period, more CIT hopper bands will appear and control operations will progressively focus on CIT.

**CENTRAL ASIA**

**Afghanistan**

• **SITUATION**

No report was received in May.

• **FORECAST**

*As vegetation will dry out, DMA* adults will move to and concentrate in areas suitable for egg-laying. Likewise, the same should occur for CIT during the forecast period.

**Kazakhstan**

• **SITUATION**

By the first week of June, DMA hopper development was coming to an end in the South-Kazakhstan and Jambyl provinces. In those districts where fledging had already started, the proportion of adults accounted for 15-100% of the total locust population at density lower than 8-10 adults/m<sup>2</sup>; in other districts, 3-4 instars prevailed at density of 30-35 inds/m<sup>2</sup> in South-Kazakhstan and of 0.5-4 inds/m<sup>2</sup> in Jambyl. Hopper control operations were carried out in both provinces over a total area of 74,260 ha (up to 6<sup>th</sup> June).

Since the last decade of April, CIT hatching started everywhere in the country and was observed from

23 April to 20 May in the south (Almaty, Jambyl, Kyzylorda and South-Kazakhstan provinces), from 12 to 26 May in the west (Aktobe, Atyrau and West-Kazakhstan provinces), from 12 to 26 May in north and north-east (Akmola, Karagandy, Kostanay, Northern-Kazakhstan and Pavlodar provinces) and on 26 May in Eastern-Kazakhstan province. Hopper development continued throughout the month and on 7 June, 3<sup>rd</sup> instar (about 68% of the hopper population) dominated in the extreme south, while 2<sup>nd</sup> instar represented the main part of the population in the west and 1<sup>st</sup> instar was dominant in the north and north-east (72%). During intensive surveys carried out in Pavlodar on 26 May, several hopper bands of 1-2 instars were observed with maximum density of 600 hoppers/m<sup>2</sup> and maximum size of 15,000 m<sup>2</sup>. A total area of 247,770 ha was treated against CIT, of which 112,700 ha was in the northern provinces.

LMI hatching started during the second half of May in the south (Almaty, Kyzylorda and South-Kazakhstan), the west (Aktobe, Atyrau and West-Kazakhstan) and in the north (Kostanay). By early June, 1-2 instar hoppers were present. In Atyrau, density higher than 1,250 hoppers/m<sup>2</sup> was observed. Control operations were carried out on 12,590 ha in Almaty and Kostanay provinces.

• **FORECAST**

*DMA* mass egg-laying is expected in South-Kazakhstan during the first half of June. Fledging is likely to start during the first decade of June in Jambyl with egg-laying occurring during the 3<sup>rd</sup> one.

*Mass hatching of CIT* will continue during the first half of June in the south and fledging is expected during the second half. In the western and northern parts of the countries, mass hatching is expected during the first half of June and beginning of fledging by the end of the month.

*LMI hatching will start in Jambyl and East-Kazakhstan at the beginning of the forecast period. Further hatching and hopper development will continue in areas where hoppers were already present.*

### **Kyrgyzstan**

#### **• SITUATION**

DMA hatching started later and hopper development took longer than usual due to cool and rainy conditions. By the end of May, in western Kyrgyzstan, 2-5 instar hopper bands were present in Jalal-Abad and Osh provinces and 2-3 instar hopper bands in Batken province, at maximum density of 20 hoppers/m<sup>2</sup>. Out of about 65,500 ha of farmland surveyed, 43,500 ha were infested by DMA and 500 ha by grasshoppers. A total of 34,334 ha were treated both by air (23,300 ha in Jalal-Abad province with an Antonov-2) and ground (5,940 ha and 5,094 ha in Batken and Osh provinces respectively using tractors equipped with sprayers). Barrier treatments using phenyl pyrazole were carried out against young hopper bands and full cover using pyrethroids against older instars.

CIT hatching started in Naryn province (center-south) where small infestations of 1-2 instar hoppers at density up to 12 individuals/m<sup>2</sup> were identified on 530ha.

#### **• FORECAST**

*DMA will complete fledging by mid-June and CIT hopper development will continue during the forecast period. Control operations will progressively focus on CIT.*

### **Tajikistan**

#### **• SITUATION**

DMA mass breeding was coming to an end in Khatlon province (Kumsangir, Pyandj and Dj. Rumi districts); egg-laying and swarm movements started in RRS and hopper development continued in Sughd province, where treatments were carried out on about



13,000 ha against 3-4 instar hopper bands. Following surveys in the autonomous province of Gorno-Badakhshan, 75 ha were treated on 24 May. A total area of 48,800 ha has been controlled so far, mainly by ground using pyrethroids.

