

## 2004 – issue 45, Abstracts

### AEEMA-EPITER MEETING, May 14<sup>th</sup>, 2004

#### **Survival analysis applied to a cohort study on Post-Weaning Multisystemic Wasting Syndrome (PMWS)**

N. Rose, A. Abhervé-Guéguen, G. Le Diguerher, E. Eveno, J-P. Jolly, P. Blanchard, Aurélie Oger, A. Jestin & F. Madec

The aim of this study was to find out the risk factors for clinical PMWS at the individual pig level. Among the potential risk factors the paternal genetic background of the animals was assessed through a cohort study. The survey was set up in four PMWS affected farms with two repetitions (batches) per farm. A representative sample of 60 pigs per batch stratified according to the paternal genetic background (Pietrain: yes vs. no) was randomly selected after farrowing. Including the eight batches, 540 pigs were individually monitored from birth to slaughter. Survival analysis was used to find out the factors related to the time to clinical PMWS. The batch-cluster effect was taken into account using the marginal Cox model (robust estimation of the covariance matrix) and the gamma shared frailty model which were compared. No protective effect of the Pietrain breed on the time to clinical PMWS in the offspring was found in this study. Conversely a low maternal immunity regarding the circovirus type 2 and an active infection of the dams by the parvovirus when pregnant were related to an increased risk of clinical PMWS in the offspring. Neck injuries due to badly performed injections in the dams and rearing growing pigs in large pens during fattening were associated to an increased risk of clinical PMWS. Oxytocin injection (dams) during farrowing was found to be protective with regard to clinical PMWS in the offspring.

#### **Assessment of serological tests performed on muscular and lung extracts for the detection of *Brucella* infection in wild boars**

B. Garin-Bastuji, Christiane Cau, F. Boué, Marie-Eve Terrier & J. Hars

Sera sampled from hunted animals in the frame of the national programme of serological surveillance in wild boars (classical swine fever, Aujeszky's disease, brucellosis, trichinellosis) are generally of low quality giving frequently unexploitable results. The aim of this study was to assess the replacement of blood serum by muscle or lung extracts, more practical to sample and less fragile. This paper presents the results obtained in brucellosis. In the Rose Bengal and complement fixation tests, results were either not interpretable or very low compared to serum. However, the use of indirect ELISA appears possible on lung extracts, and more, on muscle extracts. Hence, on 383 triple samples tested, the sensitivity (relative to the sera) was around 50% for muscles extracts and around 40% for lung extracts. The relative specificity was high in all cases ( $\geq 98\%$ ).

#### **Assessment of serological tests performed on muscular and lung extracts for the detection of pseudorabies in wild boars**

B. Toma, Cécilia Agier, Nadia Haddad, F. Boué, Marie-Eve Terrier & J. Hars

Many samples (serum, muscle extracts, lung extracts) from more than 500 wild boars were tested for the presence of Aujeszky's disease antibodies, using three ELISA gE commercial kits.

This gave the opportunity to evaluate the sensitivity and specificity obtained with tissue extracts, as compared to serum (conventional tests). The results obtained allow to envisage the use of muscle or lung samples for the epidemiological surveillance of Aujeszky's disease in wild boars.

### **Survey on leishmaniasis diagnosis and treatment among French veterinarians on 2000**

#### **Supplementary materials**

E. Coulibaly, Véronique Heinis, C. Campos, Camille Ozon, G. Bourdoiseau, P. Haas & P. Marty  
A survey was made at 1.792 practitioners' clinics in southern France to make an epidemiological, clinical and therapeutical assessment on canine leishmaniasis in 2000. It shows a significant increase of the cases in an increasing geographical area. Most of the practitioners (up to 90%) make their diagnosis on epidemiological, clinical and laboratory data (indirect tests for up to 95%). Glucantime® - Zyloric® is the most frequently used association. The end of treatment is based on clinical recovery and negative tests results.

### **Biosecurity in cattle herds: Animal movements between herds in Bretagne**

Pauline Ezanno, Christine Fourichon, F. Beaudeau & H. Seegers

The direct spread of pathogens between herds is related to the between-herd contact structure. This structure is based on neighbouring relationships on the one hand and on movements of living animals on the other hand. The aim of this study was to qualify and quantify the between-herd cattle movements in order to further evaluate the risk of introducing an infectious animal in a herd. Identification data from 1998 to 2001 were studied for all the cattle herds located in Brittany. Types of herds were defined based on herd size, number and breed of reproductive cows, and fattening activities (calf, young male or bull fattening). The degree to which a herd was open was established as null (closed herds), middle (< 5 introductions per year) or high. The proportion of open herds varied with the herd type and the presence or not of a fattening activity. Introduced animals in a herd along a year could come from several herds of origin, increasing the epidemiological risk. For example, in dairy herds with vs. without young males fattening, 56% vs. 62% of herds were closed, respectively. On average, in open herds, 29 vs. 6 cattle were introduced per year. Introduced cattle came from 18 vs. 3 herds, which were located in Bretagne for 43% vs. 89% and were of dairy type for 61% vs. 71%. The complexity of the contact structure between cattle herds is high and induces an important epidemiological risk. The study of the between-herd transmission of pathogens should then consider movements of living cattle.

