

# 2013



## CLCPRO REGIONAL WORKSHOP FOR DESERT LOCUST INFORMATION OFFICERS IN THE WESTERN REGION

No. 5

6-10 May 2013  
Niamey, Niger

Commission for Controlling the Desert Locust in the Western Region (CLCPRO)  
Desert Locust Information Service (DLIS)



## Regional Workshop for Desert Locust Information Officers in the Western Region

6-10 May 2013 (Niamey, Niger)

### Introduction

The FAO Commission for Controlling the Desert Locust in the Western Region (CLCPRO) organized and sponsored a regional workshop for Desert Locust Information Officers in the Western Region. This was the fifth workshop since 2007<sup>1</sup>. Twelve nationally designated Desert Locust information officers (DLIO) from nine countries attended the workshop, which was conducted by Hichem Dridi, Information Technology Officer (FAO/CLCPRO, Algiers), assisted by Keith Cressman (Senior Locust Forecasting Officer, FAO Rome) and Mohamed Lemine Ould Ahmedou (Locust Officer, FAO Rome)<sup>2</sup>. A resource person, Ahmed Salem Benahi (DLIO, Mauritania), assisted in the RAMSESv4 training portion of the workshop.

### Programme

The five-day workshop covered three broad themes: reporting, eLocust3 and RAMSESv4 (Annex 1). The main emphasis of this year's workshop was to harmonize the eLocust3 interface with the survey/control form data, and to provide training on RAMSESv4. The workshop hours were from 9:00 to 5:30 PM.

### 1. Reporting

The Senior Locust Forecasting Officer provided feedback on the quality, timeliness and frequency (regularity) of reporting (Annex 2). During the past 12 months, quality remained high in all countries, except Libya where there was a slight decline. Compared to 2011, the quality of reporting improved in several countries, most notably Niger and Mali, but declined slightly in Chad and Senegal. On the other hand, timeliness of reporting was high in all countries and there were no deficiencies. More than 18,000 records of RAMSES data were received from frontline countries in 2012 and the first four months of 2013. This indicates the substantial efforts of the national locust programs in survey and control operations during the period, which included increased locust activity in Sahelian countries. Niger (5,315 records) and Mauritania (4,961) accounted for more than half of the total records.

The causes of the decline in reporting quality were:

- Data was unclear or missing (Algeria, Mali, Niger)
- Duplicate data was received by DLIS (Algeria, Mauritania)
- *Dominant* was indicated in eLocust2/RAMSES data when only one maturation stage was present (Algeria, Morocco)
- Field data differed slightly from what was written in summaries and national bulletins (Morocco, Niger, Senegal)
- Some RAMSES data was sent to DLIS without a brief summary (Niger, Senegal)
- RAMSES data for the wrong period was sent to DLIS (Algeria)
- Some RAMSES data was not received by DLIS (Chad, Libya, Mali, Mauritania)
- Problems were encountered in using RAMSES (Libya)

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<sup>1</sup> Agadir, Morocco (6-8 December 2007); Algiers, Algeria (11-15 July 2009); Bamako, Mali (8-10 February 2011); Dakar, Senegal (16-18 July 2012)

<sup>2</sup> Algeria (Hamid Bensaad), Burkina Faso (Tandegma Ouedraogo), Chad (Neljibaye Rassei), Libya (Zamzam El Bousefi), Mali (Hamidou Sanogo, Issa Mamadou Kanté), Mauritania (Ahmed Salem Benahi, Elhadj Bocar Lemine Sakho), Morocco (Jamal Chihrane), Niger (Idrissa Yacouba, Zakari Adamou), and Tunisia (Mouna Mhafdh).

- The *area treated* in the RAMSES data and reported in bulletins did not always match (Algeria, Mauritania, Morocco, Niger)
- Some problems were faced in interpreting the greenness maps (Chad, Mali, Niger)
- eLocust2 was not used during surveys (Senegal)

Reporting frequency:

- A few reports were not received by DLIS (Algeria – March 2013, Libya – Aug 2012, Tunisia – September 2012)

#### **(b) eLocust2**

Participants were urged to improve the management of eLocust2 units by deactivating units that are not expected to be used in the field during the next 4-6 months. This will help to reduce monthly subscription fees (16 Euros/unit). Ideally, the monthly subscription costs should be close to the monthly data transmission costs. In this way, the activated eLocust2 units are being utilized in the most effective and efficient manner possible.

DLIS will provide the monthly Novacom bill to CLCPRO for follow up regarding this issue.

Minor issues were discussed and resolved (see Annex 3).

#### **(c) RAMSESV3**

In general, participants have a very good knowledge of RAMSES and use it regularly to manage and analyze locust, weather and ecological data. Minor issues were discussed and resolved (see Annex 3).

#### **(d) Remote sensing**

Participants noted that they continue to face delays at times in receiving MODIS imagery and greenness maps. DLIS has repeatedly raised this issue with the concerned providers who are aware of the situation and are trying to resolve it so that users receive the greenness maps within five days of the end of the decade. Sparse green vegetation is not detected (omission errors) because the MODIS sensor is not sufficiently sensitive at 250m resolution. Such errors are expected to be reduced once higher resolution imagery is available in a few years from the Sentinel satellite (30m resolution). Morocco explained that there is at least one area in the Draa Valley that appears to be green on the greenness map but in reality is dry (commission error). This may be due to surface reflectance that is confused as vegetation. As DLIOs gain more experience and practice in using greenness maps, they should be able to mask or filter out such areas.

#### **(e) Communications and social media**

Given the increased reliance on the Internet for communications, data delivery and software updates, it has now become essential and imperative that every national locust centre has a fast high-speed connection that is reliable. National Locust Centre Directors should ensure that their DLIOs have such a connection.

Participants were encouraged to develop a Facebook page for the national locust centre in their country and to use Twitter. Both technologies are useful tools to keep people informed of the Desert Locust situation. Libya is an example of one of the countries that makes effective use of these technologies.

In order to provide support to new technologies, participants were shown how to use TeamViewer, which allows remote access to the user's computer (if the user allows it) and

Skype. The Information Technology Officer at CLCPRO will organize a weekly Skype call to frontline countries every Thursday at 10h as one method of providing the necessary technical support to the current and new versions of eLocust2 and RAMSES. Google Agenda will be used to keep DLIOs informed about the date and time of the calls.

