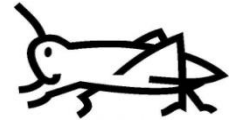




LOCUST BULLETIN No. 43



FAO - Plant Production and Protection Division (AGP)

15 June 2016

Situation level: THREAT in Georgia (Italian Locust, CIT)

Situation level: CAUTION in Georgia (Moroccan Locust, DMA), Kazakhstan, Kyrgyzstan, Russia, Tajikistan and Uzbekistan

Situation level: CALM elsewhere for the three locust pests

General Situation during May 2016 Forecast until mid-July 2016

Moroccan Locust (DMA) populations reached the adult stage in most Central Asian (CA) countries; hopper development was in progress in Azerbaijan, Georgia, Kazakhstan and Russia. Italian Locust (CIT) hopper development was in progress in Georgia and in four Central Asian countries, namely Kazakhstan, Kyrgyzstan, Russia and Uzbekistan and fledging started in Tajikistan. Early instar hoppers of Migratory Locust (LMI) were present in Kazakhstan, Russia and Uzbekistan. Control operations started in Azerbaijan and Georgia and continued in all CA countries. In May, almost 530 000 ha were treated against the three locust pests –mainly against DMA-, which represents a bit more than 60% of the area treated in May 2015.

Caucasus. DMA late instar hoppers were present in **Georgia** and **Azerbaijan**, where fledging was in progress. **CIT** hatching started at the beginning of the 2nd decade of May in Georgia and during the 3rd one in **Armenia**, where no control operations have been

required so far. Almost 9 000 ha were treated in Caucasus of which more than 96% Azerbaijan. The locust situation will probably deteriorate in Georgia while it should remain calm in the two other countries.

Central Asia. DMA adults were present in **Afghanistan, Kyrgyzstan, Tajikistan, Turkmenistan** and **Uzbekistan** while hopper development was in still progress in **Kazakhstan** and **Russia**. **CIT** hopper development was in progress in Kazakhstan, Kyrgyzstan, Russia and Uzbekistan, while fledging already started in Tajikistan. LMI hatching started in Kazakhstan, Russia and Uzbekistan. A bit more than 519 000 ha were treated against the three locust pests in the seven above-mentioned countries, mainly against DMA. During the forecast period, control operations will shift from DMA to CIT and LMI.

Weather and Ecological Conditions in May 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 relatively warm but rainy.

In Armenia, temperatures ranged from +18 to 24°C during the day and from 8 to 14°C at night in lowlands and from +5 to 20°C at foothills, where rain fell, sometimes as storm.

In Azerbaijan, the weather was mostly warm and suitable for locust hopper development, which was speeded up by high temperatures. Daily temperature was of 22/24°C with peaks up to 24/26°C. No rain fell except for two days around mid-May and three days during the last decade, when heavy rains concerned the whole country. South-easterly and north-westerly winds prevailed at a speed of 4-6 m/s and up to 14-16 m/s in gusts. Natural vegetation was sparse and dry in traditional locust habitats. In areas where locust surveys were carried out, crops had generally reached maturity; winter grain was ripened and early harvest started.

In Georgia, the weather was highly variable over a one-week and even a one-day period. In the eastern part of the country, temperatures ranged from +8.1 to 30.6°C. There were 15 rainy days (sometimes with hail) and monthly rainfall was of 73.4 mm, which is huge for this area. The natural vegetation was green with a medium to high density; cereals, cucurbitaceous, vineyard and sunflowers were growing.

In **Central Asia**, the weather was variable and relatively warm and rainy in May.

In Afghanistan, April was a rainy month as compared to last year and the long term average. Moderate to locally heavy rains fell throughout the country with highest amounts recorded in the eastern half. Locally heavy rains caused floods in the southern, central and northern provinces. Precipitations were mainly as rain or melted snow because of temperatures above normal for the whole month but the snow cover extent was normal. Wheat crop developed well, reaching flowering or grain filling stage according to the area.

