Key facts

- Data collection is a continuous activity during recessions, outbreaks, upsurges and plagues.

- CRC continued support to national and regional early warning systems is essential .

- Seven CRC member countries are equipped with locust information units.

- The proper management of Desert Locust data contributes to the success of control operations.

- The proper and regular use of new technologies reduces the occurrences of locust outbreaks.

Management of Desert Locust information

The importance of information in Desert Locust management

Timely and accurate information are critical in Desert Locust early warning and prevention. New, innovative technologies play a fundamental role in data collection, transmission, management and analysis, situation assessment and forecasting, and information delivery so that rapid and sensible decisions can be taken concerning survey and control operations.

Field data are not limited only to locust presence or absence; rather, it is essential to include all information relating to Desert Locust and its environment that can affect locust survival, reproduction and migration. This is supplemented by remote sensing imagery, models and nearly 100 years of historical data in order to predict the location, scale and time of locust breeding and migration.

Data collection

Field data are collected by the national teams during survey and control operations. Given the vastness and remoteness of Desert Locust habitats, it is essential that these teams have sufficient expertise and are well-equipped to conduct surveys to monitor the situation. FAO has developed several new tools such as eLocust3 and dynamic greenness maps to help guide teams to the most likely breeding areas where they record their observations and send this data in real time to the national locust control units. Here, well-trained, specialized information officers use advanced methods to manage and analyse the data.

Locust data collection and analysis tools

New technologies such as Global Positioning Systems (GPS), eLocust3, digital maps, remote sensing, customized geographic information systems (GIS) and the internet have replaced the traditional tools of compass, paper maps, HF radios and telex that were used for data collection, analysis and reporting. These new tools have improved the precision and timeliness of the global Desert Locust early warning system so that each country can take the appropriate measures to contain the locust situation before it develops further and spreads to other countries.

eLocust3

The primary tool for all survey and control teams in affected countries is a rugged handheld tablet called eLocust3. The tablet is used to collect and record survey and control data that are then transmitted in real time via satellite to the national locust control unit. eLocust3 can be used to navigate in the desert by displaying the latest vegetation and rainfall images without the need for an internet connection. This helps teams to prioritize the large, remote areas that must be monitored for green vegetation and locusts. eLocust3 also contains a digital library of reference material and user manuals. Geo-referenced photos can be taken of habitat conditions and locust infestations. The multi-lingual system (English, Arabic, French) is flexible and permits the addition of future applications as new technologies and country needs emerge.

Managers in national locust control units can monitor their field teams and improve survey and control operations by viewing the location and itinerary of each team as well as survey and control results in real time on their PC through a secure web browser.

RAMSESV4

Desert Locust Information Officers in locust-affected countries rely on a custom geographical information system (GIS), RAMSES, to manage survey and control data and analyze it with remote sensing imagery and historical data in order to assess the current situation, forecast locust developments and plan appropriate survey and control operations. RAMSES imports eLocust3 data and exports data that are sent to FAO's Desert Locust Information Service (DLIS) where the global situation is analyzed in order to make forecasts, provide early warning and keep all countries and stakeholders informed on a timely and regular basis.

The latest version of RAMSES, Rv4.1, can be used on PCs and Apple Mac computers in Arabic, English and French. It uses open-source software that is free and has no licensing restrictions, a spatial database (PostgreSQL) for rapid data retrieval and analysis, a unified database structure that facilitates better data exchange, and use of internet cloud-based technologies for automatic updating and backups.

Support to early warning

The Commission supports the use of eLocust3 in locust-affected countries within the region by bearing the costs of data transmission via satellite, de/activation of units and the monthly subscription. There are nearly 125 elocust3 units available in the Central Region that are activated and deactivated according to the development of the locust situation. The Commission, in collaboration with the Desert Locust Control Organization for Eastern Africa (DLCO-EA), supports Desert Locust early warning in northern Somalia because of its strategically important winter and spring breeding areas that can affect other countries in the region. It covers the operational cost of eLocust3 units and assists in providing training to build national capacity. Additional support is provided to all countries for the continued development and updating of Rv4.1 to meet national needs. In collaboration with DLIS, the Commission organizes an annual interregional training course for Desert Locust Information Officers on eLocust3 usage and maintenance and how to use Rv4.1 for data management and analysis. As a result, frontline countries have well-trained locust information officers who are constantly updated with the latest technologies and techniques.

Communications and information exchange

The Commission devotes considerable efforts in strengthening the capacities of national Desert Locust Information Officers in the region and contributes to the development of new tools to facilitate the collection, transmission and analysis of data. The Commission plays an essential role in encouraging good communication and the timely and regular exchange of locust data and reports between its member countries. In this respect, the Commission continues to liaise regularly with member countries for information exchange, and to support national and regional capacities for ensuring the proper utilization of resources, harmonised procedures and the exchange of ideas.
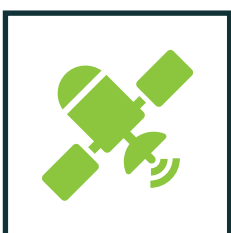
Modern technology

Today, the ability to detect and control Desert Locust outbreaks in locust-affected countries has improved greatly due to the development of new technologies and their incorporation into the early warning system. These technologies enable the rapid collection and transmission of standardized field data so that it can be analysed with remote sensing imagery and historical data to assess the locust situation, forecast its development and issue timely reports and early warning. Every country contributes to FAO's global early warning system by providing data and regular situation bulletins to DLIS.

As a result of modern technology, locust monitoring and early response are becoming more effective and efficient as part of the preventive control strategy adopted by countries to reduce the frequency, duration and scale of Desert Locust plagues and to protect agricultural crops and pastures.

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