



LOCUST BULLETIN No. 44



FAO - Plant Production and Protection Division (AGP)

15 July 2016

Situation level: THREAT in Russia

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

Situation level: CALM elsewhere

General Situation during June 2016 Forecast until mid-August 2016

Moroccan Locust (DMA) adult stage was reached in all Central Asian (CA) countries as well as in Azerbaijan. Italian Locust (CIT) hopper development was coming to an end in Georgia and Russia while fledging started in Kazakhstan and Kyrgyzstan and mating was in progress in Tajikistan. Migratory Locust (LMI) hopper development continued in Kazakhstan and Russia while fledging probably started in Uzbekistan. As per information received, control operations continued in Azerbaijan and Georgia as well as in six CA countries. In June, a bit more than 1.7 million ha were treated against the three locust pests mainly against CIT, which represents almost 71% of the area treated in June 2015.

Caucasus. DMA last instar hoppers and adults were present in Azerbaijan, where control operations concerned a bit more than 17 000 ha. Survey and control operations focused on CIT in Georgia, where more than 9 000 ha were treated in the East against late instar hoppers and young adults. CIT surveys were also

carried out in Armenia, where low locust numbers did not require control operations. No further major developments are expected this year although treatments will continue in Georgia.

Central Asia. DMA mature adults only were present in Afghanistan, western Kyrgyzstan, Tajikistan and Uzbekistan while fledging started in Kazakhstan and Russia; control operations against that species were sharply decreasing. CIT mating was in progress in Tajikistan, fledging started in Kazakhstan and Kyrgyzstan and hopper development was coming to an end in Russia. LMI hopper development continued in Kazakhstan and Russia. Almost 1.67 million ha (i.e. threefold the area treated in May) were treated against the three locust pests mainly against CIT- in the six above-mentioned countries, of which almost 67% in Kazakhstan. During the forecast period, control operations will continue against CIT and LMI.

Weather and Ecological Conditions in June 2016

Temperatures increased throughout the region but the weather remained mostly variable and

erratic to heavy rains fell everywhere. The conditions were suitable for locust development.

In **Caucasus**, the weather was mostly warm and dry except in Azerbaijan, where torrential rains fell for a few days.

In Armenia, temperatures ranged from 18 to 28°C in lowlands and from 12 to 20°C at foothills. There were some rains.

In Azerbaijan, the weather was mostly warm. Daily temperature was of 28/34°C with peaks up to 32/36°C. There was no precipitation except on 18-23 June, when torrential rains fell. South-easterly and north-westerly winds prevailed at a speed of 3-5 m/s and up to 15-20 m/s in gusts. Natural vegetation was sparse and dry in all traditional locust habitats because of lack of moisture. In areas where locust surveys were carried out, crops had mainly reached maturity; winter grain was ripened and harvest started. Overall, these weather conditions were suitable for hopper and adult development.

In Georgia, the weather was warm and mostly dry, with temperatures ranging from 23 to 40°C. There were 10 rainy days only. The natural grass vegetation was drying out and had a medium to high density.

In **Central Asia**, the weather was variable and relatively rainy in June except in Uzbekistan where it was hot and dry.

In Afghanistan, above-normal temperatures were recorded in May throughout the country with the highest temperatures in the eastern, southern and northern provinces. Wheat crop was at different stages according to the area, flowering or at maturity in northern and northeastern provinces while harvest started in southern and eastern provinces and some part of the southeastern ones.

In Kazakhstan, the weather was variable and relatively rainy. In the South, the weather was variable with precipitation in the form of rain (amounting 59 mm in Zhambyl). The average daily temperature ranged from 18.5 to 28°C with minimum of 13°C at night and