In Kazakhstan, the weather was variable and relatively rainy. In the South, the weather was variable with precipitation in the form of rain (from 5 to 120 mm in Almaty and Zhambyl). The average daily temperature ranged from 7.8 to 29°C with minimum of +4°C at night and maximum of 38°C. Relative humidity ranged from 29 to 99%. North-westerly, north-easterly and easterly winds prevailed at a speed of 1-16 m/s and up to 35 m/s in gusts. In the East, the weather was unstable with warm sunny days and cool ones, night frosts and precipitations as rains amounting 23.7 mm. The average daily temperature was of 11.5°C with minimum of -3°C and maximum of 28°C. The average relative humidity was around 59.2%. North-westerly and north-easterly winds prevailed at a speed of 1-10 m/s, up to 15 m/s in gusts. In the West, the weather was variable with sunny and cloudy days and precipitation as rain whose amount ranged from 5 to 120 mm (maximum recorded in Mangistau oblast). The average daily temperature ranged from 8.7 to 30.5°C, with minimum of +4.6°C and maximum of +35°C. The wind direction was erratic, mainly from North and South-east, at a speed of 0.1-10 m/s. In the North, the weather was unstable with sunny and partly cloudy days; precipitation fell in the form of rain (from 13.8 to 57.8 mm). The average daily temperature ranged from +4 to 20.3°C with minimum of -2°C and maximum of +29°C. Relative humidity ranged from 18 to 96%. South- and north-easterly as well as easterly winds prevailed at a speed of 0-11 m/s reaching 20 m/s in gusts.

In Kyrgyzstan, temperatures were of 10/15°C at night and varied from 20/25°C to 27/32°C during the day. At foothills, they ranged from 6/11°C at night to 20/25°C during the day. At a whole, temperatures were above the norm by 1/ 2°C. The monthly rainfall, which was above normal, ranged from 49-103 mm in the plains to

60-162 mm at foothills. The vegetation was sparse and a height of 2-6 cm.

In the Russian Federation, the weather was variable and relatively warm. In southern regions of the Central Federal District (FD), the weather was mostly warm, with average daily temperature of 14°C (maximum of 26°C) and some rains. In North Caucasus and South FDs, the average temperature ranged from 11 to 31°C; rains fell everywhere, sometimes with hail. In the Ural FD, the temperatures ranged from 11 to 19°C; heavy rains fell locally. In the Volga FD, the average temperature ranged from 10 to 22°C, reaching 25°C during the warmest days. In the Siberian FD, the weather was mostly warm with average air temperature of 8-19°C; moderate rains fell. In the Far Eastern FD, weather conditions were within the normal and temperatures ranged from 3 to +17°C; local rains fell.

In Tajikistan, during the 1st decade of May, the average temperature ranged from 12.5 (at night) to 29°C and showers and thunderstorms fell for 7 days. During the 2nd decade, the average temperature ranged from 17.3 (at night) to 26.3°C and showers and thunderstorms fell for 6 days. During the 3rd decade, the average temperature ranged from 20.2 (at night) to 27.2°C and no rain fell. Highly variable winds had a speed of 1-2 m/s, reaching sometimes 5-6 m/s. The vegetation had totally dried out on the hills, plains, valleys and southern part of the foothills in Khatlon and Sughd; it was also the case for the pastures in the Region of Republican Subordination (RRS). The harvest of grain, onions, potatoes, cherries, apricots, vegetables, melons and other crops continued.

In Turkmenistan, April was cloudy and rainy.

In Uzbekistan, the weather was hot during May and heavy rains fell throughout the country. Temperatures ranged from 18/22°C at night to 28/32°C during the day. Contrary to what happened last year, spring vegetation persisted at foothills and in mountainous areas, allowing mass breeding of grasshopper species.



