



CIHEAM

International Centre for Advanced  
Mediterranean Agronomic Studies  
Mediterranean Agronomic Institute of Zaragoza



## Advanced Course

# MANAGING DISEASE AT THE WILDLIFE-LIVESTOCK INTERFACE

Zaragoza (Spain), 26-30 November 2018

### 1. Objective of the course

There is a growing recognition of the potential importance of pathogen transmission at the wildlife-livestock interface in the epidemiology of diseases that impact on agriculture, human health and biodiversity. In our rapidly changing world the interface between human and wildlife populations has been profoundly modified by human activity. Effective management of disease risks at the wildlife-livestock interface should be sustainable, based on sound epidemiological and ecological knowledge, and must balance the requirements for preserving biodiversity, protecting human health and social and economic well-being.

At the end of the course the participants will have acquired:

- A better understanding of the relevance of the wildlife-livestock interface for disease transmission.
- Applied knowledge in the epidemiological procedures and tools used to understand animal infections at the wildlife-livestock interface.
- Basic information on infection monitoring, surveillance and management approaches.
- Awareness of the socio-economic aspects of disease management at the wildlife-livestock interface.
- Practical experience in problem solving and decision making in relation to scenarios of shared infections at the wildlife-livestock interface.

### 2. Organization

The course is jointly organized by the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM), through the Mediterranean Agronomic Institute of Zaragoza (IAMZ), and the Ministry of Agriculture, Fisheries and Food, through the General Directorate of Agricultural Production Health. The course will take place at the Mediterranean Agronomic Institute of Zaragoza and will be given by well qualified lecturers from universities, research centres and government departments in different countries.

The course will be held over a period of one week, from 26 to 30 November 2018, in morning and afternoon sessions.

### 3. Admission

The course is designed for 25 participants with a university degree. It is intended for professionals involved in disease prevention and control in livestock or/and wildlife in either the private or public sector, such as competent authorities in animal health services and regulatory bodies, veterinarians, livestock farmers, wildlife managers, technical advisors and researchers.

Given the diverse nationalities of the lecturers, knowledge of English, French or Spanish will be valued in the selection of candidates, since they will be the working languages of the course. The Organization will provide simultaneous interpretation of the lectures in these three languages.

### 4. Registration

Candidates must apply online at the following address:

<http://www.admission.iamz.ciheam.org/en/>

Applications must include the *curriculum vitae* and copy of the supporting documents most related to the subject of the course.

The deadline for the submission of applications is 10 September 2018.

Applications from those requiring authorization to attend the course, may be accepted provisionally.

Registration fees for the course amount to 500 euro. This sum covers tuition fees only.

### 5. Scholarships

Candidates from CIHEAM member countries (Albania, Algeria, Egypt, France, Greece, Italy, Lebanon, Malta, Morocco, Portugal, Spain, Tunisia and Turkey) may apply for scholarships covering registration fees, and for scholarships covering the cost of travel and full board accommodation.

Candidates from other countries who require financial support should apply directly to other national or international institutions.

Please display on a notice board if possible



CIHEAM

Instituto Agronómico Mediterráneo de Zaragoza  
Avenida de Montañana 1005, 50059 Zaragoza, Spain  
Tel.: +34 976 716000, Fax: +34 976 716001  
E-mail: [iamz@iamz.ciheam.org](mailto:iamz@iamz.ciheam.org)

See updated information at

[www.iamz.ciheam.org](http://www.iamz.ciheam.org)

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## 6. Insurance

It is compulsory for participants to have medical insurance valid for Spain. Proof of insurance cover must be given at the beginning of the course. Those who so wish may participate in a collective insurance policy taken out by the Organization, upon payment of the stipulated sum.

## 7. Teaching organization

The course requires personal work and interaction among participants and with lecturers. The international characteristics of the course favour the exchange of experiences and points of view.

Lectures are complemented by applied examples, presentation of real case studies, practical work on sampling procedures, discussions and a field visit to illustrate wildlife-related risks in intensive and extensive farming.

