EPIZONE for healthy poultry, swine, fish, sheep, cattle, horses, wildlife

Largest international network on animal diseases

EPIZONE, Network of Excellence for Epizootic Disease Diagnosis and Control, is the largest international scientific network focused on animal diseases. Losses from outbreaks could be enormous across the whole food supply chain, causing food safety issues and public health concerns. Control methods involving the mass culling of livestock are no longer acceptable for the international society. EPIZONE plays a key role in research on prevention, detection and control of animal diseases of poultry, swine, fish, sheep, cattle, horses and wildlife, in order to limit both the risks and the possible damage in the EU and beyond.

International cooperation
Over 300 scientists from Europe, China and Turkey strive for the common goal:

to improve and standardise:
- diagnostic methods
- vaccines

to develop new ways for:
- surveillance
- risk analysis

for better prevention and control of high-impact animal diseases
These include:
- notorious epizootic diseases like foot-and-mouth disease, avian influenza, classical swine fever,
- arthropod borne (mosquito, tick and midge) diseases such as bluetongue, African swine fever, African horse sickness, Crimean Congo haemorrhagic fever and West Nile fever,
- 'new' emerging epizootic diseases including the threat of peste des petits ruminants from Morocco, and the introduction of new flu originating from swine that has become a threat to public health.

International cooperation

Networking and sharing knowledge

An important task of EPIZONE is to stimulate networking and sharing knowledge not only inside but also outside the EPIZONE network to our stakeholders: (non-) governmental organisations, (pharmaceutical) industry, scientists and veterinarians.

Some examples:
- **EPIZONE Annual Meetings,** hosted by EPIZONE partners, with over 300 participants, scientists and stakeholders, from 25 different countries. Each year with a specific topic, eg: Bluetongue satellite symposium, Emerging and transboundary diseases, Major epidemic threats.
- **Young EPIZONE,** a network of young scientists started successfully in 2008. With Young EPIZONE the network invests in the future generation scientists.
- **Short term missions and training courses.** The visits to other EPIZONE partner institutes are all relevant to EPIZONE objectives. Since the beginning of the EPIZONE project 30 short term missions have been realised.
- **Workshop on swine viral diseases in Shanghai, with the slogan 'Building Bridges'** was organised by EPIZONE together with the European Commission and the Shanghai Veterinary Research Institute.
- **Workshop on swine viral diseases in Madrid,** as follow up of the Shanghai workshop, organised by EPIZONE, the European Commission and other EU projects, focussing on young scientists from Asia and Europe to exchange view.
- **Workshops on foot-and-mouth disease,** involving national crisis management personnel from EPIZONE and non-EPIZONE partners. The use and interpretation of DIVA diagnostics for foot-and-mouth disease after vaccination in domestic herds was discussed.
- **Workshop on avian influenza,** with participants from non-EPIZONE partners in Italy.
- **The yearly internal call for new integrating projects,** which enables the network to respond to new developments such as the unexpected outbreak of bluetongue in North-West Europe and the threat of Rift Valley fever.
- **Scientific publications and state of the art reviews** are already established in the fields of diagnostics, vaccine development, risk assessment and surveillance and epidemiology.

Harmonise, standardise, improve and develop

The benefit of EPIZONE is sharing knowledge for faster results in the control of animal diseases. International cooperation enables experts to pool their resources and harmonise their strategies, which leads to improved global control of epidemic animal diseases.

Some of the achieved results:
- **Fast and accurate detection of peste des petits ruminants (PPR).** A ring trial for a disease that is unusual in the EU countries was made available by EPIZONE within a few months after the PPR outbreak in Morocco. A test kit and a panel of reference materials were supplied to all interested partners.
- **The EU EPIZONE RNA panels** on pestiviruses, bluetongue virus and avian influenza virus are very valuable for validation of new detection systems like real time-PCR. The common set of samples for validation, selected by the EPIZONE partner institutes, assures sensitive and specific molecular diagnostic tools used by all EPIZONE partners.
- **The 'EPIZONE Chip' with more than 8000 virus specific catcher probes** for pan-viral detection, uniform determination and differentiation of the virus and is useful for the purpose of early warning system to ease the fast control.
- **Online database for epizootic diseases** with implementation of a mapping tool specifically developed within EPIZONE. The database can be used by countries or laboratories to share their epidemiological data. Data from specific regions can be viewed on maps in conjunction with all available information including links to typing and sequencing data, on each individual dataset. Further tools which allow early warning and alerts are in preparation.
- **Risks associated with climate change: expert opinion workshop.** Collection of opinions from world experts on the risks of entry into the EU for a number of viruses; opinions on routes of entry, now and in the future, under climate change scenarios.
- **A shared database with outbreak data on bluetongue** virus serotype 8 from 5 countries that allowed a detailed spatio-temporal risk factor analysis for 2006, a time-space descriptive study for 2007 and creation of risk maps. This leads to an improved understanding of the epidemiology and spread of bluetongue virus.

