



*Food and Agriculture
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*Agencia Española de Cooperación
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*Ministère de l'Agriculture et
du Développement Rural
de l'Algérie*



*European Commission
Arbo-zoonet Programme*

“Regional Training Workshop on High Pathogenic Avian Influenza (HPAI) and Rift Valley Fever (RVF) in the Maghreb”



Algiers, Algeria / 18-22 July 2009

Baldomero Molina Flores

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1. BACKGROUND

1.1 General Context

Rift Valley Fever (RVF) is an arbovirolosis disease (Phleboviruses gender, Bunyaviridae family), transmitted by mosquitoes (*Aedes* and *Cules* gender) which affects primarily animals (mainly ruminants) but has the capacity to infect also humans (zoonotic disease). In animals, RVF manifests itself with a sudden onset of abortion in a large proportion herd/flock, associated with high neonatal mortality. It may manifest itself as a fatal hemorrhagic disease syndrome in humans, there may also be many severe influenza/malaria-like cases.

The virus was first identified in 1931 during an investigation into an epidemic among sheep on a farm in the Rift Valley of Kenya. Since then, outbreaks have been reported in sub-Saharan and North Africa. In 1997-98, a major outbreak occurred in Kenya, Somalia and Tanzania and in September 2000, RVF cases were confirmed in Saudi Arabia and Yemen, marking the first reported occurrence of the disease outside the African continent and raising concerns that it could extend to other parts of Asia and Europe, with high potential extension risk to the Mediterranean zone.

In Maghreb region, the presence of RVF virus was first suspected in Mauritania (1984) as a result of serological investigations carried out by the National Livestock and Veterinary Research Centre (CNERV). Investigations concluded that the circulation of the virus was enzootic in the country and that the disease was likely to break out any time. This finally happened during the 1987 rainy season in the Trarza region (southwestern Mauritania). More than 200 human deaths were registered. Massive abortions (up to 100 percent within herds), stillbirth and high mortality rate in young animals were observed among domestic animals. Finally, RVF seems to have established itself in the main livestock husbandry areas of Mauritania.

Throughout the last 10 years arbovirolosis, and in particular RVF, have suffered a recrudescence in Africa. These diseases were often detected tardily because of weak or non-existent epidemio-surveillance systems and the rather distant or not very operational diagnosis laboratories. Besides of the serious consequences on the socioeconomic plan and the public health in the countries affected, RVF represents a major constraint for livestock international trade.

1.2 Specific Context

The risk of infection of RVF in the countries of North Africa justifies a strengthening of their national veterinary services capacities of epidemio-surveillance and diagnosis. Therefore the FAO/RAHC-NA (Regional Animal Health Center for North Africa) and the Arbozoonet Program of the EC (European Commission) organized a training workshop, in collaboration with the Ministry of Agriculture and Rural Development of Algeria (MADR) and the support of the Spanish Agency for International Co-operation and Development (AECID).

Baldomero Molina Flores, associated veterinary expert within the FAO/RAHC-NA, and the representatives of the EC Arbozoonet Program, Michele Bouloy (Pasteur Institute, Paris, France), Jabbar Ahmed (Research Center Borstel, Germany) and Catherine Cetre-Sossha (CIRAD), were the technical experts in charge of the scientific committee for the organization of this workshop, with the essential collaboration of Karim Boughalem, Sub-Director of

Animal Health at the Veterinary Services of Algeria (MADR). This specific workshop on RVF, has considered a multidisciplinary dimension (virology, entomology, epidemiology...) of this disease, in the framework of the FAO/RAHC-NA initiative for a Mediterranean Animal Health Network (REMESA), which will allow the strengthening of the Veterinary Services capacities in the region as well as the constitution of a Mediterranean network of focal points (laboratories of the Maghreb countries, CIRAD-France, etc.) to reinforce RVF epidemio-surveillance and control.

At the same time, parallel sessions were organized for the update of the most important aspects concerning the High Pathogenic Avian Influenza (HPAI), as well as the FAO/RAHC-NA coordination activities within the framework of the REMESA initiative.

The approach developed for this training workshop was:

- 1) Pragmatic: learned lessons have to be simple, adapted to the local situation and immediately applicable by participants after finalizing the training workshop.
- 2) Interactive: between the field and the laboratory, specifically targeted to animal health professionals, from different academic backgrounds and origins, in order to support a multidisciplinary field-team work.
- 3) Participative: practical cases adapted to real situations will be proposed and discussed with the participants.