maximum of 40°C. North-westerly, north-easterly and easterly winds prevailed at a speed of 1-7 m/s. In the East, the weather was unstable with precipitations as rains amounting 40 mm. The average daily temperature was of 19.1°C with minimum of +3°C and maximum of 32°C. The average relative humidity was around 68%. North-westerly and south-easterly winds prevailed at a speed of 1-11 m/s. In the West, the weather was variable with warm weather and little rain only (5.6 mm in West-Kazakhstan). The average daily temperature ranged from 13.2 to 29.9°C, with minimum of 7.2°C and maximum of 34.8°C. The related humidity ranged from 44 to 60%. The wind direction was erratic, mainly from North, West and South-east, at a speed of 0.2-6 m/s. In the North, the weather was unstable with sunny days alternating with highly windy and cool days; frozen ground was reported on 1st June and dew on 22-23 June. Rains were torrential everywhere, falling sometimes with hail. The average daily temperature ranged from 6.9 to 23.9°C with minimum of 0.5°C and maximum of 33°C. Relative humidity ranged from 43 to 97%. Northerly and north-easterly winds prevailed at a speed of 0.8-16.5 m/s reaching up to 43.8 m/s in gusts.

In Kyrgyzstan, temperatures were within the norm throughout the country. Average temperature was of 22/24°C in the South, with temperatures ranging from 11/16°C to 17/22°C at night and from 25/30°C to 32/37°C during the day. Average temperature was of 21/23°C in the North, with temperatures ranging from 9/14°C to 16/21°C at night and from 25/30°C to 32/37°C during the day. The monthly rainfall was quite normal for that period of the year, ranging from 13-34 mm in the plains to 34-87 mm at foothills. The vegetation was dry with a height of 2-5 cm.

In the Russian Federation, the weather was variable and relatively rainy but mostly warm. In southern regions of the Central Federal District (FD), the weather

was mostly cool, with hot weather starting from the 2nd decade. The average daily temperature was of 14°C (maximum of 30°C); some rain fell at times. In North Caucasus and South FDs, the weather was warm and windy during the 1st decade of June with heavy to very strong rains; temperatures were of 13/18°C at night and 23/28°C during the day, increasing up to 30/32°C by the end of the 2nd decade. In the Ural FD, the weather was unstable with temperatures ranged from 15 to 25°C and relatively frequent rains of variable intensity. In the Volga FD, the weather was mostly warm and average temperatures ranged from 13.5 to 24°C, reaching 25/27°C; mostly insignificant rain fell. In the Siberian FD, the weather was mostly warm with average air temperature of 16/20°C; erratic rains fell as local showers with thunderstorms and hail. In the Far Eastern FD, weather conditions were highly unstable with temperatures ranging from 7 to +12°C at night and reaching 21°C and up to 25°C in the afternoon; rains of variable intensity fell throughout the area.

In Tajikistan, during the 1st decade of June, the average temperature ranged from 19.1 (at night) to 35.9°C; there were sporadic rain and thunderstorms for 3 days. During the 2nd decade, the average temperature ranged from 20.3 (at night) to 34.4°C and no rain fell; during the 3rd decade, the average temperature ranged from 22.2 (at night) to 35.8°C and light rain fell. Highly variable winds had a speed of 1-4 m/s, reaching sometimes 5-6 m/s. The harvest of grain, onions, potatoes, apricots, melons and other crops continued; crop maintenance was also in progress.

In Turkmenistan, the weather was instable in June, cloudy and very windy during the first ten-day period, very hot on 11-24 June with average temperature of 39°C and rainy and windy at the end of the month.

In Uzbekistan, the weather was hot and dry in June. Temperatures ranged from 18/23°C at night to 35/42°C during the day.



Area treated in June 2016

Afghanistan	15 480 ha
Azerbaijan	17 027 ha
Georgia	9 065 ha
	(updated figure for May: 480 ha)
Kazakhstan	1 140 800 ha
Kyrgyzstan	22 770 ha
Russia	305 590 ha
Tajikistan	17 580 ha
Turkmenistan	2 950 ha
Uzbekistan	169 000 ha

Locust Situation and Forecast

(see also summary on page 1)

CAUCASUS

Armenia

• SITUATION

In late June, surveys were carried out on 28 230 ha throughout the country (except in mountainous areas). Grasshoppers and Italian Locust (CIT) were observed on 14 254 ha at a maximum density of 2 individuals/m². Therefore, no control operations were carried out.