## **2. RAMSESv4**

Two and half days were devoted to RAMSESv4. Participants were given an overview of the development team, application architecture, programming language and computer requirements for RAMSESv4. They were then divided into pairs and practiced installing, uninstalling and reinstalling RAMSESv4 on their laptops using XP and Windows 7 (Annex 4). Very few errors were discovered during this process, as most of them had been resolved last month at the SWAC/CRC inter-regional Desert Locust Information Officer workshop. This was fortunate given the poor Internet access and limited number of resource persons at the Niamey workshop.

Participants practiced using RAMSESv4 with the help of instruction provided by the resource persons and by completing exercises in a Self Training Manual. Participants brought with them their portable external hard disk drive that was provided by DLIS in January. Each disk was updated and used during the training. One additional hard disk drive with updated files was distributed to each of the frontline countries at the workshop (Annex 5). Three of the hard disks became infected with several viruses during the workshop, confirming the importance of anti-virus software. Several tips for installation, uninstall and usage to improve user experience were presented (Annex 6). Participants had a number of suggestions for improving RAMSESv4 (Annex 7).

The RAMSESv4 Development Team relies on an online service, Bitbucket<sup>1</sup>, to manage the development of the custom application. Participants were shown how to provide feedback regarding bugs and improvements in RAMSESv4 through Bitbucket by creating a new issue. Users must first register for the free service. In this way, the entire RAMSESv4 Development Team will be informed and they can address and follow all issues in a systematic manner. This is more efficient than sending email messages to various team members.

## **3. eLocust3**

The Senior Locust Forecasting Officer presented the demonstration version of eLocust3 in French and Arabic in a PowerPoint presentation as well as on one eLocust3 tablet. The participants discussed and reviewed each data field to ensure that all possible data collected in the field during survey and control operations could be entered into eLocust3. Participants also reviewed the CLCPRO survey form. Several changes were made to eLocust3 so that both items were harmonized and in full agreement with each other (Annex 8). In this way, every locust-affected country will use the same standard FAO Survey/Control Form in all the regions (Annex 9). This will ensure that all data can be easily managed, shared, summarized and analyzed. The form will be translated into English and Arabic. The terminology for the Arabic version will be reviewed with Saudi Arabia and Libya, the two countries that primarily use Arabic.

## **Conclusion and follow up**

The participants confirmed the importance of and need to continue to organize the CLCPRO regional workshop for Desert Locust Information Officers on an annual basis in order to keep DLIOs well trained, strengthen Desert Locust data management and analysis, maintain a high level of reporting on timely and regular basis, and to sustain an effective early warning

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<sup>1</sup> [https://bitbucket.org/faodlis/fao\\_openjump/wiki/Home](https://bitbucket.org/faodlis/fao_openjump/wiki/Home)

system. This system is the basis for the preventive control strategy as a means to reduce the frequency, duration and intensity of Desert Locust plagues.

The participants acknowledged the efforts of the RAMSESV4 Development Team for their hard work in developing the new programme, and to DLIS and CLCPRO in developing eLocust3.

Based on the discussions during the workshop, several follow up actions will be undertaken as follows:

- CLCPRO will follow up with countries regarding the management of eLocust2 units and their de/activation;
- One eLocust3 unit should be provided to Mauritania, Mali, Niger and Chad in August so that DLIOs can start training field officers;
- The remainder of the eLocust3 units should be shipped in September or October to all countries;
- Computers used for RAMSESV4 should have Windows7 with 8GB RAM;
- DLIOs should practice using RAMSESV4 and provide feedback through Bitbucket;
- Shapefiles of eco-sensitive areas in Niger and other countries should be provided to DLIS for inclusion in RAMSESV4;
- The DLIO in Mauritania will investigate the possibility of IGN 1:200,000 scale digital (geotif) maps for RAMSESV4;
- The RAMSESV4 Development Team should meet in Rome in mid-June to finalize the database structure;
- DLIOs should improve reporting quality by checking RAMSES data and always sending a brief summary with it to DLIS;
- National Locust Centres should consider establishing a Facebook page and using Twitter;
- Anti-virus software must be installed on all PCs and updated regularly;
- The Locust Centre Directors should provide an adequate internet connection to facilitate the work of the DLIO;
- DLIOs should use frequently the remote assistance between them and the resource persons in WR, CR and SW regions, to solve the different problems;
- CLCPRO will conduct weekly Skype calls to DLIOs on Thursdays at 10h in order to provide remote support;
- A training manual for eLocust3 should be prepared and distributed to the DLIOs in the three regions to facilitate training of the field officers;
- Future workshop venues must have reliable power and high-speed Internet access.

