Introduction

The joint team Cirad–FVI "Education and training on livestock and veterinary medicine in the Global South" develops an offer of Education & Training on Animal Health and Livestock, with a focus on the countries in the Global South. This team is part of the UMR CMAEE [Control of exotic and emerging animal diseases] and is member of the French public interest group FVI [France Vétérinaire International] since 2010. The team contributes to the development of Cirad’s institute strategy in the area of training and brings its education engineering skills to other research units of Cirad, in connection with targeted thematics and with the DGD–RS “Office of the Deputy Director General for Research and Strategy”

Education & Training catalogue

Most of these training sessions take place at Cirad’s International Campus of Baillarguet, Montpellier (France), but they can also be delivered off–site, including in foreign countries. Teaching language is generally French and many lecturers are involved, mostly experts and scientists from Cirad and its partners (members of FVI, INRA, ENVA, ENV'T, IRD, FAO, OIE, GDS, ANSES, MtpSupagro, …).

Currently offer :

- 2nd years of MSc (two semesters incl. thesis research)
- 1 to 4 weeks modular and/or professional courses
- Distance learning, [http://elearning.cirad.fr/](http://elearning.cirad.fr/)
- On–demand trainings

The catalogue is revised annually in the area of Animal Health and Production, with focus on the countries in the Global South.
The development of the offer is made in partnership with FVI [France Vétérinaire International] and five other Cirad research units working on animals or animals health:

- “Control of exotic and emerging diseases” (CMAEE)
- "Mediterranean and tropical livestock systems" (Selmet),
- "Animal and integrated risk management" (Agirs),
- "Integrated and ecological intensification for sustainable fish farming" (INTREPID)
- "Host–vectors–parasites–environment interactions in neglected tropical diseases due to Trypanosomatidae" (INTERTRYP).

The courses cover most topics related to animals in the Global South:

✓ epidemiological surveillance and its related tools: Geographic Information System (GIS) epidemiological surveillance methodology, data management, ...
✓ diagnostic technics for Sheep and Goat Plague (Rinderpest) and Contagious Bovine Pleuropneumonia, teaching by experts from Cirad’s International Reference laboratory
✓ food safety and animal health management,
✓ animal production and farming technics in tropical pastoralism, tropical aquaculture, wildlife and development.

You can consult the detailed contents of our MSc programs and training modules, as well as the admission and registration requirements on our website: [http://formation-elevage-suds.cirad.fr/](http://formation-elevage-suds.cirad.fr/)
PROGRAMME 2015 - 2016

Teaching and Training team for Animal Production and Veterinary Medicine "Capacity Building for Livestock Management"
French Agricultural Research Centre for International Development
CIRAD MONTPELLIER FRANCE

Graduating course (delivered in French)

Animal Health and Epidemiology

September 2015 to July 2016

- Master SEMHA (Year 2) : « Epidemiological surveillance of human and animal diseases »

September 2015 to end of January 2016

- CES (Certificate of Higher Studies) in animal epidemiology

Animal Production and Livestock techniques

September 2015 to August 2016

- Master PARC (Year 2) : « Livestock production in Sub-Tropical and Tropical Regions »

http://formation-elevage-suds.cirad.fr/
Modular Training

**Food Safety and Veterinary public health**

7 to 18 December 2015
- Food safety and veterinary public health in the South (delivered in French)

Animal Health and Epidemiology

5 to 9 October 2015
- Data analysis applied to epidemiology (R software)

26 October to 20 November 2015
- Methodology of Epidemiological surveillance (delivered in French)

9 to 13 November 2015
- Diagnosis of Contagious Bovine Pleuropneumonia (CBPP) or CCPP (delivered either in French or in English)

16 to 20 November 2015
- Diagnosis techniques for Peste des Petits Ruminants (PPR) (delivered either in French or in English)

23 to 27 November 2015
- Management of data applied to the epidemiological surveillance (delivered in French)

23 November to 11 December 2015
- Information systems applied to epidemiological surveillance (delivered in French)

30 November to 11 December 2015
- Geographic Information Systems (GIS) applied to epidemiological surveillance (delivered either in French or in English)

7 to 11 December 2015
- African Trypanosomosis and Leishmanosis (delivered either in French or in English)
Animal Production and Livestock techniques

29 February to 11 March 2016
  ➢ Wildlife and Development (delivered in French)

23 November to 4 December 2015
  ➢ Pastoralism : societies and land (delivered in French)

01 to 11 February 2016
  ➢ Tropical aquaculture (delivered in French)

Distance learning

➢ See our e-learning offer

Training on demand

17 to 20 May 2016
  ➢ Education engineering by e-learning

http://formation-elevage-suds.cirad.fr/
Specialty of second year of Master, SEMHA

EPIDEMIOLOGICAL SURVEILLANCE OF HUMAN AND ANIMAL DISEASES
(delivered in French)

September 2015 to July 2016

The National Veterinary School of Alfort, Paris 11 University and the University of Paris 12, in collaboration with the Centre for International Cooperation in Agronomic Research for Development (Cirad, Montpellier) are organizing this specialty of Master. This course is intended to develop the basic methods for the creation, coordination and participation in a network of Epidemiological Surveillance of Human and Animal Diseases (SEMHA). It is a M2 professional specialty of Master’s degree in public health. In addition to teachers and researchers from organizing institutions, professionals from various organizations are involved in training: French agency responsible for the safety of food, the environment and labor (Anses), Institute of Research for Development (IRD), Directorate General of Food (DGAl), Institute of health Surveillance (INVS), Institut Pasteur Paris, Groups for Livestock sanitary Defence (GDS), Office International des Epizooties (OIE), Food and Agriculture Organization (FAO ), Agronomists and Veterinarians without Borders (AVSF), the National Institute of Agronomic Research (INRA), ...

Training objectives

At the end of the training, participants should be able, in the field of epidemiology applied to surveillance of human and animal diseases, to:

- present and use the specific steps of descriptive epidemiology, analytical epidemiology and evaluative epidemiology;
- use existing tools of epidemiology (IT, bio-statistics, risk analysis and geographic information systems);
- participate effectively in the various stages of an epidemiological survey from drafting the protocol to the analysis of data;
- contribute to epidemiological surveillance activities including establishing specifications for the development of a plan for disease surveillance, training plans for network actors, facilitate epidemiological surveillance activities; manage and process data from both epidemiological surveillance in public health and in animal health (especially for vector-borne diseases);
- contribute to the evaluation of epidemiological surveillance networks;
- provide the epidemiological contribution to the steps of preparation, implementation and evaluation of a program to fight against a disease;
- use risk analysis or geographic information systems.

If you are interested by this Master course :

http://formation-elevage-suds.cirad.fr/
From September 2015 to July 2016:
6 weeks in ENV at Maisons-Alfort, followed by 5 weeks at CIRAD in Montpellier and 2 optional weeks (Maisons-Alfort or Montpellier depending on the option). The year is followed by an internship of 6 months from January to June.

6 compulsory teaching units

- Refresher in IT and statistiques; EPI INFO training (1 week at Alfort)
- Refresher in epidemiology (2 weeks at Alfort)
- Surveys in epidemiology (methods, implementation and data analysis) (2 weeks at Alfort)
- Epidemiological surveillance in public health (1 week at Alfort)
- Epidemiological surveillance in vector-borne and animal diseases (4 weeks at Montpellier)
- Management of data applied to epidemiological surveillance (1 week at Montpellier)

1 optional teaching unit to choose from the following 2

- Geographic Information Systems (GIS) (2 weeks at Montpellier)
- Risk analysis (2 weeks at Alfort)

Professional internship: January to June
CIRAD is not able to provide scholarships. If foreign candidates are accepted for this M2, this does not mean he/she will get a scholarship. Therefore, candidates should not wait for acceptance from the M2 and requests should be submitted as soon as possible to:

- Competent national authorities in charge of livestock and / or the granting of scholarships;
- Cooperation and Cultural Action Services (SCAC) of the French Embassy;
- Embassies of other countries;
- International organizations (FAO, UNDP, EU, IAEA, IDB, ...);
- Development projects or NGOs.

"Cirad is a collaborating center to OIE for the diagnosis and control of animal diseases in tropical regions. The organization of training in this area is part of the mandate for this title."