Furthermore, during the course, participants will work in groups on practical exercises with the objective of designing strategies for surveillance and management of infection at the livestock-wildlife interface under different scenarios. This exercise will allow them to put theory into practice.

Participants will be provided with introductory reading materials before the beginning of the course, and they will be invited to prepare a brief summary indicating which they think to be the most important livestock-wildlife disease issues in their countries/regions. These summaries will be shared with lecturers and participants.

## 8. Programme

### 1. Introduction and basic principles (2 hours)

- 1.1. Host-pathogen-vector-environment relationships
- 1.2. Wildlife population distribution and trends
- 1.3. What is the wildlife-livestock interface?
- 1.4. Why are shared infections relevant? Examples of situations that may need managing
- 1.5. What is the purpose of management?
- 1.6. Institutional framework and the “One Health” dimension

### 2. Understanding infection at the interface (3 hours)

- 2.1. Dynamics and complexity of infections in wildlife
- 2.2. Epidemiological investigations
  - 2.2.1. Types of epidemiological investigations
  - 2.2.2. Experimental evidence
  - 2.2.3. Risk factor analysis
- 2.3. Challenges in dealing with infections in wildlife
  - 2.3.1. Data collection: what and how?
  - 2.3.2. Tools for analysis
  - 2.3.3. Interpreting incomplete data

### 3. Monitoring and surveillance (3 hours)

- 3.1. What is the purpose?
- 3.2. Different approaches for different needs

3.3. Integrated monitoring of pathogens, populations and environment

3.4. Identifying hotspots

3.5. Use of novel molecular tools

### 4. Management approaches (8 hours)

4.1. Acceptance, control or eradication

4.2. Overview of intervention options: advantages and drawbacks

4.3. Prevention of infection spread

4.3.1. Translocation of livestock and wildlife

4.3.2. Managing interactions between livestock and wildlife

4.3.2.1. Barriers at different scales

4.3.2.2. Livestock husbandry

4.3.3. Waste management

4.4. Population management

4.4.1. Decreasing population densities: culling, sterilization, etc.

4.4.2. Selective removal

4.4.3. Habitat management

4.5. Controlling vector-borne diseases

4.6. Medication

4.6.1. Vaccination

4.6.2. Treatment

4.7. Combining approaches

4.7.1. Zonification and compartmentalization

4.7.2. Adaptive management

4.7.3. Integrated disease control

4.8. Assessing the effect of intervention

4.9. Ecological impacts of interventions

### 5. The social and economic dimension (2 hours)

5.1. Cost-benefit analysis

5.2. Stakeholder engagement

5.3. Ethical considerations

5.4. The importance of evidence

5.5. Risk communication and decision making

### 6. Modelling (1 hour)

6.1. Infection dynamics

6.2. Simulating management

6.3. Social and economic models

6.4. Using modelling to inform decisions

### 7. Case studies (3 hours)

7.1. Tuberculosis

7.2. Avian influenza

7.3. African Swine Fever

7.4. Leishmania and Rift Valley Fever

### 8. Practical work (11 hours)

8.1. Demonstration of sample collection, handling and storage

8.2. Group work on surveillance and management based on case studies

8.3. Technical visit: the interface in practice – wildlife-related risks in intensive and extensive farming

### 9. Final remarks and discussion (2 hours)

## GUEST LECTURERS

M.C. ARNAL, Univ. Zaragoza (Spain)

G. CÁCERES, Ministerio de Agricultura, Pesca y Alimentación, Madrid (Spain)

D. DELAHAY, APHA (United Kingdom)

G. ENTICOTT, Cardiff Univ. (United Kingdom)

D. FERNÁNDEZ DE LUCO, Univ. Zaragoza (Spain)

E. FERROGLIO, Univ. Torino (Italy)

C. GORTÁZAR, IREC (Univ. Castilla-La Mancha and CSIC), Ciudad Real (Spain)

J.R. LÓPEZ-OLIVERA, Univ. Autònoma Barcelona (Spain)

F. SMITH, APHA (United Kingdom)