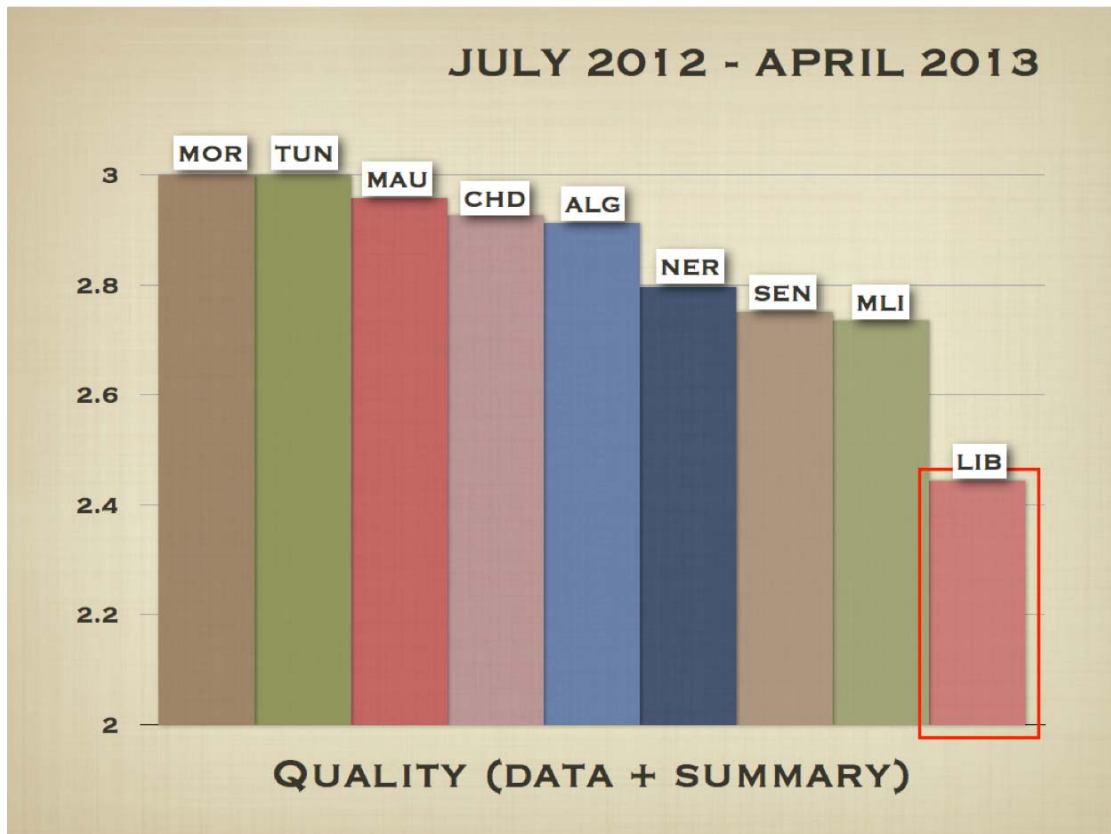
## Annex 1. Workshop programme

### Programme de la formation régionale sur les outils de gestion de l'information acridienne (eLocust3 et RAMSES v4) dans la région occidentale

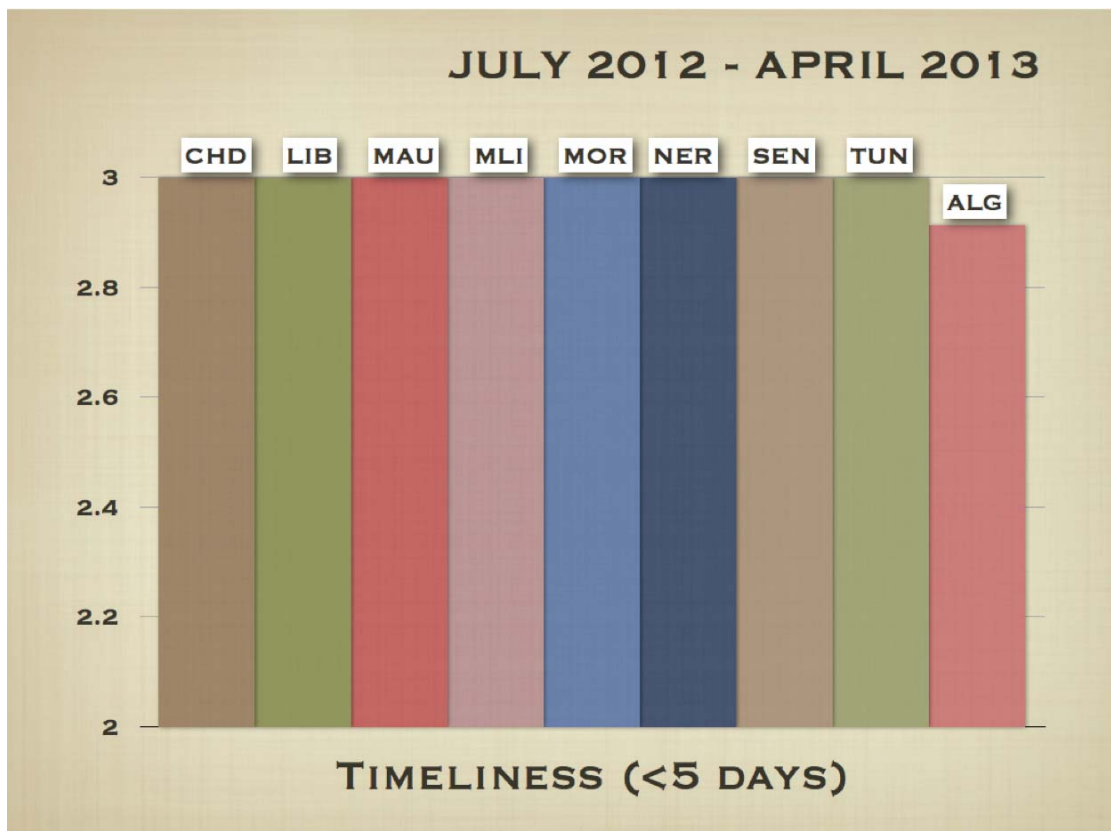
Niamey, Niger, 06-10 mai 2013

Date	Heure	Thèmes	Animateurs	
Lundi 06 mai	09h00 – 09h30	Ouverture de l'atelier		
	09h30 - 10h00	Objectifs et attentes	CLCPRO & DLIS	
	10h00 – 10h30	Pause		
	10h30 – 12h30	Difficultés rencontrés dans l'exploitation de l'ordinateur		CLCPRO
		Présentation/Discussions des solutions optimales		CLCPRO
	12h30 – 14h30	Déjeuner		
	14h30 – 16h00	Présentations de la nouvelle fiche de prospection RO	CLCPRO	
	16h00 – 16h30	Pause		
16h30 – 17h00	Présentations de la nouvelle fiche de prospection RO (suite)	Discussions		
Mardi 07 mai	09h00 – 09h30	Briefing de sécurité	UNDSS	
	09h30 – 10h30	Introduction à eLocust3 (Hardware et formulaires)	DLIS	
	10h30 – 11h00	Pause		
	11h00 – 12h30	Ramses v3 : partage des expériences et d'éventuelles améliorations à prévoir comme plug-in dans la Ramses v4 + eLocust2Mapper	Participants	
	12h30 – 14h30	Déjeuner		
	14h30 – 16h00	Personnalisation des cartes : difficultés rencontrés dans l'analyse des cartes	Participants	
	16h00 – 16h30	Pause		
16h30 – 17h00	Utilisation des différents produits cartographiques dans l'analyse de la situation acridienne et dans l'orientation des équipes	Participants		
Mercredi 08 mai	09h00 – 10h30	Introduction à Ramses v4 : présentation et schéma de fonctionnement	DLIS+ personnes ressources	
	10h30 – 11h00	Pause		
	11h00 – 12h30	Installation et utilisation de Ramses v4	DLIS+ personnes ressources	
	12h30 – 14h30	Déjeuner		
	14h30 – 16h00	Utilisation de Ramses v4 par les participants		
	16h00 – 16h30	Pause		
	16h30 – 17h00	Utilisation de Ramses v4 par les participants (suite)		
Jeudi 09 mai	09h00 – 10h30	Utilisation de Ramses v4 par les participants (suite)		
	10h30 – 11h00	Pause		
	11h00 – 12h30	Utilisation de Ramses v4 par les participants (suite)		
	12h30 – 14h30	Déjeuner		
	14h30 – 16h00	Utilisation de Ramses v4 par les participants (suite)		
	16h00 – 16h30	Pause		
	16h30 – 17h00	Utilisation des fonctions d'établissement des bulletins dans Ramses v4	DLIS+ personnes ressources	
Vendredi 10 mai	09h00 – 10h30	Discussion des critères d'évaluation des bulletins mensuels sur la situation acridienne (analyse des bulletins des pays)		
	10h30 – 11h00	Pause		
	11h00 – 12h30	Discussions des plans de formation nationales sur eLocust3 destinées aux prospecteurs.		
	12h30 – 14h30	Déjeuner		
	14h30 – 16h00	Maintenance à distance, Google agenda pour la participation aux différents événements en ligne prévus entre les chargés de l'information et les personnes ressources, points divers	CLCPRO & DLIS	
	16h00 – 16h30	Clôture de la formation		
	16h30 – 17h00	Pause		