CIT hatching started in May in the north (Sughd province) and 2-3 instar hoppers were reported during the second half of the month.

Unconfirmed reports indicated that swarming locusts arrived in the south (Khatlon province and RRS) coming from Afghanistan during the 3<sup>rd</sup> decade of May after strong winds and that damage were observed on crops.

#### **• FORECAST**

*More DMA adult movements within Tajikistan and adjacent countries are likely during the forecast period. CIT hopper development will continue in the north with fledging by the end of June. Regular and accurately documented surveys should be carried out in all infested areas.*

### **Turkmenistan**

#### **• SITUATION**

Late reports indicated that DMA hatching started on 18 March in Lebap province (east part of the country). Control teams treated 4,078 ha of hopper bands on 20-30 March.

In April, DMA fledging started in Lebap province during the 3<sup>rd</sup> decade after hoppers developed faster than usual due to favorable weather conditions. Drying of natural vegetation contributed to locust concentrations of up to 70 individuals/m<sup>2</sup>. In the southern and western parts of the country, DMA hatching and hopper development continued. 100,000 ha were surveyed and control operations using pyrethroids carried out over 57,900 ha in eastern (Lebap-50,000 ha), southern (Ahal-4,800 ha) and

western (Balkan-3,100 ha) parts of the country. CIT hatching started during the 2<sup>nd</sup> decade of April and some young LMI hoppers were observed.

In May, only DMA adults at densities of up to 70 adults/m<sup>2</sup> were observed in the east (Lebap province); mature adults were copulating and forming swarms flying towards the west searching for green vegetation. Egg-laying started during the second half of May. In the south, hopper development continued and fledging started on 21- 22 May. Adult density reached 75 locusts/ m<sup>2</sup>. As a result of surveys conducted on 185,000 ha, control operations against late instar hoppers and immature adults were carried out on 103,500 ha (Lebap-80,000 ha; Ahal-14,000 ha; Balkan-9,500 ha). First solitary CIT fledglings were observed in the east (Lebap province) and the extreme-south (Mary Province) during the third decade. New hatching of LMI were reported in early May in the Murgab valley (south).

• **FORECAST**

*With further drying out of the vegetation, DMA swarms will move towards more suitable areas in the lowlands. However, control activities carried out so far should have reduced their size. Same is expected for the CIT populations, which were mainly present in DMA treated areas. No LMI issue is expected.*

**Uzbekistan**

• **SITUATION**

DMA hopper infestations were declining and only 50,000 ha were treated in May (1/5<sup>th</sup> of the area treated in April) using IGR, neonicotinoid and pyrethroid. The controlled swarms were 50 to 500 m long with an average density of 15-20 adults/m<sup>2</sup>. In Karakalpakstan, CIT hopper bands of 3-4 instars at density of 80-100 hopper/m<sup>2</sup> were treated on 11,000 ha. LMI hatching continued also in the autonomous republic and 1<sup>st</sup> instar hoppers at a density of 70-100 hoppers/m<sup>2</sup> were treated on 900 ha.

In Jizzah region, 6,000 ha were treated against later



instar hoppers and adults of *Calliptamus turanicus* at a density of 50 inds/m<sup>2</sup>.

So far this year a total of 513,000 ha has been treated against locusts, of which 277,000 ha in Kashkadarya province and 78,000 ha in Surkandarya province (extreme south).

• **FORECAST**

*With progressive fledging of DMA populations, only limited control operations are likely to be carried out against this species during the forecast period. On the other hand, further hatching and hopper development of CIT and LMI will probably result in more control operations 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 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.

**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:

- Frequently Asked Questions (section Information);
- Pictures (section Photos).

**2010 events.** The following activities are scheduled:

- **Technical meeting** between Tajikistan and Uzbekistan on 20 May –Tajikistan requested Uzbekistan assistance for controlling remaining 15,000-20,000 ha infested by DMA at the border of Surkandarya province, Uzbekistan;
- **Joint cross-border survey** between Kazakhstan and Uzbekistan on 28 May – No threatening locust or grasshopper infestations were found;
- **Regional technical workshop on control techniques.** 18-22 October, Kyrgyzstan (tentative date and location).