Informations for a registration to Master SEMHA at University of Paris XII

CANOUI POITRINE Florence
Université Paris XII
Tel: +33 (0) 1 49 81 37 06; Fax +33 (0) 1 49 81 36 97
Mél: Florence.canoui-poitrine@hmn.aphp.fr

BRÜCKER Gilles
Université Paris Sud 11 – GIP ESTHER
Tél: +33 (0) 1 53 17 51 50; Fax: +33 (0) 1 53 17 51 67
Mél: gilles.brucker@esther.fr

At Alfort National Veterinary school (ENVA)

DUFOUR Barbara
ENVA
Tél: + 33 (0) 1 43 96 73 22;
Fax +33 (0) 1 43 96 71 31;
Mél: bdufour@vet-alfort.fr

At Cirad in Montpellier

Équipe Enseignement Elevage et Médecine Vétérinaire en Régions Chaudes / FVI-UMR15/CIRAD
TA A-15/B Campus International de Baillarguet
34398 MONTPELLIER Cedex 5 -France
Courriel: formation-emvt-fvi@cirad.fr

Cécile SQUARZONI DIAW
FVI – CIRAD/UMR15
Équipe Enseignement en Elevage et Médecine Vétérinaire en Régions Chaudes
Tél: + 33 (0) 4 67 59 37 27
Courriel: cecile.squarzonidiaw@cirad.fr

Admission and registration

The registration form is available online: http://aeema.vet-alfort.fr
A detailed and customized quotation can be delivered on simple request.
No registration will be accepted after June 15, 2015 (reception of your application form).

Training costs

- Single registration: 1680 €
- for a Veterinary student: 840 €
- Professional training: 5 500 €

Scholarships

CIRAD is not able to provide scholarships. If foreign candidates are accepted for this M2, this does not mean he/she will get a scholarship. Therefore, candidates should not wait for acceptance from the M2 and requests should be submitted as soon as possible to:

- Competent national authorities in charge of livestock and / or the granting of scholarships;
- Cooperation and Cultural Action Services (SCAC) of the French Embassy;
- Embassies of other countries;
- International organizations (FAO, UNDP, EU, IAEA, IDB, ...);
- Development projects or NGOs.

"Cirad is a collaborating center to OIE for the diagnosis and control of animal diseases in tropical regions. The organization of training in this area is part of the mandate for this title."
Postgraduate certificate (CES) in ANIMAL EPIDEMIOLOGY (delivered in French)

September 2015 to end of January 2016

Institution delivering the diploma

Ecole Nationale Vétérinaire d’Alfort (ENVA)
7, avenue du Général de Gaulle - 94704 MAISONS-ALFORT - France
Professor in charge: Anne PRAUD
Tél : + 33 (0) 1 43 96 71 32 (LD : 70 08) ; fax +33 (0) 1 43 96 71 31 ; e-mail : apraud@vet-alfort.fr

Training objectives

At the end of the training, participants should be able, in the field of epidemiology applied to communicable diseases, to perform the following tasks:

- display and use the specific steps of descriptive epidemiology, analytic epidemiology and evaluative epidemiology;
- use existing tools of epidemiology (IT, bio-statistics ...);
- participate effectively in the various stages of an epidemiological survey for an outbreak, several foci or a whole region;
- contribute to epidemiological surveillance activities including developing specifications for the creation of an epidemiological surveillance network, establish a training plan for the actors in a network, conduct epidemiological surveillance activities;
- manage and process data from epidemiological surveillance;
- perform technical and economic evaluation epidemiological surveys and contribute to that of a network of epidemiological surveillance;
- provide the epidemiological contribution to steps of preparation, implementation and evaluation of a program to fight against a disease;
- use risk analysis or geographic information systems.

If you are interested by this CES :

http://formation-elevage-suds.cirad.fr/

The organization of teaching is as follows:

September 2015 to January 2016: 6 weeks in ENVA (Maisons-Alfort) followed by 5 weeks at Cirad (Montpellier), 2 weeks of options (either at ENVA or CIRAD depending on the option), 1 week of revision and examination, 4 weeks of internship (including report writing and oral presentation). This CES can be followed in one year of study in two or at most three.

6 compulsory teaching units

1. Refresher in IT and statistiques ; EPI INFO training (1 week at Alfort)
2. Refresher in epidemiology (2 weeks at Alfort)
3. Surveys in epidemiology (methods, implementation and data analysis) (2 weeks at Alfort)
4. Epidemiological surveillance in public health (1 week at Alfort)
5. Epidemiological surveillance in vector-borne and animal diseases (4 weeks at Montpellier)
6. Computer data bases (1 week at Montpellier)

1 optional teaching unit to choose from the following 2

1. Geographic Information Systems (GIS) (2 weeks at Montpellier)
2. Risk analysis (2 weeks at Alfort)
CIRAD is not able to provide scholarships. If foreign candidates are accepted for this M2, this does not mean he/she will get a scholarship. Therefore, candidates should not wait for acceptance from the M2 and requests should be submitted as soon as possible to:

- Competent national authorities in charge of livestock and / or the granting of scholarships;
- Cooperation and Cultural Action Services (SCAC) of the French Embassy;
- Embassies of other countries;
- International organizations (FAO, UNDP, EU, IAEA, IDB, ...);
- Development projects or NGOs.

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Applications must hold a bac + 5 or equivalent, or be able to demonstrate sufficient professional experience.

Applications are available for download at:

http://aeema.vet-alfort.fr

They may also be required in ENVA - Contagious Diseases Pedagogical Unit - 7, avenue du Général de Gaulle - 94704 Maisons-Alfort - France.

They must be carefully completed and returned to the same address (or email) before June 15, 2015 accompanied by a cover letter.

Training costs

- Single registration: 2 000 €
- Professional training: 5 500 €

Scholarships

Before any contact, visit the website that provides many useful information: http://aeema.vet-alfort.fr

Pedagogic information in National Veterinary School of Alfort / ENVA

Pr Jean-Jacques BENET
Ecole Nationale Vétérinaire d'Alfort
Tel : +33 (0) 1 43 96 71 32 (LD : 70 08)
fax +33 (0) 1 43 96 71 31
e-mail : jjbenet@vet-alfort.fr

For estimates from CIRAD in Montpellier

Equipe Enseignement Elevage et Médecine Vétérinaire en Régions Chaudes / FVI-UMR15/ CIRAD
TA A-15/8 Campus International de Baillarguet
34398 MONTPELLIER Cedex 5 - France
Courriel : formation-emvt-fvi@cirad.fr

Marie-Caroline ESTIENNE
Chargée de la formation continue - Equipe mixte Cirad-FVI
Tel : +33 (0) 4 67 59 39 02 ; fax +33 (0) 4 67 59 37 97
e-mail : marie-caroline.estienne@cirad.fr

Informations

Admission and registration

Master Agronomy & Agrifood Sciences (AAA)

*M2 : Specialty systems and innovative techniques for sustainable agricultural development (STIDAD)*

Pathway : Livestock Production in Sub-Tropical and Tropical Regions (PARC)
*(delivered in French)*

September 2015 to August 2016

**Issues**

This pathway is taught in the framework of the STIDAD specialty (specialty systems and innovative techniques for sustainable agricultural development) of Master of Agronomy and Agri-Food (AAA) carried out by the International Centre for Advanced Studies in Agricultural Sciences (SupAgro).

The Master is organized in two academic years. The second year, which corresponds to the year of specialization in animal production in warm regions, is organized in the framework of a close partnership involving SupAgro and CIRAD's "Mixed team CIRAD - FVI Teaching and training on livestock and veterinary medicine in warm regions." Direct admissions in second year are possible subject to approval of prior education of candidates by the Education Committee.

**Course objectives**

By a multidisciplinary training, this Master course aims to prepare specialists to perform management functions (design, decision realization) in technical services or development projects, in positions of responsibility towards planning the development of animal production, management, and facilitation of programs and projects, organizations or businesses of the livestock sector, control of production, quality and circuit of products from producer to consumer. At the end of their training, students should be able to make a diagnosis on primary animal production, technical proposals in response to the constraints identified by different actors and to participate in development activities. Students must also be able to set these interventions in livestock in the context of sustainable development (ecological, economic, social).

For students who intend to pursue a Doctorate, opportunities are available with modules specifically preparing to research, in particular on the modeling of complex systems. The realization of the Master’s thesis in a research laboratory is mandatory. A very good final ranking is essential and a scholarship, which must be sought by the student, is imperative.

**Public concerned**

- Foreign nationals occupying or foreseeing to occupy technical or administrative high level positions;
- European students wishing to orient themselves professionally in the livestock sector in warm regions or in environments with high stress;
- French people, as part of their continuing education.

*If you are interested by this Master course:*

http://www.supagro.fr

http://formation-elevage-suds.cirad.fr/
Overview of the four teaching units

Each unit consists of units of Elementary Education (UEE) that contribute to an EU average rating. All UEE are required.