### **Leptospirosis, leisure and occupational zoonosis: part of rodents and water**

Florence Aviat, F. Mansotte, Béatrice Blanchard, P. Mondot, P. Bolut & Geneviève André-Fontaine

Leisure and occupational risk of leptospirosis was studied in the French county of Loire-Atlantique. Sera of 96 diving firemen either vaccinated either not vaccinated were submitted to microagglutination test. Vaccination induces agglutinating antibodies but these firemen are exposed to leptospirosis risk as some of them, not vaccinated, were positive to the MAT. For leisure activities, the lakes for bathing and canoeing were negative to PCR specific of the

pathogenic *leptospires*, while rats trapped and water collected in urban parks gave positive results to PCR. Leptospirosis is a zoonotic disease in urban areas as well in rural ones.

### **Epidemiological studies on paratuberculosis in small ruminants in Portugal**

Susana Mendes, F. Boinas, Teresa Albuquerque, L. Fernandes, A. Afonso & Alice Amado  
Preliminary results of a serological survey on paratuberculosis in 66 sheep and goat flocks in the area of Lisbon, Portugal, identified 27% of flocks with seropositive animals. The follow-up on six of these flocks showed from one to nine percent of positive animals per flock. A higher probability of occurrence of seropositive animals was identified in the goats than with the sheep flocks. A higher proportion of positives also occurred in the milk producing when compared with the meat producing flocks. Typical lesions of paratuberculosis were found in 6 animals with intestinal lesions from which *Mycobacterium avium subsp. paratuberculosis* had been isolated. The adjustment of the methodology for future use in the project and the implementation of adequate prevention and disease control measures are discussed by the authors taking in account the epidemiological risk factors identified in this study.

### **Screening tick-borne diseases in sheep**

O. Sparagano, Eva Spitalska, M. M. Namavari, M. H. Hosseini, F. Shad-del, A. Seghatoleslam & O. R. Amabadi

Seven groups of sheep were monitored in Iran. Blood and tick samples were collected during summer 2003. 29% and 76% of the sheep were infected with bacteria (*Anaplasmataceae*) and protozoa (*Piroplasmidae*), respectively. Geographic differences were observed for bacteria and protozoa infections ranging from 0 to 70% and from 33.3% to 100%, respectively. 16S and 18S-rRNA PCR reactions followed by DNA sequencing showed that *Anaplasma ovis* and *Theileria lestoquardi* were the major pathogens found in the sheep blood.

### **Brucellosis in wild boars in Piedmont**

Maria Silvia Gennero, Carla Grattarola, Simona Zoppi, Elisabetta Di Giannatale & A. Dondo  
After four years of Wildlife Surveillance Plan application, our activity has been improved and spread in all Piedmont region territory. Blood samples and tissue specimens had been taken from hunted or dead found Wild Boars (*Sus scrofa*) from all Piedmont territory. These samples had been tested by RBT and CFT according to bibliography reported methods. Animal tissues had been also tested by bacteriological isolation. In our 2000-2003 activity we tested: 3406 serum specimens by CFT and we found 234 (6,87%) positive samples and 3172 negative samples; 2933 serum specimens by RBT and we found 192 (6,55%) positive samples and 2741 negative samples; 940 tissue specimens for bacteriological isolation and we found 79 (8,40%) positive samples [62 *B. suis* bv1; 1 *B. suis* bv2, 16 *B. melitensis* bv3] and 861 negative samples. In Piedmont, cultural tests confirm that wild boar brucellosis seropositivity is specific. At present, on the ground of these data is possible to make an estimate of infection prevalence only in one area, where the disease has been particularly monitored.

### **Serological survey for *Ehrlichia canis* in dogs from the Mediterranean region of Alicante (Spain)**

M. B. Hernandez, J. V. Pérez Diaz, Beatriz Osuna Calvet & S. Vega Garcia

*Ehrlichia canis* is the agent responsible for canine ehrlichiosis most common in the Mediterranean region. Although the clinical characteristics of this parasitic disease are well known, the epidemiological and clinical patterns of this disease have not been developed on regarding the dogs that are present in this region. The principal objective of this study is to evaluate the seroprevalence of the *E. canis* and to characterise the clinical and epidemiological consequences of this pathology in 222 dogs.