Area treated in April 2016

Afghanistan	52 182 ha
Azerbaijan	8 630 ha
Georgia	330 ha
Kazakhstan	147 480 ha
Kyrgyzstan	16 504 ha
Russia	116 580 ha
Tajikistan	39 357 ha
Uzbekistan	147 000 ha

Locust Situation and Forecast

(see also summary on page 1)

CAUCASUS

Armenia

• SITUATION

During the 3rd decade of May, surveys were carried out on 3 750 ha in Ararat (low-lying areas), Armavir and Lori provinces. In the Ararat Province, 170 ha were found infested by Italian Locust (CIT) hoppers of the 1st instar, at density up to 2 hoppers/m². Neither control operation nor cross-border activity were carried out.

• FORECAST

CIT hopper development will continue during the forecast period followed by adult appearance.

Azerbaijan

• SITUATION

Moroccan Locust (DMA) hoppers of 4th and 5th instar were present in the West (Djeranchel and Eldar steppes), along the border with Georgia, in the South (Haramin plain) and in the East (Garasu and Padar plains); fledging was in progress in all these areas. Hopper development benefited from highly suitable weather conditions. Control operations were carried out on 8 630 ha against DMA hoppers and

young adults in the two first above-mentioned areas. Grasshopper infestations were also controlled.

• **FORECAST**

It is expected that all DMA hopper populations will have fledged by mid-June and that mating and egg-laying will start during the 2nd and 3rd decade of June respectively. Therefore, control operations will be carried out in early June only if needed.

Georgia

• **SITUATION**

A total of 11 000 ha were surveyed in May in the eastern part of the country, of which 8 000 ha in Kakheti and 3 000 ha in Kvemo Kartli. In Kakheti, CIT hatching was observed on 11th May in Dedoplistskaro and Signani districts; at the end of the month, 2nd and 3rd instar hoppers were present. In Kvemo-Kartli, DMA hoppers of 3rd to 5th instar were found together with CIT hoppers of 1st and 2nd instar, near the Armenian and Azeri borders. Control operations were carried out on 330 ha against CIT hoppers in Kakheti (Signani, 215 ha; Dedoplistskaro, 80 ha; Akhmeta, 30 ha; Gurjaani, 5 ha). It was not possible to undertake treatments in Kvemo-Kartli because of late hatching and rainy weather.

• **FORECAST**

It is expected that the situation will deteriorate further in June with more CIT hatching in fallow lands close to the crops, which will be damaged by hopper band of 3rd and 4th instar. This will primarily concern Kakheti. Aerial spraying will be required.

CENTRAL ASIA

Afghanistan

• **SITUATION**

The locust situation was globally calm in May in all Afghan provinces infested by DMA. Fledging occurred during the last week of May in north and northeast parts, and egg-laying started. A total of 52 182 ha were treated against DMA hopper bands using pyrethroids and an Insect Growth Regulator, of which 26 758 ha in



north-eastern provinces (Baglan, 3 498 ha; Kunduz, 9 150 ha; Takhar, 14 110 ha), 25 018 ha in northern provinces (Balkh, 8 932 ha; Faryab, 400 ha; Samangan, 15 480 ha; Sar-i-Pol, 206 ha) and 406 ha in Herat, in the West.

• **FORECAST**

DMA fledging followed by egg-laying will continue during the forecast period. It is expected that control operations will come to an end during the second week of June with only some teams kept operational in case of swarms arriving from insecure areas or from the neighboring countries. In parallel, egg-laying surveys will take place

Kazakhstan

• **SITUATION**

DMA hopper survey was carried out on 987 400 ha of which 299 400 ha were found infested by hopper bands including at density exceeding the economical threshold (ET) on 98 800 ha. A total of 94 200 ha were treated up to 2nd June.