## Annex 2. Reporting

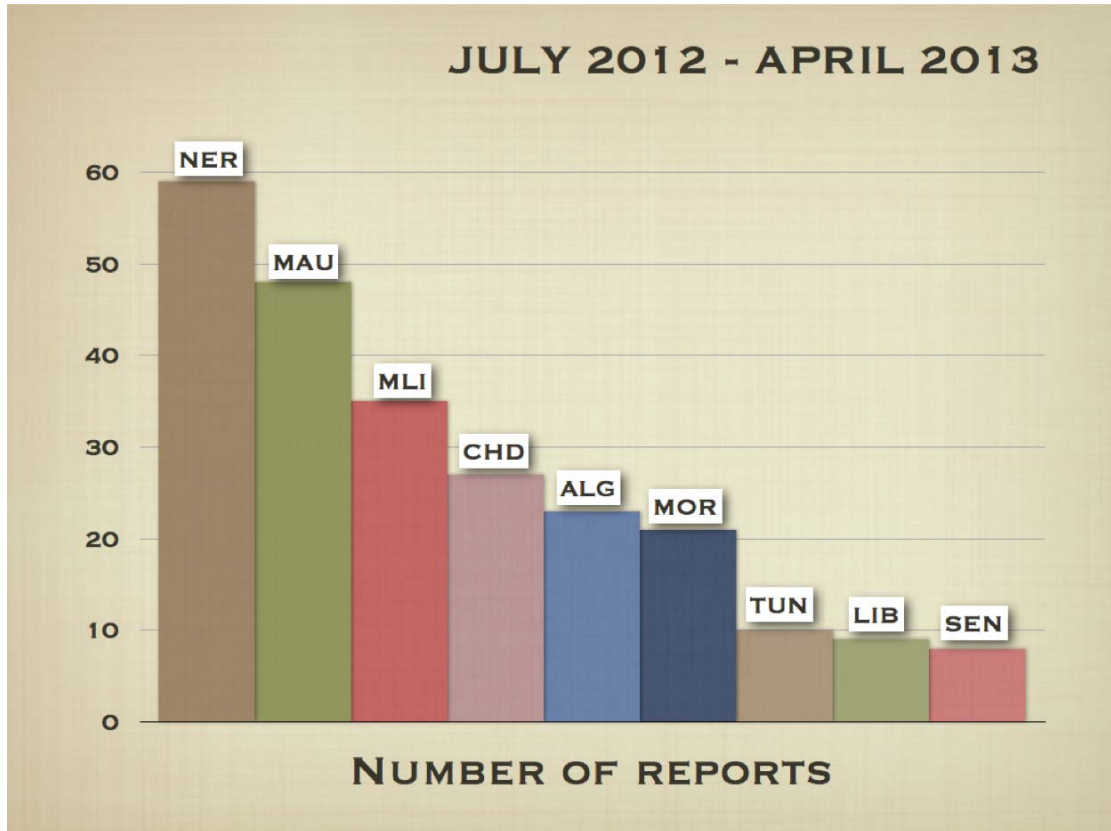


Reporting quality declined slightly in Libya.

