

Training

"Data, from field to on-line map"

The spread of use of mobile technologies in the field is paving the way for new forms of knowledge generation and distribution, via information systems applied to epidemic monitoring.

This training module helps build participants' capacity to create a mobile data collection application, implement it in the field and integrate the data collected in a GIS for analysis and for on-line publishing in map form.

> contact: david.chavernac@cirad.fr



MOOC EPIDEMIOLOGIE

Open to all from 2 March 2016, the first MOOC offered by Cirad, entitled "Basics of animal disease epidemiology", funded by the Agreemium consortium (IAVFF) will be hosted by the platform "France Université Numérique". It will begin on 10 October 2016 and run over 6 weeks, calling on a team of lecturers comprising world-renowned French expert epidemiologists [FVI, Cirad, ENVA, ENVT, ANSES].

This on-line course is intended for anyone, but more especially veterinary students, veterinary technicians, biologists, scientists, researchers and health personnel who want to refresh or acquire a fundamental background knowledge of animal epidemiology. This course may also form part of the initial training in veterinary institutes.

From 2 March 2016, register on the platform
<https://www.france-universite-numerique-mooc.fr/>

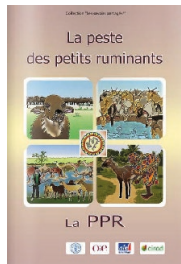
E-learning module on PPR

Based on an educational booklet (*"La peste des petits ruminants"* [Ovine rinderpest] – G. Charbonnier, G. Laveissière, CIRAD-SAVOIRS, 2015, 76 p.) presented at the FAO/OIE international conference for PPR control and eradication, Cirad is developing a distance self-training module in this disease.

Available in French and English versions, this interactive tool comprising learning activities and self-assessment exercises leaves the learner free to access the knowledge by browsing through the various chapters of the module in any order that suits them. They can also explore certain aspects of the subject in greater depth via scientific articles in full text form.

The PPR booklet is available in French and English on request. Its objective is to contribute to the educational transfer of scientific and veterinary knowledge on this internationally-spread highly contagious and devastating viral disease.

> CIRAD-SAVOIRS – <http://savoirspartages.cirad.fr/>
VIP contact: georgette.charbonnier@cirad.fr



E-learning in animal disease epidemiology

Nine untutored e-learning modules, including Ranema Stat (a refresher in statistics for epidemiology) and Ranema Flu (prevention of highly pathogenic avian influenza), are available open access on Cirad's distance teaching platform. These interactive training tools developed by FVI and Cirad in partnership with the Alfort Veterinary School have contributed to the training of hundreds of students.

Their scenarios place the learner in the veterinary services of Ranema, a virtual country divided into two administrative zones corresponding to two distinct climate zones. This role playing helps learners acquire basic knowledge of animal epidemiology, and to consider various epidemiological situations using the most commonly employed tools.

<https://elearning.cirad.fr>

All these training modules can be found at the address

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

> General contact: formation-emvt-fvi@cirad.fr



Editor: Patrick Caron, Director of Research and Strategy

Coordination: Technology Transfer and Development Office
vip-cirad@cirad.fr

Avenue Agropolis, TA 181 / 04 - 34398 Montpellier Cedex 5, France
Tél : +33 4 67 61 44 61 - Fax : +33 4 67 61 75 37

february 2016 # 26

VIP

TECHNOLOGY TRANSFER
AND DEVELOPMENT NEWSLETTER

Digital epidemiology and electronic monitoring

In the late 1980s, the development of information technology, the birth of the first digital networks and then the arrival of the Internet brought a great improvement in data transmission (reliability, centralisation and sharing) from the field to the offices of the decision makers. This helped improve use of these data (centralisation, processing and analysis, report production), especially in Southern countries, with a highly positive effect on decision making in sanitary crises, for instance.

Today, existing technologies are enabling ever faster data processing. Alongside the Internet, there are now mobile telephone networks with a worldwide basic coverage (GSM/GPRS). Areas never really reached by wire telephony, such as villages in Africa, have been revolutionised by the arrival of mobile telephony, which has provided access to communication and information. At a very low cost, every device can potentially become a data collection tool. These tools have revolutionised monitoring of animal health, biomass or rivers, thanks to instant data collection in the field and centralisation of these data.

These new technologies have helped develop, for example, electronic monitoring of infectious diseases in livestock. They are generally based on devices (e.g. Smartphone, tablet or computer) used directly by the field collectors (vets, farmers, inspectors, technicians) in various forms (on-line input, SMS). The data is transmitted by telematics systems (GSM/GPRS or Internet) to a central point, thereby greatly facilitating analysis and decision making for the purpose of managing suspected and actual outbreaks, and the response to apply in the field.

FOCUS

15 years... is the time estimated by the OIE and FAO to eradicate ovine rinderpest (PPR) worldwide. At present, PPR threatens more than a billion small ruminants every year, hitting more than 330 million farmers and their families, who are among the world's poorest.

www.cirad.fr/innovation-expertise

 **cirad**
LA RECHERCHE AGRONOMIQUE
POUR LE DÉVELOPPEMENT

Expertise, projects and partnership

AGREENCAMP – IDEFI-N

The AgreenCamp project obtained by Agreenium under the call for tenders IDEFI-N is aimed at conducting 400 hours' training in the scientific field of agrosciences. In the course of the project (2016–2019), Cirad and FVI, by means of the combined FVI-Cirad team "Teaching and training in animal health and production in hot regions", as well as researchers from the mixed research units CMAEE, Agirs and SELMET, will conduct distance training modules in collaboration with the Toulouse Veterinary School (ENVT). This will total 105 hours dedicated to three specific modules: epidemiological monitoring, epidemiological response and animal health economics.