• FORECAST

CIT development will continue and egg-laying should start by the end of the forecast period.

Azerbaijan

• SITUATION

In all areas where the Moroccan Locust (DMA) was present, i.e. in the West (Djeranchel and Eldar steppes), along the border with Georgia, in the North-East (Garasu and Padar plains), in the South (Haramin plain) and in the South-East (Kudrin plain), 5th instar hoppers as well as immature and mature adults, were observed; some adults were already mating. Hopper development, fledging and adult maturation benefited from suitable weather conditions. Ground control operations were carried out on 17 027 ha against DMA hoppers and

young adults in the two first above-mentioned areas using pyrethroids. Chemical treatments against grasshoppers also continued.

• **FORECAST**

DMA hoppers, which have escaped control operations, will fledge during the first half of July and further treatments will therefore be useless. Mass mating and egg-laying are expected from the 2nd and 3rd decade onwards.

Georgia

• **SITUATION**

An area of 60 000 ha was surveyed in June in the eastern part of the country. At the end of the month, both CIT hoppers and adults were observed, 4th instar hoppers representing 40% of the population, 5th instar hoppers also 40% and immature adults 20%. Hopper density was of 15-20 individuals/m². A total of 9 065 ha were treated by ground of which 7 865 ha in Kakheti (Signani, 1 981 ha; Dedoplistskaro, 5 294 ha; Akhmeta, 230 ha; Gurjaani, 330 ha; Sagarejo, 30 ha) and 1 200 ha in Kvemo Kartli (Maneuli, 1 000 ha; Gardabani, 200 ha) using mainly pyrethroids. Undertaking treatments was difficult because of the rainy weather. Also, it was not possible to carry out aerial treatments because of technical issues and tender cancelation. In addition, damage to crops were reported due to high density of grasshoppers.

• **FORECAST**

CIT fledging will come an end, followed by adult maturation and mating; egg-laying should start from the 3rd decade of July. Control operations will continue against CIT, mainly in Kakheti.

CENTRAL ASIA

Afghanistan

• **SITUATION**

The locust situation was globally calm in June in all Afghan provinces infested by DMA, in the North and Northeast. Locust control operations were completed on 17th June. A total of 15 480 ha were treated against



DMA using pyrethroids, of which 9 684 ha in northern provinces (Faryab, 6 700 ha; Jowzjan, 1 744 ha; Sar-i-Pol, 1 240 ha) and 5 796 ha in north-eastern provinces (Baglan, 1 286 ha; Kunduz, 1 790 ha; Takhar, 2 720 ha). In addition, 400 ha were treated against grasshoppers in Ghor, in the central part of the country.

• **FORECAST**

DMA will complete its life cycle and progressively disappear. No further development is expected this year. Egg-bed surveys, which already started in some provinces, will continue to locate the most infested areas and to prepare the 2017 workplan accordingly. A workshop is scheduled at the end of the campaign to analyse it and improve the preparation and implementation of the next one.

Kazakhstan

• **SITUATION**

DMA hopper surveys were carried out on 1 056 700 ha, of which 332 300 ha were found infested by hopper bands including 115 900 ha at a density exceeding the economical threshold (ET) in South-Kazakhstan (107 900 ha) and Zhambyl (7 990 ha). A total of 115 700 ha were treated.

CIT spring hopper surveys were carried out on 9 993 100 ha of which 1 708 700 ha were found infested by hopper bands from 3rd to 5th instar and adults including 962 300 ha at a density above ET as follows: 209 600 ha in the south (Kyzylorda, 70 300 ha; South-Kazakhstan, 7 700 ha; Zhambyl, 36 000 ha and Almaty, 95 600 ha); 282 400 ha in the west (Aktobe, 172 200 ha; Atyrau, 16 700 ha and West-Kazakhstan, 93 500 ha); 92 100 ha in Karagandy, in the central part; 364 500 ha in the north (Akmola, 83 500 ha; Kostanay, 279 500 ha and North-Kazakhstan, 1 500 ha); and 13 700 ha in the northeast (East-Kazakhstan, 6 000 and Pavlodar, 7 700 ha). Hoppers of 4th and

5th instar as well as adults were present in the southern and western provinces while 3rd and 4th instar hopper only were found in the central, northern and eastern provinces. A total of 862 600 ha were treated.