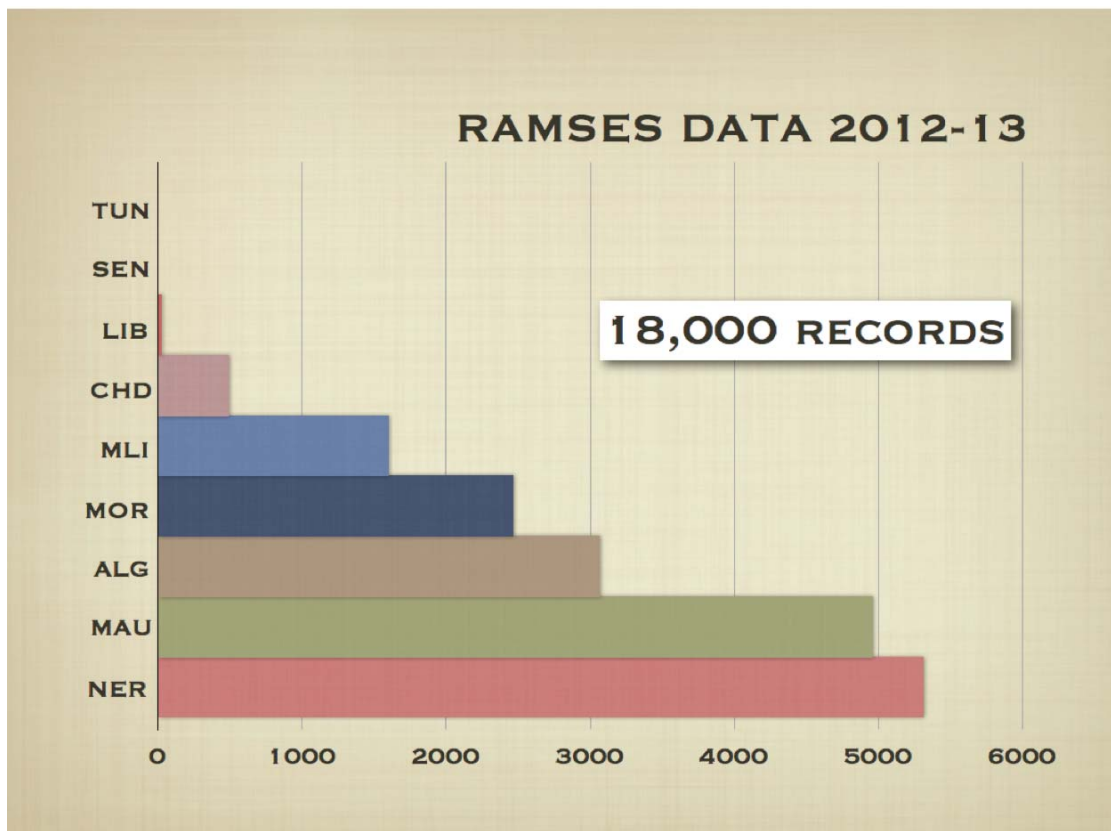


Timeliness of reporting remained high in all countries.



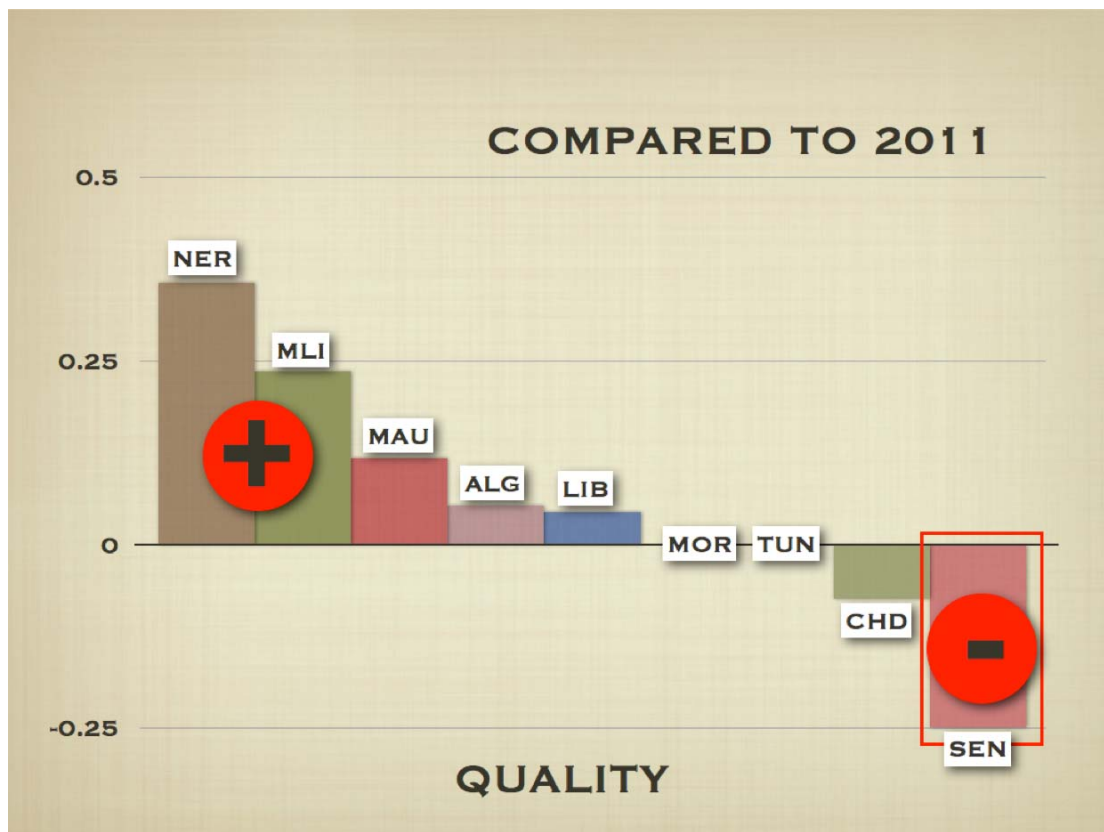


Numerous messages, reports and bulletins were received from Niger (outbreak) and Mauritania (regular monitoring).



Niger and Mauritania accounted for more than half of the 18,000 RAMSES records, demonstrating the substantial efforts made to monitor and control Desert Locust infestations in the Western Region.





Compared to 2011, quality improved significantly in Niger and, to a lesser extent, in Mali, Mauritania, Algeria and Libya in 2012. A more significant decline occurred in Senegal while only a slight decline was seen in Chad.

	ALG	CHD	LIB	MAU	MLI	MOR	NER	SEN	TUN
DATA IS UNCLEAR / MISSING	X				X		X		
DUPLICATE DATA SENT	X			X					
DOMINANT WHEN ONLY 1 STAGE	X					X			
DATA IS DIFFERENT FROM REPORT						X	X	X	
NO DATA SUMMARY							X	X	
WRONG RAMSES DATA SENT	X								
RAMSES DATA NOT SENT		X	X	X	X				
PROBLEM WITH RAMSES			X						
CONTROL TOTALS MISMATCH	X			X		X	X		
PROBLEM WITH GREEN MAPS		X			X		X		
ELOCUST2 NOT USED								X	
NO BULLETIN RECEIVED OR LATE	MAR		AUG						SEP

Reporting quality declined for a number of reasons in different countries.

### **Annex 3. Problems and solutions**

*In order to troubleshooting and solve problems, it is necessary to take a Step-By-Step approach to identify exactly where the problem lies. Once this is known, then it will be easier to solve.*

#### **PC general issues**

##### Disk fragmentation

- Periodic maintenance such as disk fragmentation should be undertaken to ensure a smooth running PC

##### Insufficient RAM

- PCs that will be used for RAMSESV4 required 8GB RAM and Windows 7 operating system

#### **eLocust2**

##### Data loss

- Most countries reported that there was less than 5% data loss during transmission, which is below the acceptable threshold indicated by Novacom; however, data loss was about 6.6% in Algeria
- If used correctly, data loss can be minimized
- Make sure field teams also record data on the *CLCPRO Survey and Control Form* as a backup

##### Slow transmission

- Check the cable and replace with a new one
- If the problem persists, check the antenna (LED should be green) and contact DLIS if antenna is problematic

##### Cables are weak

- This is the primary weakness of eLocust2; extra cables are no longer available
- Make use of all existing cables, such as cables of units that are not activated, until eLocust3 becomes operational later this year