<table>
<thead>
<tr>
<th>Name of Education Units</th>
<th>weeks</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UE 1</strong> Livestock systems and animal products value chains</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td><strong>UEE 11</strong> Diagnostic of livestock systems and animal products value chains</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>UEE 12</strong> Regional diagnostic of livestock</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>UE 2</strong> Types of livestock, chains ans markets</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td><strong>UEE 21b</strong> Pastoral nomadism in dry areas</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>UEE 22</strong> Intensive husbandry in warm regions</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>UEE 23</strong> Markets and livestock policies</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>UE 3</strong> Methods to approach problems in the animal sector</td>
<td>5,5</td>
<td>8</td>
</tr>
<tr>
<td><strong>UEE 31</strong> Spatial approach (GIS)</td>
<td>1,5</td>
<td></td>
</tr>
<tr>
<td><strong>UEE 32</strong> Functional analysis of food systems</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>UE 4</strong> Methods for research</td>
<td>4,5</td>
<td>8</td>
</tr>
<tr>
<td><strong>UEE 40</strong> Statistics and spatial data management</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>UEE 41</strong> Littérature studies : tools and methods</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td><strong>UEE 43</strong> Modelisation</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td><strong>UEE 44</strong> Construction of a research project</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>20</td>
<td>30</td>
</tr>
</tbody>
</table>

The PARC pathway, second year of the Master, is organized in two semesters. The theoretical part consists of 11 elementary teaching units (UEE_11 to UEE_44) and a personal work (UEE_41, cross) representing 30 ECTS credits for the first semester. From February, the second semester is devoted to the realization of an internship and writing a thesis (30 ECTS credits).

Internship and Master Thesis: Over a period of 4 to 6 months (from February), the training is conducted in a company or a research or development center, in France or abroad. This course leads to the writing of a Master’s thesis.

Each unit combines courses by Faculty members, lectures by professionals in the livestock development and individual, or group or field works.
Programme (cont.)

Chronological presentation of the UEE

**UEE_40: Statistics and processing of spatial data**
Design and analysis of experimentation: statistical processing tools and systems of representation of results (quantitative data and data territorialized) familiarization with the main software available

**UE_0 : Masters Thesis of the previous promotion**
The presence to all graduation defenses prepares the choice of internship: this is a hypothetical situation. Individual restitution is sought on two defenses: they emphasize the critical evaluation. (Not Rated)

**UEE_11 : Diagnostic of livestock systems and of animal products sectors**
Factors of evolution and location of livestock systems: systemic analysis of farming activities: chain analysis of animal products

**UEE_12 : Regional analysis of livestock: application to a land type**
Ground confrontation with implementation of a process of inquiry (design, data collection, processing, restitution) with stakeholders from the world of animal husbandry in a territory

**UEE_32 : Functional analysis of food systems**
Agro-livestock farms in Mediterranean and mountain areas: food systems analysis articulating need of herds and crops and livestock food resources: improving the sustainability of pastoral systems

**UEE_21b : Pastoral nomadism in dry areas**
Pastoral societies: challenges and trends; biological bases of biological, economic and social pastoralism; resource development in pastoral husbandry

**UEE_31 : Spatial approach (GIS)**
In addition to the discovery of GIS (cf UEE_40), tutorials related to livestock issues raised in the above UEEs are processed using suitable media

**UEE_41 : Litterature studies : tools and methods**
Several appointments are provided to clarify the subject, choose a tutor and explain the tools and methods necessary to this personal exercise. Documents serarch and editing are performed during free times along the semester

**UEE_22 : Intensive husbandry in warm regions**
Zootechnical and veterinary issues in intensive husbandry (short-cycle species, poultry, pigs). Technical and economic issues about integration within sectors

**UEE_23 : Markets and Livestock Policies**
Issues of production, consumption and trade of animal products globally; objectives, modalities and effects of policies on the livestock sector; analysis of markets and agricultural policies

**UEE_43 : Modelization**
Following lectures on livestock issues addressed by modeling and simulation, case studies are analyzed in groups to propose conceptual models that may give rise to mathematical developments

**UEE_44 : Preparing for research**
From the literature review of each student: constructing a thesis topic, defining a research question, developing an experimental design, reflection on the appropriateness of the methodologies used, expected answers and experimental risks
Be a graduate veterinarian or an engineer or have completed the first year of Master compatible with the content of the PARC Master.
or
Be enrolled in the first year of Master AAA SupAgro and have validated the first year of teaching.

Foreign qualifications must be recognized in an amount at least equal to that of a first year Master of French education. Foreign applicants must also master the French language correctly. Tests carried out in the country of origin is imperative.

Application procedures

The documents required and the application forms can be obtained from the addresses below. This training having fees, an estimate will be sent, for you to get your financial support and scholarships. The start of classes takes place in mid-September 2015.

Informations

| Information for registration in Master AAA at Montpellier SupAgro | Pr Charles-Henri MOULIN |
| Montpellier SupAgro - UMR Systèmes d'Elevages Méditerranéens et Tropicaux (SELMET) 2, Place Viala, 34 060 MONTPELLIER Cedex 1 - France Tel : +33 (0) 4 99 61 23 65 / Fax : +33 (0) 4 67 54 56 94 Courriel : moulinch@supagro.inra.fr |

| Informations on PARC pathway from the Master specialty STIDAD | Pr François BOCQUIER |
| Montpellier SupAgro UMR Systèmes d'Elevages Méditerranéens et Tropicaux (SELMET) Tel : +33 (0) 4 99 61 21 12 / Fax : +33 (0) 4 67 54 56 94 Courriel : bocquier@supagro.inra.fr |

| Informations on PARC pathway | Equipe Enseignement Elevage et Médecine Vétérinaire en Régions Chaudes |
| CIRAD-UMR15/ FVI TA A-15/B Campus International de Baillarguet 34398 MONTPELLIER Cedex 5 -France Courriel : formation-emvt-fvi@cirad.fr |

“CIRAD is a collaborating center to OIE for the diagnosis and control of animal diseases in tropical regions. The organization of training in this area is part of the mandate for this title.”
Aspects related to quality in animal production chains are becoming increasingly important both from the point of view of public health (fight against the contamination of consumers) as economic point of view (lifting of export restrictions).

Indeed, in the world, consumers are increasingly aware of the quality of what they find on their plate. Episodes related to mad cow disease, listeria to pregnant women or E. coli O157: H7 causes bloody diarrhea in children are a reflection heartbreaking.

In a context of increasing urbanization, many countries located in warm regions develop in short courses, intensive farming to feed urban consumers, the restaurants are popping up all over the street, especially in the capitals. Some countries are also seeking to develop tourism, hospitality.

However, the quality has different dimensions need to know understanding. It is built throughout the chain from the production phase to processing and delivery to consumers. Research to improve the quality therefore requires the implementation of appropriate methods and tools, as part of a comprehensive approach integrating the different levels of the industry and all stakeholders.

This module aims to provide participants the necessary skills to implementation of this approach in the main sectors of livestock production in warm regions, through teaching, case studies and site visits.

At the end of training, participants will be able to:

- Set a diagnosis at a sector of livestock production level;
- implement methods of quality control at different levels of animal production chain;
- propose measures relating to methods and control organization, in order to strengthen the reliability of official control services;
- advising companies in the field of food assurance and food safety as well as the assessment and management of risk;
- contribute to the development of a device or legislative and regulatory framework compatible with international standards, in particular those of the European Union;
- enhance the quality approach in the animal production sectors.

If you are interested by this training in Cirad at Montpellier:

http://formation-elevage-suds.cirad.fr/
This course is open to veterinarians, agronomists and engineers working in the field of hygiene and quality of food of animal origin and desiring to strengthen their skills. It may be followed by candidates not belonging to these categories, but justifying sufficient professional experience.

Candidates must also master the French language correctly.

**Partnerships**

With the participation of the National Veterinary School of Alfort, National School of Veterinary Services, the UMR Qualisud CIRAD and the Ministry of Agriculture.

**Training costs**

- Training costs: 1 300 €
- Travel towards Montpellier:
  to be determined by participant
- Housing expenses:
  allow a minimum of ca. 80 € a day

*If necessary, a customized estimate can be established upon request, especially when two or more courses are followed*

**Application procedures**

Applications, consisting of a detailed resume, a motivation letter and details about the organization managing your grant, must be sent as much as possible before November 7, 2015, by email: formation-emvt-fvi@cirad.fr

**Programme (indicative)**

- Framework and context (standards, precautionary principle, costs, quality brands, …)
- Tools to control the sanitary quality (HACCP, Ecopathology, risk analysis, training, …)
- Chain analysis (milk, meat, monogastrics, fish, …)
- Official control services (organization of services, methods for official control)
- Case studies (group work)
- Site visits:
  - Poultry slaughterhouse
  - Fish auction

**Important !!!**

CIRAD is not able to provide scholarships. Requests should be submitted as soon as possible to:
- Competent national authorities in charge of livestock and / or the granting of scholarships:
- Cooperation and Cultural Action Services (SCAC) of the French Embassy: Embassies of other countries: International organizations (FAO, UNDP, EU, IAEA, IDB, …): Development projects or NGOs.

