



MEDREONET: "Surveillance network of Reoviruses, Bluetongue and African Horse Sickness, in the Mediterranean Basin and Europe"

WP 2: Regional surveillance of vectors.



WP2 Leaders: Helene Guis & Miguel Miranda

Participants

Centre de coopération internationale en recherche agronomique
pour le développement **CIRAD**

Istituto Zooprofilattico Sperimentale “G. Caporale” **IZS A&M**

Universidad Complutense de Madrid **UCM**

University of the Balearic Islands **UIB** (University of Zaragoza **UZ**,
Centre se Recerca en Sanitat Animal **CRESA**)

Institute of Animal Health **IAH**

University of Liverpool. **U Liv.**

Onderstepoort veterinary Institute. **OVI**

Objectives

General:

Strengthening Culicoides entomological surveillance in Europe and neighbouring countries.

Specific:

Evaluation and harmonisation of (1) surveillance protocols and (2) available tools for trapping,

Identification of vectors and modelling of vector habitat

- D2.1** - Recommendation of the optimal trap design for sampling *Culicoides*
- D2.2** - Guide to the identification of *Culicoides* vectors and potential vectors present in the Mediterranean basin, including molecular methods.
- D2.3** - Assessment of the relationship between *Culicoides* vector density and BT and AHS 'risk'
- D2.4** - Evaluation of the role played in Europe by novel (non- *C. imicola*) vector species
- D2.5** - Standardised protocols for detection of presence/absence and estimation of abundance of *Culicoides*.
- D2.6** - Evaluation of available models of suitable vector (larval and adult) habitat
- D2.7** - Recommendations on optimal surveillance protocols for *Culicoides*, according to the needs of the country (to confirm vector absence; to demarcate areas of low or zero risk; to monitor vector spread)
- D2.8** - A reference collection of *C. imicola* specimens from across the region for future DNA analysis

D2.1 - Recommendation of the optimal trap design for sampling *Culicoides*

TRAP COMPARISONS

Palma of Majorca meeting 2007:

- 4 traps: CDC, OVI, Riebt, UK
- Data presented: UIB. **OVI** appeared to be the most effective;
- CRESA: animal, CO₂ trap, UV trap. Sheep trap most effective for *C. obsoletus*



Teramo meeting 2008:

- 5 traps: CDC, German, OVI, Riebt, UK.; Truck trapping: IAH?;
- Data to be presented by: UIB and OVI. Under processing by CIRAD



D2.1 - Recommendation of the optimal trap design for sampling *Culicoides*

STABLING

Palma of Majorca meeting 2007:

- U. Liv.: with/without cattle x Inside/Outside stables traps. In early summer, animal presence increased catch by 2x, and trapping inside decreased catch by 7x. In late autumn, trapping inside had very little effect, except on warm, windless nights when outdoors catches were high.

Teramo meeting 2008:

- U. Liv.: same topic.



D2.1 - Recommendation of the optimal trap design for sampling *Culicoides*

INSECTICIDES

Palma of Majorca meeting 2007:

- CIRAD: to develop a general protocol.

Teramo meeting 2008:

- CIRAD: Organization of a multi-focus laboratory test for insecticide assessment.

D2.2 - Guide to the identification of Culicoides vectors and potential vectors present in the Mediterranean basin, including molecular methods.

MOLECULAR TAXONOMY

Palma of Majorca meeting 2007:

- Ring-trial of molecular methods organised by CIRAD.

Teramo meeting 2008:

- Presentation of the results of the ring trial. Participants: CIRAD, IBASA, IAH, ITMA, CRESA.

D2.2 - Guide to the identification of Culicoides vectors and potential vectors present in the Mediterranean basin, including molecular methods.

MORPHOLOGICAL TAXONOMY

Palma of Majorca meeting 2007:

To produce template for computer-assisted key for identification of Culicoides.

Basic identification of european vectors to be included in Medreonet Webpage.

Teramo meeting 2008:

- Towards an online key for morphological identification of Palearctic *Culicoides* species. CIRAD

D2.3 - Assessment of the relationship between *Culicoides* vector density and BT and AHS 'risk'

Palma of Majorca meeting 2007:

Switzerland have set up surveillance system to help define 'vector-free' periods or places.

South Africa have investigated *Culicoides* density, seasonality and vector-competence in traditional AHSV-free area of Western Cape

Teramo meeting 2008:

- AHSV outbreaks in SA (OVI); Spatial variation in Wales (U. Liv.); Introduction by Wind (UCM).
- Results from last EFSA report: period of low risk; vector activity threshold

D2.4 - Evaluation of the role played in Europe by novel (non-*C. imicola*) vector species.

Palma of Majorca meeting 2007:

No updates in regards to this issue. *C. obsoletus* identified as a vector by using PCR analysis. Few vector competence/oral susceptibility studies.

Teramo meeting 2008:

- Review published on the last EFSA report.
- Studies about vector O.S. conducted in IAH and OVI.

D2.5 - Standardised protocols for detection of presence/absence and estimation of abundance of *Culicoides*.

Palma of Majorca meeting 2007:

No updates.

Teramo meeting 2008:

- Data in regards to trap comparison under low population level and definition of seasonal vector free period. UIB.

D2.6 - Evaluation of available models of suitable vector (larval and adult) habitat

Palma of Majorca meeting 2007:

Breeding sites for *C. imicola* and *C. obsoletus* (UIB); Landscape parameters for *C. imicola* adults in Corsica (CIRAD); parasites on larvae and adult (CRESA); nocturnal activity of adults (UIB)

Teramo meeting 2008:

- Oviposition preferences of *C. imicola* (OVI)

D2.7 - Recommendations on optimal surveillance protocols for Culicoides, according to the needs of the country (to confirm vector absence; to demarcate areas of low or zero risk; to monitor vector spread).

To be started in 2009

D2.8 - A reference collection of *C. imicola* specimens from across the region for future DNA analysis

Palma of Majorca meeting 2007:

Specimens of *C. imicola*, *C. dewulfi*, *C. obsoletus* and *C. pulicaris* grps
– frozen at -20 or -80. Male and female.

Spain/Portugal/Switzerland/Italy/[greece][turkey]/France

To incorporate samples from all affected countries in Europe...??

Teramo meeting 2008:

- No progress?