Great progress is made on:
- **Vaccine technologies, host responses, adjuvants and immunomodulators and antivirals. Novel reagents** are developed for measuring host responses to vaccination in cattle and pigs. These reagents facilitate the evaluation of novel vaccines for foot-and-mouth disease, bluetongue, African swine fever, classical swine fever and Rift Valley fever. Different prime boost strategies for delivery of candidate protective African swine fever virus antigens to pigs were evaluated. This will help to develop vaccines, which are not available so far.
- **Surveillance and epidemiology of emerging viral diseases in aquaculture** (including viral haemorrhagic septicaemia virus, infectious haematopoietic necrosis virus, and Koi herpes virus) by harmonisation of methods for diagnosis and sequencing, and sharing information of isolates and newly developed methods through a shared database.

safe food

Innovative and rapid control needed

How can we handle animal diseases such as bluetongue, swine fever or foot-and-mouth disease, for which borders pose no obstacles?
During recent years the risk of entry and spread of new infectious agents in the EU has increased due to global travel and trade. In addition global warming is likely to increase the risk of spreading of arthropod borne (mosquito, tick and midge) diseases.
Only with international cooperation we can combat and deal with those transboundary diseases and develop innovative and rapid control strategies that are needed.

EPIZONE, highly qualified scientists together

EPIZONE brings scientists together and thereby improves understanding in local situations concerning animal related food production in the various member states. As a consequence, scientific opinions and recommendations will be internationally based, agreed and accepted. EPIZONE intends to function as a platform and provide a think-tank of highly qualified scientists who develop new strategies and tools to face new challenges in the future.

Benefit of the network

After the introduction of bluetongue and African swine fever in Europe, EPIZONE was able to respond quickly to requests from international organisations, FAO (within EPIZONE), WHO, and OIE, by providing access to experts and exchange experiences, thus providing standardised detection methods to the affected countries.

Assessing risks

EPIZONE experts try to identify infectious diseases with the highest risk of introduction. Possible routes of introduction will be shown by means of a geo-information system. Knowledge of these risks will also increase our chances to avoid an introduction of these diseases.

EPIZONE Participants

NETHERLANDS	Central Veterinary Institute of Wageningen UR Lelystad, The Netherlands,	(CVI)
GERMANY	Friedrich-Loeffler-Institute,	(FLI)
UNITED KINGDOM	Institute for Animal Health,	(IAH)
UNITED KINGDOM	Veterinary Laboratories Agency,	(VLA)
FRANCE	Agence Française de Securité Sanitaire des Aliments,	(AFSSA)
DENMARK	National Veterinary Institute, Technical University of Denmark,	(DTU Vet)
SWEDEN	Statens Veterinarmedicinska Anstalt,	(SVA)
FRANCE	Centre de coopération Internationale en Recherche Agronomique pour le Développement,	(CIRAD)
SPAIN	Center of Animal Health, National Institute for Agriculture and Food Research and Technology,	(CISA-INIA)
ITALY	Istituto Zooprofilattico Sperimentale delle Venezie,	(IZS-Ve)
CHINA	Lanzhou Veterinary Research Institute,	(LVRI)
POLAND	National Veterinary Research Institute,	(NVRI)
TURKEY	FMD Institute Ankara,	(SAP)
BELGIUM	Veterinary and Agrochemical Research centre, VAR-CODA-CERVA,	(VAR)
GERMANY	Hannover Veterinary School,	(HVS)
ITALY	Instituto Zooprofilattico Sperimentale della Lombardia e dell' Emillia Romagna Brescia,	(IZSLER)
CHINA	Harbin Veterinary Research Institute,	(HVRI)
ITALY	Food and Agriculture Organization,	(FAO)
NETHERLANDS	Digital Value,	(DiVa)

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www.epizone-eu.net

- EU Funded period 1st from June 2006 to 31st of May 2011
- Over 300 scientists
- 17 institutes: 14 veterinary institutes from Europe, 1 from Turkey, 2 from China FAO and 1 enterprise
- Scientific Themes
  - Diagnostics
  - Intervention Strategies
  - Surveillance and Epidemiology
  - Risk Assessment
- Non scientific Themes
  - Virtual institute
  - Scientific integration
  - Education

EPIZONE

Contact:
Phone: +31 320 238 883
E-mail: epizone.cvi@wur.nl
www.epizone-eu.net

EPIZONE

Ahead in control

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