CIT spring egg-pod surveys were carried out on 305 700 ha; egg-pods were found on 81 000 ha. The number of eggs per pod varied from 13 to 50; up to 50% of the eggs were damaged. Spring/summer CIT hopper surveys concerned more than 2.6 million ha up to 2nd June. A bit more than 10% of that area was infested by hopper bands, including 133 200 ha above the ET in 10 provinces; the main infested ones were Kostanay (26 300 ha), West-Kazakhstan (23 500 ha), Almaty (16 100 ha), Aktobe (15 900 ha); Karaganda (15 700 ha), Atyrau (11 900 ha), Zhambyl (11 700 ha) and Kyzylorda (9 900 ha). As of 2nd June, 1st to 3rd instar hoppers were present in the South while 1st and 2nd instar hoppers only were observed in the central, eastern and northern provinces. A total of 49 580 ha were treated.



LMI spring/summer hopper surveys were carried out 326 100 ha up to 2nd June. Almost 13.5% of that area was infested by hopper bands of 1st and 2nd instar, of which 21 600 ha above the ET as follows: Kyzylorda (12 800 ha), Almaty (7 300 ha), South-Kazakhstan (1 100 ha) and Zhambyl (400 ha). A total of 3 700 ha were treated.

• **FORECAST**

DMA mating and egg-laying is expected during the 1st and 2nd decades of June in South-Kazakhstan while mass-fledging followed by mating and egg-laying should occur during the 1st and from the 2nd decades of June in Zhambyl. In the southern and western provinces, CIT penultimate moult and beginning of fledging are expected during the forecast period; in the northern provinces, hopper development will continue. LMI hopper development will continue and fledging start in June in the South while hopper development only will occur in the North.-

Kyrgyzstan

• **SITUATION**

In May, surveys were carried out on 26 435 ha (26% more than in April) in Jalal-Abad, Batken and Osh provinces. A total of 18 951 ha (Jalal-Abad, 10 521 ha; Batken, 1 830 ha; Osh, 6 000 ha) were infested by late instar DMA hopper bands and adults. Adults prevailed, at a density of 8-17/m²; mating and egg-laying started from early May and generalized before the end of the month. CIT hoppers of 1st to 3rd instar were also present together with DMA in these areas. In Jalal-Abad, at an altitude of 2 000 m, damage to crops due to a wingless grasshopper (*Podisma pedestris*) were reported for the first time and 530 ha were treated. Chemical control operations using pyrethroid and organophosphate were carried out against mixed DMA and CIT populations on 16 504 ha (Jalal-Abad, 13 021 ha; Batken, 2 413 ha), of which 1 000 ha by air.

• **FORECAST**

With completion of DMA life cycle, chemical treatments should be completed by 10th June. CIT will

be present in Jalal-Abad, Batken and Osh until the end of June; in Chui and Naryn, CIT hatching should start in early June. It is expected that control operations against CIT will start from the 2nd decade of June.

Russian Federation

• **SITUATION**

During surveys, locust hopper infestations were found on 444 490 ha, including 148 490 ha above ET mainly due to DMA. Hatching of CIT and LMI was also observed. Grasshopper hoppers were also present on 364 180 ha, incl. 4 800 ha above the ET. As a whole, the average density of hoppers was of: 3/m² in the Central FD; 1.8-42.5/m² in the Southern FD; 4.2-36.7/m² in the North Caucasus FD; 1.3-1.5/m² in the Volga FD; 0.8-1.9/m² in the Ural FD; 1.8-2.1/m² in the Siberian FD; and 0.5/m² in the Far East FD. A total of 116 580 ha were treated against hopper bands, mainly of DMA.

• **FORECAST**

Grasshopper and DMA, CIT and LMI hopper development will continue in June and 3rd to 5th instar hoppers will be present.

