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Respiratory disorders of non-weaned calves: Economic consequences in Charolais cow-calf farms of *Pays de la Loire* (France).

S. Assié, J-M. Bouet, H. Seegers & J-M. Quillet

The study aimed at assessing the economic impact of respiratory disorders in calves before weaning. Data about treatments, mortality and growth retardation were recorded in 156 farms from September 1999 to March 2000. The sample consisted of Charolais cow-calf farms with >30 cows calving per year. Economic modelling was made considering a typical intensive system: a cow-calf unit and a young-bull fattening unit (60 cows; yearly net profit close to 2000 €). Herd-level incidence averaged 2.52 treatments for 1000 calf-days at risk. Lethality rate, severe growth retardation rate and moderate growth retardation rate were of 6.0%, 7.2 and 2.7% of the treated calves, respectively. Five groups of farms were identified, based on incidence and severity of consequences: (1) non affected; (2) very low incidence; (3) moderate incidence; (4) high incidence without severe consequences; and (5) high incidence and severe consequences. These groups gathered 21, 22, 17, 28, and 12% of the farms, respectively. Economic repercussions of respiratory disorders were of serious concern only for the last group which had a 20% decrease in net profit.

Assessing the prevalence and the dynamics of BVDV infection in Brittany using an ELISA test on bulk milk.

A. Joly, F. Beaudeau & H. Seegers

In Brittany (25,000 dairy herds), control of mucosal disease mainly consists in clearing the infected herds: 2 to 3% of herds are concerned annually. To assess the feasibility of a systematically recommended control scheme on BVDV infection, a survey in 2400 dairy herds was carried out by the *Union Bretonne des GDS* and the Unit of Animal Health Management (ENVN-INRA) in order to assess the prevalence and the dynamics of BVDV infection. The status of each herd regarding BVDV infection was determined based on three bulk milk results four months apart using a p80 blocking ELISA test. Four statuses were defined and the prevalence of each was assessed on a 2-year basis. On average, the proportion of probably free (A), weakly contaminated (B), probably in sero-conversion (C), and widely contaminated (D) herds were 42, 22, 1 and 32%. 3% of herds had uninterpretable results. Survival probabilities on a 16-month basis were 85 and 74% for A and D herds respectively. A Markov chain simulation based on survival and transition probabilities between statuses suggested that the current situation was close to equilibrium between free of infection and contaminated herds.

Surveillance and epidemiology of BSE in France – Situation in May 2001.

Ch. Ducrot, D. Calavas, E. Morignat, J-L. Vinard, M. Coudert & M. Savey

The surveillance of BSE was introduced in France in 1990, based on the clinical surveillance of cattle. The surveillance apparatus has been reinforced since then, especially with screening programmes based on rapid tests, carried out on cattle at risk in 2000, and on cattle slaughtered for human consumption in 2001. At the same time, the efficiency of farmer and

veterinarian to detect BSE increased. Thus, the under-identification of BSE cases decreased strongly over time. The analysis of reported BSE cases shows a higher number of cases born between 1993 and 1995, which can be linked to a greater exposure at that time. When the clinical onset related to that over exposure will end, the future trend of the BSE situation in France will depend on the efficiency of the control measures implemented since 1996. An indicator of it will be the number of BSE cases born among recent cohorts.

Serological study of bovine paratuberculosis in Yonne in 1998/1999.

E. Petit

A study on the prevalence of bovine paratuberculosis was carried out in 1998-1999 in the French Yonne region using data collected from 155 randomly selected herds of dairy and lactating cows. Qualitative (positive/negative) and quantitative (optical density ratio) results were studied by using different criteria such as sex, age, breed, management, cattle heredity and location. 3.3% of the 8,793 animals were infected showing a 68% herd infection. These results do not match with the number of clinical cases usually very low in this region. Seroprevalence seems associated with animal age and less significantly with cattle heredity. The usefulness of the reagents used in this test is also discussed.

Study of the ratio « fattening pigs/sows » as mobility index: application to the analysis of geographic risk of swine fever.

Véronique Chevalier, G. Gerbier, V. Auvigne & B. Durand

Nowadays and as far as Classical Swine fever or Foot-and-Mouth disease are concerned, densely populated areas are considered as at-risk areas. However, even if the density parameter is synthetic, it does not take into account animal movements. Nevertheless, these movements widely take part in the introduction and spreading risk of these two diseases. The aim of this work is to show the relevance of using the ratio fattening pigs/sows both as a movement index as well as evidence of the “import/export” status of a given area to geographically improve the risk analysis of these two diseases.

RESAPATH: antibiotic resistance surveillance network of main pathogenic bacteria for bovine, swine and poultry.

J. Marie, J-L. Martel, Marylène Kobisch & P. Sanders

The network « RESABO » allowed following antibiotic resistance evolution of the main bovine pathogenic bacteria collecting the antibiogram results obtained by French regional veterinary laboratories. The French Food Minister commanded AFSSA Ploufragan to set up the same surveillance for porcine and avian pathogenic bacteria. An only network, named “RESAPATH”, is now available and gathers the monitoring of antibiotic resistance evolution for main bovine, swine and poultry pathogenic bacteria.