LMI spring/summer hopper surveys were carried out 2 034 500 ha of which 322 100 ha were found infested by hopper bands of 4th and 5th instar, including 191 500 ha at a density above ET as follows: 170 500 ha in the south (Kyzylorda, 76 800 ha; South-Kazakhstan, 15 900 ha; Zhambyl, 6 700 ha and Almaty, 71 100 ha), 18 400 ha in the west (Atyrau, 6 600 ha and West-Kazakhstan, 11 800 ha) and 2 600 ha in East-Kazakhstan. A total of 162 500 ha were treated.

In June, a total of 1 140 800 ha were treated (almost eight fold the area treated in May) against the three species, of which 75.6% against CIT hopper infestations

• **FORECAST**

DMA egg-laying and natural disappearance will continue in July in South-Kazakhstan and Zhambyl. In the southern and western provinces, CIT mating and egg-laying will occur and adults will start disappearing while fledging, mating and egg-laying are expected in the other infested provinces. LMI fledging, mating and egg-laying will occur in southern and western provinces while fledging and mating only are expected in the East.

Kyrgyzstan

• **SITUATION**

In June, DMA surveys were carried out on 17 950 ha in the western provinces, where 16 540 ha (Jalal-Abad, 5 380 ha; Batken, 2 080 ha; Osh, 9 080 ha) were infested at an average density of 8-15 adults/m². These adult DMA populations were mixed with CIT adults as it was the case during the previous years; mass egg-laying was observed for the two species. CIT surveys were carried out on 2 350 ha in the northern provinces, where 1 540 ha were infested, of which 860 ha in Chui (3-18 adults/m²) and 680 ha in Talas (6-14 adults/m²). CIT fledging had already occurred in these two provinces while hopper development was still in progress in Naryn. Ground and aerial control operations



using pyrethroid and organophosphate were carried out against mixed DMA and CIT adult populations on a total of 22 060 ha in Jalal-Abad (4 580 ha), Batken (1 800 ha) and Osh (15 680 ha, corresponding to infestations identified both in May and June); they came to an end. Treatments concerned also 710 ha of CIT adult populations in Chui.

• **FORECAST**

No further control operations will be undertaken in the West while they will continue in the North in Chui and Talas and extend to Naryn; it is expected that 3 000 ha will be treated there against CIT during July.

Russian Federation

• **SITUATION**

During surveys carried out in June, locusts in hopper and adult stage were found on 597 250 ha, including 313 320 ha of hopper infestations above ET. DMA fledging started in mid-June; movements of adults between adjacent territories were observed. CIT and LMI hopper development was almost completed and last instar hoppers only of these two species were found. In addition, grasshoppers were present on more than 1.2 million ha, including 174 740 ha above the ET. As a whole, the average locust density was of: 0.58-4 hoppers/m² in the Central FD; 30.8 hoppers/m² and 25.8 adults/m² in the Southern FD; 37.3 hoppers and 20 adults/m² in the North Caucasus FD; 1.7-50 hoppers in the Volga FD; 1.13-7/m² in the Ural FD; 4.8-20 hoppers and 0.34-3 adults/m² in the Siberian FD; and 6.3-48/m² in the Far East FD. A total of 309 590 ha were treated against hopper bands, i.e. threefold the area treated in May.

• **FORECAST**

It is expected that migratory flights of DMA will continue in July. CIT and LMI fledging will occur, followed by adult maturation and beginning of mating. Development of grasshoppers will also continue.

Tajikistan

• SITUATION

In June, control operations were carried out on 9 222 ha against DMA swarms, at a density of 80-100 adults/m², which moved from hills and mountains to the valleys and were present in relatively remote areas or in neutral zones along the borders in Khatlon and Sughd. In Sughd, CIT 4th instar hopper bands and swarms, at a density of 2-4 adults/m², were also present; fledging and mating were in progress. A total of 8 358 ha were treated against CIT. As a whole, a total of 17 580 ha were treated in June against DMA and CIT infestations.