2. GENERAL AND SPECIFIC OBJECTIVES

2.1 General Objective

To strengthen North African countries veterinary services' capacities for the prevention and control of RVF and HPAI.

2.2 Specific Objective

- To provide the North African countries Veterinary Services with a practical training on the RVF diagnosis and to reinforce theoretical knowledge on the virology, the entomology and the epidemiology of this disease.
- To updated the North African countries Veterinary Services with the most important aspects concerning the HPAI and the FAO/RAHC-NA coordination activities within the framework of the REMESA initiative.

3. TRAINING FRAMEWORK

3.1 Venue

The training workshop took place at the Hotel Mouflon d'Or in Algiers (theoretical sessions) and at the National Institute of Veterinary Medicine, in Algiers (practical sessions).

3.2 Participants

The number and nationality of participants were as follow:

- 9 participants from Algeria (laboratory and epidemiology focal points and technicians).
- 3 participants from Mauritania (laboratory and epidemiology technicians).
- 2 participants from Morocco (laboratory and epidemiology technicians).
- 1 participant from Tunisia (laboratory technician).

3.3 Dates and timetable

The training took place in Algiers (Algeria) from 18th to 22nd July 2009:

- Morning Sessions: 09: 00-13:00h.
- Lunch: 13:00-14:00h.
- Afternoon Sessions: 14:00-17:00h.

3.4 Trainers

The following team of RVF and HPAI international experts travelled to Algiers to train participants during the five days workshop:

- Dr. Catherine Cetre-Sossha (CIRAD).
- Dr. Renaud Lancelot (CIRAD).
- Dr. Karine Huber (CIRAD).
- Dr. Baldomero Molina Flores (FAO/RAHC-NA).

4. REPORT

The FAO/RAHC-NA and the EC Programme Arbozoonet organized this training workshop from 18 to 22 July 2009, in collaboration with the Ministry of Agriculture and Rural Development of Algeria (MADR) and the technical support of the CIRAD, who is a member as well of the Arbozoonet EC Programme. Funds for this training were provided by the Spanish Agency for International Cooperation for Development (AECID) and the EC Programme Arbozoonet.

The FAO/RAHC-NA team (Dr. Baldomero Molina Flores and Ms. Yosra Taous) travelled to Algiers two days in advance in order to prepare the “Regional Training Workshop on HPAI

and RVF in the Maghreb”. A team of three RVF experts from the Agronomic Research International Centre for Development (CIRAD) travelled to Algiers to implement the training. The participants were veterinarians and laboratory technicians from the veterinary services of Algeria, Mauritania, Morocco and Tunisia dealing with the epidemiosurveillance and diagnosis of RVF and HPAI. The FAO-Algeria representative and the Algerian CVO assisted also to some of the sessions.

This specific workshop on RVF took into account a multidisciplinary (virology, entomology, and epidemiology) approach of the disease. It has strengthened the capacity of regional veterinary services and through the participants' networks it has enhanced surveillance and detection of RVF in the Maghreb. The participants from Mauritania shared their experience in surveillance and control of RVF throughout a technical presentation. At the same time, parallel sessions were held for updating the most important aspects regarding the HPAI and coordination activities of FAO/RAHC-NA in the context of the REMESA initiative. The HPAI expert from FAO-HQ, Guillaume Kondolas, could not assist to the training (as programmed) due to visa problems and his presentation was cancelled.

A presentation on the FAO/AHC-NA structure and mechanisms for coordination on animal diseases activities within the region, particularly focused on the recently approved REMESA Action Plan, was provided by Dr. Baldomero Molina Flores. The presentation stressed the role of the FAO/RAHC-NA as the Regional Coordination Unit for REMESA. The experience of the FAO/RAHC-NA in North Africa and its regional networks established (laboratory, epidemio-surveillance, communication and socio-economics), where showed as examples to prove the disposition of the centre to work in coordination and collaboration with the different countries of the Mediterranean region.

The presentation opened the door to engage in discussions with participants about the establishment of a “RVF Working Group”, under the umbrella of the REMESA Action Plan, and dinamized by Algeria and France. The ToR for the “RVF Working Group” was also discussed and Mauritania and France were chosen as “leader” laboratories for the Group. It was also agreed that the “RVF Working Group” will use the recently created FAO/RAHC-NA website discussion forums and distribution mailing list as an interaction/communication tool.

