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Use of health indicators to quantify health status of multiplying pig units

Madec (F) & Tillon (J-P)

An epidemiological study was undertaken in a group of 205 breeding and multiplying pig units. The aim was to build a protocol in order to evaluate their health status and at the same time to get an estimation of the sanitary risk for commercial farms when purchasing replacement stock. This last point could only be indirectly evaluated. The proposed scheme was called "Health-balance check" *(Bilan Sanitaire Approfondi)*. It consisted of a detailed standard visit to the farm with clinical and technical observations, the examination of viscera for gross lesions at the slaughterhouse and laboratory investigations from bloods (sows and fatteners), faeces (parasitology) and piglets (3 eight-to-ten' weeks piglets which were randomly selected and euthanized at the laboratory for necropsy, bacteriology and parasitology). The statistical process leads to the selection of a combination of pertinent health indicators giving the quantitative evaluation of health status. According to their profile on these indicators, the herds were plotted on a map and consequently ranked into groups. Each of them got a score on a simple synthetic health index.

Objectives and methodology of the Brittany eco-pathological survey

Faye (B), Barnouin (J) & Lescourret (F)

The evaluation of a continuous eco-pathology survey (1978-1982) led to the conception of a Brittany eco-pathology survey started in 1986 using a new methodological approach. First, regarding objectives: objectives were less directed towards the description of diseases in extremely diverse (from a geo-climatically and technical point of view) dairy herds. They were rather directed towards the study of health dynamics in intensified farms, using health related data from cows during the post-partum period, when cows are more prone to show diseases. In addition, objectives tented to focus on one group of dairy farmers characterized by a homogenous farming system (geographical unit, production level) to determine risk factors associated which this type of herd, which represents the type of herd toward dairy farming is evolving to.

Use of an opinion questionnaire to obtain behaviour data in eco-pathology surveys

Luquet (F) & Desaymard (F)

The study of farmers' behaviour in eco-pathology has mainly advantages. The farmer influences the environment of his animals, which is related to the herd performance. The farmer's knowledge improves the quality of the information recorded during a survey in the field. The opinion questionnaire permits now to obtain data on farmers. The present article shows means to make and use an opinion questionnaire. Examples are given from the first questionnaire elaborated by the Eco-pathology Centre, called "the farmer and his job".

Study on the use of VESTAL epidemiological network for canine piroplasmosis

Laurent (D), Desjouis (G), Coche (B), Heskia (B) & Zmirou (D)

The first survey made on VESTAL epidemiological network had been realized to test the feasibility of this data recording system working with Minitel. It lasted one year from June 1987 to May 1988. It was possible to follow the weekly participation of veterinarians providing information in eleven departments, the survey area and its fluctuations.

Control of animal contagious diseases through herd health management

Brunet (J)

The author recalls the relationship between pathogens and clinical expression of diseases, the relationship between infection and risk factor, and then the three ways of fighting contagious diseases, namely: eradication, mass vaccination, environmental prophylaxis. After analysing control programs against main herd diseases (tuberculosis, foot and mouth disease, brucellosis, rabies, bovine leucosis), the author discusses criteria of control programs according to the epidemiology of the disease. The criteria have to result from a common logical decision process and not from commercial reasons. Infectious disease, which are already of concern and will be the main diseases in Europe in the near future (IBR, BVD, maedi, CAEV, pig respiratory diseases), are not zoonosis. Their epidemiology is often not well known and their economic impact is controverted. Using the idea of "herd health management", the author proposes a modulated approach regardless of the control program used. Infection free and infected herds have to be equally recognized and commercial trades must be done according to the herd infection status. A practical example in ovine and caprine species is presented here. Limit and consequences of herd health management are discussed.

An interactive decision support system for animal production and health

Tufféry (G) & Garnerin (P)

Decision Support Systems (DSS) and their design are described and discussed for animal production and health. By means of teleprocessing, database management and artificial intelligence techniques, an interactive decision support system for freshwater fish production and health is being set up This system named "Schubert 3000", can be reached by Minitel terminals. The aim of this system, which combines the different expert's knowledge, is to offer useful decision-making information and processes to the professionals in the field. Several units concerning fish pathology, health interventions, fish-farming management and production, restocking and audit of quality as well as textual databases, are now available.