"CIRAD is a collaborating center to OIE for the diagnosis and control of animal diseases in tropical regions. The organization of training in this area is part of the mandate for this title."
Data analysis applied to epidemiology (R software)

from 5 to 9 October, 2015
1 week
(delivered in French)

In charge scientist
Vladimir Grobois (Cirad Agirs UPR)

Issues

Epidemiology is a discipline that relies heavily on the observation of the dynamics of disease spread. The analysis and interpretation of multiple data type (censuses of cases from epidemiological surveillance, serological surveys, mapping of risk factors, etc.) occupies an important place in this discipline. The analysis and interpretation of these data requires expertise in many statistical tools. A training session can meet this demand by presenting various statistical tools implemented in the R software and commonly used in epidemiology. The use of these tools with the R software is illustrated by examples of studies in veterinary epidemiology.

Objectifs pédagogiques

At the end of training, participants :

- Will be familiar with the R software environment for the statistical analysis and graphical representation of epidemiological data.
- Will be able to set up epidemiological surveys.
- Will be introduced to the principles and applications of methods for analyzing epidemiological data, such as generalized linear models, generalized linear mixed models, spatial statistics, time series analysis.
- Will have a better understanding of statistical methods to better collaborate with biostatisticians.

If you are interested by this training in Cirad at Montpellier :
http://formation-elevage-suds.cirad.fr/
Applications, consisting of a detailed resume, a motivation letter and details about the organization managing your grant, must be sent as much as possible before September 5, 2015, by email: formation-emvt-fvi@cirad.fr

Educational tools: 1 300 €
Travel towards Montpellier: to be determined by participant
Housing expenses: allow a minimum of 80 € per day

If necessary, a personalized estimate can be made upon request.

Important!!!
CIRAD is not able to provide scholarships. Requests should be submitted as soon as possible to:
Competent national authorities in charge of livestock and/or the granting of scholarships; Cooperation and Cultural Action Services (SCAC) of the French Embassy; Embassies of other countries; International organizations (FAO, UNDP, EU, IAEA, IDB, ...); Development projects or NGOs

Application procedure
Applications, consisting of a detailed resume, a motivation letter and details about the organization managing your grant, must be sent as much as possible before September 5, 2015.

by email: formation-emvt-fvi@cirad.fr

Equipe mixte CIRAD – FVI
Formation et Enseignement en Elevage et Médecine Vétérinaire en Régions Chaudes
TA A-15/B - Campus international de Baillarguet 34398 MONTPELLIER Cedex 5 France
Tel : 33 (0) 4.67.59.39.02 / Fax : 33 (0) 4.67.59.37.97
E-mail : marie-caroline.estienne@cirad.fr

Methodology of epidemiological surveillance

From 26 October to 20 November 2015
4 weeks

Scientist-in-charge
Flavie Goutard AGIRs Unit - Cirad

Issues

Epidemiological surveillance is an essential tool of national veterinary services to collect reliable health information in order to make appropriate decisions in the prevention and control of animal diseases.

The quality of health information depends directly on the quality of the implemented networks, in their design, their organization and coordination. Evaluation of epidemiological surveillance networks is an important step in the risk analysis and becomes an essential procedure to allow trade of animals between member countries of the World Trade Organization. These health systems have to be suited to, on one hand the evolution of farming systems and, on the other hand, the emergence of new diseases, especially zoonosis.

The development of a network involves the federation of public and private animal health stakeholders around common and formalized goals and procedures. This organization has to meet international standards codified by the World Organization for Animal Health (OIE). Methods to implement networks are now known and have been proven to be effective in many countries of the North and the South.

Thus, the acquisition of these skills, in order to be able to design and manage a epidemiological surveillance network has become a priority for the majority of veterinary services.

Educational objectives

At the end of the course participants will have reviewed the basic principles of applied epidemiology for transmissible animal diseases and will be able to design, implement, organize and create an epidemiological surveillance network. They should be able to:

- Design and organize an epidemiological surveillance network;
- Design and implement epidemiological surveillance activities adapted to various economic and health contexts;
- Design, organize and conduct training in support to the implementation and operation of an epidemiological surveillance network;
- Implement and conduct internal & external communication activities in support to the implementation and operation of an epidemiological surveillance network;
- Evaluate the performance of a network and the cost of operation of an epidemiological surveillance network.

"CIRAD is a collaborating center to OIE for the diagnosis and control of animal diseases in tropical regions. The organization of training in this area is part of the mandate for this title."
This course is open to veterinarians and animal scientists with responsibilities in the implementation and operation of epidemiological surveillance networks. This course may be taken by candidates not belonging to these categories, but justifying sufficient professional experience. **Foreign applicants must also master the French language correctly.**

### Programme

- **Design of a surveillance network** 33 hours
- **Evaluation of a network** 09 hours
- **Training and communication** 27 hours
- **Case studies** 18 hours
- **Tutorials** 30 hours

### Training costs

- Training costs: 2 000 €
- Travel towards Montpellier: to be determined by participant
- Housing expenses: about 1 500 €

If necessary, a customized quote can be established upon request.

### Important !!!

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Competent national authorities in charge of livestock and / or the granting of scholarships: Cooperation and Cultural Action Services (SCAC) of the French Embassy; Embassies of other countries; International organizations (FAO, UNDP, EU, IAEA, IDB, ...); Development projects or NGOs.

### Application procedure

Applications, consisting of a detailed resume, a motivation letter and details about the organization managing your grant, must be sent as much as possible before **September 26, 2015,**

by email: formation-emvt-fvi@cirad.fr
Issues

Contagious bovine pleuropneumonia (CBPP) belongs to the list of the Office International des Epizooties (OIE), which includes diseases with a major impact on livestock or representing a major constraint to international trade, is caused by a mycoplasma, *Mycoplasma mycoides subsp. mycoides SC*.

This disease is characterized by respiratory symptoms and lesions of pleurisy and pneumonia. These lesions may progress to a chronic stage and animals bearing such lesions, although hardly detectable by clinical observation, are a source of reinfection for healthy flocks.

Until recently the fight against CBPP relied on mass vaccination campaigns, often associated with those against rinderpest. These campaigns are costly because of the need for annual vaccination boosters. As a result, the vaccination effort is difficult to maintain in Africa and the number of foci increases.

The use of laboratory diagnosis is essential, both to confirm the suspicion of CBPP, but also to measure the impact of the disease on livestock and thus be able to develop appropriate control strategies. The laboratory diagnosis presents no major technical difficulties but it requires real practical experience in order to be performed correctly. It is the same for the CCPP.

Specific objectives

This technical training can be developed on CBPP and/or CCPP.

At the end of the training, participants will be able to:

- perform serological analyses of CBPP (CCPP) by cELISA technique (IDEXX), learn the basics of quality control in this area and know how to interpret the results;
- isolate and identify the agent of CBPP (CCPP) by conventional techniques (biochemical tests, growth inhibition) and analyze the difficulties encountered in the field;
- realize the titration of a vaccine against CBPP (PPCC);
- describe the principles of the PCR technique applied to the CBPP (PPCC) for rapid diagnosis.

"CIRAD is a collaborating center to OIE for the diagnosis and control of animal diseases in tropical regions. The organization of training in this area is part of the mandate for this title."
Admission

This course is open to persons directly involved in the diagnosis of CBPP / CCPP (veterinarians, laboratory technicians).

Candidates must also master the French language correctly.

The minimum number of 5 participants is required.

Upon request, English sessions or sessions relocated within partner institutions can be organized if a sufficient number of participants is met.

The duration of the training can also be adapted as needed.

Training costs

- Training costs: 1 300 €
- Travel towards Montpellier: to be determined by participant
- Housing expenses: allow a minimum of ca. 80 € a day

If necessary, a customized estimate can be established upon request.

Programme

The program alternates theoretical and technical manipulation to enable participants to become familiar with serological and bacteriological techniques.

- Theoreticals: 15 hours
- Practicals: 15 hours

Application procedure

Applications, consisting of a detailed resume, a motivation letter and details about the organization managing your grant, must be sent as much as possible before October 9, 2015, by email: formation-emvt-fvi@cirad.fr

IMPORTANT !!!
CIRAD is not able to provide scholarships. Requests should be submitted as soon as possible to:
Competent national authorities in charge of livestock and / or the granting of scholarships: Cooperation and Cultural Action Services (SCAC) of the French Embassy; Embassies of other countries; International organizations (FAO, UNDP, EU, IAEA, IDB, ...); Development projects or NGOs.

Applications, consisting of a detailed resume, a motivation letter and details about the organization managing your grant, must be sent as much as possible before October 9, 2015, by email: formation-emvt-fvi@cirad.fr

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Peste des petits ruminants is a highly infectious viral disease of small wild and domestic ruminants. In rearing zones affected by endemic PPR, the disease inflicts high economic losses due to the high morbidity and mortality rates. PPR affects nearly one billion small ruminants around the world.