Future activities to be implemented on the framework of the “RVF Working Group” were also proposed, such as the organization of the “II Regional Training Workshop on RVF”,; the preparation of a “Regional RVF Simulation Exercise” and the development of a “Regional RVF Contingency Plan”. The participants from Mauritania also proposed the development of “Regional RVF Data-Analysis and Risk-Analysis Studies”.

During the official closing sessions, the FAO/RAHC-NA representative reviewed with participants the “RVF Working Group” ToR and finalised with the evaluation of the workshop by the participants and recommendations for the future.



Organisation des Nations Unies
pour l'Agriculture et l'Épiculture



Union Arabe
Organisation pour le Développement



Ministère Algérien de l'Agriculture et de
Pêche et de Développement Rural



Programme de Santé
de la Communauté Arabe

Centre Régional de Santé Animale
pour l'Afrique du Nord (CRSA-AN)

Atelier régional de formation sur la Fièvre de la Vallée de Rift (FVR) et l'Influenza Aviaire Hautement Pathogène (IAHP) au Maghreb



CRSA-AN

Alger, Algérie
18-22 Juillet 2009

2 - Training Workshop Programme

Mardi 21	
Session 13 8:30-10:30	Aspects diagnostiques des infections Partie pratique <i>Dr Catherine Cetre-Sossah, UMR15-CIRAD</i> 1. Détection du génome viral de la FVR par nested RTPCR
10:30-11:00	Pause café
Session 14 11:00-13:00	Aspects diagnostiques des infections Partie pratique <i>Dr Catherine Cetre-Sossah, UMR15-CIRAD</i> 2. Détection du génome viral de la FVR par nested RTPCR
13:00-14:00	Déjeuner
Session 15 14:00-16:00	Aspects diagnostiques des infections Partie pratique <i>Dr Catherine Cetre-Sossah, UMR15-CIRAD</i> 3. Détection des IgM ou IgG anti-FVR par kit ELISA compétitif
16:00-16:30	Pause café
Session 16 16:30-18:30	Aspects diagnostiques des infections Partie pratique <i>Dr Catherine Cetre-Sossah, UMR15-CIRAD</i> 4. Détection des IgM ou IgG anti-FVR par kit ELISA compétitif
Discussions	

Mercredi 22	
Session 17 8:30-9:00	Aspects diagnostiques des infections Partie pratique <i>Dr Catherine Cetre-Sossah, UMR15-CIRAD</i> 5. RT-PCR en temps réel (démonstration).
10:30-11:00	Pause café
Session 18 11:00-13:00	Aspects diagnostiques des infections Partie pratique <i>Dr Catherine Cetre-Sossah, UMR15-CIRAD</i> 6. RT-PCR en temps réel (démonstration)
13:00-14:00	Déjeuner
Session 19 14:00-16:00	Aspects diagnostiques des infections Partie pratique <i>Dr Catherine Cetre-Sossah, UMR15-CIRAD</i> 7. Table ronde: récapitulation et recommandations
16:00-16:30	Pause café
Session 20 16:30-18:30	Evaluation des formateurs par les stagiaires et clôture officielle <i>Dr. Baldomero Molina Flores, FAO/CRSA-AN</i>

Coordinateur des opérations FAO/CRSA-AN: Pedro Campo
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Centre Régional de Santé Animale pour l'Afrique du Nord (CRSA-AN)

Atelier régional de formation sur la Fièvre de la Vallée de Rift (FVR) et l'Influenza Aviaire Hautement Pathogène (IAHP) au Maghreb