Tajikistan

• **SITUATION**

During May, DMA was at adult stage, mating and forming flying groups in Khatlon, RRS and Sughd. In the latter, DMA adults were mixed with 4th instar CIT hoppers, whose density ranged from 120 to 160 hoppers/m²; CIT fledging started in some areas by late May. During surveys carried out up to 27th May in Khatlon, RRS and Sughd, a total of 63 944 ha (almost twice the area infested in April) were found infested mostly by DMA (almost 95% of the infestations), out of which 36 335 ha were treated against DMA (mainly those that had flown in remote areas) and 3 022 ha against CIT.

• FORECAST

Full completion of DMA life cycle will occur in June in Khatlon and RRS and no further control operations will be carried out in these areas. In Sughd, treatments against mixed populations of DMA and CIT will continue until mating and egg-laying, expected before the end of the forecast period.

Turkmenistan

• SITUATION

The locust situation was calm in May. Control operations focused on grasshoppers and 9 903 ha of *Dericorys annulata roseipens* infestations were treated in the North.

• FORECAST

No further locust development is expected this year.

Uzbekistan

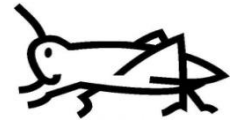
• SITUATION

DMA fledging generalized by mid-May and, at the end of the month, the whole female population was laying eggs, except in the mountainous areas of Navoiy, Samarkand and Tashkent where 5th instar DMA hopper bands were still present. Despite an early hatching, from 12th March, DMA hopper development was very slow due to torrential rains throughout the country during the past two months. Mass CIT hatching occurred around mid-May in the Aral Sea area. LMI hatching was observed at the beginning of the 2nd decade of May mostly in the coastal areas of the lakes.

A total of 147 000 ha were treated in May and 206 000 ha since the beginning of the campaign, of which 144 000 ha against DMA (61 000 ha in Surkhandarya, 63 000 ha in Kashkadarya and more than 20 000 ha in other areas), 35 000 ha against CIT and 27 000 ha against LMI.

• FORECAST

During the forecast period, DMA life cycle will come to an end, while CIT will fledge and LMI will continue its hopper development. Control operations will concern CIT and LMI hopper populations. It is



anticipated that up to 440 000 ha will have to be treated, of which a bit more than 10% by air.

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 May 2016

- **Fellowships on locust management:** students selected by the E-Committee and FAO; arrangements being taken.
- **Training-of-trainers on locust management - national sessions on locust monitoring:** one national session delivered in Afghanistan (Balkh)

by the Master trainers to the benefit of 30 Locust Experts (29-31 May 2016).

- **Locust Geographical Information System (GIS)**

in CCA:

- Automated System for Data Collection (ASDC): updated ASDC in national languages received from most countries;
- E-Committee to develop the technical specifications for summary, analysis and forecast algorithms: Terms of Reference under preparation.

- **Joint or cross-border surveys:**

- Joint survey carried out in Kakheti, Georgia, on 11-13 May 2016, with the participation of 13 Locust Experts from Armenia, Azerbaijan, Georgia and the Russian Federation; Mr Belayneh, Senior Technical Adviser, Pests and Pesticides, United States Agency for International Development (USAID)/Office of United States Foreign Disaster Assistance (OFDA), Washington, joined the survey.
- Cross-border survey carried out between Kyrgyzstan and Uzbekistan (Fergana valley) on 20-29 May 2016, with the participation of 12 experts (six/country).

- **Human Health and Environmental issues:**

- Human Health and Environmental Monitoring Team in Kyrgyzstan: two monitoring missions carried out in May during locust control operations in Jalal-Abad.
- Human Health and Environmental Monitoring Teams in Tajikistan: two monitoring missions carried out from late April and in May during locust control operations in Khatlon and in Sughd.

- **Procurement of locust survey and control equipment:**

ongoing process 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 agreement requested to



the Kazakh authorities to organize the workshop in Astana in November 2016.

Forthcoming events and activities in June 2016

- **Fellowships on locust management:** ongoing arrangements with the selected hosting institutions.

- **Locust GIS in CCA:**

- ASDC versions in national languages to be made available (still missing languages expected); ASDC to be used as widely as possible by countries.