• FORECAST

Chemical treatments against CIT populations and grasshoppers will continue in Sughd during July.

Turkmenistan

• SITUATION

Following surveys carried out on 25 June in Daşoguz Province, in the North, a total of 2 950 ha were treated against CIT adults.

• FORECAST

No further locust development is expected this year except maybe in the Hazar area, in the North-west, where CIT surveys will continue.

Uzbekistan

• SITUATION

Intense locust breeding was observed during that campaign, mainly for CIT, which could be due to higher than normal rainfall resulting in suitable vegetation for locust development in addition to relatively cool winters with no severe frosts, which limited natural egg mortality.

A total of 169 000 ha were treated in June. As a result, 375 000 ha have been treated since the beginning of the campaign against the three locust pests and grasshoppers, of which 69% against DMA, 23% against CIT and less than 5% against LMI.



• FORECAST

Mass LMI hatching is expected in late August in the Aral Sea area related to increased temperature and change in the water level; control operations should be carried out in October.

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 CCA-Bulletins@fao.org and latchini@uwyo.edu.

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.

Events and activities in June 2016

- **Fellowships on locust management:** arrangements ongoing with the selected hosting Institutions.
- **Locust Geographical Information System (GIS) in CCA:**
 - Automated System for Data Collection (ASDC): ASDC versions available in all national languages except Turkmen;
 - Locust Geographical Information System in CCA: Database (basic functions: data import, query, display and output) being tested; Work of the E-Committee on locust GIS (advance functions: data analysis and forecast) launched, with relevant information being gathered from CCA Forecasting Experts.
- **Joint or cross-border surveys:** cross-border survey between Kyrgyzstan and Tajikistan (Fergana valley) carried out on 8-16 June 2016 with the participation of eight experts (four/country).
- **Human Health and Environmental issues:**
 - Human Health and Environmental Monitoring Team in Kyrgyzstan: one monitoring mission carried out during locust control operations in Batken.
 - Human Health and Environmental Monitoring Teams in Tajikistan: two monitoring missions carried out during locust control operations in Khatlon and Sughd;
 - Visit in Tajikistan of an FAO International Consultant, Pesticide and empty container management, from 23 June to 3 July, to improve management of pesticides, empty containers and pesticide warehouses, with specific attention to pesticides delivered in the context of the Japanese funded project.
- **Procurement of locust survey and control equipment:** process ongoing in the framework of project GCP/INT/238/JPN to the benefit of Afghanistan, Kyrgyzstan and Tajikistan.