Experimental study of indirect transmission of avian mycoplasmosis.

Corinne Marois, J-P. Picault & Isabelle Kempf

The study describes a multiplex polymerase chain reaction (PCR) and a multiplex reverse transcription (RT) - PCR for the detection of *Mycoplasma*, *Spiroplasma* and *Acholeplasma* genera and *Mycoplasma synoviae* species. The latter technique enabled detection of viable or

recently (less than 20 minutes) dead mycoplasmas in environment. The tests were applied during three experimental assays to demonstrate that *M. synoviae* can be transmitted to young chickens via the environment. The stability of *M. synoviae* in environment after the elimination of infected chickens was evaluated between 4 and 6 days by culture and RT-PCR. In the third assay, fomites collected in a farm containing laying hens infected by *M. synoviae* could infect chickens. Therefore, biosecurity measures (cleaning, disinfection and emptiness) must be rigorously applied to avoid *M. synoviae* indirect transmission. Mycoplasmas' culture, multiplex PCR and multiplex RT-PCR can be used for epidemiology studies and control of decontamination before introduction of new birds.

Evidence of Borna disease virus in France.

Gwenaëlle Dauphin & S. Zientara

The Borna disease has been described for a long time as a sporadically occurring encephalomyelitis affecting horses and sheep. Since the last decade, the BD epidemiology has been discussed; its geographical distribution seems larger than previously thought. The disease can affect a large number of warm-blooded animal species, including humans. The aetiological agent, the Borna disease virus (BDV), an enveloped, no segmented negative-stranded RNA virus classified in the new virus family *Bornaviridae* (Mononegavirales order) can induce severe clinical signs of a encephalitis with striking behavioural disturbances, causing possible death. A study based on BDV RNA detection by RT-nested-PCR has been achieved in France with 196 animal tissues: 171 brain samples collected from different animal species and from 25 horse blood samples. This study reports the first detection in France of BDV RNA in ten brain samples collected from horses, foxes and cattle, and from fourteen horse blood samples. Detection of BDV genome in brains of six red foxes is the first evidence of BDV infection in this species.

Use of modern computer tools in emergency situations: example of 2001 foot-and-mouth epidemic in United Kingdom.

G. Gerbier, B. Durand & P. Hendriks

During the FMD epidemic in UK, computer tools have been intensively used. This article summarizes the use of these tools in the context of emergency situation. Characteristics, needed data and limits are presented. Four fields are distinguished: emergency management, risk evaluation, modelling of the epidemic and communication.

EPIDEMIOLOGY PAPER

Qualitative risk analysis for a Rinderpest epizootic in Central African Republic from Chad and Sudan.

P. Hendriks, Barbara Dufour, J-J. Tulasne & G. Kondolas.

The Central African Republic has a strategic position in the fight against Rinderpest in Africa because of the suspected presence of foci in the southern Sudan and the absence of the disease in West and Central Africa. A qualitative risk analysis according to a method formalised by Zepeda was carried out to estimate the risk of introduction of the disease from Chad and Sudan. The identified danger is the Rinderpest virus of lineage 1 suspected in Sudan. The

conjunction of a weak prevalence in the bordering countries, of a moderate risk due to the animal movements and of a negligible survival of the virus in the environment led to consider the probability of virus introduction as weak. The exposure probability to the virus as well as the consequences of an epizooty is regarded as moderate. The method of qualitative analysis thus makes it possible to qualify the risk of a Rinderpest epizooty in CAR as moderate and led to recommend the implementation of all the risk reduction measures in the field of animal movements, bovine's vaccine coverage and epidemiological surveillance. The method used appears to be concrete and adapted to the data available in the developing countries. It finds its limits by privileging the severity of the evaluation and a certain subjectivity in the criteria estimation.

EPIDEMIOLOGICAL SITUATION

Aujeszky's disease in France during 2000.

B. Toma, J-P. Buffereau, J. Dudouyt & Nadia Haddad

This paper presents the epidemiological situation for Aujeszky's disease in France in 2000, using tables and figures. The tracers used show that the situation did improve in comparison with that of the previous years.

REVIEWS

A new sanitary concept: preventive culling.

B. Toma, F. Moutou & Barbara Dufour

This paper presents the epidemiological situation for Aujeszky's disease in France in 2000, using tables and figures. The tracers used show that the situation did improve in comparison with that of the previous years.

Proposed criteria to determine whether a territory is free of a given animal disease.

B. Toma, Barbara Dufour & R. Pouillot

This text describes the general principles underlying the concept of disease-free territory and the necessary statistical basis for the corresponding epidemiological surveillance operations. Among the essential points, it is emphasised that « disease free » status should be accorded only under conditions substantiating the absence of infection (or infestation) and not simply on basis of the known presence of a low level of infection (or infestation). It draws attention to the confusion that has arisen between the inevitable requirement to set a limit (threshold) on the level of detectability of epidemiological surveillance tools, for economic reasons, and the acceptance of a level of infection (or infestation) that is known but situated below this level, when according the official status of « territory free from disease X ». In a situation where the disease is present but at a low prevalence, situated below a threshold defined according to the epidemiological characteristics of the disease, it would be preferable to accord the status of « territory where the disease is in the process of eradication ».