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CRSA-AN

Samedi 18

8:00-8:30	Inscriptions
8:30-9:00	Cérémonie d'ouverture officielle <i>Dr. Karim Boughalem, MADR Algérie</i> <i>M. Guy De Lannoy, FAOR Algérie</i> <i>Dr. Baldomero Molina Flores, FAO/CRSA-AN</i>
Session 1 09:00-10:30	Généralités sur la FVR <i>Dr. Renaud Lancelot, UMR15-CIRAD</i> 1. Généralités sur la FVR 2. Situation de la FVR dans le monde et en Afrique du Nord 3. Vaccins et vaccination contre la FVR
10:30-11:00	Pause café
Session 2 11:00-13:00	Epidémiologie de la FVR I <i>Dr. Renaud Lancelot, UMR15-CIRAD</i> 1. Surveillance de la FVR: 1.1. Bases scientifiques de la surveillance 1.2. Les outils de la surveillance des ruminants 1.3. Stratégie de surveillance et de vigilance 1.4. Evaluation de la surveillance et de la vigilance
13:00-14:00	Déjeuner
Session 3 14:00-16:00	Epidémiologie de la FVR II <i>Dr. Renaud Lancelot, UMR15-CIRAD</i> 2. Enquête épidémiologique sur foyer de la FVR
16:00-16:30	Pause café
Session 4 16:30-18:30	Epidémiologie de la FVR III <i>Dr. Renaud Lancelot, UMR15-CIRAD</i> 3. Enquête d'évaluation des campagnes de vaccination de la FVR
	Discussions

Dimanche 19

Session 5 8:30-9 :00	Entomologie de la FVR I <i>Karine Huber, UMR15-CIRAD</i> 1. Les arthropodes et leur importance médicale dans la FVR: 1.1. Introduction à l'entomologie médico-vétérinaire 1.2. Importance médicale et vétérinaire des arthropodes 1.3. Classification des arthropodes 1.4. Morphologie, physiologie et cycles de développement des arthropodes 1.5. Importance de l'hématophagie 1.6. La transmission vectorielle
10:30-11:00	Pause café
Session 6 11:00-13:00	Entomologie de la FVR II <i>Karine Huber, UMR15-CIRAD</i> 2. Transmission vectorielle du virus FVR: 2.1. Vecteurs de la FVR et leur bio-écologie 2.2. Cycles de transmission de la FVR 2.3. Détection du virus chez les vecteurs
13:00-14:00	Déjeuner
Session 7 14:30-16 :00	Entomologie de la FVR III <i>Karine Huber, UMR15-CIRAD</i> 3. Lutte anti-vectorielle: objectifs et principales méthodes de contrôle des vecteurs. 4. Génétique des populations des vecteurs: 4.1. Notions générales et intérêt 4.2. Exemples appliqués à l'entomologie médico-vétérinaire 5. Sensibilisation à l'identification des moustiques
16:00-16:30	Pause café
Session 8 16:30-18:30	L'expérience de la Mauritanie dans le contrôle de la FVR <i>Dr. Doumbia Baba, CNERV Mauritanie</i> 1. Opérations troupeaux sentinelles pour la surveillance de FVR en Mauritanie
	Discussions

Lundi 20

Session 9 8:30-09:00	Session Spéciale de Coordination FAO/CRSA-AN et du Projet GCP/RAB/001/SPA <i>Expert de la FAO Rome</i> 1. Mise à jour des aspects plus importants concernant l'IAHP
10:30-11:00	Pause café
Session 10 11 :00-13:00	Session Spéciale de Coordination FAO/CRSA-AN et du Projet GCP/RAB/001/SPA <i>Dr. Baldomero Molina Flores, FAO/CRSA-AN</i> 2. Mise à jour des activités de coordination du CRSA-AN dans le cadre du REMESA
13:00-14:00	Déjeuner
Session 11 14:00-16:00	Aspects diagnostiques des infections Partie théorique <i>Dr Catherine Cetre-Sossah, UMR15-CIRAD</i> 1. Histoire naturelle des infections et démarche diagnostique 2. Diagnostic clinique de la FVR 3. Diagnostic sérologique: principes, méthodes et démarche qualité 4. Diagnostic moléculaire: principes, méthodes et démarche qualité 5. Diagnostic virologique: principes, méthodes et démarche qualité
16:00-16:30	Pause café
Session 12 16:30-18:30	Aspects diagnostiques des infections Partie théorique <i>Dr Catherine Cetre-Sossah, UMR15-CIRAD</i> 6. Gestion de la qualité au laboratoire 7. Biosécurité et hygiène au laboratoire
	Discussions

3 - List of participants



Organisation des Nations Unies pour
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Agence Espagnole de la coopération internationale
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Ministère de l'Agriculture et du Développement
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FAO/Centre Régional de Santé Animale pour l'Afrique de Nord (FAO/CRSA-AN)

Atelier régional de formation sur la Fièvre de la Vallée (FVR) de Rift et l'Influenza Aviaire Hautement Pathogène
(IAHP) au Maghreb

Alger – Algérie, 18 au 22 juillet 2009



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