E-learning facilitates access by Southern learners and professionals to this knowledge. This package, which will incorporate active learning via a serious game (based on video games), meets the needs for new knowledge as part of initial training and CPD in the field of animal health. The aim of a serious game is to invite the user to interact with an electronic application, the objective of which is to combine aspects of teaching with fun activities and various possible scenarios.

There are a host of international partners of Cirad involved, such as the FAO, the Dakar Inter-State School of Veterinary Science and Medicine and FVI members (ANSES, ENVA, ENVT, etc.).

> VIP contact: Cécile Squarzon-Diaw,
FVI – Mixed Research Unit CMAEE
e-mail: cecile.squarzonidiaw@cirad.fr

Digital epidemiology in health networks: example of the Indian Ocean

In the Indian Ocean, a host of epidemiology training actions are being set up under the regional cooperation programmes AnimalRisk or TROI (tracking sanitary risks in the Indian Ocean zone). These highly practical "training action" sessions have been developed for personnel from veterinary services, health ministries and research institutes. The development of digital versions of this training facilitates monitoring of personnel by ensuring a long-term interface between learners and lecturers, scaling down the training and thereby improving the system which is based on local operational trainers.

In parallel, an animal disease electronic monitoring system with the network "One Health epidemic monitoring, alert management" managed by the IOC and funded by the French Development Agency is already in place in the Comoros, Mauritius and Madagascar: a Smartphone form linked to a Voozannoo database is used by the field agents to report suspected disease outbreaks. Each country has an independent and confidential database, in conjunction with a national epidemiological unit which analyses and compiles the data in the form of national epidemiological bulletins, within this regional network.

> Eric Cardinale: eric.cardinale@cirad.fr
To find out more:
<http://www.animalrisk-oi.org/>

Expertise and capacity building within the health networks

Since 2008, Reunion and its partners from other Indian Ocean islands have been making substantial efforts to set up an infectious animal disease monitoring network, in order to rapidly identify the appearance of contagious disease focal points, take the necessary measures and limit the spread. Furthermore, a host of studies have been conducted to better understand the epidemiology of certain diseases, hitherto little known. This information has helped improve the disease management programmes by developing preventive measures appropriate for the epidemiological reality in the field. It is important to achieve a working synergy between the animal health sector, human medicine and environmental sciences.

One of the first objectives is to optimise operation of the monitoring systems, enabling the exchange of reliable, standardised and comparable sanitary information, thereby facilitating their analysis and processing. Another objective is to develop a "pool" of regional epidemiologists and experts from the countries in the zone, working with the same epidemic monitoring, early warning and response methods. Pooling of skills ensures optimum responses to sanitary emergencies and infectious disease control. A third objective is the development of research at the interface between monitoring, research and training, for the overall purpose of sanitary protection of the territories involved.

> VIP contact: thierry.lefrancois@cirad.fr, Director of CMAEE



Optimising monitoring based on the risk due to animal mobility, among others

A method incorporating risk analysis, mapping and animal mobility data analysis (SNA) has been developed by FVI and Cirad for the purpose of optimising monitoring systems in the field. The method is being transferred to the animal health and public health network players by means of training sessions followed by specific field actions in the countries. FVI funding made it possible to develop these activities in 2015, in addition to research and expert assessment activities implemented by Cirad.

The objective in 2016 is to continue the capacity building of the animal health regional network players (REMESA/North Africa, RESEPI/West Africa, SEGA-OH/Indian Ocean, Caribvet/Caribbean) and to produce risk maps for the main infectious diseases (PPR, RVF, HPAI), incorporating animal mobility as a risk factor, and helping to optimise the national monitoring systems. This work is being conducted in conjunction with the OIE and FAO, especially as part of the world PPR eradication campaign.

> VIP contacts: cecile.squarzonidiaw@cirad.fr;
caroline.coste@cirad.fr (CMAEE)

Establishing e-training capacities

E-learning is not synonymous with second-rate training, quite the contrary! E-learning helps spread knowledge in various fields of competence. Developing a structure for e-learning – as for conventional training – helps establish a methodical and coherent approach to achieve the stated objective of the training. Cirad is offering a week's training on this theme in response to the identified needs, and for the purpose of enabling our partners to set up innovative and tailored training systems.

> VIP contact: magali.dufour@cirad.fr
<http://formation-elevage-suds.cirad.fr/>

RESEARCH issues

The mixed research unit CMAEE contributes in particular to the development of health networks in the Caribbean and the Indian Ocean. Its major objective is to promote regional partnership through a close association of research and monitoring in activities jointly designed by research bodies and health services.

Epidemic and epizootic risk monitoring of territories is a centrepiece of public health and public veterinary health policies, based on early warning and rapid response capacities in case of pathogen introduction. To improve sanitary monitoring in its action zones (Africa, Indian Ocean and the Caribbean), CMAEE and its partners are heavily involved in personnel training.

Building the capacity of the veterinary services via training actions ensures Cirad prime access to sanitary data and associated information. Hence the activities are carried out at the interface between monitoring, research and training, making it possible to test the tools and methods by applying them in the field. This naturally facilitates innovation and appropriation by the health network partners.

> Contact: thierry.lefrancois@cirad.fr, Director of CMAEE

To find out more: <http://umr-cmaee.cirad.fr/projets>