An observational study of canine kennel cough

Thrusfield (M)

A case-control study was conducted to determine vaccination efficacy against canine kennel cough. Cases and controls were selected from the veterinarian using dog population of the United Kingdom by simple random sampling of small animal veterinary practitioners. Data were reported on postal questionnaires. A logistic model was constructed with vaccination status against a variety of vaccines as the explanatory variables, and kennel cough as the response variable. This demonstrated that vaccination against *Bordetella bronchiseptica* and parainfluenza virus was efficacious when used in conjunction with the usual routine vaccinations.

Role of invertebrate vectors and animal reservoirs in the maintenance of African Swine Fever in Portugal

Louza (A-C), Boinas (F-S), Caiado (J-M), Vigario (J-D) & Hess (W-R)

Epidemiological studies were performed in order to access the role of invertebrate vectors and wild boars in the transmission and maintenance of A.S.F. in Portugal. The work had as main objectives:

1- To determine the importance of invertebrate vectors (*Ornithodoros erraticus*) in the maintenance of the disease;
2- To identify the probable association between the infected vector and the wild boar population;
3- To analyse the interactions between the wild boar and the domestic pig.
The present results seem to indicate that the maintenance of the viral infection in the argasid population was associated with the lack of response from the pig farmers utilising production systems of farm ranging type. We were not able to demonstrate any relation between the wild boar and the *Ornithodoros* species. The results from disease surveillance studies on wild boar indicated that his involvement in the dissemination of A.S.F. must be considered relatively small.

Epidemiological study on bluetongue in French Guyana
Lancelot (R), Calvez (D), Waller (J), Kremer (M), Sanite (L) & Lefèvre (P-C)
An epidemiological study on bluetongue was undertaken in French Guyana from July 1986 to September 1987. It consisted of the following: a serological follow-up of sentinel herds of domestic ruminants to study the decay of colostral antibodies and to determine times of seroconversion; a entomological survey on Culicoïdes to determine species linked to cattle, and daily and seasonal variations of their activity; attempts of bluetongue virus isolation in blood of followed-up ruminants and in Culicoïdes captured nearby. Colostral antibodies were detected for about three months; three peaks of seroconversion were identified, coinciding with the three rainy seasons of the follow-up period; bluetongue virus was identified in blood of one cattle in July 1987; no virus was isolated in any *Culicoïdes insignis*; annual peaks of Culicoïdes activity corresponded to rainy seasons and seroconversions; *Culicoïdes insignis* seemed to be the most likely vector of bluetongue virus.

Airborne diffusion of porcine viruses with a respiratory tropism: quantification in experimental and field situations
Bourgueil (R) & Vannier (P)
Some recent epidemiological and virological studies suggested that Aujeszky's disease virus can be disseminated between pigs via the airborne route. These results have encouraged to set up a research programme, concerning airborne diffusion between herds of three porcine viruses with a respiratory tropism (*i.e.* Aujeszky's disease virus, influenza virus and Coronavirus). The aim of this study was to give evidence for the phenomenon in field conditions and to establish, as it has been done for predicting the multiplication of infection sources due to those viruses in concerned areas. Two types of cyclone apparatus have been built especially for that study, in order to collect airborne viruses as well in a confined atmosphere as well as in the field. The first step of our work was to improve the techniques of treatment and concentration of air samples, the second one was to elaborate an air sampling procedure in the field and to collect data concerning meteorological factors and some characteristics of buildings (fattening units).

Aujeszky's disease infection in finishing and in vaccinated pig herds: results of three epidemiological studies
Vannier (P), Eloit (M) & Toma (B)
Spreading and persistence of Aujeszky's disease Virus (ADV) in Finishing Piggeries are major factors preventing good control of the disease in a determined region. Few data are available about the spreading of A.D.V. in areas in which numerous pig herds are vaccinated, and in

herds in which all the pigs are systematically vaccinated against A.D. In the pig herds of two administrative departments in Brittany in which a compulsory medical prophylaxis has been epidemiological studies have been undertaken to obtain preliminary information about the presence of the virus. Moreover, in two infected, breeding and finishing pig herds, the persistence of the virus in the finishing piggery was studied in successive batches of pigs. It was shown that the A.D.V. spreads in these areas in which vaccination is widespread. But, a contrary epidemiological situation was observed in two different herds: in one of them the virus did not spread in the successive batches of pigs. However, in the other one, A.D.V. persisted for more than five months in the fattening unit. These studies did not permit to conclude about factors responsible for the persistence of the virus but they showed that the results have to be taken into consideration in the frame of a control or eradication program against Aujeszky's disease.