The etiologic agent is PPRV belonging to the Morbillivirus genus, Paramyxoviridae famlily. Serological diagnosis is classically realized using competitive ELISA (cELISA). As virus isolation remains particularly tricky within a lag time of three weeks, rapid identification of the virus directly from field samples is possible using other methods including genome-based amplification, that are highly sensitive and specific. These are the conventional reverse transcription-PCR (RT-PCR) and the real time RT-PCR (rRT-PCR) for quantification of viral loads. Conventional RT-PCR provides a template for sequencing and subsequent phylogenetic analysis.

The training aims at providing knowledge about different methods classically implemented for serological and molecular diagnosis of peste des petits ruminants. This training will include harmonized protocols and procedures as well as equipment and diagnostic guidelines. The specific objectives are the following:

- Training in serological diagnosis of PPRV
- Knowledge about OIE reference protocols for serology (i.e. virus neutralisation and cELISA)
- Training in molecular diagnosis of PPRV
- Knowledge about different procedures of RT and rRT-PCR
- Information about molecular sequencing and phylogenetic analysis of PPRV
- At the end of the training, participants should be able to establish a diagnosis in their own laboratory, reproducing the methods learned, as well to provide support to laboratory staff.

If you are interested by this training in Cirad at Montpellier :

http://formation-elevage-suds.cirad.fr/
Applications, consisting of a detailed resume, a motivation letter, the attached assessment form and details about the organization managing your grant, must be sent as much as possible before **October 16, 2015**, by email: formation-emvt-fvi@cirad.fr

**Important !!!**
CIRAD is not able to provide scholarships. Requests should be submitted as soon as possible to: Competent national authorities in charge of livestock and / or the granting of scholarships; Cooperation and Cultural Action Services (SCAC) of the French Embassy; Embassies of other countries; International organizations (FAO, UNDP, EU, IAEA, IDB, ...); Development projects or NGOs

**Application procedure**
Applications, consisting of a detailed resume, a motivation letter, the attached assessment form and details about the organization managing your grant, must be sent as much as possible before **October 16, 2015**, by email: formation-emvt-fvi@cirad.fr

**Training costs**
- Training costs: **1 550 €**
- Travel towards Montpellier:
  - to be determined by participant
- Housing expenses:
  - allow a minimum of ca. 80 € a day
- If necessary, a customized estimate can be established upon request.

**Programme**
The course will be organized and coordinated by the Cirad’s research unit “control of exotic and emerging animal diseases” in Montpellier, France.

The programme will alternate theoretical presentations and practical training (serology, virus titration, conventional and real time PCRs).

**Admission**
Participants must be actively involved in animal diseases diagnosis and have experience in molecular biology techniques. A minimum of theoretical knowledge in PCR is required.

Candidates must also master the French language correctly.

Participants' number is strictly limited to 8.

Upon request, English sessions or sessions relocated within partner institutions can be organized if a sufficient number of participants is met.

“Crédit photo CIRAD”

"Crédit photo CIRAD"
1 - Do you have any technical skill in Molecular Biology?
- YES
- NO

If YES, length of experience (months; which year)? ...........................................

2 - Which PCR equipment are you using in your laboratory?
- Brand and type of machine ..............................................................
- None

3 - Do you perform molecular diagnosis in routine?
- YES
- NO

If YES:
- On which diseases? ..............................................................
- Which gene(s) are you amplifying? ...........................................

4 - Give one main drawback and one advantage of conventional PCR?
- Drawback: ..............................................................
- Advantage: ..............................................................

5 - Paul has received to his laboratory 4 samples with a suspicion of *Mycoplasma pneumoniae*. He prepared a mix PCR and the PCR reaction according to the following table:

<table>
<thead>
<tr>
<th>Mix PCR for 1 reaction</th>
<th>Thermal cycler conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCR Buffer 10X 5µl</td>
<td>94°C 2 min 1 cycle</td>
</tr>
<tr>
<td>Mix dNTP Mix containing 10mM of each dNTP: 0.5µl</td>
<td>94°C 30 sec</td>
</tr>
<tr>
<td>Specific forward primer 20µM 1µl</td>
<td>55°C 30 sec</td>
</tr>
<tr>
<td>Specific reverse primer 20µM 1µl</td>
<td>72°C 30 sec</td>
</tr>
<tr>
<td>Taq DNA polymerase 0.5µl</td>
<td>72°C 7 min</td>
</tr>
<tr>
<td>Template DNA 2µl</td>
<td>4°C overnight</td>
</tr>
<tr>
<td>H2O 40µl</td>
<td></td>
</tr>
</tbody>
</table>

After migration of 10µl of the PCR reactions, all results were negative including the positive control. Instead of Paul, what would be your first hypothesis to explain this unexpected result?

..................................................................................................................................................................................................................................................................................................................................................................................
Management of data applied to the epidemiological surveillance

from 23 to 27 November 2015
1 week
(delivered in French)

In charge scientists
David CHAVERNAC (Cirad CMAEE UMR)
Xavier JUANES (Cirad SELMET UMR)

Issues

The establishment of epidemiological surveillance networks generates the collection of a large number of data that is necessary to properly manage to extract health information that will allow animal health officials to make more relevant decisions of intervention. The diversity and complexity of data collected by the monitoring networks require the implementation of global information systems to achieve three main objectives: the regular edition of syntheses of the health situation, the calculation of performance indicators and the edition of parameters of network management.

Based on information from the data collected through the global information system, it can for example allow the representation of all outbreaks reported for a disease, as well as their evolution in time and space. It is also easy to visualize clearly the animal population at risk and the means of intervention which may be available in the field.

Manage and process data of an epidemiological nature becomes a priority for those who have to analyze the information collected by a network of epidemiological surveillance, as well as for the units responsible for public health intervention in the field.

Educational objectives

At the end of training, participants will be able to:

- design a database;
- build simple queries;
- create user-friendly and intuitive input interfaces (use Management of relational databases Systems);
- Handle the statements.

"CIRAD is a collaborating center to OIE for the diagnosis and control of animal diseases in tropical regions. The organization of training in this area is part of the mandate for this title."
Applications, consisting of a detailed resume, a motivation letter and details about the organization managing your grant, must be sent as much as possible before October 23, 2015, by email: formation-emvt-fvi@cirad.fr

Training costs

- Training costs: 1 050 €
- Travel towards Montpellier: to be determined by participant
- Housing expenses: allow a minimum of 80 € per day
- If necessary, a personalized estimate can be made upon request.

Important !!!
CIRAD is not able to provide scholarships. Requests should be submitted as soon as possible to:
- Competent national authorities in charge of livestock and / or the granting of scholarships: Cooperation and Cultural Action Services (SCAC) of the French Embassy; Embassies of other countries; International organizations (FAO, UNDP, EU, IAEA, IDB, ...); Development projects or NGOs

Application procedure

Applications, consisting of a detailed resume, a motivation letter and details about the organization managing your grant, must be sent as much as possible before October 23, 2015, by email: formation-emvt-fvi@cirad.fr

Programme

- Databases used in epidemiological surveillance (training based upon Access 2010)
- Presentation of ad hoc software
- Discovery and getting started with Access components (Practical exercises, design analysis, interpretation)

Admission

Be a doctor of veterinary medicine, have a degree in agricultural engineering, a Master’s compatible with the subject of the course, diploma in agricultural work engineering, or equivalent.

This course may be taken by candidates not belonging to these categories, but justifying sufficient professional experience.

Candidates must be proficient in computer skills (knowledge of the Windows environment) as well as in the basic concepts of office: File Management, Word, Excel.

Foreign applicants must also master the French language correctly.
Information systems applied to epidemiological surveillance

from November 23 to December 11, 2015
3 weeks
(delivered in French)

In charge scientists
D. Chavernac, X. Juanès & A. Tran
(CMAEE UMR, SELMET UMR, AGIRS UR)

Issues

The establishment of epidemiological surveillance networks generates the collection of a large number of data that is necessary to properly manage to extract health information that will allow animal health officials to make the most relevant decisions of intervention. The diversity and complexity of data collected by the monitoring networks require the implementation of global information systems to achieve three main objectives: the regular edition syntheses of the health situation, the calculation of performance indicators and editing parameters of network management.

The geographic information system (GIS), part of a global information system is a tool that allows the geographical representation of spatial data and their analysis.

Based on information from the data collected through the global information system, it can for example allow the representation of all outbreaks reported for a disease, as well as their evolution in time and space. It is also easy to visualize clearly the animal population at risk and the means of intervention that may be available on the ground. Allowing quick and easy the construction and updating of maps representing health situation highlighted by an epidemiological surveillance network, GIS provides public officials of the animal health key elements for relevant and effective decisions.

Manage and process data of an epidemiological nature becomes a priority for those who have to analyze the information collected by a network of epidemiological surveillance, as well as units responsible for public health intervention on the ground.