##### Software reinstallation is difficult in remote areas (Algeria)

- A PC should be provided to locust offices in remote areas and training given in software reinstallation

##### Loose cigarette lighter adaptor connection (Morocco)

- This should be improved in eLocust3

##### Difficult to read display (Chad)

- Adjust brightness and contrast in the Settings
- This may be a problem with the user's eye sight

##### eLocust2 history cannot be found (Mali)

- This is an installation problem – the software should be reinstalled and the Data folder created

##### Insufficient training of seconded staff during locust emergencies (Niger)

- The DLIO is responsible for training field staff in the correct use of eLocust2 and providing refresher training

##### Message was queued and not sent but it was received (Niger)

- Reinstalling the software may correct this problem

## **Remote Sensing**

Dynamic Greenness Maps (DGMs) and MODIS imagery arrive late

- MODIS imagery is supplied by NOAA to IRI (Columbia University, USA) for distribution, but occasionally there are processing delays incurred by NOAA; both FAO and IRI are aware of these delays and have informed NOAA accordingly
- As the DGMs are derived from MODIS imagery, a delay in the latter affects the former; additional delays are incurred by the distributor (VITO) because the processing chain is not fully automated; FAO and VITO are currently addressing this issue to ensure that users receive the DGMs within five days of the end of the decade

Omission errors – green vegetation exists but does not appear on MODIS or DGM

- This is because the satellite sensor has difficulty detecting sparse vegetation that is becoming green or already green
- Higher resolution imagery (30m) available from the Sentinel satellite in about 2015 should help to reduce omission errors

Commission errors – MODIS or DGM indicates the presence of green vegetation but no vegetation is present in reality (Draa Valley, Morocco)

- The signal of surface reflectance in certain areas may be similar to that of green vegetation
- As DLIOs can experience in using DGMs, they should be able to mask out commission error areas

## **RAMSESv3**

Installation is difficult and takes time (Chad)

- Usually the latest version update can be installed to an existing version rather than applying each update sequentially

Querying and analyzing the data are difficult (Algeria, Chad, Mauritania)

- This will be resolved in RAMSESv4

How to summarize Area Treated by Wilaya (Algeria)

- Follow the instructions in the Exercise Training Manual (Agadir, 2007)

#### Annex 4. Laptop configurations used for RAMSESV4 training

Participant	Country	OS	Language	RAM	Partner	Country data
<i>Hamid /1</i>	<i>Algeria</i>	<i>XP</i>	<i>F</i>	<i>1.87</i>		
<i>Tandegma /1</i>	<i>Burkina Faso</i>	<i>W7</i>	<i>F</i>	<i>1.87</i>		
Rassei	Chad	W7	F	4	Tandegma/Jamal	CHD
Zamzam	Libya	W7	E	3	Hamid	LIB
Kanté	Mali	W7	F	3.6	Sanogo	MLI
Sakho	Mauritania	W8	F	4		MAU /2
Jamal	Morocco	-	-	-		
Idrissa /3	Niger	W7	F	3.6	Mouna/Hamid	ALG
Zakari /3	Niger	W7	F	3.6		NER
<i>Mouna /1</i>	<i>Tunisia</i>	<i>XP</i>	<i>F</i>	<i>1</i>		
Lemine	FAO	XP	F	3.45		MAU

#### Notes

1. insufficient RAM memory did not allow RAMSESV4 to work so participants were reassigned to other groups
2. data for 1/1/1994 to 31/12/1995 only
3. infected with several viruses during the workshop, including the external HDD. Neither the PC of the HDD could be disinfected so the HDD will be taken back to DLIS for reformatting and copying all of the data files. The HDDs were substituted with the respective extra HDD for each country.

Although RAMSESV4 worked okay with XP (3.45GB RAM) and Windows 7 (3-4GB RAM), it was confirmed that the ideal computer configuration for RAMSESV4 is Windows 7 with 8GB RAM. RAMSESV4 cannot operate on a Netbook PC (Tunisia).

## Annex 5. External portable hard disk drives (HDD)

The original 2TB HDDs that contain the RAMSESV4 installation and data files were updated and additional updated HDDs were distributed to participating countries at the workshop.

Each HDD contains:

- data – static and dynamic raster data
- docs – installation, uninstallation and training guides for XP and Windows 7 in French and English, eLocust3 interface, standard survey/control fiche CLCPRO/FAO (in French), workshop presentation including reporting (in English)
- installation\_sequence – installation files including country specific files
- updates – eLocust2Importer in French and English
- WD SES Device Driver – driver for the HDD

The CLCPRO countries have a total of 24 HDDs assigned to them as follows:

Country	HDDs	Reserve at DLIS
Algeria	ALG2, ALG3	ALG*
Burkina Faso	BKF	
Chad	CHD, CHD2	CHD3
Libya	LIB, LIB2	LIB3
Mali	MLI, MLI2	MLI3
Mauritania	MAU, MAU2	
Morocco	MOR, MOR2	
Niger	NER2, NER3	NER*, NER4
Senegal	SEN**	
Tunisia	TUN	
CLCPRO	CLCPRO	

\* FAO Senior Locust Forecasting Officer to reformat and copy files as original HDD was infected with viruses during the workshop

\*\* not updated as Senegal did not participate in the workshop

## Annex 6. RAMSESV4 tips

### A. Install / Uninstall

1. temporarily disable anti-virus programs
2. close all windows and apps
3. XP with 2+ GB RAM
4. W7 as Admin (right-click - Run as... and set in Properties)
5. copy **installation\_sequence** folder to desktop and uninstall from there
6. if installation hangs at the beginning before installing Java (i.e. after 15+ min), quit the installation, check to see if Java was installed (if so, uninstall), restart the PC, and try to install again
7. it is important to read carefully any messages that appear in pop-up windows or in the CMD window and follow any instructions that are provided
8. if cannot uninstall Java, download and apply Uninstall Java Patch<sup>1</sup>
9. if cannot see files on the HDD (this is a virus!), download and apply USBFix<sup>2</sup>
10. XP only: if installation is successful without any errors but RAMSES does not start, then change the memory allocation to 1300 in the openwindows.bat file (see installation instructions)