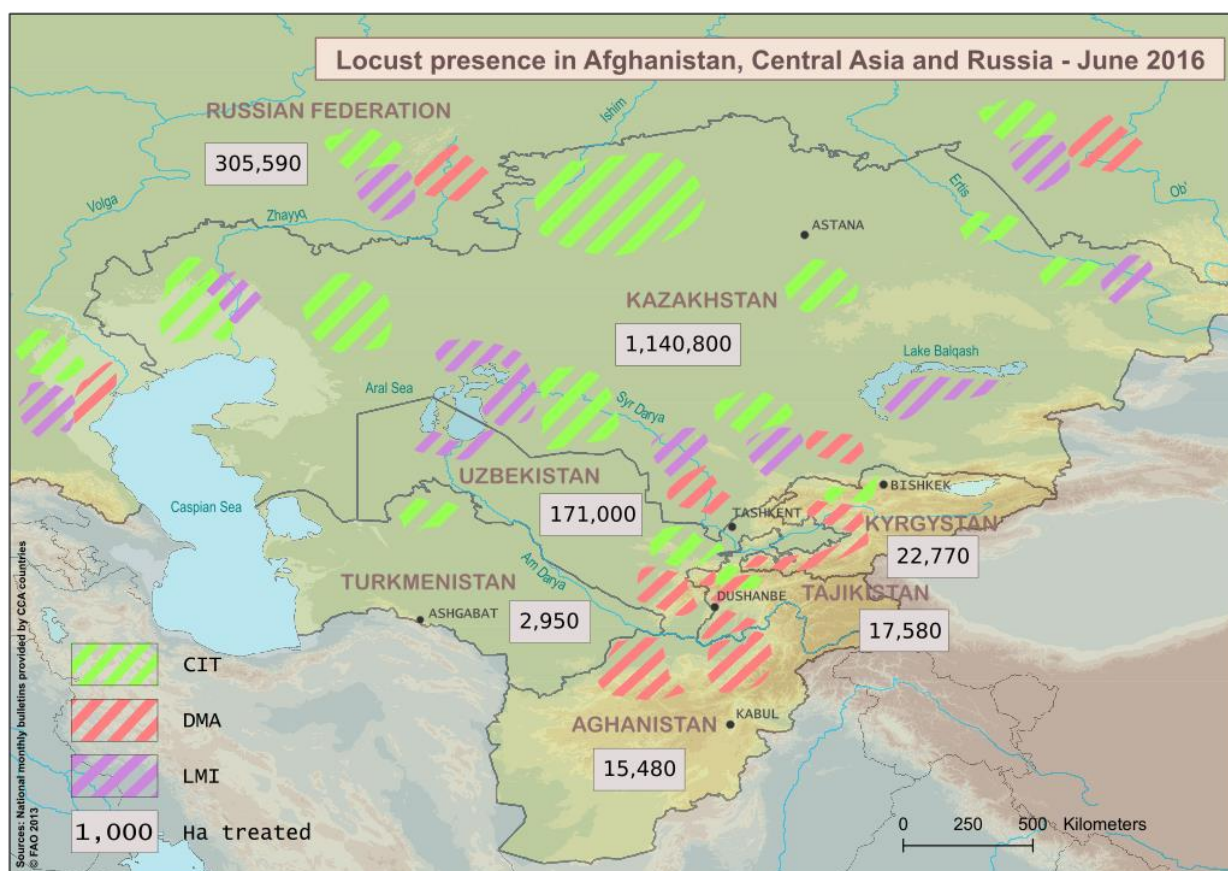
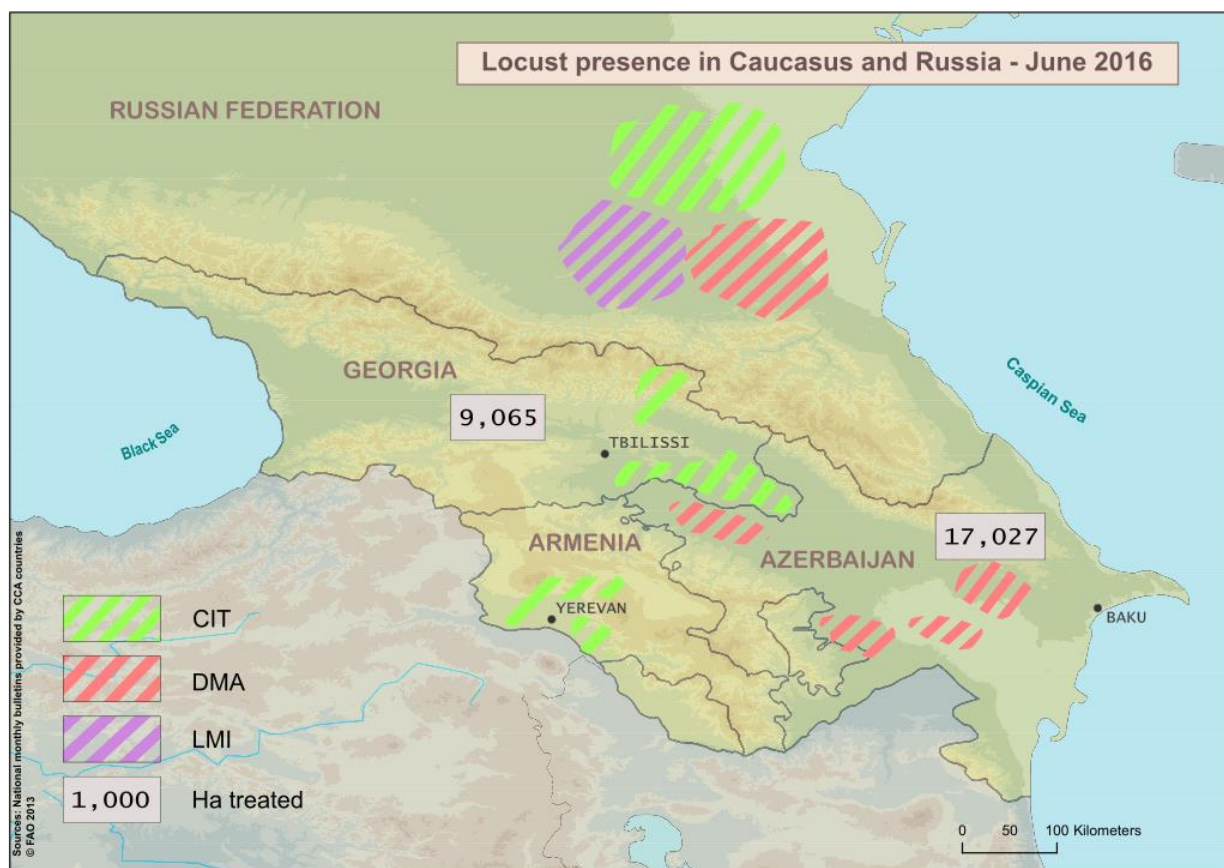
- **Annual regional Technical Workshop on Locusts in CCA:** official confirmation expected from Kazakh authorities regarding venue and location of the annual workshop.