Educational objectives

- At the end of training, participants will be able to design an information system in the simple case of an epidemiological surveillance network in order to manage the information from the field until its output:

  - creating models for data management;
  - analysis through simple queries;
  - establishment of input interfaces (using Access);
  - linking with GIS tools for such representation of the distribution of an animal disease and its evolution in time and space;
  - produce thematic analysis and simple queries to represent and analyze data and produce cartographic materials to support the decision.

"CIRAD is a collaborating center to OIE for the diagnosis and control of animal diseases in tropical regions. The organization of training in this area is part of the mandate for this title."
Programme

- Databases applied to epidemiological surveillance 30h
  (discovery and getting started components of Access - Beware: based on the 2007 version of Access)
- GIS applied to epidemiological surveillance 30h
  (Getting started with ArcGIS 9.x, mapping, geographic objects, formatting maps)
- Practicals 30h

Training costs

- Pedagogic: 2 300 €
- Travel towards Montpellier: to be determined by participant
- Housing expenses: about 1 200€
- If necessary, a personalized estimate can be made upon request.

Admission

This course is open to veterinarians and animal scientists with responsibilities in the implementation and operation of epidemiological surveillance networks.

This course may be taken by candidates not belonging to these categories, but justifying sufficient professional experience.

Candidates must also master the French language correctly and have a good knowledge of the Windows environment, experience, albeit limited, in the handling and processing of data is a plus.

Application procedure

Applications, consisting of a detailed resume, a motivation letter and details about the organization managing your grant, must be sent as much as possible before October 23, 2015, by email: formation-emvt-fvi@cirad.fr

Important !!!

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- Competent national authorities in charge of livestock and / or the granting of scholarships; Cooperation and Cultural Action Services (SCAC) of the French Embassy; Embassies of other countries: International organizations (FAO, UNDP, EU, IAEA, IDB, ...); Development projects or NGOs

Equipe mixte CIRAD - FVI
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E-mail : marie-caroline.estienne@cirad.fr

GIS applied to epidemiological surveillance
(Delivered in French)

From 30 November to 11 December, 2015
1 to 2 weeks

Scientific coordinator
Annelise Tran (Cirad UR AGIRS)

Issues

Epidemiology, and particularly epidemiological surveillance, is intended to represent the situation of a disease in a given area in order to take appropriate control measures or build hypotheses on its origin or its spreading risk.

Geographic Information System (GIS) is a tool that allows the geographical representation of data. Coupled with the database of an epidemiological surveillance network, GIS can be used to map the outbreaks reported for a disease as well as their evolution in time and space. It also allows visualizing clearly the animal population at risk, the drivers of the risks and the means of intervention available on the field.

By allowing the construction, as well as the quick and easy updating, of maps representing the health situation as highlighted by an epidemiological surveillance network, GIS provides government animal health authorities with the critical elements for making relevant and efficient decisions.

Thus, mastering a geographic information system becomes a priority for those in charge of managing and analyzing epidemiological data, as well as for the units responsible for managing health intervention on the ground.

Educational objectives

At the end of training, participants will be able to:

- Master all basic functions of ArcGIS 10.x software for creating maps;
- Connect a database with this GIS software and represent an animal disease distribution and its evolution over time and space;
- Conduct thematic analyzes and simple queries to represent and analyze data as well as to produce cartographic documents for decision-making.

"CIRAD is an OIE collaborating center for the diagnosis and control of animal diseases in tropical areas. The organization of trainings in this field is part of this mandate."

If you are interested by this training in cirad at Montpellier:
http://formation-elevage-suds.cirad.fr/
Applications, consisting of a detailed resume, a motivation letter and details about the organization managing your grant, must be sent as much as possible before October 30, 2015, by email: formation-emvt-fvi@cirad.fr

The provision of softwares is not included in the training. If they are not available in the institution where the participant works, it may be useful to predict the acquisition during the course so that he/she could use it on his/her return from training and thus limit the erosion of his/her skills. In this case, specify in the quote request that this amount must be provided.

- **Training costs**: 800 € per week or 1 500 € for 2 weeks
- **Travel towards Montpellier**: to be determined by participant
- **Housing expenses**: allow a minimum of ca. 80 € a day

If necessary, a customized quote can be established upon request.

**Important !!!**

CIRAD does not deliver fellowships or travel grants. It is your responsibility to fill a request as soon as possible to:
- national authorities dealing with livestock and/or grants;
- Cooperation and Culture Services of French embassies and consulates;
- other foreign countries embassies;
- international organisms (FAO, UNPD, European Union, IAEA, IDB, ...);
- Development projects or non-governmental organizations.

**Application procedure**

Applications, consisting of a detailed resume, a motivation letter and details about the organization managing your grant, must be sent as much as possible before **October 30, 2015**, by email: formation-emvt-fvi@cirad.fr
Parasitic infections due to *Trypanosomatidae*

**AFRICAN TRYPANOSOMOSIS AND LEISHMANOSIS**

from 7 to 11 December 2015

1 week

In charge scientists

**P. Solano - D. Berthier (UMR Intertryp Cirad /IRD)**

**Presentation**

The study of human and animal African trypanosomosis and leishmanosis, are at the heart of the activities of the **UMR Intertryp**.

Vector-borne diseases per excellence, they are closely related to the meeting host-vector-parasite. The complexity of the pathogenic system and the increasing instability of its environment influence the evolution of these major parasitic diseases. The fight therefore relies both on the knowledge of the triptych parasites-vectors-hosts, and that of climatic, environmental and socio-economic factors.

Interrelationships host / parasite that characterize *Trypanosomatidae* infections involve complex molecular and cellular mechanisms. An integrated approach to the various compartments of the cycle of trypanosomes (mammalian host, trypanosome, vector, symbiont) allows to better understand these diseases and be able to better diagnose, prevent and optimize interventions. The unit has chosen an integrated and innovative approach, allowing a detailed analysis of different biological compartments of the parasite and the host, since phenotypic characterization, gene structure, modulation of gene expression and characterization of the nature and the amount of protein produced *in fine*.

Based on the research results, the unit focuses on the development of new diagnostic and prognostic tools, of new drugs, pharmaceutical formulations (to increase the effectiveness of treatment) and prophylactic and immunotherapeutic protocols, as well as the development of a vaccine against these diseases.

**Educational objectives**

At the end of training, participants will be able to:

- Know the symptoms and the clinical evolution of these diseases;
- Know the main species of tsetse flies of medical and / or veterinary interest;
- Know the breakthroughs in therapeutics (trypanosomosis) and vaccination (canine leishmanosis);
- Propose measures relating to the methods and organization of the control of these diseases, to enhance the reliability of official control services;
- Lead an integrated approach to different compartments of the parasite life cycle (human or animal host, Trypanosoma / Leishmania, vector, symbionts) to diagnose, predict and optimize the interventions against these endemic diseases.

“CIRAD is a collaborating center to OIE for the diagnosis and control of animal diseases in tropical regions. The organization of training in this area is part of the mandate for this title.”

If you are interested by this training in Cirad at Montpellier :

This training is open to veterinarians, agronomists and engineers working in the field of livestock (and / or health) in tropical areas and desiring to strengthen their skills. It may be followed by candidates not belonging to these categories, but justifying sufficient professional experience. Candidates must also properly master the French and / or English languages.

With the participation of the IRD and CIRDES. These searches are possible thanks to the unique complementarity of the disciplines present in the unit. They are conducted through continual interactions between researchers based in the North and the South, and some of these activities are conducted entirely by Southern partners.

**Training costs**

- Pedagogic: 1 050 €
- Travel towards Montpellier: to be determined by participant
- Housing expenses: about 80 € per day

If necessary, a personalized estimate can be made upon request, especially if several modules are followed.

Important !!!

CIRAD is not able to provide scholarships. Requests should be submitted as soon as possible to:

Competent national authorities in charge of livestock and / or the granting of scholarships; Cooperation and Cultural Action Services (SCAC) of the French Embassy; Embassies of other countries; International organizations (FAO, UNDP, EU, IAEA, IDB, ...); Development projects or NGOs

Applications, consisting of a detailed resume, a motivation letter and details about the organization managing your grant, must be sent as much as possible before November 7, 2015 by email: formation-emvt-fvi@cirad.fr

Equipe mixte CIRAD - FVI

Formation et Enseignement en Elevage et Médecine Vétérinaire en Régions Chaudes
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E-mail: marie-caroline.estienne@cirad.fr

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**The main diseases caused by Trypanosomatidae: AAT, HAT and leishmanosis**

- African Animal Trypanosomosis
- Human African Trypanosomosis and atypical forms
- Human and animal leishmanosis

**Vectors of African trypanosomes**

- Tsetse flies cyclic vectors of African trypanosomes
- Microorganisms (viruses, bacteria) and vector competence of tsetse flies
- Mechanical vectors of trypanosomes

**Control tools**

- Vector control applied to tsetse flies and interest of entomology in epidemiological surveillance of trypanosomosis
- Study of the variability of the host response to infection: animal trypanotolerance
- Study of the variability of the host response to infection: tolerance / sensitivity in humans
- Use of new biotechnological tools
- Immunization, an essential asset for prevention: the case of leishmaniosis

Visit of the insectarium in Baillarguet

Credit photo CIRAD
Wildlife and development
From February 29 to March 11, 2016
2 options: 2 weeks class course
Or 2 weeks course + internship (4-5 months)
(delivered in French; possible registration for 2015)

Educational team
Gilles Balança, Sébastien Le Bel, Marie-Noël de Visscher, Daniel Cornélis

Issues

In most tropical countries, animal resources and natural environments associated with them contribute to food needs, economic and cultural rights. Their valuation modes are multiple and complementary: hunting, gathering, wildlife farming, ecotourism. The strong involvement of local communities in resource use and biodiversity conservation often remain the best guarantee of a controlled and sustainable rural development, and conservation.