### B. Usage

1. zoom in first, then add hi-resolution backgrounds (Landsat, TPC)
2. don't update Java6
3. Greenness maps - to make gray background transparent:
  - a. right-click on layer
  - b. Change Raster Image Properties
  - c. tick - Do you want a color to be set to be transparent
  - d. RGB tab
  - e. resize window
  - f. RGB=100/100/110
4. if get error during query, restart RAMSESV4
5. Greenness map (and some other dynamic images) selection – only FROM date
6. monthly rainfall anomaly (difference from norm) vs. aggregate (month total)
7. background maps (TPC, Blue Marble, Landsat, Topo30) should be the bottom layer; other layers to be analyzed (rainfall, greenness map) should be next (with transparency 50-80%); vector data (locust data, roads, wadis, boundaries, etc.) should always be on top
8. use eLocust3Importer plug-in to enter, update and correct data manually

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<sup>1</sup> [http://support.microsoft.com/mats/Program\\_Install\\_and\\_Uninstall](http://support.microsoft.com/mats/Program_Install_and_Uninstall)

<sup>2</sup> [en.kioskea.net/download/download-24089-usbfix](http://en.kioskea.net/download/download-24089-usbfix)

## Annex 7. RAMSESV4 improvements

### A. Database queries

#### 1. One click by State:

- summary table: area surveyed, infested (Desert Locust, adults, hoppers, swarms, bands, laying, hatching, solitary/gregarious, rains, vegetation), treated
- map: color-coded state fills
- compare month by month, year by year (ex. summer 2012 surveys vs. summer 2011 surveys by state)

#### 2. Desert Locust

- evolution of situation - changes in numbers (reports/day)
- area surveyed, infested, area treated, number of bands, swarms by entire sub-region over time 1
- do above for time 2, subtract from time 1 to show increase, decrease, no change
- area surveyed, infested, treated by region by day/month/year by region over time 1 and time 2
- area treated hoppers vs. adults
- frequency of Desert Locust presence/0.25 sq.deg and /region by month, year
- proportion that is solitary, transiens, gregarious
- proportion that is different maturation stages (hoppers, adults)
- DL presence and altitude
- graph: locust maturity, locust density, survey, area infested, area treated, by entire country or sub-region over time 1 and time 2

#### 3. Desert Locust breeding

- show breeding adults in places greening up in last week returns a map with colored pixels

#### 4. Vegetation

- summarize red pixels of DGM in user-selected area to determine total area favorable
- plot 1-5 stages as colors, summarize %/region
- plot plant species vs. Desert Locust to see which species has most Desert Locust
- estimate % drying by region
- graph: vegetation density by entire country or sub-region over time 1 and time 2

#### 5. Soil

- Desert Locust presence and soil type

#### 6. Field operations (depends on all teams having eLocust)

- table of active days/team/month
- number of teams/region/period of time

#### 7. Control

- pesticide used/period of time
- map mortality after X hours
- plot phytotoxicity and zootoxicity
- plot treatment blocks
- graph: control, area treated, pesticide used, by entire country or sub-region over time 1 and time 2



#### 8. Data comparison in 4 windows

- compare time periods of same data (ex. Desert Locust in June-Sep) and different data (ex. Desert Locust, veg, rain, control) in 4 map windows.

#### **B. Plug-ins**

1. Desert Locust Egg and Hopper Development model – run model on selected data set and display results on a map
2. Western Region Stocks System – import geo-referenced export file to query/display data
3. eLocust3Import – (for eLocust3 data), include statistics (missing data and type) that can be exported

#### **C. Other improvements**

1. Country specific international, sub1 and sub2 boundaries (in addition to contours, roads, wadis) in Locust Menu (with asterisk)
2. The map of country should be displayed without the other countries, or have the possibility to choose which map will be displayed (with or without neighboring countries)
3. How to synchronize more than one database used in the same country
4. Clarify the need to update the index file after new raster imagery are added

## Annex 8. eLocust3 amendments

During a presentation and demonstration of eLocust3, participants made several suggestions for eLocust3 as follows:

1. Indicate if the unit is activated
2. Indicate when all messages for a report have been sent
3. Obligatory fields are indicated by asterisk and perhaps different colour
4. Add logic checks that must be satisfied before a report can be sent
  - a. Obligatory fields are completed:
    - i. Surveyed ha
    - ii. Locust
    - iii. Habitat type
    - iv. Soil moisture
    - v. Vegetation (state)
    - vi. Vegetation density
    - vii. *if hoppers*: stage, appearance, behaviour, colour, density (qualitative or quantitative)
    - viii. *if bands*: stage, density (qualitative or quantitative), size, colour
    - ix. *if adults*: stage, colour, appearance, behaviour, density (qualitative or quantitative)
    - x. *if swarms*: stage, colour, activity, density (qualitative or quantitative), size
    - xi. *if control*: application type, treated ha, pesticide name, formulation, concentration, application rate, quantity used, method, treatment duration
    - xii. *if treatment evaluation*: mortality rate, time after treatment, phytotoxicity, zootoxicity (see point h)
  - b. If PRESENT is selected, at least one field in either hoppers, bands, adults or swarms must be completed
  - c. Wet soil depth FROM must be less than TO
  - d. If only one stage in Hopper, Band, Adult and/or Swarm, then DOMINANT cannot be completed
  - e. If more than one stage in Hopper, Band, Adult and/or Swarm, then DOMINANT becomes Obligatory field
  - f. Density and Size fields: minimum must be less than maximum; average must be greater than minimum but less than maximum
  - g. Swarm flying direction FROM and TO cannot be the same
  - h. If EVALUATION TREATMENT is ON, then the default obligatory fields are no longer valid
  - i. If more than 2 coordinates are obtained in TREATMENT BLOCK, then Area to be treated is automatically calculated

The suggestions will be communicated to Novacom, the software developer.

## Annex 9. FAO Standard Survey/Control Form

In order to avoid any confusion in the Western Region, the name of the form that was harmonized and adopted during the workshop will be changed from *Fiche standard de prospection/lutte CLCPRO/FAO* to *Standard FAO Desert Locust Survey/Control Form* (and its French equivalent) once eLocust3 becomes operational.