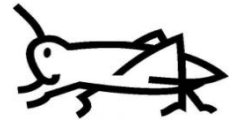
E-Committee to develop the technical specifications for summary, analysis and forecast algorithms: Terms of Reference to be shared and E-Committee to start its work.

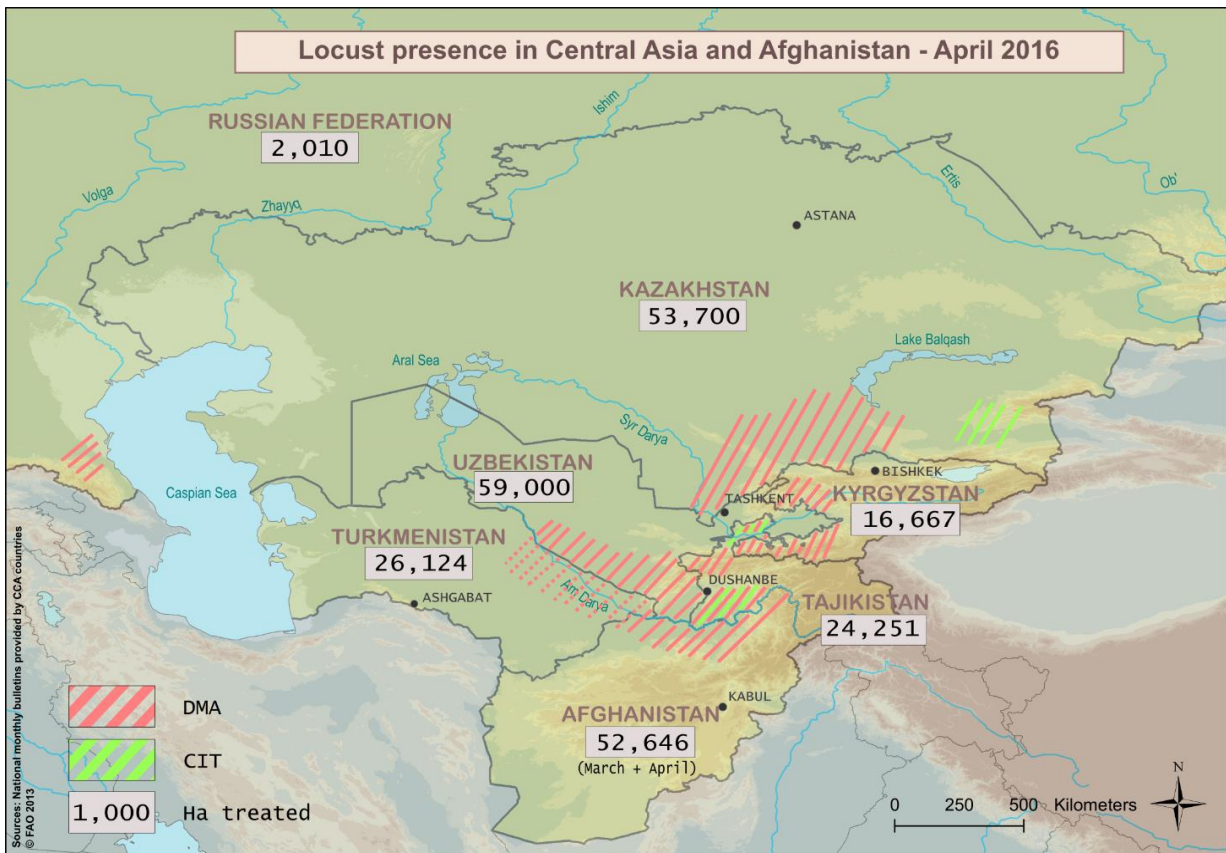
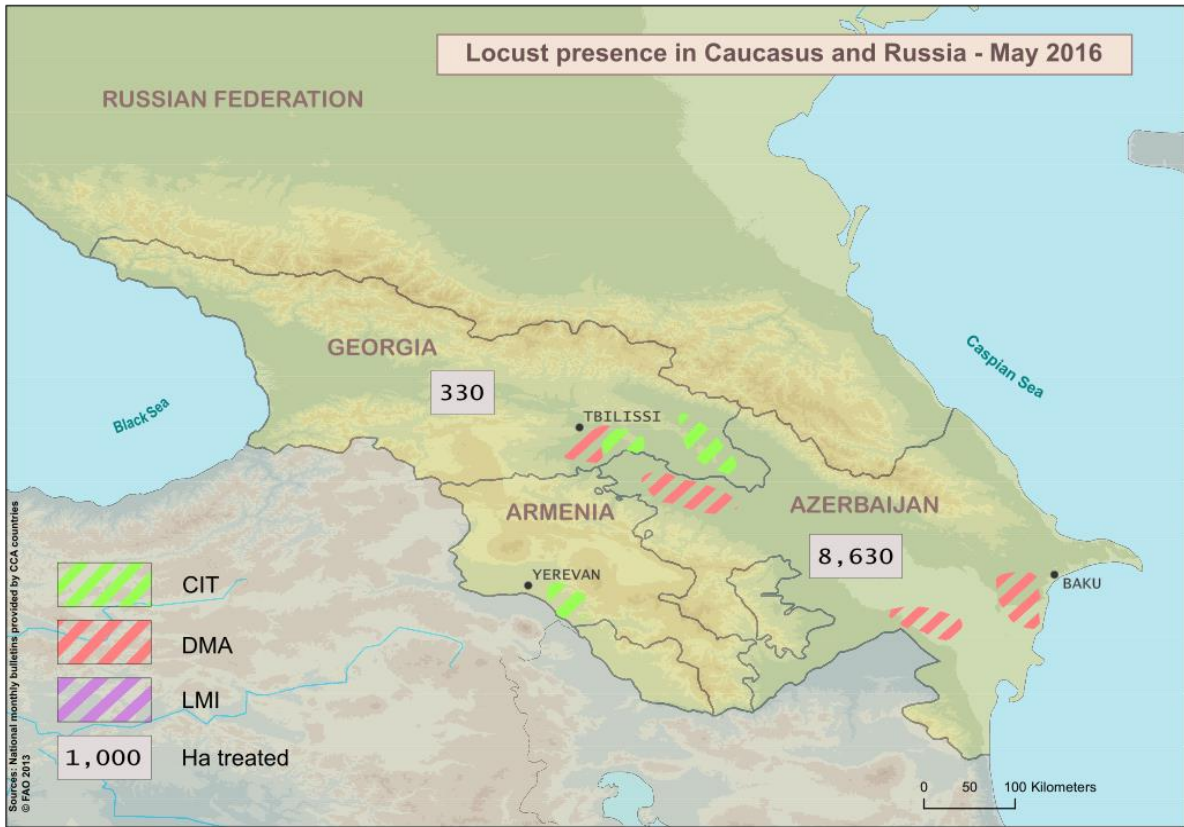
- **Joint or cross-border surveys:** cross-border survey between Kyrgyzstan and Tajikistan (Fergana valley) scheduled on 8-16 June 2016.

- **Human Health and Environmental issues:**

- Human Health and Environmental Monitoring Team in Kyrgyzstan: one monitoring mission scheduled in June during locust control operations in Batken.
- Human Health and Environmental Monitoring Team in Tajikistan: two monitoring missions scheduled in June during locust control operations in Khatlon and in Sughd.
- Visit of a FAO International Consultant, Pesticide and empty container management, scheduled from late June in Tajikistan to improve the management of pesticides, empty containers and pesticide warehouses, with particular attention to pesticides delivered against the Japanese funded project.

- **Procurement of locust survey and control equipment:** ongoing process 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 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