In addition, interactions between humans and animals within protected areas or their peripheries are numerous and have consequences, both positive and negative. Their management must be based on approaches that take into account the diversity of factors and stakeholders.

General objectives

The purpose of this training is to provide managers involved in the management of natural resources with a multidisciplinary vision of wildlife management, with a specific focus on tropical countries. This approach will allow them to analyze problems in a comprehensive way, taking into account the various factors, actors and existing tools in their own contexts.

At the end of this training, participants should be able to take into account the dimension of wildlife in the planning and implementation of rural development activities. For those who will opt to enroll in the second (course + internship) option, the real-world project in a tropical context will provide them with the capacity to practice the topics introduced during the class session.

Specific objectives

The participants will be able to:

- Identify the tools and methods of management and conservation of wildlife that can be used in a local context (regulations, wildlife farming, participatory wildlife management, hunting management, land use planning...);
- Describe the main systems of wildlife use (hunting, bushmeat, ecotourism, farming, vision tourism...);
- Analyze the interactions between wildlife and human activities (disease transmission, competitive resource use, predation, services, cultural heritage, ...).

If you are interested by this training in Cirad at Montpellier:
http://formation-elevage-suds.cirad.fr/
Training cost

Two options:

- 2 weeks class course (Cirad, MTP)
- 2 weeks class course followed by internship in a tropical context (4-5 months). The second week of class course will be devoted to internship preparation/participating students

- Training cost: 1 300 €
- Travel to Montpellier: to be determined by participant
- Housing expenses: allow a minimum of about 80 € per day
- Internship cost: depending on duration and destination

Places are limited. The candidates' selection will be held in mid-January, 2015.

Concerning candidates for internship as part of their training in a French institution, please contact us as soon as possible.

If needed, a customized quote can be established upon request

Programme

The course structure offers to the student the opportunity to acquire the theoretical bases of wildlife management of wildlife and to analyze their application through case studies. The main topics are:

- Ecology: mammals communities, food web, population monitoring...
- Wildlife conservation: management of protected areas, ex-situ conservation, regulatory tools...
- Valuation of wildlife: ecosystem services, bushmeat, production chain, hunting...
- Human-Wildlife interactions: conflict analysis and management, local stakeholders perceptions and organization...
- Risk management: invasive species, disease transmission...

Application procedure

Applications, consisting of a Curriculum vitae (CV), a motivation letter and details about the organization managing your grant, must be sent before

- January 15, 2016, for Course + Internship option
- February 15, 2016, for Class course only option

by email: formation-emvt-fvi@cirad.fr

Important !!!
CIRAD is not able to provide scholarships. Requests should be submitted as soon as possible to: Competent national authorities in charge of livestock and / or the granting of scholarships; Cooperation and Cultural Action Services (SCAC) of the French Embassy; Embassies of other countries; International organizations (FAO, UNDP, EU, IAEA, IDB, ...); Development projects or NGOs.

Equipe mixte CIRAD – FVI
Formation et Enseignement en Elevage et Médecine Vétérinaire en Régions Chaudes
TA A-15/B - Campus international de Baillarguet 34398 MONTPELLIER Cedex 5 France
Tel : 33 (0) 4.67.59.39.02 / Fax : 33 (0) 4.67.59.37.97
E-mail : marie-caroline.estienne@cirad.fr
In many countries around the world, pastoral systems based on a close association between humans, domestic ruminants and natural environments historically contribute to the satisfaction of food needs, economic and cultural rights of their people. Recent developments of societies (monetization, globalization, productivism, land pressure ...) and environments (drought, climate change, desertification ...) have questioned the value of these systems of life and production.

However, new global challenges of sustainable development, of fight against poverty, preservation of ecosystems, dryland development and ecological intensification of agriculture, reposition these systems in the debate on the identification of new development pathways and new modes of agricultural production.

The purpose of this training is to provide a multidisciplinary vision of the functioning of pastoral systems, their current and potential role in the context of sustainable development and to provide the framework and analytical tools to evaluate their relevance and potential in different development contexts.

**General objectives**

Understand the complexity of pastoral systems through the understanding of the historical, social, biophysical and economic characteristics of pastoralism as a way of life and of development and production in drylands and the various questions and development issues that they represent; allow students to get a comprehensive and non-predefined opinion of this complexity.

**Specific objectives**

- Describe the different forms of organization of livestock production in pastoral societies and explain the factors of evolution of these societies. Describe the principles of analysis of coordination between stakeholders over resources.

- Pass on the biological foundations of pastoralism and use the principles and methodological tools to make a diagnosis on the use and exploitation of plant resources by livestock.

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Specific objectives (cont.)

- Describe the technical and economic options for the development of pastoral systems and the principles of social management of resources (land, water) in pastoral societies (resource sharing, reciprocity, mobility, crisis management, ...).

- Introduce policy and institutional means of action to support actors in negotiations on resource management at different scales (from local to international).

Admission

This course is open to agricultural engineers and to veterinarians performing research, training or management in the fields of animal farming or natural resources management, and wishing to take into account the rangelands husbandry dimension in planning and implementation of their activities.

This course may be taken by candidates not belonging to these categories, but justifying sufficient professional experience.

Foreign applicants must also master the French language correctly.

Training costs

- Training costs : 1 300 €
- Travel towards Montpellier : to be determined by participant
- Housing expenses : allow a minimum of ca. 80 € a day

*If necessary, a customized estimate can be established upon request*

Programme

The module is organized into four sub-modules that provide theoretical, analytical tools and case studies that allow the student to acquire a multidisciplinary perception of issues and of the complexity of the development of pastoral systems. These four elements are:

- The pastoral societies, history, evolution and challenges
- The social foundations of pastoralism
- The biophysical basis of pastoralism: animals and environments
- The economic foundations of pastoralism

Stakeholders (teachers, researchers, engineers) are chosen within public or private institutions based on their specialization.

Application procedure

Applications, consisting of a detailed resume, a motivation letter and details about the organization managing your grant, must be sent as much as possible before **October 30, 2015**, by email: formation-emvt-fvi@cirad.fr

Equipe mixte CIRAD - FVI

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E-mail : marie-caroline.estienne@cirad.fr

Tropical aquaculture
(delivered in French)
from 01 to 12 February 2016
2 weeks
In charge scientist
Jean-François Baroiller (Cirad INTREPID UMR)

Issues

Population growth in the South and changing eating habits, particularly linked to the urbanization of the population, induce a strong increase in demand for animal protein, in both urban and rural areas. Most of the livestock sector (terrestrial and aquatic animal resources) often respond to this challenge by intensifying production systems.

Aquaculture has experienced the past 30 years an unprecedented development in the field of agricultural production with an annual growth rate of over 10%. At the same time, fishing experienced a slowdown in growth to stop increasing in 1995. This combination of trends has created a historical situation: contributions to human food of fishery and aquaculture join. As beneficial as it is, the growth of aquaculture, now only able to support the increasing demand for aquatic products, raises a number of issues in relation to its sustainable development.

Whatever the level of intensification, in the image of Asian aquaculture which now represents over 90% of world aquaculture, fish farming can provide an excellent means of animal protein production but also a tool for development in its socio-economic environment. The diversity of species and fish production systems is high: species with long or short food chains, polyculture or monoculture, integration with other production systems (animals and / or plants) or "aboveground" value chain, national market or export market, rural or urban, family-type operator or industrial, etc..

The proposed module will include a presentation of the main fish production systems implemented globally in tropical environments with their main biotechnical and socioeconomic characteristics, and the corresponding value chains, and also visits to production sites. It will focus on a presentation of the biological bases of aquaculture applied to species and tropical environments. This should allow all participants to be able to contribute to decisions about the type of development to promote, according to the main characteristics of the environment at large which the fish culture (including tropical) is bound to join.