The following two-page form was agreed upon:

**Fiche standard de prospection/lutte CLCPRO/FAO**  
Version 2011

Pays : \_\_\_\_\_  
Date : \_\_\_\_\_

	1	2	3
<b>1 Point d'arrêt</b>			
1.1 Nom de la localité			
1.2 Heure			
1.3 Latitude (CO, W, S, S)			
1.4 Longitude (CO, W, S, S) (O, E)			
1.5 Surface prospectée (ha)			
1.6 Climat (Présent ou Absent)			
1.7 Zone à traiter (donner les coordonnées des quatre points de la zone)	1: _____ 2: _____ 3: _____ 4: _____	4: _____ 1: _____ 2: _____ 3: _____	1: _____ 2: _____ 3: _____ 4: _____
1.8 Surface à traiter (ha)			
<b>2 Conditions écologiques</b>			
<b>Habitat</b>			
2.1 Topographie (Cote, Plaine, Plateau, Collines, Dunes, Interdunes, Culbute, Fâlage, Cassis, Rag, Selkhu, Couleth)			
2.2 Nature sol (Sableux, Limoneux, Argileux, Calcaireux, Gravelleux, Rocheux)			
2.3 Sol (Sec ou Humide)			
2.4 Humidité du sol (de x à y cm)			
<b>Végétation</b>			
2.5 Etat (Reverdissant, Vert, En dessèchement, Sec)			
2.6 Densité (Faible, Moyenne, Dens)			
2.7 Espèces prédominantes (lister les trois espèces dominantes)			
2.8 Etat (Vert, En dessèchement, Sec)			
2.9 Couverture (%)			
2.10 En dessèchement (%)			
2.11 Stade de développement (1, 2, 3, 4, 5)			
2.12 Espèces adjuvantes (lister les trois espèces dominantes)			
2.13 Etat (Reverdissant, Vert, En dessèchement, Sec)			
2.14 Couverture (%)			
2.15 En dessèchement (%)			
2.16 En reverdissant (%)			
<b>Conditions météorologiques</b>			
2.17 Date de dernière pluie			
2.18 Pluie aggrégative (Faible, Modérée, Forte)			
2.19 Quantité de pluie (mm)			
2.20 Température (°C)			
2.21 Provenance du vent (N, NO, NE, O, E, S, SO, SE)			
2.22 Vitesse au vent (m/s)			
<b>3 Situation acridienne</b>			
<b>Bande larvaire</b>			
3.1 Stade de développement (E-1, 2, 3, 4-5-6)			
3.2 Stade dominant (E-1, 2, 3, 4-5-6)			
3.3 Phase (Solitaire, Transiens, Tricongrains, Tétracosains, Grégaire)			
3.4 Comportement (Solitaire, Dispersés, Regroupés)			
3.5 Couleur (Vert, Brun, Gris jaunâtre, Jaune pâle, Noir)			
3.6 Densité (Faible, Moyenne, Forte)			
3.7 Moyenne du nombre d'individus par trouffis (m <sup>2</sup> )			
3.8 Distance moyenne entre trouffis (m)			
3.9 Activité (en Écllosion, en Déclassement, se Nourrissant, Perchées, en			

<b>Bande larvaire</b>			
3.10 Stade de développement (E-1, 2, 3, 4-5-6)			
3.11 Stade dominant (E-1, 2, 3, 4-5-6)			
3.12 Densité (Faible, Moyenne, Forte)			
3.13 Densité minimale, maximale et moyenne (par m <sup>2</sup> )			
3.14 Taille minimale, maximale et moyenne de la bande (en m <sup>2</sup> ha)			
3.15 Nombre de bandes			
3.16 Distance moyenne entre bandes (m)			
3.17 Couleur (Vert, Brun, Gris jaunâtre, Jaune pâle, Noir)			
3.18 Activité (en Écllosion, en Déclassement, se Nourrissant, Perchées, en			
<b>Stade adulte</b>			
3.19 Moult (Jeune Ailé, Immature, Mature)			
3.20 Moult dominant (Jeune Ailé, Immature, Mature)			
3.21 Couleur (Vert, Brun, Gris jaunâtre, Jaune pâle, Noir)			
3.22 Phase (Solitaire, Transiens, Tétracosains, Tricongrains, Grégaire)			
3.23 Comportement (Solitaire, Dispersés, Regroupés)			
3.24 Reproduction (Accouplement, en Ponte)			
3.25 Densité (Faible, Moyenne, Forte)			
3.26 Nombre par transect (x)			
3.27 Longueur (m) et largeur (m) du transect			
<b>Essaims</b>			
3.28 Moult (Jeune Ailé, Immature, Mature)			
3.29 Moult dominant (Jeune Ailé, Immature, Mature)			
3.30 Couleur (Vert, Jaune)			
3.31 Reproduction (Accouplement, en Ponte)			
3.32 Activité (Pisé, en Vol d'investissement, en Vol boulebillonnant, en Vol)			
3.33 Densité minimale, maximale et moyenne (par m <sup>2</sup> )			
3.34 Densité (Faible, Moyenne, Forte)			
3.35 Taille (ha, km <sup>2</sup> )			
3.36 Provenance du vol (N, NO, NE, O, E, S, SO, SE)			
3.37 Destination du vol (N, NO, NE, O, E, S, SO, SE)			
3.38 Altitude (Basse, Moyenne, Haute)			
3.39 Durée de passage (en heures et minutes)			
3.40 Cohésion (Faible, Moyenne, Forte)			
3.41 Forme (Carrélongue, Ovalaire)			
<b>4 Lutte</b>			
4.1 Type d'application (En couverture totale, Spot)			
4.2 Surface traitée et Surface protégée (ha)			
4.3 Nom du pesticide utilisé			
4.4 Formulation (EC, WP)			
4.5 Teneur matière active (g m <sup>-1</sup> a.i. ou %)			
4.6 Volume d'application (l/ha, g/ha)			
4.7 Quantité utilisée (l/ha, gramme)			
4.8 Moyens utilisés (Manuel, à Dos, Véhicule, Aérien)			
4.9 Durée de traitement (en min)			
4.10 Taux de mortalité (%)			
4.11 Temps écoulé depuis le traitement (en heures)			
4.12 Phytotoxique (Présence, Absence)			
4.13 Zootoxique (Présence, Absence)			
<b>5 Protection</b>			
5.1 Utilisation matériel de protection : Lunettes, Masque, Combinaison, Bottes, gants (Oui, Non)			
5.2 Observation lors d'irrigation (Oui, Non)			
5.3 Sursurveillance (Oui, Non)			
5.4 Dégrits sur cultures (%)			
5.5 Dégrits sur sillages (%)			
<b>6 Commentaires</b>			