### **Comparison of the prevalence of the infection by *Leptospira spp*, *Leishmania infantum* and *Ehrlichia canis* in dogs in the *comunidad Valenciana* (Spain)**

M. B. Hernandez, J. V. Pérez Diaz, S. Vega Garcia, Gabriela Bernabeu Llorens & F. J. García Peña

Leptospirosis is a contagious disease, the origin of which is a bacterium of two main types: *Leptospira interrogans* and *Leptospira biflexa*. The most important pathogens serovars in the dogs are: *Leptospira canicola* and *Leptospira icterohaemorrhagiae*. On the other hand, leishmaniosis is a parasitic disease affecting many dogs in the Mediterranean area in Spain. The last disease studied, ehrlichiosis, is a parasitic disease transmitted by ticks. These three diseases have a high rate of prevalence in our geographical area. The clinic patterns for these dogs are very different. 864 dogs were examined to know the seroprevalence and assess the relationship between these diseases in the dogs studied.

### **The importance of a continued sero-vigilance in the control of canine leishmaniosis. A comparison of two methods of control**

M. B. Hernandez, J. V. Pérez Diaz, Beatriz Osuna Calvet, Maria Teresa Domínguez & S. Vega García

The principal objective of this paper was to research the seroprevalence and the epidemiology of leishmaniosis in dogs in the *Comunidad Valenciana* (Spain). Three different groups of dogs were studied: that were sourced from Animal Protection refuges, hunting kennels and dogs from veterinary clinics in urban areas. We have followed the protocols for *leishmaniose's* diagnosis of the World Health Organisation. We have compared two different programs of control for the affected dogs: Sacrifice (S) and typical antimonial's treatment (T). The preliminary result shows that no relation exists between the control method and the prevalence of this disease.

## **EPIDEMIOLOGY PAPERS**

### **Epidemiological survey on risk factors of acute epizootic rabbit enteropathy expression in growing rabbits**

Gwenaëlle Larour, J-L. Jobert, L. Balaine, F. Eono, Marie-France Klein, T. Ledein, Sophie Lebouquin & Michèle Guittet

An epidemiological survey was carried out in 2001 and 2002 in 96 farrow-to-finish rabbit farms essentially located in western France in order to identify risk factors associated with acute Epizootic Rabbit Enteropathy (ERE) expression in growing rabbits. "Case" and "control" farms

were defined according to presence or absence of clinical signs of ERE and mortality rate. Two approaches were followed: 1) definition based on farm status towards ERE for the 5 last flocks; 2) definition according to ERE expression during the flock under study. Comparison of rearing conditions and herd management in those two types of farms showed out risk factors associated with ERE expression: transferring the young rabbits at weaning, weaning age <sup>3</sup> 35 days, breeding rabbits from different ages in a same room and failing biosecurity measures. On the contrary a feeding program fitted to young rabbits needs before weaning and feed restriction during fattening period could contribute to limit the ERE expression.

### **Elaboration of performance indicators of functioning for the Chadian epidemiological survey network for animal diseases: REPIMAT**

M. Ouagal, D. Berkvens & P. Hendrikx

Epidemiological survey is a method funded on the continuous recording of some diseases considered as priority for a country in order to know epidemiology with objectives to adopt a control strategy. For the implementation of this tool, it is necessary to have an epidemiological surveillance network. The efficiency and the permanence of a network are often appreciated from external assessments. However, these assessments in most of the cases are punctual and may turn out to be hard in terms of organization and finance. A complementary approach consists in developing evaluation tools within the epidemiological surveillance networks of which one of the main features is the regularity: the performance indicators. These later are quantitative and qualitative measurement tools at the level of activity realisation of a network. At this day, fewer researches have been made in this field of epidemiological surveillance networks. This article presents a first approach of performance indicator development as well as their application within the scope of operation for 43 stations of survey for the Chadian epidemiological surveillance network for animal diseases (REPIMAT). An analysis of the objectives and the operating mechanism of REPIMAT have allowed us to adopt three main components that are: field participants, animation cell and the laboratory. The inventory of each component activities has been made. The analysis of the expected results from these activities has permitted to develop a list for performance indicators, which can be used within the functioning of REPIMAT. The application of these indicators has permitted to prominently give the weak points for each component. For the animation cell, the improvement margin varies between 0% to 67%, for field participants between 30% to 100% and for the laboratory between 67% to 97%.