Educational objectives

While familiarizing themselves with the zootechnical and socio-economic environment as well as biological characteristics of main cultured aquatic species, the participants, at the end of training, should be able to:

- evaluate the opportunity to develop aquaculture in a given tropical region;
- .../...

If you are interested by this training in Cirad at Montpellier:
http://formation-elevage-suds.cirad.fr/
Educational objectives continued

- make choices regarding biological basis to mobilize in order to raise tropical aquaculture species;
- identify the farming systems the most appropriate to the territory and design the matching technical itineraries;
- contribute to the structuring and strengthening of fish value chain;
- assess the sustainability of different aquaculture production systems both locally and globally;
- help ensure the interface between research organizations and development agencies in the field of aquaculture.

Programme

33h Course:
Overview of Tropical / World Aquaculture, Fish Biology applied to tropical aquaculture, fish rearing system and fish farming development system.
33h TP:
Reproduction, sex control, fish feed factory, recirculating aquaculture system (R.A.S).

Training costs

- Training costs : 1 300 €
- Travel towards Montpellier :
  to be determined by participant
- Housing expenses :
  allow a minimum of ca. 80 € a day

If necessary, a customized estimate can be established upon request.

Admission

This course is open to agronomists and veterinarians performing functions of training, research or management in the areas of agricultural production, livestock, irrigation and who wish to specialize in aquaculture productions. It is also intended to project staff, NGOs, credit agencies, industrial companies who wish to develop skills in this area.

This course may be taken by candidates not belonging to these categories, but justifying sufficient professional experience.

Candidates must also master the French language correctly.

Important!!!
CIRAD is not able to provide scholarships. Requests should be submitted as soon as possible to:
Competent national authorities in charge of livestock and / or the granting of scholarships;
Cooperation and Cultural Action Services (SCAC) of the French Embassy; Embassies of other countries; International organizations (FAO, UNDP, EU, IAEA, IDB, ...); Development projects or NGOs.

Application procedure

Applications, consisting of a detailed resume, a motivation letter and details about the organization managing your grant, must be sent as much as possible before

January 1st, 2015, by email: formation-emvt-fvi@cirad.fr

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"CIRAD is a collaborating center to OIE for the diagnosis and control of animal diseases in tropical regions. The organization of training in this area is part of the mandate for this title."
Nine unsupervised e-learning versions of three modules (self-training) are proposed in open access on the CIRAD e-learning platform: http://elearning.cirad.fr/.

They are variants in several contextualized versions:

- **RANEMA** (a refresher course in applied epidemiology of animal diseases), designed under a partnership between the *Ecole nationale vétérinaire d’Alfort* (veterinary academy), the Animal and integrated risk management unit of CIRAD (AGIRs) and our training FVI-CIRAD team, with funding from the Ministry of Foreign Affairs. The content of RANEMA is structured around a simple scenario: the trainees are vets working for the veterinary services in a virtual country called RANEMA. In order to carry out their professional duties, they must update their epidemiology knowledge through a set of activities. This training is available in several contextualized versions: Africa (French and English), Asia (English), Caribbean (French and English) and the Maghreb (French).

- **RANEMA-STAT**, designed under a partnership between several CIRAD teams (AGIRs, SELMET and the CIRAD-FVI training team). Through interactive lessons and situation scenarios, trainees revise or acquire notions of statistics that will be useful to them in understanding complex epidemiological concepts that they might encounter in the RANEMA module. At the end of the course, trainees will be able to implement data gathering techniques and be able to train technicians for that purpose, calculate statistical results from a gathered database and interpret them, draw up tests for the different parameters to be monitored and determine the sampling required, along with the confidence intervals. (In French, English version in preparation).

- **RANEMA-Flu** (French and English versions), designed under a technical cooperation programme on avian influenza between our team, the Animal and integrated risk management unit of CIRAD (AGIRs) and the FAO (AGAH / EMPRES). RANEMA-Flu is an interactive learning module on preventing and controlling highly pathogenic H5N1 avian influenza. It provides information on knowledge, surveillance, prevention, detection, control and eradication measures you can take to control highly pathogenic avian influenza virus.

These modules have been developed and validated by AGIRs epidemiologists through many professional training courses conducted in Africa, Asia and several Master courses.

“CIRAD is a collaborating center to OIE for the diagnosis and control of animal diseases in tropical regions. The organization of training in this area is part of the mandate for this title.”
Admission

These courses are designed for veterinarians, veterinary students and technicians and health professionals wishing to reclaim the basic concepts in animal disease epidemiology, statistics and knowledge of avian flu. There is no selection for such trainings. They are self-trainings.

Training methods

- Self-training (free duration). However it is advised to follow the course on a short period of time (one or two weeks)
- Each participant is alone and is not tutored. He can, however, contact the course instructor and the platform administrator for any technical problems.
- Knowledge acquisition can be checked by doing the on-line training exercises, which will determine a score.

Training costs

Free of charge (Except for the price of the books)

Tools

Recommended reference books:

For RANEMA:

For RANEMA-STAT:

Exercises and problems found on the platform.

Application procedure

Applicants are required to enroll on the CIRAD e-learning platform (http://elearning.cirad.fr/), and then request a password from the technical manager for each course of interest: magali.dufour@cirad.fr

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Tel : 33 (0) 4.67.59.39.68 / Fax : 33 (0) 4.67.59.37.97
E-mail : magali.dufour@cirad.fr
Introduction

The new information and communication technologies (ICT) allow reaching an increasingly wider audience. In particular, e-learning systems can disseminate knowledge in various areas. Considering our partners’ needs, and to enable them to develop innovative and custom-fitted education programs, we offer our expertise in education engineering by e-learning. The originality of this course is that to take into account the specificities of tropical countries, as well as the possibility to adjust it to any specific distance-learning project (partially or totally).

This training will be held in our premises from May 18 to 22, 2015 but can also be arranged upon request at any time, including by relocating it to tropical countries.

Educational objectives

At the end of the course, participants will be able to:

- Prepare a distance-learning action: how to assess the training needs and set clear educational goals
- Define and use the basic methodological tools of education engineering, from the pedagogical scenario to the course evaluation
- Know several distance learning and multimedia production software applications, as well as LMS (Learning Management System)

This training will combine theoretical lectures with practical exercises that will allow you starting the design of your own media-based education product.

Content

Basic principles of distance-learning - 0.5 day
Distance Education Engineering - 1 day
Instructional design - 1 day
Distance-course content production and delivery - 2.5 days

total Durée 35 h

If you are interested by this training in Cirad at Montpellier:
http://www.cirad.fr/ur/formation_elevage_en
Applications, consisting of a detailed resume, a motivation letter and details about the organization managing your grant, must be sent as much as possible before April 30, 2015, by email to: formation-emvt-fvi@cirad.fr

Training costs and fees

- Training cost: 1100 €
- Travel to Montpellier: to be determined by participant
- Housing expenses: allow a minimum of ca. 80 € per day.

If needed, a customized quote can be established upon request.

Montpellier training session

Important!!!
CIRAD does not deliver fellowships or travel grants. It is your responsibility to fill a request as soon as possible to national authorities dealing with livestock and/or grants: Cooperation and Culture Services of French embassies and consulates; other foreign countries embassies; international organisms (FAO, UNPD, European Union, IAEA, IDB,...); Development projects or non-governmental organizations.

On-your-own site training session

Contact:
Cécile Squarzoni-Diaw
FVI/Cirad
and/or
Magali Dufour
Cirad - DGDRS

Par mail:
cecile.squarzonidiaw@cirad.fr
et
magali.dufour@cirad.fr

Practical informations

Admission requirements

This course is intended for professionals working in the field of education or having teaching activities.

Applicants need to have already formulated a clear educational project, which implementation and delivery to target audiences (students and professionals) should be possible over the short-term.

Applicants need good computer skills, as well as knowing the basic concepts of office software applications.

The minimum number of 8 participants is required.

This course is intended for professionals working in the field of education or having teaching activities.

Applicants need to have already formulated a clear educational project, which implementation and delivery to target audiences (students and professionals) should be possible over the short-term.

Applicants need good computer skills, as well as knowing the basic concepts of office software applications.

The minimum number of 8 participants is required.

Applications

Applications, consisting of a detailed resume, a motivation letter and details about the organization managing your grant, must be sent as much as possible before April 30, 2015, by email to: formation-emvt-fvi@cirad.fr

Equipe mixte de recherche CMAEE / CIRAD - FVI
Formation et Enseignement en Elevage et Médecine Vétérinaire en Régions Chaudes
TA A-15/B
Campus international de Baillarguet 34398 MONTPELLIER Cedex 5 France

«Le Cirad est centre collaborateur OIE pour le diagnostic et le contrôle des maladies animales en régions tropicales. L’organisation d’actions de formation dans ce domaine fait partie du mandat attaché à ce titre.»