Forthcoming events and activities in July 2016

- **Fellowships on locust management:** arrangements ongoing with the selected hosting institutions.
- **Training-of-trainers on locust management - National sessions on Automated System for Data Collection (ASDC) use, Tajikistan:**
 - One-day refreshing course on ASDC for the Tajik Master-Trainers scheduled on 9 July 2016 in Dushanbe (to be delivered by the FAO International consultant, GIS Expert);
 - Three national sessions scheduled on 11-12 July in Khujand, 15-16 July in Kurgan-Tube and 20-21 July in Dushanbe (to be delivered by the Master-Trainers with the assistance of the GIS expert);
 - Participation of four Afghan Master-Trainers scheduled in a ASDC refreshing course on 18-19 July as well as in the national session envisaged on 20-21 July in Dushanbe (subject to timely visa obtaining).
- **Locust Geographical Information System (GIS) in CCA:**
 - Automated System for Data Collection (ASDC): ASDC to be used as widely as possible by countries;
 - Locust Geographical Information System in CCA: database (basic functions: data import, query, display and output) under test; E-Committee on locust GIS (advance functions: data analysis and forecast): relevant information to be sent by CCA Forecasting Experts to FAO.



- **Joint or cross-border surveys:**
 - Joint survey between Afghanistan and Tajikistan scheduled on 25-28 July in Khatlon, Tajikistan;
 - Cross-border survey between Tajikistan and Uzbekistan scheduled on 30 July – 5 August.
- **Human Health and Environmental issues:**
 - Human Health and Environmental Monitoring Team in Kyrgyzstan: one monitoring mission scheduled during locust control operations in Osh in July;
 - Human Health and Environmental Monitoring Team in Tajikistan: two monitoring missions scheduled during locust control operations in Khatlon and in Sughd, in July.
- **Procurement of locust survey and control equipment:** process ongoing in the framework of project GCP/INT/238/JPN to the benefit of Afghanistan, Kyrgyzstan and Tajikistan.
- **Annual regional Technical Workshop on Locusts in CCA:** arrangements to be started subject to receipt of official confirmation expected regarding venue and location of annual workshop.



The maps presenting the areas treated in 2014 and 2015 in CCA and the forecast for 2016 can be found at:

http://www.fao.org/ag/locusts-CCA/common/ecg/1188/en/CCA_Locust_Workshop_2015_Report_FINAL_EN.pdf